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Corporate Responsibility and Accountability in Mandatory and Voluntary Settings

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Declaration

Revised versions of Chapters 2, 3, and 4 have been presented at various conferences, where the invaluable feedback received has significantly contributed to the refinement of this work.

The essay titled "Mandatory CSR Spending and Stock Price Crash Risk" has been presented at the Joint British Accounting and Finance Association (BAFA) and the Corporate Finance and Asset Pricing's Northern Area Group Annual Conference (University of Nottingham, January 2023); the Network of Industrial Economists Conference and PhD Symposium (University of Leicester School of Business, Leicester, June 2023), and the International Finance and Banking Society 2022 Naples Conference (University of Naples Federico II, Naples, Italy, September 2022).

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The essay titled "CEO Education and Corporate Political Spending: Transparency and Accountability" has been presented at the Midlands Doctoral Conference 2020 (Nottingham University Business School, April 2020).

Abstract

This dissertation, comprising three independent essays, contributes to the field of corporate finance with a focus on corporate accountability, corporate governance and corporate performance.

The first essay examines the relationship between mandatory corporate social responsibility (CSR) spending law and stock price crash risk. CSR has emerged as a critical factor influencing corporate performance and shaping business strategies. While most studies have focused on voluntary CSR engagement, an increasing number of countries are mandating CSR activities, raising questions about the effectiveness of mandatory CSR regulations. We predict and document that the mitigating effect of CSR on future crash risk may not hold in the case of a CSR mandate due to the absence of intrinsic motivation and signalling. Using agency theory (which considers differing preferences among owners) and shareholder-maximisation view (different stakeholders may have other preferences about CSR) and motivation crowding out theory, we explore how mandatory CSR may affect stock price crash risk. Our empirical analysis is based on a sample of 3,361 non-financial firms operating in India, with 17,534 firm-year observations from 2012 to 2017. The regulatory change during our sample period provides a quasi-natural experiment, allowing us to document that the mandated CSR rule increases a firm's future stock price crash risk in the post-mandate period.

The second essay performs an empirical analysis on the impact of mandatory CSR regulation on stock price informativeness (SPI), measured by low

synchronicity. We utilise agency and signalling theory to understand the effect of mandatory CSR on SPI. We predict and document that mandatory CSR may not have the same SPI-enhancing effect as voluntary CSR due to lower signalling resulting from its compulsory nature. Our empirical analysis is based on 3,748 non-financial firms operating in India, resulting in 16,886 firm-year observations from 2012 to 2017. Using instrumental variables analysis and difference-in-differences approaches, we show that the impact of mandatory CSR on SPI is amplified for firms with weaker external oversight. We also demonstrate that advertising expenditures, stronger external scrutiny (e.g., from foreign investors and analyst coverage), and better internal corporate governance can help mitigate this effect.

The third essay conducts an empirical investigation on the determinants of voluntary disclosure of corporate political spending information, by investigating the educational background of CEOs in US listed firms. The 2010 Supreme Court decision in *Citizens United v. Federal Election Commission* (CU) allowed corporations to make unlimited contributions to independent political expenditure committees, raising concerns about transparency and accountability. Using logistic regression, we analyse the influence of a CEO's educational background (MBA, LAW, or STEM) on corporate political spending transparency among S&P 500 financial firms. Our analysis also uses panel regression for further robustness. We use the CPA Zicklin Index, created jointly by the Centre for Political Accountability and the Carol and Lawrence Zicklin Center for Business Ethics Research, to measure the S&P 500 firms' political spending information transparency and accountability. We find that CEOs with graduate degrees, particularly MBAs, are more likely to disclose information about political spending. Further, firms with lower institutional ownership and independent boards are more inclined to disclose political spending. Additionally, firms operating in Republican states are less likely to disclose information about political spending.

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Abbreviations

2SLS Two-stage Least Squares

AME Average Marginal Effect

BSE Bombay Stock Exchange

CEO Chief Executive Officer

CMIE Centre for Monitoring Indian Economy

CPA Corporate Political Accountability

CPR Corporate Political Responsibility

CSR Corporate Social Responsibility

CSR-135 Section 135 CSR Mandate

CU Citizens United vs Federal Election Commission

DiD Difference-in-Difference

DUVOL Down-to-Up Volatility

EME Emerging Market Economies

ESG Environmental, Social and Governance

HHI Herfindahl-Hirschman Index

IFRS International Financial Reporting Standards

IV Instrumental Variable

NCSKEW Negative Skewness

NIC National Industry Classification

NSE National Stock Exchange

OCF Operating Cash Flow

OR Odds Ratio

PAC Political Action Committee

PSM Propensity Score Matching

S&P500 Standard and Poor's 500

SEBI Securities and Exchange Board of India

SEC Securities and Exchange Commission

SPI Stock Price Informativeness

WRDS Wharton Research Data Services

Chapter 1

Introduction

In recent years, corporate accountability and responsibility have significantly influenced corporate performance and shaped business strategies. This growing emphasis on corporate accountability is evident through heightened stakeholder scrutiny, escalating demands for accountability, and an increasing call for corporate transparency. Investors, in particular, are becoming more vocal about social issues, environmental performance, and the transparency of political contributions. In this thesis, we look into and contribute to the discourse on corporate responsibility and corporate outcomes in both mandatory and voluntary contexts. We explore two key concepts central to a corporation's responsibility, namely, —Corporate Social Responsibility (CSR) and Corporate Political Responsibility (CPR). This thesis treats Environmental, Social and Governance (ESG) and CSR as synonymous terms, similar to the approach taken by (Gillan et al., 2021).

Derived from the social responsibility perspective, which posits that businesses gain legitimacy from society and, consequently, have a duty to contribute to societal well-being beyond merely serving their shareholders, CSR and CPR assume critical roles. CSR is defined as "corporate activities and policies designed to assess, manage, and oversee a firm's responsibilities and impacts on society and the environment" (Christensen et al., 2021, p.1181); it aims to enhance social welfare and promote sustainability in corporate operations. Similarly, CPR refers

to a firm's disclosure of its political engagements and its advocacy for public policies that favour societal and environmental welfare (Ali et al., 2023; Kaplan et al., 2022; Rehbein et al., 2020; Lyon et al., 2018). Both concepts signify corporations' efforts to communicate their comprehensive corporate accountability and responsibility, especially within the social, political, and environmental spheres.

This thesis examines the topic of corporate responsibility within both mandatory and voluntary frameworks. A mandatory framework refers to situations where a firm reports or engages in activities in response to regulations. In contrast, a voluntary framework involves engagement or reporting without any regulatory obligation.

The first two essays (i.e., Chapters 2 and 3) focus on the mandatory context, where companies are obligated to undertake corporate responsibility initiatives. India's CSR mandate (Section 135 rule) exemplifies this compulsory setting. Unlike most countries that focus on CSR reporting, India distinguishes itself by requiring that any companies operating in India meet at least one of the specified financial thresholds—(1) Net profit ($\geq$ 50 million INR), Or (2) Net worth ($\geq$ 5 billion INR), Or (3) Sales ($\geq$ 10 billion INR —in any financial year to allocate 2% of their average net profit over the past three years to CSR-related activities (Manchiraju and Rajgopal, 2017).

We chose this setting due to the critical role capital markets play in financing emerging market economies like India, as highlighted by Malpass (2019). The lack of such mandatory CSR expenditure mandates in other countries makes India a unique case study for exploring the effects of compulsory CSR policies. Moreover, India's financial market has emerged as a global powerhouse, consistently outperforming other markets for the past two decades. With an impressive annualized return of 8.9% in USD terms, India's strong fundamentals and rising corporate profits have been key drivers of this success (Wolf et al., 2024). Given India's significant role in the global economy, it's essential to understand how policies like mandatory CSR impact its financial market.

The existing body of literature on CSR predominantly examines the link between voluntary CSR initiatives and corporate performance (Gelb and Strawser, 2001; Orlitzky et al., 2003; Edmans, 2011; Flammer, 2015). This study, however, shifts focus to the effects of mandatory CSR regulations, marking a significant departure from the norm. This redirection is imperative as it illuminates the differing motivations underpinning CSR activities. While voluntary CSR is often motivated by a genuine intention to contribute to societal welfare and provides strategic advantage of signalling corporate ethos to stakeholders (Porter and Kramer, 2006; Lins et al., 2017), mandatory CSR is largely driven by regulatory compliance. It lacks the differentiation advantage since all firms are subjected to the same requirements, which may diminish the intrinsic motivation for ethical behaviour and yield distinct corporate outcomes, as evidenced by Bonneton (2023).

In this context, the initial essays examine the domain of regulatory CSR to evaluate its effectiveness in enhancing corporate accountability. Our detailed examination of India's CSR policy and its impact on the capital markets illuminates potential unintended outcomes, such as increased stock return volatility, which may signal a higher risk of market crashes. Our inquiry contributes to the limited body of research on CSR in Emerging Market Economies (EME) (as noted in Gillan et al., 2021; Boubakri et al., 2021), and highlights a fundamental challenge for mandatory CSR regimes: nurturing authentic accountability in the absence of voluntary ethical commitment. Furthermore, this thesis addresses the concerns raised by Christensen et al. (2021) regarding the potential adverse consequences of enforced disclosure regimes. These issues accentuate the necessity of comprehensive economic analysis before the implementation of any CSR or sustainability reporting requirements. Consequently, two essays in this thesis rigorously investigate the implications of India's compulsory CSR legislation on the nation's financial markets.

Chapter 2 explores the impact of mandatory CSR on a firm's future

stock price crash risk, focusing on India's Section 135 CSR Mandate (CSR-135) and its potential to encourage adverse managerial behaviour in firms lacking genuine CSR commitment. Our hypothesis is grounded in stakeholder theory, agency theory, and motivation crowding out concept (highlighting a deficiency in intrinsic motivation as noted by Bonneton, 2023). Our empirical analysis encompasses a panel of 3,361 listed non-financial Indian firms from 2012 to 2017. We utilise a Propensity Score Matching-Difference-in-Difference (PSM-DID) approach for our primary analysis, treating the introduction of the CSR-135 policy in 2015 as an exogenous shock. The findings indicate an elevated stock price crash risk for firms mandated by the CSR rule, with bad news hoarding and earnings manipulation identified as primary factors. This increase in stock price crash risk persists even after accounting for other known risk predictors. The results reveal that mandatory CSR can lead to information hoarding and earnings manipulation by managers, intensifying stock price volatility. This chapter underscores the importance of intrinsic motivation for authentic ethical engagement. It highlights the limitations of purely compulsory CSR measures, particularly in their ability to increase stock return volatility and diminish the informativeness of stock prices in regulated firms.

Chapter 3 investigates the reduced signalling effect of compulsory CSR engagement. Our hypothesis is informed by the principles of stakeholder, agency, and signalling theories. Voluntary CSR differentiates firms and enhances signalling (Albuquerque et al., 2019), while mandatory CSR homogenises them, reducing informational content. Its obligatory nature casts doubt on the authenticity of the ethical commitment. This, in turn, diminishes the mandates' effectiveness in providing more signal to the investors and fostering genuine corporate accountability. We explore and demonstrate the reduction in informative signalling due to mandatory CSR activities and establish a causal link between compulsory CSR spending and the stock prices informativeness. This is achieved using two complementary methodologies: instrumental variable analysis and

difference-in-differences techniques. Our empirical investigation encompasses 3,748 non-financial firms in India, yielding 16,886 firm-year observations from 2012 to 2017. Further, we assess advertising intensity to examine mandatory CSR's informational impact and perform analyses across various conditions. We also evaluate the moderating influences of monitoring and corporate governance mechanisms; we find empirical evidence supporting external supervision and monitoring in mitigating the negative effects of compulsory CSR engagement.

Our results contest the notion that external mandates can mimic the positive externalities linked with voluntary engagement. Rather than seeking to affirm the ESG/CSR concept, our study aims to outline the potential economic impacts and trade-offs related to mandated sustainability policies, providing a basis for researchers, regulators, and policymakers to evaluate the implications of enforcing such practices.

Moving beyond mandated CSR, the final essay (i.e., Chapter 4), transitions to a voluntary framework, extending the discussion to corporate political accountability within the broader context of corporate political responsibility. Corporate political contributions can amplify the voices of corporations, potentially reducing the diversity of interests and perspectives in the political arena. Therefore, the accountability and transparency of corporate political expenditures are vital for maintaining the fairness and integrity of democratic processes.

Chapter 4 investigates the factors that influence a firm's commitment to corporate accountability, particularly regarding transparency in corporate political contributions. We have chosen the United States (US) for this study due to its unparalleled levels of political and campaign spending relative to other nations (Wilson, 2020), with the corporate sector playing a significant role in federal elections (Duchin and Sosyura, 2012). Given the vital importance of accountability and transparency in upholding democratic fairness and integrity, corporate political spending accountability emerges as a critical subject area within corporate finance. This makes understanding the factors driving corporate

political spending accountability more imperative.

The increase in corporate political contributions in the United States, especially after the Citizens United vs Federal Election Commission (CU) ruling, has sparked ethical debates regarding such spending and escalated the call for transparency. In response to the escalating demand for transparency, this study investigates the factors driving US firms' voluntary disclosure of political contributions. Although previous research has examined various factors at the industry, firm, and board levels that may affect a company's disclosure of political spending, the specific role of a Chief Executive Officer (CEO) in enhancing transparency in corporate political activities has received limited attention. Drawing on Upper Echelon Theory, which suggests that the decisions of senior management, especially those influenced by their personal backgrounds, significantly impact organisational outcomes (Hambrick and Mason, 1984), this research examines how CEOs' educational backgrounds affect corporate political transparency. Our empirical analysis employs a panel dataset for S&P 500 companies from 2013 to 2019. We select S&P 500 companies for our sample as these large publicly traded companies, accounting for approximately 80% of the total market capitalisation, provide a representative cross-section of the US corporate sector. CEO education data are compiled through manual review of Securities and Exchange Commission (SEC) 14A filings and consultation of publicly available databases, owing to inconsistencies in Wharton Research Data Services (WRDS) Execucomp CEO education database.

Our empirical investigation reveals that political spending transparency is linked to the personal attributes of CEOs. Further analysis shows how factors like CEO share ownership and dual roles might interact with their educational background to influence corporate political contribution transparency. We find that CEOs with significant share ownership or dual roles exhibit varied disclosure behaviours, highlighting the complex impact of CEO characteristics on corporate transparency. This analysis sheds light on the broader determinants of a firm's

disclosure practices and enhances our understanding of how personal stakes and internal power dynamics influence CEOs' disclosure preferences. Our results underscore the significant role of management's viewpoints in shaping a firm's ethical culture.

Overall, the three essays provide a nuanced understanding of corporate responsibility and accountability. By examining the constraints of mandated CSR and exploring CEO's educational pathways for accountability, this research aims to contribute to a more holistic understanding of how corporations can behave responsibly and ethically. It highlights the critical role of intrinsic motivation and shows how regulations might diminish the informative signals previously offered by voluntary initiatives. Moreover, our findings challenge the assumption that external mandates can replicate the positive externalities of voluntary engagement.

In essence, this thesis examines the impact of regulations such as the CSR-135 and the CU ruling on corporate accountability. These regulations raise a fundamental question: Do regulations genuinely encourage corporations to act as responsible moral agents, or do they merely grant them political agency? While classical economics views firms as profit-maximizing entities, the complex nature of corporate responsibility and accountability requires a deeper investigation to fully understand their effects.

Chapter 2

Mandatory CSR spending and stock price crash risk

Abstract

This chapter examines the under-researched area of how India's Section 135 rule (CSR-135 rule) impacts a firm's future crash risk. Our findings provide valuable insights into the effectiveness of mandatory CSR regulations and their potential implications for corporate risk management. We predict and document that the mitigating effect of CSR on future crash risk may not hold in the case of a CSR mandate due to the absence of intrinsic motivation and signalling. Using agency theory (which considers differing preferences among owners) shareholder-maximisation view (different stakeholders may have other preferences about CSR) and motivation crowding out theory, we explore how mandatory CSR may affect stock price crash risk. Our empirical analysis is based on a sample of 3,361 non-financial firms operating in India, with 17,534 firm-year observations from 2012 to 2017. The regulatory change during our sample period provides a quasi-natural experiment, allowing us to document that the mandated CSR rule increases a firm's future stock price crash risk in the post-mandate period.

2.1 Introduction

CSR and ESG have emerged as a critical factor influencing corporate performance and shaping business strategies. While voluntary CSR initiatives have gained traction, a notable shift towards mandatory regulations is evident worldwide. This trend is evident in Malaysia's 2006 rule requiring all listed companies to disclose their CSR activities or practices in annual reports, in China's 2008 mandatory CSR reporting requirement for firms listed on the Shanghai and Shenzhen stock exchanges, and also in the European Union's 2014 adoption of Non-Financial Reporting Directive (NFRD) on various mandatory corporate directives related to CSR and finally, in the UK's 2018 Streamlined Energy and Carbon Reporting (SECR) policy, a mandatory carbon reporting regulation, further underscoring the growing emphasis on mandated sustainability disclosure (Christensen et al., 2021).

Despite the growing prevalence of mandatory CSR/ESG regulation, most existing empirical research on CSR concentrates on corporations' voluntary CSR initiative and its relationship with corporate performance (Gelb and Strawser, 2001; Orlitzky et al., 2003; Edmans, 2011; Flammer, 2015). Hence, our research breaks away from voluntary CSR and looks at the impact of mandatory CSR initiatives on corporate performance.

This distinction between *nature* of CSR engagement —voluntary and mandatory —is crucial because the underlying intrinsic motivation for carrying out CSR activities differs significantly (Bonneton, 2023). Voluntary CSR engagement may be driven by intrinsic factors like genuine societal contributions and signalling underlying quality to stakeholders (Porter and Kramer, 2006; Lins et al., 2017). In contrast, mandatory CSR engagement often stems from regulatory compliance, which no longer offers the strategic advantage of signalling quality, as all compliant firms engage in these activities, and there is no intrinsic motive to be good. This fundamental difference in intrinsic motivation leads to disparate outcomes, as demonstrated in Bonneton (2023). This raises doubts

about the ability of compliance-driven CSR to promote genuine engagement, societal improvement, and enhanced corporate performance.

We explore the impact of mandatory CSR on corporate performance within the unique context of India's Section 135 rule [1]. Unlike other CSR regulations, this rule mandates spending, not just reporting. As such India's unique Section 135 rule allows us to empirically examine the emerging trend of mandatory CSR and its potential effect on performance, particularly in under-researched emerging markets (Gillan et al., 2021).

Capital markets are a crucial source of financial revenue for emerging markets like India (Malpass, 2019). As mandatory CSR policies place financial constraints on firms operating in India, it is important to understand their implications on volatility and risk profiles. Given the heightened volatility of emerging markets, our investigation centres on the relationship between mandatory CSR regulations and stock price crash risk. However, the factors affecting the financial market's well-being or volatility are understudied in emerging markets. We chose stock price crash risk because it captures extreme negative returns not accounted for by regular volatility measures and so offers a more suitable measure of corporate performance in volatile contexts than traditional measures, which often assume normal return distributions and fail to capture the non-normality of return distributions (Mandelbrot, 1997). Consequently, they are inadequate for properly assessing equity returns.

Stock price crash risk, defined as the likelihood of a sudden, significant drop in a company's stock price (e.g., exceeding 20% in a single day) (Jin and Myers, 2006), is a more informative indicator of risk in such context (Belghitar et al., 2014). Since such stock price crashes can severely damage a company's financial health, reputation, and ability to attract investments, they hold higher importance in investor evaluations, especially for publicly traded companies (Kraus and Litzenberger, 1976). Further, such steep equity price declines are

[1] We use CSR-135 rule and Section 135 rule to refer to the same mandatory rule.

detrimental to retail investors who tend to concentrate their investments in fewer companies (Barber and Odean, 2013). Therefore, understanding how different policies and factors contribute to such stock price crash risk, including mandatory CSR regulations, may help companies and investors manage risk effectively and mitigate potential losses (Habib et al., 2018).

Empirical studies on CSR suggest that CSR engagement instils responsible corporate practices and improves the information environment (Gelb and Strawser, 2001; Kim et al., 2012), which can help mitigate stock price crash risk (Kim et al., 2014). One reason is that responsible practices could improve disclosure and corporate governance, which helps curb the potential for managerial hoarding of bad news. Improved disclosure is a well-documented mechanism in decreasing stock price crash risk (Andreou et al., 2017; Chang et al., 2017; Hasan et al., 2022). The managerial hoarding of bad news theory suggests that managers, motivated by personal or professional concerns, may intentionally delay the disclosure of unfavourable information through various forms such as financial reporting opacity (Jin and Myers, 2006), earnings management (Hutton et al., 2009), corporate tax avoidance (Kim et al., 2011a) and accounting conservatism (Kim et al., 2016). This hidden negative news skews stock return distributions, and eventually, this pent-up negative information reaches a tipping point and is released into the market, triggering a sharp decline in stock prices (Jin and Myers, 2006; Hutton et al., 2009; Callen and Fang, 2015).

The link made by some studies on CSR engagement between improved disclosure practices with CSR engagement and lowered stock price crash risk is contingent upon the underlying motivation of the companies carrying out these CSR activities. In the case of voluntary CSR, from a stakeholder perspective, companies may be driven by intrinsic social responsibility motives and are genuinely committed to contributing to society. They are more likely to prioritise transparency, ethical practices, and robust governance frameworks (Gelb and Strawser, 2001; Kim et al., 2012, 2014), which helps curb the managerial bad

news hoarding and mitigate stock price crash risk. However, from an agency theory perspective, CSR engagement can also reflect agency problems where managers use company resources to further their own interests rather than those of shareholders. In such case, it might increase stock price crash risk (Masulis and Reza, 2015*a*).

Therefore, under mandatory CSR regulations, where the primary motivation is often fulfilling compliance requirements rather than a genuine desire for societal improvement, the mitigating effect of voluntary CSR on stock crash risk, mediated by enhanced information transparency and improved corporate governance, may not fully materialise. Concerns arise that companies subject to mandatory CSR might focus primarily on meeting the minimum required spending or reporting standards without necessarily adopting the internal reforms and operational practices needed to achieve genuine transparency and ethical practices. This points to the agency issues associated with mandatory CSR engagement. Instead of improvements in disclosure or reductions in bad news hoarding, mandatory CSR might lead to simply "ticking compliance boxes" through minimal efforts (Jackson et al., 2020) and no impact. This raises questions about the generalisability of the purported correlation between CSR and stock price crash risk in the context of mandated regulations.

Our research's importance is highlighted by instances of greenwashing, such as the Adani Group's environmental controversies. Issues surrounding their coal mining activities cast doubt on the authenticity of their CSR efforts. This could lead to investor backlash and short-term stock volatility, especially during market downturns or heightened environmental activism (Smee, 2021). Consequently, mandatory CSR, often driven by compliance rather than genuine societal improvement, may fail to achieve its goals of promoting responsibility, preventing bad news hoarding, and enhancing societal impact. This could potentially increase stock price crash risk in the long run. Therefore, more research is needed to determine if the stock price crash risk reduction observed in voluntary CSR by

Kim et al. (2014) applies to mandatory CSR regulations, where motivations are primarily extrinsic.

We propose two contrasting hypotheses to investigate the potential divergence in effectiveness and explore the limitations and unintended consequences of mandatory CSR regulations on corporate performance and investor stability. We refer to these as (1) the *Crash Risk Mitigative CSR hypothesis* and (2) the *Crash Risk Contributive CSR hypothesis*. The first hypothesis, the *Crash Risk Mitigative CSR hypothesis*, draws on stakeholder perspective of CSR and the ethical, political, and integrative (EPI) theories of CSR and predicts a negative association between CSR engagement and stock price crash risk, suggesting that mandatory CSR might decrease stock price crash risk by increasing transparency and stakeholder trust.

In contrast, the second hypothesis, *Crash Risk Contributive CSR hypothesis*, predicts a positive association between CSR engagement and stock price crash risk, suggesting that mandatory CSR spending may increase a company's future stock price crash risk by providing managers with opportunities to engage in bad news hoarding. This hypothesis draws on the agency theory, which posits that managers, as agents, might prioritise their benefits (job security, salary, career advancement) over the interests of the shareholders (shareholder value) and use CSR engagement as a facade to conceal negative information from investors (Hemingway and Maclagan, 2004*a*), further undermining transparency. Fearing negative investor sentiment towards CSR qualification, managers may delay the release of unfavourable news, exacerbating information asymmetry (Krüger, 2015). This hypothesis also draws from the loss of intrinsic motivation framework (Frey and Jegen, 2001; Bonneton, 2023).

Our empirical analysis utilises a panel of 3,361 listed non-financial Indian firms covering 2012-2017. Using a six-year sample reduces the likelihood that other events unrelated to the CSR-135 rule affect firms' CSR activities. Information on the weekly stock returns data to measure stock price crash risk and

the qualifying thresholds for CSR comes from the Prowess database maintained by the Centre for Monitoring the Indian Economy (CMIE).

As a preview of our main results, we observe the following: our main results corroborate the *Crash Risk Contributive CSR hypothesis*, suggesting an increase in stock price crash risk for mandated firms in the post-CSR-rule period. Utilising bad news hoarding and earnings management as the main channels, we find that mandatory CSR engagement increases the firm's future stock price crash risk. Our result remains robust even after controlling for other known predictors of stock price crash risk.

We employ a Propensity Score Matching-Difference-in-Difference (PSM-DID) framework as our primary identification strategy. We leverage the CSR-135 policy introduced in 2015 as an exogenous shock and mimic a natural experiment by dividing the entire population of Indian firms into two groups: those subject to the mandate and those not. This allows us to compare stock price crash risk between these two groups. We administer several tests to verify the validity of our identifying assumptions. We check for the parallel trend assumption to ensure that differences in industry or firm characteristics do not drive the DiD estimates. Our PSM-DiD results establish that mandatory CSR engagement has a causal effect on their stock price crash risk.

Further, we also use the actual CSR expenditures in our empirical investigation. We do so because, under the CSR-135, companies can partially comply by explaining their reason for partial compliance (Manchiraju and Rajgopal, 2017; Dharmapala and Khanna, 2018). Therefore, our treatment group may include firms that have not fully adhered to the regulation, resulting in three groups: (1) control firms, (2) fully complying treatment firms, and (3) partially complying treatment firms that chose to explain their non-compliance. Hence, by estimating a double difference-in-differences (DDD) model, we may be able to address potential issues associated with these groups. Our results suggest that, on average, higher actual CSR engagement increases the stock price crash risk propensity in

the treated firms relative to the control firms and in the post-CSR-135 rule period.

Our study makes several empirical contributions. First, the novelty of this study lies in examining the impact of mandatory CSR spending legislation on stock price crash risk, a crucial metric that captures extreme negative returns not accounted for by regular volatility measures. While previous studies have explored the relationship between voluntary CSR engagement and stock price crash risk, our research focuses on mandatory CSR engagement. Our empirical findings contrast with those of Kim et al. (2014) and align with Nofsinger et al. (2019), who argue that negative and positive CSR activities have asymmetric economic effects, challenging the notion that CSR activities mitigate crash risk. Our identification strategy using a DiD design, supports a causal interpretation of our findings, addressing inference issues common in correlation-based CSR research.

Second, our research contributes to the understanding of financial markets in emerging economies like India. Existing research primarily focuses on developed markets with robust legal frameworks and strong governance practices. In contrast, emerging economies often exhibit higher volatility, weaker institutions, and resource constraints (Jin and Myers, 2006). Therefore, extrapolating findings from developed markets can be misleading due to these contextual differences. Our findings indicate that imposing social progress responsibilities on firms may lead them to resort to manipulative measures when balancing societal well-being and financial survival.

Further, India's financial market are highly relevant to the global economy due to its strong and consistent performance over the past two decades. Its annualized returns are among the best-performing markets worldwide, driven by rising corporate profits, robust fundamentals (Stevenson, 2023; Wolf et al., 2024), and growing investment in capital markets (Malpass, 2019). As the mandatory CSR policy directly impacts firms operating within Indian markets by placing financial constraints on them, it is important to understand the implications of

this policy on these firms. By studying stock price crash risk, a robust metric that captures extreme negative returns that are not accounted for by regular volatility measures, our research adds to the understudied area of factors affecting the financial market's stability.

Finally, our work contributes to the understanding of CSR policy effectiveness in emerging markets, a topic highlighted by Goyal et al. (2013), Gillan et al. (2021) and Boubakri et al. (2021). While such regulations aim to enhance social responsibility, they often fall short due to financial resource limitations and inadequate guidance (Bansal and Kumar, 2021). Also, "one-size-fits-all" policies disproportionately impact firms near the compliance threshold compared to those significantly exceeding it. This is particularly serious in emerging market economies, where firms may be financially constrained. By documenting bad news hoarding and earnings manipulation as potential channels through which mandatory CSR increases stock price crash risk, we highlight the importance of intrinsic motivation and the insufficiency of extrinsic pressures in fostering genuine social responsibility. This underscores the need for targeted CSR policies, particularly in the context of potentially inadequate enforcement mechanisms.

The remainder of our paper is organised as follows: Section 2.2 presents the literature review and hypotheses development. Section 2.4 introduces the data and variables. Section 2.5 delves into the empirical methodology, while Section 2.6 presents findings. Section 2.7 and Section 2.8 expands on these results through additional analyses. Finally, Section 2.9 provides concluding remarks, summarising key takeaways and outlining future research directions.

2.1.1 Institutional background on Indian CSR landscape and the CSR-135 mandate

India's financial market has emerged as a global powerhouse, consistently outperforming other markets for the past two decades. With an impressive annualized return of 8.9% in USD terms, India's strong fundamentals and rising corporate

profits have been key drivers of this success (Wolf et al., 2024). The International Monetary Fund projects India's growth to remain robust at 6.2% to 6.5% over the next five years, surpassing other emerging markets like China. Bloomberg Economics even forecasts India overtaking China as the world's largest growth driver as early as 2028, or by 2037 in a more conservative scenario (Stevenson, 2023). Given India's significant role in the global economy, it's essential to understand how policies like mandatory corporate social responsibility (CSR) impact its financial market.

Until 2013 CSR initiatives in India were only part of its charitable giving and so were largely voluntary. Recognising the growing global emphasis on sustainability and responsible business practices, the Indian government enacted the CSR-135 mandate under Section 135 of the Companies Act, making CSR mandatory for certain companies. This mandate requires any companies operating in India meeting at least one of the specified financial thresholds (i.e., (1) Net profit ($\geq$ 50 million INR), Or (2) Net worth ($\geq$ 5 billion INR), Or (3) Sales ($\geq$ 10 billion INR) in any financial year to allocate 2% of their average net profit over the past three years to CSR-related activities. Companies Act took effect in 2013, but the CSR mandate only became mandatory on April 1, 2015, in line with the Indian financial year, which runs from April 1 to March 31. To avoid penalties, non-compliant firms must provide a justifiable explanation for their non-compliance.

Despite strong macroeconomic growth, 176 million Indians, or more than half of the US population, were still living in abject poverty at the time the law was passed (Krafft and Emily, 2021; Gatignon and Bode, 2023). Hence, the CSR-135 law aimed to leverage the business management expertise of the private sector and incentivise businesses to actively engage in CSR activities, planning, observing, and monitoring. To achieve this goal, the new policy allowed the legally obligated companies the flexibility to choose and design their CSR initiatives among the 28 pre-defined CSR activities, as outlined in Section 135,

by selecting social causes, regions, and implementation methods (single project, portfolio, direct or collaborative with NGOs) (Gatignon and Bode, 2023). These include alleviating extreme hunger and poverty, advancing educational initiatives, promoting gender equality and empowering women, reducing child mortality and enhancing maternal health, and combating diseases such as HIV, AIDS, malaria, and others[2].

India shows promising macroeconomic growth potential, large and influential stock market, and unique policy of mandatory CSR presents a compelling case for its examination in this research. By imposing financing restrictions, mandatory CSR could have unintended consequences on the stability of Indian financial market, a key area for its continued macroeconomic performance (Wolf et al., 2024). Thus, it is important to understand the implications of such binding regulations on the financial market.

2.2 Related literature and hypotheses development

2.2.1 Stock price crash risk

Understanding how different policies and factors contribute to such stock price crash risk, including mandatory CSR regulations, may help companies and investors manage risk effectively and mitigate potential losses. Existing studies on stock price crash risk offer two primary explanations for its triggers: (1) bad-new hoarding (Jin and Myers, 2006) and (2) heterogeneous investor belief (Chen et al., 2001). The bad-news hoarding theory argues that when cash flow

[2]Section 135 of the Companies Act outlines the focus areas for CSR initiatives, emphasising alleviating extreme hunger and poverty, promoting education, fostering gender equality and empowering women, reducing child mortality and improving maternal health, combating diseases such as HIV, AIDS, malaria, and others, ensuring environmental sustainability, developing vocational skills to enhance employment opportunities, engaging in social business ventures, contributing to the Prime Minister's National Relief Fund or other funds established by the Central or state governments to support socio-economic development, relief efforts, and the welfare of scheduled castes, scheduled tribes, other backward classes, minorities, and women, and any other matters as may be specified in relevant regulations. These provisions in CSR-135 provide a comprehensive framework for companies to align their CSR activities with the mandated focus areas outlined by the Companies Act (Dharmapala and Khanna, 2018).

falls below investor expectations, managers may delay disclosing negative news for an extended period. This accumulated negativity eventually reaches a critical threshold, prompting managers to release all negative information immediately, leading to a sharp drop in stock price (Jin and Myers, 2006). Empirical support for this theory links stock price crash risk to increased financial opacity (Jin and Myers, 2006; Hutton et al., 2009), higher corporate tax avoidance (Kim et al., 2011a), excessive accounting conservatism (Kim et al., 2016), and managerial incentives such as career concerns (Kothari et al., 2009) and management perks (Xu et al., 2014). The other theory, heterogeneous investor belief theory, suggests that differences in investor opinions and short-selling constraints can spark a stock price crash. Hong and Stein (2003) argue that under such short-selling constraints, divergent views among the investment community over a firm's value can lead to increased negative skewness in return distribution (i.e., higher stock price crash risk).

Previous studies on stock price crash risk note that external pressures such as CSR can trigger stock price crash risk. Hence, we take a closer look at the relationship between CSR and firm's stock price crash risk.

2.2.2 CSR literature and crash risk

Empirical research on CSR initiatives and corporate outcomes are ridden by mixed results. On one hand, we have studies that demonstrate the potential benefits of CSR initiatives such as enhancing financial disclosures (Gelb and Strawser, 2001), promoting transparency in financial reporting (DeFond et al., 2015), and curbing earnings management practices (Kim et al., 2012). These measures, the authors contend, highlight the potential of CSR in could reducing the likelihood of stock price crashes by either mitigating the adverse effects of weaker corporate governance (Kim et al., 2014) or improving the quality of information environment (DeFond et al., 2015). Cao et al. (2023) further note that CSR disclosure reduces information asymmetry, which may in turn lower

the risk of stock price crashes.

On the other hand, other studies note the context specific effect of CSR engagement on stock price crash risk is contingent on specific contexts; for instance, Wu and Hu (2019) demonstrate that the impact of CSR on stock price crash risk varies across industries, with higher CSR performance exhibiting significant protection only in the energy-related sector and not in mining. Nofsinger et al. (2019), find no robust correlation between strong environmental and social (ES) indicators and reduced negative extreme events. Similarly, Jie and Nakajima (2014) also observe no significant association between CSR and governance mechanisms in Japanese firms and reductions in stock price crash risk.

Agency cost of CSR

In contrast to the above studies, we have other CSR studies(see Sprinkle and Maines, 2010; Masulis and Reza, 2015*b*, 2023) which highlight the significant costs associated with undertaking CSR activities. This stream of research come from the agency theory perspective of CSR, which posits that there is a conflict of interest between managers (agents) and shareholders (principals) and especially when CSR activities are driven by managerial interests rather than shareholder value maximization. As CSR can involve substantial financial outlays and when these outlays are not strategically aligned with the firm's core objectives, they can drain resources, reducing the firm's liquidity and financial flexibility. For instance, Masulis and Reza (2015*a*) note how corporate philanthropy, a subset of CSR, can reflect agency problems where managers use company resources to further their own interests rather than those of shareholders. This misalignment can increase operational risks and the likelihood of negative financial outcomes, as resources are diverted away from profitable investments. In such case, a firm's engagement in CSR can actually further increase their stock price crash risk.

While the aforementioned studies provide valuable insights into the potential impact of CSR initiatives (both good and bad) on stock price crash risk,

they exclusively focus on voluntary CSR. This distinction between voluntary and mandatory CSR is critical because, as Sprinkle and Maines (2010) highlight, firms engage in CSR for various reasons. These range from altruistic intentions, believing CSR efforts are part of being good corporate citizens, to "window dressing," where CSR activities are undertaken to appease stakeholders such as NGOs. In this light, CSR may simply be something firms feel they must do to avoid negative publicity, which does not enhance transparency or information disclosure to avoid stock price crash risk. Thus, government-mandated CSR requirements present unique benefits and constraints. Depending on how firms view this mandate, their motivation for undertaking CSR differs, which could distinctly affect their decision-making processes and risk profiles. It can create a smokescreen of CSR compliance without genuine commitment or provide incentives (Bansal and Kumar, 2021; Bansal, 2022). Hence, we need more empirical evidence to understand whether mandatory CSR compliance gives rise to a stakeholder perspective or an agency perspective and its effect on stock price crash risk.

2.2.3 Mandatory CSR literature

In voluntary CSR, the driving force stems primarily from a genuine commitment to societal welfare, whereas in mandatory CSR, the primary motivation often arises from compliance requirements rather than social impact. This shift in underlying motivation can result in disparate corporate outcomes (Bonneton, 2023). Similarly, the study by Chen et al. (2018) on the effects of China's 2008 mandatory CSR reporting regulation reveals adverse impacts on corporate performance. The findings indicate that firms under this mandate experienced a decline in profitability, sales revenue, and capital expenditure, along with increases in operating costs and impairment charges. Additionally, these firms faced more negative stock market reactions compared to their benchmarks, suggesting investor concerns regarding diminished performance and escalated CSR

expenditure following the mandate.

Unlike most mandatory CSR policies that emphasise CSR reporting or disclosure, India's CSR-135 rule requires affected firms to allocate funds specifically for CSR initiatives. This mandatory spending requirement sets India's CSR-135 rule apart from other CSR policies worldwide. Despite the CSR-135 mandate's noble intention of addressing societal issues, it has sparked debates among scholars regarding its effectiveness in social progress and its effect on various corporate outcomes.

Some studies (such as Manchiraju and Rajgopal, 2017; Bansal and Kumar, 2021; Aswani et al., 2019) document that mandatory CSR regulations can negatively affect firm outcomes, as binding CSR rules may not be equally applicable to all firms and could impose new compliance costs on those companies that have not previously been engaged in CSR activities. Manchiraju and Rajgopal (2017) observed that mandatory CSR quotas result in negative valuations for affected firms and attribute this negative effect to the financial burden imposed by the mandate, which is perceived negatively by the investors. Dharmapala and Khanna (2018) note that firms with CSR spending previously exceeding the mandate's quota tend to reduce their CSR spending following the rule's enactment. Additionally, Aswani et al. (2019) highlight that the mandated firms had increased yield spreads on their bond and increased earnings management activity, respectively. Further, Rajgopal and Tantri (2023) note that the mandate led to a crowding out of voluntary CSR spending among firms that had been actively engaged in CSR initiatives before its implementation. They observed that high-CSR spenders saw a significant reduction in their CSR spending, from 10.8% to 3.6%, while low-CSR spenders only marginally increased their spending from 0.7% to 2% to meet the mandated requirements.

In contrast, few other empirical studies find that mandated host firms attract more foreign investors, particularly from civil law origin countries in the post-regulation period (Marshall et al., 2022) and exhibit higher stock market

liquidity (Roy et al., 2022), aligning with the positive findings of voluntary CSR research. Examining long-term (1994-2007) CO2 emissions data from US companies, Matisoff (2013) argues that voluntary initiatives outperform mandatory regulations in reducing emissions. Their hypothesis suggests voluntary approaches spark internal company commitment to change, an element potentially absent in mandatory schemes.

These mixed findings underscore the need for further research to fully understand the complex mandatory CSR regulations and their impact on firm-level performance and corporate governance practices. Thus, our research explores whether a binding CSR mandate influences stock price crash risk for firms in emerging markets and, if so, how. Does it follow the patterns established by the existing literature on voluntary CSR, or does the shift to mandated engagement alter a firm's future stock price crash risk trajectory in distinct ways? We attempt to answer these questions by proposing two alternative hypotheses:

Crash risk mitigative CSR hypothesis

The first alternative hypothesis, *Crash risk mitigative CSR hypothesis*, predicts a negative association between mandatory CSR compliance and stock price crash risk. It suggests that mandatory CSR compliance reduces stock price crash risk by increasing transparency and stakeholder trust.

From a stakeholder perspective, mandatory CSR initiatives are expected to improve a firm's transparency and accountability. By requiring companies to mandatorily engage in CSR activities, mandatory CSR may improve the disclosure of CSR activities, instil CSR culture of accountability. Further, the Ethical, Political, and Integrative (EPI) theory of CSR, proposes that CSR activities incentivise ethical behaviour and responsible governance practices within a firm (Kim et al., 2012). Increased transparency through robust reporting standards under mandatory CSR can compensate for corporate governance weaknesses (Kim et al., 2014) and enhance the overall information environment (DeFond

et al., 2015), making it more difficult for firms to engage in unethical behaviour (such as concealing negative news) and, consequently, reducing the likelihood of stock price crash risk. Moreover, in firms committed to CSR often view their socially responsible reputation as a valuable asset (Fombrun and Shanley, 1990). This motivates them to prioritise timely disclosure of negative news to protect their reputation and maintain investor confidence, further deterring unethical practices and mitigating stock price crash risk.

These processes suggest that firms with strong CSR commitments may be less susceptible to stock price crashes. The positive impact of CSR on corporate behaviour and financial performance, as supported by EPI theories and empirical evidence, can contribute to a more stable and resilient market environment.

Crash risk contributive CSR hypothesis

In contrast, the second hypothesis, *Crash risk contributive CSR hypothesis*, predicts a positive association between CSR engagement and stock price crash risk, suggesting that mandatory CSR compliance increases stock price crash risk by providing managers with opportunities to engage in bad news hoarding.

When CSR is driven by regulatory compliance, the stakeholder perspective and EPI theory's explanation of improving transparency and incentivizing genuine motivation may fall short. This is because mandated CSR initiatives stem from regulatory compliance rather than genuine intrinsic ethical behavior motivation. Agency theory suggests that managers may act in their own self-interest rather than in the best interests of shareholders. From this perspective, mandatory CSR compliance might inadvertently create opportunities for managers to hoard bad news. Mandatory CSR can be viewed as a regulatory burden that managers may comply with superficially, using it as a tool to divert attention away from the firm's underlying financial performance. They may resort to tactics like earnings manipulation to satisfy regulators without committing to true social responsibility (Bansal and Kumar, 2021). Managers might prioritize their own

interests and use CSR as a facade to conceal negative information from investors (Hemingway and Maclagan, 2004*b*). Investor preferences regarding CSR vary as investors are unlikely to support CSR unless they believe it enhances value (Krüger, 2015; Chen et al., 2018). While some value social and ethical objectives, others prioritize financial performance (Renneboog et al., 2008). Negative market reactions to CSR can amplify investor unease, especially when mandatory CSR spending is seen as an additional financial burden. Consequently, managers may delay disclosing negative news to reduce investor discomfort (O'Dwyer, 2003) and this hoarding of bad news can lead to stock price crash risk.

Further, this hypothesis also draws from the loss of intrinsic motivation framework, which posits that external interventions, like well-meaning government regulations, can inadvertently suppress the intrinsic motivation of business leaders, potentially leading to outcomes worse than without such regulations (Frey and Jegen, 2001; Bonneton, 2023). Further, Ball et al. (2003) note that without proper incentives or enforcement, high standards alone cannot guarantee the effectiveness of such mandates.

Ultimately, prioritized compliance, investor concerns, and delayed disclosure, all contribute to a lack of transparency and which could lead to increase in crash risk.

2.3 Baseline model

We estimate the following standard difference-in-difference(DiD) model to investigate the impact of CSR-135 rule on a company's stock price crash risk:

$$\begin{aligned} CrashRisk_{i,t} = \alpha_i + \beta_1 Treat_i + \beta_2 Post_t + \beta_3 Treat_i \times Post_t + \phi \cdot C_{i,t-1} \\ + \gamma_j + \delta_t + \varepsilon_{it} \end{aligned} \tag{2.1}$$

where $CrashRisk_{i,t}$ denotes the two stock price crash risk proxies, *NCSKEW*

and *DUVOL*. The primary variable of interest is the interaction term $Treat_i \times Post_t$. The variable $Treat_i$ is a dummy that equals one for treatment firms (i.e., if a company's *Net-worth, Sales,* or *Netprofit* passes the outlined threshold) and 0 for control firms. $Post_t$ is a binary variable that equals 1 for the years after the CSR-135 effective (2015-2017) and 0 for the 2012-2014 period. Following Angrist and Pischke (2009), to achieve more precise estimates and have lower residual variance, we include a vector of covariates, $C_{i,t-1}$. Our vector of covariates includes the first lags of the variables average firm specific stock returns (*RET*), stock return volatility (*SIGMA*), Kurtosis (*KURT*), turnover (*DTURN*), profitability (*ROA*), leverage (*LEV*), market-to-book ratio (*M2B*), and abnormal accruals (*ABACC*). As usual, ε_{it} is the error term, while α_i, γ_j and δ_t are firm-, industry- and time-specific effects, respectively.

2.4 Data and summary statistics

2.4.1 Sources and sample construction

We construct our dataset using two primary data sources: firm-level data from the Prowess database, maintained by the Centre for Monitoring Indian Economy (CMIE), and market index data from Bloomberg. Prowess comprehensively covers all companies listed on India's two main exchanges, the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE). This database is extensively used by scholars studying Indian firms (e.g., Khanna and Palepu 2000; Manchiraju and Rajgopal 2017; Koirala et al. 2020; Roy et al. 2022) for their studies on Indian firms.

We collect and merge firm-level information from the various sections of Prowess database [3], facilitated by company codes (CMIE's unique firm identifiers) and fiscal years. We incorporate weekly closing price data for our market

[3]Identity and industry classification comes from the identity and background section, accounting data from the annual financial section, weekly trading data from the trading section, and institutional holdings and ownership data from the ownership and governance section.

index (i.e., Nifty 500 Index (CNX 500)) from Bloomberg. The CNX 500 serves as a robust benchmark of the Indian capital market, representing about 95% of the free float capitalisation of stocks listed on NSE and covering various industrial sectors (Manchiraju and Rajgopal, 2017; Aswani et al., 2021).

Our sample comprises 17,534 firm-year observations for 3,361 firms listed on either the NSE or the BSE. These firms operate across 14 industries identified in the National Industry Classification (NIC). Both financial services and utility firms are excluded from our sample as they are subject to different regulatory frameworks (Kim et al., 2011a; Andreou et al., 2017). Our data spans 2012 to 2017, focusing on three years before and after the policy change. Following Roy et al. (2022) and other emerging market data studies, we winsorise all the continuous variables at the 2% level in both tails to mitigate the influence of outliers.

2.4.2 Stock price crash risk measures

Our dependent variable is a firm's future stock price crash risk. Following previous studies (e.g., Chen et al., 2001; Hutton et al., 2009; Kim et al., 2014), we compute two measures of stock price crash risk, namely, Negative Skewness (NCSKEW) and Down-to-Up Volatility (DUVOL). We calculate the stock price crash risk measures using firm-specific weekly returns, denoted $R_{i,\tau}$, for firm i in year t, where $R_{i,\tau} = \ln(1+\varepsilon_{i,\tau})$. The regression residual $\varepsilon_{i,\tau}$ is obtained from the following expanded market model:

$$r_{i,\tau} = \alpha_i + \beta_{1i} r_{m,\tau-2} + \beta_{2i} r_{m,\tau-1} + \beta_{3i} r_{m,\tau} + \beta_{4i} r_{m,\tau+1} + \beta_{5i} r_{m,\tau+2} + \varepsilon_{i,\tau} \quad (2.2)$$

where $r_{i,\tau}$ is the return of stock i in week τ, and $r_{m,\tau}$ is the return of the value-weighted market index in week τ. We include the lagged market returns ($r_{m,\tau-2}$ and $r_{m,\tau-1}$) and the leading market returns ($r_{m,\tau+1}$ and $r_{m,\tau+2}$) in above

equation to mitigate the impact of non-synchronous trading (Dimson, 1979).

We employ the return on CNX 500 index as the proxy for the return on the aggregate market, Equation 2.2. This approach ensures that our stock price crash risk measures reflect only company-specific factors, rather than the movement in the overall market (Kim et al., 2014). Our computation uses weekly returns to avoid the problem of thinly-traded stocks (Zhang et al., 2016) and excludes observations with fewer than 26 weeks of stock return data over a fiscal year, thus excluding return observations for firms that went public, became delisted, or experienced trading halts (Morck et al., 2000; Jin and Myers, 2006).

Our first stock price crash risk measure, *NCSKEW*, is estimated as the negative coefficient of skewness of the firm-specific weekly return ($R_{i,\tau}$) divided by the variance of $R_{i,\tau}$, and raised to the power of 1.5 (Kim et al., 2011a,b):

$$NCSKEW_{i,t} = -\frac{\left[n(n-1)^{\frac{3}{2}}\sum R_{i,\tau}^{3}\right]}{\left[(n-1)(n-2)(\sum R_{i,\tau}^{2})^{\frac{3}{2}}\right]} \tag{2.3}$$

where n is the number of weekly returns in a fiscal year t. The presence of the negative sign in Equation 2.3 ensures the ease of the interpretation of the *NCSKEW* values where a greater value of *NCSKEW* indicates a more left-skewed distribution and a greater chance of stock price crash, and vice versa (Jia, 2018). The scaling by the variance term enables us to compare stocks with different volatility (Li and Zhan, 2019).

Our second proxy for stock price crash risk is the down-to-up volatility, denoted *DUVOL*, which assesses the asymmetric volatility between company-specific weekly returns $R_{i,\tau}$ (Kim et al., 2011a,b). To compute *DUVOL* for a firm i in fiscal year t, first, we divide the weekly stock return data for that year into two groups based on whether the company-specific weekly returns fall below ("down" weeks) or exceed ("up" weeks) the annual mean value (Jia, 2018). Next, *DUVOL* is computed as the natural logarithm of the ratio of the standard deviation of $R_{i,\tau}$ in the "down" weeks to the standard deviation of $R_{i,\tau}$ in the "up" weeks.

Specifically,

$$DUVOL_{i,t} = \ln \left\{ \frac{[(n_u - 1)\sum_{DOWN} R_{i,\tau}^2]}{[(n_d - 1)\sum_{UP} R_{i,\tau}^2]} \right\} \tag{2.4}$$

where n_d is the number of down weeks and n_u is the number of up weeks in a year t. Similar to *NCSKEW*, a higher *DUVOL* value indicates a greater propensity for stock price crash risk. As *DUVOL* excludes the third moment, it is less susceptible to undue influence from extreme weekly return (Chen et al., 2001; Jia, 2018).

2.4.3 Defining treatment and control firms

Our study aims to examine the causal impact of the CSR-135 rule on firms' stock price crash risk. The CSR-135 mandates that any firm operating in India which meets any of the three financial thresholds, i.e., net worth of 5 INR billion, turnover of 10 INR billion, or net profit of 50 INR million, must spend at least 2% of the previous three years' average profits on CSR activities [4]. We define the key variable $Treat_i$ as an indicator (1 and 0) signifying whether the firm i meets any of the three thresholds in any given year from the effective date of the Section 135 rule (April 1, 2014). The variable $Post_t$ is set to 1 for the years following CSR-135 implementation (i.e., 2015 and onwards) and 0 for the preceding years. Our primary interest is the parameter on the interaction term $Treat_i \times Post_t$, which captures the incremental changes in stock price crash risk for treated firms in the post CSR-135 period relative to the changes in stock price crash risk for the control group.

2.4.4 Covariates

To account for factors established in the literature as influencing stock price crash risk, we incorporate a set of control variables. Consistent with the observation by Chen et al. (2001) that stocks exhibiting high past returns, volatility, and turnover

[4] For example, if a company meets any of the criteria in 2015, it is required to spend 2% of its profits averaged over 2013, 2014, and 2015 on CSR

are more susceptible to crashes, we control for stock performance (*RET*) and stock return volatility (*SIGMA*), measured as the average and standard deviation of firm-specific weekly returns during the fiscal year, respectively. To capture variations in investor opinions and trading patterns, we include detrended stock turnover (*DTURN*), computed as the year-to-year change in average monthly share turnover. Following Callen and Fang (2015), we control for firm-specific weekly return kurtosis (*KURT*) and past negative conditional return skewness ($NCSKEW_{t-1}$), to account for heightened risk profiles and potential crash proneness.

Further, we also incorporate controls for financial health, growth, and potential earnings manipulation. Consistent with Hutton et al. (2009), we control for profitability (*ROA*) using return on assets and leverage (*LEV*) using total debt divided by total assets, as these measures reflect both financial health and risk-taking proclivities. Leveraged firms, incentivised by financial instability, may be more cautious in bad news hoarding practices. We also account for firm growth measured by the market-to-book ratio (*M2B*) ratio, as high growth ("glamour") have a higher propensity for stock price crash risk (Chen et al., 2001). Finally, we explicitly control for earnings management using abnormal accruals (*ABACC*) calculated as the absolute value of the residuals from the modified Jones model (Dechow et al., 1995) as accrual manipulation increases future stock price crash risk (Hutton et al., 2009). Aligning with Kim et al. (2011b, 2014), we lag each covariate by one year. We define all our variables in Appendix A.

2.4.5 Descriptive statistics

Table 2.1 presents the summary statistics for variables used in our analysis. Panel A reports the summary statistics for stock price crash risk proxies, *NCSKEW* and *DUVOL*. The overall sample mean for *NCSKEW* is 0.068 and *DUVOL* is -0.019. These mean estimates align with those reported by Kim et al. (2014) and Chowdhury et al. (2020), but they differ from those found by Chauhan et al.

(2017). This discrepancy may be likely due to variations in sample periods. The positive mean *NCSKEW* suggests that, on average, our sample firms exhibit left-skewed firm-specific weekly returns. The mean *NCSKEW* value drops from 0.096 in the pre-CSR rule period to 0.041 in the post-CSR rule period, and the mean *DUVOL* value also drops from -0.0047 in the pre-CSR rule period to -0.0337 in the post-CSR rule period. To draw a definitive conclusion regarding these shifts, we need further analysis.

Panel B delves into the summary statistics for both firm-level and stock market covariates. For the overall sample, the average firm exhibits a negative weekly return (*RET*) of -24.2%, moderate volatility (*SIGMA*) of 7.1%, and are relatively large size (*SIZE*) of 6.693. While the profitability (*ROA*) is a negative value of -0.158, indicating potential challenges, leverage (*LEV*) remains moderate at 1.77 and the market-to-book ratio (*M2B*) of 3.113 suggests growth expectations. The average change in monthly trading volume (*DTURN*) is -0.00047, and the absolute value of abnormal accruals (*ABACC*) is 0.103. Especially, the absolute value of abnormal accruals increases in the post-CSR period, hinting at a potential rise in earnings management activities.

Insert Table 2.1 here.

Table 2.2 presents the correlation matrix. Our the stock price crash risk proxies, *NCSKEW* and *DUVOL*, exhibit a strong positive correlation, confirming their alignment in measuring stock price crash risk. While correlations between stock price crash risk proxies and covariates are relatively small, they are generally statistically significant, suggesting potentially meaningful relationships. Intriguingly, CSR spending (CSR_{Amt}) demonstrates a positive correlation with both *NCSKEW* and *DUVOL*, hinting at a potential link between higher CSR engagement and increased stock price crash risk. This finding is consistent with one of our hypothesis and warrants further exploration.

Insert Table 2.2 here.

2.5 Empirical strategy

2.5.1 Difference-in-Difference (DiD) and Propensity Score Matching (PSM)

We estimate our regressions using DiD method to identify how mandatory CSR spending affected firms' future stock price crash risk. The efficacy of the DiD approach in producing causal estimates relies on the assumptions that the treated and control groups are comparable, have homogeneous expectations of treatment outcomes without the regulatory change, and are exposed to similar economic conditions in the period following the shock (Atanasov and Black, 2016).

We start by checking the comparability of the treated and control firms. The results reported in Panel A column (1) of Table 2.3 and Panel A of Table 2.4, show that the treated and control firms exhibit statistically significant differences (at 1%) in terms of covariates in the pre-CSR-135 rule period. Consequently, we use the PSM technique to ensure comparability (Rosenbaum and Rubin, 1983, 1985). To generate the propensity scores, we estimate the following probit model:

$$Treat_i = \alpha_0 + \beta' C_{it-1} + \gamma_j + \varepsilon_{it} \tag{2.5}$$

where the dependent variable $Treat_i$ equals 1 if any of the three financial thresholds (i.e., net profit, net worth, and sales) is met, 0 otherwise. Similar to Xu et al. (2021), the vector of controls C_{it-1} includes: average firm-specific stock returns (*RET*), stock return volatility (*SIGMA*), Kurtosis (*KURT*), size (*SIZE*), profitability (*ROA*), leverage (*LEV*), turnover (*DTURN*), market-to-book ratio (*M2B*) and abnormal accruals (*ABACC*). The term γ_j captures the (NIC) industry specific effects. The probit model is estimated on the pre-CSR-135 period 2012-2014 for the sample consisting of 1,275 treatment and 2,086 control firms. Each treated firm is matched to its nearest neighbour, without replacement, and using a 0.001 caliper[5] (Rosenbaum and Rubin, 1985; Fang et al., 2014; Gertler et al.,

[5]As done in Fang et al. (2014) by choosing without replacement, we prioritise matching

2016; Xu et al., 2021) . Overall, we identify 630 unique pairs of matched firms (i.e., 1,260 firms).

Panel A of Table 2.3 compares the probit estimates obtained for the entire pre-matched sample (column 1) with those obtained using a matched sample (column 2) for the pre-CSR-135 period. None of the covariates in column (2) are statistically significant. The estimates in column (2) are much smaller in magnitude than those in column (1). The pseudo R^2 declines from 0.378 in column (1) to 0.0027 in column (2), suggesting a significant drop in the model's explanatory power for the matched sample. The p-value from the χ^2 test of overall model fitness in column (2) is 0.99, suggesting that we cannot reject the null hypothesis that all the coefficient estimates on the independent variables are zero.

To confirm pre-treatment covariate balancing, Panel B of Table 2.3 reports t-test statistics on the mean differences in covariates between the treated and the control firms in the pre-CSR-135 period. As none of the observed differences are statistically significant, we get additional assurance that our matching is valid.

Insert Table 2.3 here.

We also check both the standardised percentage and the standardised difference to further ensure balancing in our matched sample (Rosenbaum and Rubin, 1985; Atanasov and Black, 2021). Figure 2.1 plots the standardised percentage bias histogram between the matched and unmatched sample covariates. We observe a reduction in bias in the matched sample, as the standardised percentage bias is within the $\pm 10\%$ range. Table 2.4 reports the results for the standardised difference and they are within the $\pm 5\%$, indicating a high covariate balance in the matched treated and control firms. These results suggest that our matching procedure has reduced the differences between the treated and control firms before the CSR-135 mandate.

precision

Insert Figure 2.1 here.

Insert Table 2.4 here.

2.6 Empirical results

Table 2.5 reports the main estimates for our DiD analysis exploring the impact of the CSR rule on stock price crash risk on matched samples. Panel A reports the univariate DiD coefficients for both *NCSKEW* and *DUVOL*. Examining univariate DiD coefficients (Panel A), we find statistically significant increases in both negative return skewness (13.7%) and down-to-up volatility (7.1%) for treatment firms in the post-CSR period compared to the pre-CSR period.

This pattern reinforces the findings in Panel B, where multivariate DiD estimates consistently show a positive and significant coefficient for the interaction term of treatment and post-CSR period ($Treat_i \times Post_t$), again indicating a rise in stock price crash risk for post-rule implementation. The estimation results reported in columns (3) and (4) allow the stock price crash risk measures to be correlated with their lagged values. Similar to Chen et al. (2001) and Kim et al. (2014), we find that firms with a high stock price crash risk in year t - 1 are likely to also have a high stock price crash risk in year t. Importantly, the sign of the DiD estimates remain unchanged after introducing the lag of the crash risk measure.

The last two columns incorporate firm fixed effects, revealing robust DiD estimates. Although the statistical significance diminishes after introducing firm and year-fixed effects, the sign of the estimated coefficient remains unchanged. One reason for the reduced significance could be that by introducing firm and year-fixed effects, we isolate the within-firm variation over time and across years. This isolation might result in the model exhibiting less overall variation in the

data. However, this does not detract from the significance of the effect observed earlier. We further confirm this through robustness tests in the following sections to ensure that any confounding factors do not drive our results.

Our results align with the findings of (Masulis and Reza, 2015*b*), who argue that corporate philanthropy, a subset of CSR, can sometimes reflect agency problems. In these situations, managers may prioritize their interests over those of the shareholders, using company resources in ways that do not align with shareholder value. This misalignment can increase operational risks and the likelihood of negative financial outcomes. Consequently, our study's negative relationship between mandatory CSR and stock price crash risk supports this perspective. Overall, Table 2.5 consistently supports the *Crash Risk Contributive CSR Hypothesis*, suggesting that the enactment of the CSR rule might have an unintended consequence of increasing stock price crash risk for affected firms.

Insert Table 2.5 here.

2.6.1 Parallel trend

Since the validity of the DiD estimates in Table 2.5 depends on the parallel trend assumption, we conduct several diagnostic tests to validate this assumption. First, Figure 2.2a & Figure 2.2b plots the two stock price crash risk measures. Both *NCSKEW* and *DUVOL* show similar trends in the pre-CSR-135 period 2012-2014 for the treated and control groups. In the post-CSR-135 period, we detect an increase in the value of both *NCSKEW* and *DUVOL* for the treatment group, which supports our earlier univariate estimates presented in Table 2.5.

Insert Figure 2.2a here.

Insert Figure 2.2b here.

Next, we examine the dynamic effect of the CSR-135 rule in a regression framework. To this end, we retain firm-year observations for both treatment and control firms for a six-year window centred on the CSR-135 rule year, i.e., 2012-2017, similar to Fang et al. (2014) and Bertrand and Mullainathan (2003). We construct the year dummies $Shock^{-2}$, $Shock^{-1}$, $Shock^{1}$ and $Shock^{1\&2}$, to indicate the number of years before and after the CSR-135 rule. The indicator *Shock* captures the contemporaneous impact of the CSR-135 rule on stock price crash risk. The observations in the year 2012 are used as the baseline group. We modify the specification in Equation 2.1 to include these pre- and post-shock dummies and their interaction terms with the treatment group.

Table 2.6 presents the regression results, testing for parallel trends and persistence. Across columns and stock price crash risk measures, the estimates on $Treat_i \times Shock^{2}$ and $Treat_i \times Shock^{1}$ are statistically insignificant. These results corroborate the parallel trend plot in Figure 2.3a & Figure 2.3b and validate the parallel trend assumption. At the same time, the coefficient estimates on the interaction terms for the post-treatment period $Treat_i \times Shock^{1}$ and $Treat_i \times Shock^{1,2}$ are positive and statistically significant. This implies that treatment firms are more prone to stock price crash risk than control firms.

Insert Table 2.6 here.

Further, Figure 2.3a and Figure 2.3b show the dynamic effect of the CSR law on *NCSKEW* and *DUVOL* as an event study plot, respectively. We use 2014 as our baseline. This plot visualises the estimated coefficients and their confidence intervals before and after implementing the CSR-135 law (i.e., event 0 for 2014). The plot's pre-event confidence intervals include zero, implying that the trends of the outcome variables (*NCSKEW* and *DUVOL*) in both treatment and control groups were not statistically different before the CSR-135 law. This supports the assumption that the treatment and control groups had similar pre-event trajectories, making it more plausible that any observed differences after

the event (2015) can be attributed to the CSR law.

Insert Figure 2.3a here.

Insert Figure 2.3b here.

2.7 Test of bad news hoarding channels

Our baseline results suggest that treated firms are more prone to stock price crash risk. This section investigates the potential underlying mechanism driving the relationship between mandated CSR engagement and stock price crash risk. As mentioned in Section 2.2, mandatory CSR spending may affect stock price crash risk by encouraging bad news hoarding. We present below two tests of withholding bad news channels.

2.7.1 Earnings string breaks

According to Myers et al. (2007), (particularly long) strings of consecutive earnings increases may be due to managers hoarding underlying bad news. Following Andreou et al. (2017) and Chowdhury et al. (2020), we focus on stock price crashes triggered by the break in a consecutive earnings string to provide evidence for managerial bad news hoarding. We set the dummy variable *Break* equal to 1 if a firm's current earnings decrease after consecutively increasing in the previous two years. We then multiply this indicator with our propensity of stock price crash risk *NCSKEW* and obtain the *NCSKEWbreak* variable. If bad news hoarding is indeed the channel through which mandatory CSR affects stock price crash risk, we expect a positive relationship between CSR spending ($CSR_{Amt(t-1)}$) and the *NCSKEWbreak* variable. Our results, presented in Table 2.8, support this proposition. The estimated coefficient on $CSR_{Amt(t-1)}$ in column (1) (with *NCSKEWbreak* as dependent variable) is positive and statistically significant,

indicating that firms with higher CSR engagement are more likely to experience stock price crashes following a break in their consecutive earnings string. This suggests managerial bad news hoarding may be a mechanism through which mandatory CSR increases stock price crash risk.

2.7.2 Accruals earnings management

Building on the link between future stock price crashes and aggressive use of discretionary accruals, observed by Hutton et al. (2009), we hypothesise that bad news hoarding due to mandatory spending should be reflected in higher accruals. We estimate discretionary accruals using the modified Jones model for each industry and year (Dechow et al., 1995; Kim et al., 2011a,b). As such, we predict a positive association between the amount of CSR spending ($CSR_{Amt(t-1)}$) and accruals.

The positive and statistically significant coefficient on the CSR spending variable in column (2) of Table 2.8 lends robust support to this hypothesis. This finding suggests that companies under mandatory CSR pressure may use accruals to mask potentially negative financial performance associated with such spending. Notably, this raises concerns about the potential unintended consequences of mandatory CSR policies. While aiming for societal benefits, they may incentivise companies to manipulate financial reporting, potentially distorting information for investors and undermining confidence.

Insert Table 2.8 here.

2.8 Additional analyses

2.8.1 Placebo tests

Although our models include a variety of firm characteristics and types of fixed effects, there is still a possibility that either unobservables, pre-existing trends, or

persistence of shocks that predate the CSR-135 rule may affect the treatment and control firms differently. To validate that changes in stock price crash risk among the two firm groups would have been similar had the CSR-135 spending rule not been implemented, we design two placebo tests and present our estimates in Table 2.7.

Panel A of Table 2.7 presents the results of both placebo tests. Columns (1) and (2) report our first placebo test estimates for *NCSKEW* and *DUVOL*, respectively. Here, we randomly assign firms to a false treatment group and create an interaction term between the false treatment variable $Treat_F$ and the period indicator $Post_t$. The randomisation ensures that this newly constructed term has no true effect on stock price crash risk. We conduct this random data-generating process 1000 times to avoid contamination by rare events (Liu et al., 2021). Column (1) and (2) reports the mean values of the coefficient on the interaction term $Treat_i \times Post_t$. The magnitudes of these estimates are very small for both stock price crash risk measures, reinforcing the internal validity of the results.

Columns (3) and (4) in Panel A of Table 2.7 report our second placebo test estimates for *NCSKEW* and *DUVOL*, respectively. This test uses the fiscal year 2010 as a hypothetical shock year, predating the actual enactment of the CSR-135 rule in 2013. We estimate Equation 2.1 using the 2007-2012 period to simulate the impact of the CSR rule's absence. The choice of the 2010 false exogenous shock is linked with the date (August 31, 2010) of the Finance Committee of India report, which first introduces the notion of mandatory CSR (Manchiraju and Rajgopal, 2017). The pre-shock period (2007-2009) reflects a time without knowledge of the law, while the post-shock period (2010-2012) mirrors the potential implementation time frame. $Post_F$ is a dummy variable representing this hypothetical post-shock period. Manchiraju and Rajgopal (2017) and Roy et al. (2022) use a similar placebo test. Reassuringly, the coefficient estimates on $Treat_i \times Post_F$ in columns (3) and (4) are statistically insignificant for both

NCSKEW and *DUVOL*. Performing this falsification test helps confirm that, in the absence of the CSR-135 enactment, the average change in stock price crash risk is similar for the treatment and control groups.

Panel B presents the distribution and the p-values of the 1,000 estimates for *NCSKEW* and *DUVOL*. Similarly, Figure 2.4 visualises the distribution and the p-values of the 1,000 estimates for *NCSKEW*. We include only the *NCSKEW* plot due to its qualitative similarity to the *DUVOL* plot, providing a representative illustration of the results. In Figure 2.4, the actual coefficient for *NCSKEW* from the Table 2.5 is towards the far-right side of the distribution. Most coefficients' p-values are larger than 0.1. The omitted *DUVOL* plot also exhibits a similar pattern. Overall, this corroborates that our findings are unlikely to be driven by cross-sectional heterogeneity unrelated to the treatment assignment.

Insert Table 2.7 here.

Insert Figure 2.4 here.

2.8.2 Alternative matching and sample period

To guarantee the robustness of our findings to the construction of the control group, we replicate our matching procedure using a different set of covariates. We now build the matched sample on all the previous covariates except *SIGMA* [6]. We perform a series of diagnostic tests for the alternatively matched treatment and control firms (not tabulated in the paper) and confirm that both covariate balance and parallel trend assumptions are satisfied. The multivariate DiD results obtained on the alternative matched sample are reported in columns (1) and (2)

[6]We chose to exclude *SIGMA* as a part of a broader sensitivity analysis strategy because *SIGMA* (stock return volatility) and CSR spending could be endogenously related. Firms with higher volatility might be more likely to engage in CSR activities to mitigate negative publicity or stakeholder pressure. Alternatively, aggressive CSR spending could increase financial risk and volatility. Hence, by removing SIGMA in the alternative set, we ensure that the matching procedure is based on a more independent set of covariates

of Table 2.9. We observe that the sign and significance of the DiD coefficient are consistent with the results in Table Table 2.5. The magnitudes of coefficients are also relatively similar.

To limit the possible effect of other concurrent shocks which may confound our results, we restrict the sample period to two years before and after CSR-135 enactment. We estimate our DiD model now using the 2013-2016 sample. The results are reported in columns (3) and (4) of Table 2.9. The coefficients confirm our findings in Table 2.5 that firms mandated to engage in CSR activities are more prone to stock price crash risk.

Insert Table 2.9 here.

2.8.3 Actual CSR expenditure

The CSR-135 rule offered a provision which allowed firms to temporarily postpone or reduce their CSR spending requirements in a given year without facing penalties (Goswami, 2015; Manchiraju and Rajgopal, 2017; Dharmapala and Khanna, 2018). This would imply that our treatment group may comprise firms that do not fully comply with the regulation and our quasi-natural experiment set-up may not completely capture the effect of CSR performance on stock price crash risk. To alleviate this issue, we use the information on actual CSR expenditure and estimate the following model:

$$\begin{aligned}\text{Crash Risk}_{i,t} = {} & \beta_0 + \beta_1 Treat_i \times Post_t \times CSR_{\text{var}} + \beta_2 Treat_i \times Post_t \\ & + \beta_3 Treat_i + \beta_4 Post_t + \beta_5 CSR_{\text{var}} + C_{i,t-1}\beta_6 + \gamma_i + \delta_t + \varepsilon_{i,t} \quad (2.6)\end{aligned}$$

where all the terms are defined as in Equation 2.1 and CSR_{var} denotes several alternative variables described below. First, we define CSR_{Full} as an indicator (1 and 0) of firm full compliance with the law, i.e. minimum 2% CSR spending. Second, we construct CSR_{Amt} as the natural logarithm of one plus the actual CSR

expenditure. Third, the variable CSR_{Perc} records the percentage amount spent on CSR activities (which could be lower or higher than the minimum 2%. Our specifications include time, industry, and firm fixed effects (as indicated).

The results are reported in Tables 2.10 and 2.11. Across columns and panels, we notice that the coefficient on the triple interaction term is positive and significant. Our results suggest that, on average, higher actual CSR engagement increases the stock price crash risk propensity in the treated firms relative to the control firms and in the post-CSR-135 rule period. Hence, the heightened stock price crash risk associated with higher CSR engagement is more pronounced in the post-CSR-135 rule period, indicating that stricter CSR compliance obligations may exacerbate this negative relationship. While CSR is a commendable endeavour, enforcing excessive CSR compliance without carefully considering whether the firms are making responsible practice changes in their corporation could pose unintended risks to corporate stability.

Insert Table 2.10 here.

Insert Table 2.11 here.

2.9 Conclusion

How does mandated CSR spending affect a firm's future stock price crash risk? We address this empirical question and contribute to the ongoing debate within corporate finance and CSR literature, particularly regarding the link between obligatory social responsibility and corporate performance. Our study utilises the introduction of India's CSR-135 rule as an exogenous shock, mandating specific CSR spending for qualifying firms (i.e., all Indian firms satisfying certain size thresholds to spend a minimum of 2% of their past three years' average profits on CSR activities).

Two alternative hypotheses guide our empirical investigation. CSR engagement, whether voluntary or mandated, signals a firm's commitment to responsible behaviour and encourages timely disclosure of negative information, which reduces stock price crash risk (the *Crash Risk Mitigative CSR Hypothesis*). In contrast, if investors perceive CSR as a value-enhancing investment, they would have pressured managers to engage in CSR activities. Imposing compliance on existing CSR-engaged firms might be seen as an additional financial burden, leading to negative investor reactions like selling shares. To prevent this, managers might delay bad news disclosure or manipulate earnings, which leads to an increase in stock price crash risk (the *Crash Risk Contributive CSR Hypothesis*).

Our empirical findings support the *Crash Risk Contributive CSR hypothesis*, mandating CSR spending may exacerbate the stock price crash risk. Our results differ from Kim et al. (2014) conclusion. In contrast to their study, our empirical analysis employs a mandatory CSR engagement rule applied in an emerging market. Our results indicate that, when imposed by law, CSR engagement may not lower the likelihood of crashes by encouraging information transparency and compensating for lower quality of corporate governance. Instead, the focus on regulatory compliance incentivises delaying bad news disclosure, further enhancing stock price crash risk. Using the Indian CSR-135 regulation, our empirical results credibly establish a causal link between mandatory CSR activities and increased stock price crash risk. Hence, the lack of transparency due to mandatory CSR engagement and lack of intrinsic motivation empowers insiders to exploit asymmetric knowledge, hoard bad news from investors, distort risk allocation, and hinder market efficiency.

Our results hold for alternative proxies of stock price crash risk, two placebo tests (using a pseudo shock year and a pseudo treatment assignment), different sets of the matching group, and also across a shorter sampling period (2013-2016). Our findings are consistent with those of Manchiraju and Rajgopal

(2017) and Grewal et al. (2019) on the negative effect of the CSR-135 rule on corporate outcomes.

Our paper does not attempt to establish whether CSR is value-enhancing or not. Rather, sheds light on the impact of mandatory CSR regulation on stock price crash risk. We show that such a rule may have unintended consequences, with stock price crash risk serving as evidence. We attribute these unintended consequences to the differences in the intrinsic motivation behind CSR engagement in voluntary and mandatory contexts. When CSR activities are driven by compliance, the expected positive effect of voluntary CSR, such as reduced information asymmetry and increased transparency, may not fully materialise. Consequently, managers may resort to delayed bad news disclosure and earnings manipulation to skirt regulation, amplifying stock price crash risk.

Our analyses provides valuable insights into the shortcomings of implementing mandatory CSR regulations and their potential implications for corporate risk management. By investigating the issue of stock price crash risk in the context of firms operating within an emerging economy, we reveal the factors contributing to stock price crash risk in emerging economies like India. This is important because most existing studies focus on developed economies with robust legal frameworks and strong governance. However, as Jin and Myers (2006) remind us emerging economies such as India often exhibit high volatility and weaker institutional environments characterised by corruption, less stringent legal frameworks, and inadequate investor and employee protections. Therefore, extrapolating findings from developed markets can be misleading, as they may not fully capture all the factors affecting the stock price crash risk.

In our additional analyses, we propose and demonstrate bad news hoarding by managers and earnings management as potential channels through which mandatory CSR increases stock price crash risk. Our results suggest that under mandatory CSR, firms prioritise compliance over long-term value creation under mandatory CSR, ultimately undermining their risk management and compromis-

ing investor trust.

Finally, our methodological approach using various causal inference methods addresses the limitations of current CSR literature and can isolate the causal effects of mandatory CSR engagement on stock price crash risk. This robust approach disentangles the true impact of CSR while mitigating endogeneity issues prevalent in the literature, contributing significantly to our understanding of both stock price crash risk and CSR.

Our research has significant policy implications. While promoted as sustainability initiatives, mandatory CSR spending policies like CSR-135 can become mechanisms for governments to offload societal development responsibilities onto businesses. Furthermore, when a concept like social responsibility is monetised and substituted as a tax levied at 2%, it has unintended consequences. Businesses can engage in "greenwashing" activities to appear more socially responsible without making substantive operational changes. This is exemplified by the earlier-mentioned cases of companies like the Adani Group's environmental controversies surrounding coal mining projects (Smee, 2021). These companies' CSR initiatives, while having continued involvement in tobacco production and environmental controversies, cast doubt on the genuineness of their CSR efforts. Hence, mandatory CSR carried out without the intrinsic drive of voluntary initiatives may fall short of achieving its intended goals. The net effect can be detrimental to both economic development and societal progress.

Additionally, the "one-size-fits-all" policies disproportionately impact firms near the compliance threshold compared to those significantly exceeding it. This is particularly serious in emerging markets, where firms may be financially constrained. Placing the responsibility for social progress on such firms may not be an effective method to inspire social responsibility, as they are conflicted between societal well-being and financial survival. This underscores the urgent need for CSR policies tailored to developing economies' specific challenges and needs.

Overall, our research findings alert policymakers to the negative consequences of the mandatory spending rule. This allows companies to take timely measures to adopt more thoughtful policies or liquidate unprofitable projects before implementation. We emphasise the need for cautious consideration of mandatory CSR spending policies and encourage policymakers to focus on nuanced, incentive-based policies that encourage genuine corporate social responsibility rather than solely relying on external pressures.

Figure 2.1
Standardised % bias histogram matched and unmatched

Figure 2.1 shows the standardised percentage bias histogram for evaluating the effectiveness of matching procedures (Atanasov and Black, 2016). This histogram compares the marginal covariate distributions between the matched and unmatched samples, aiming to assess the extent of bias reduction achieved through our matching procedure. The figure reveals that the standardized percentage bias falls within the generally acceptable range of $\pm 10\%$ for all covariates.

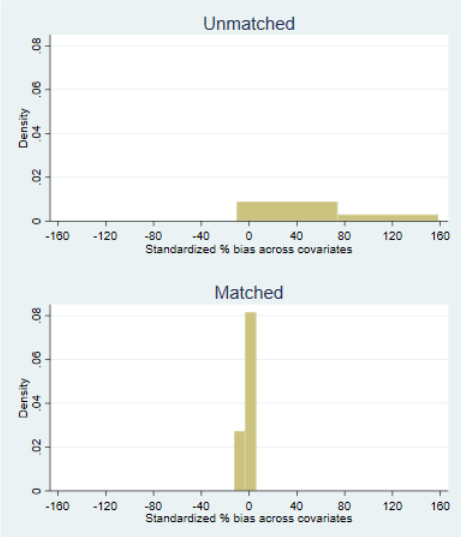
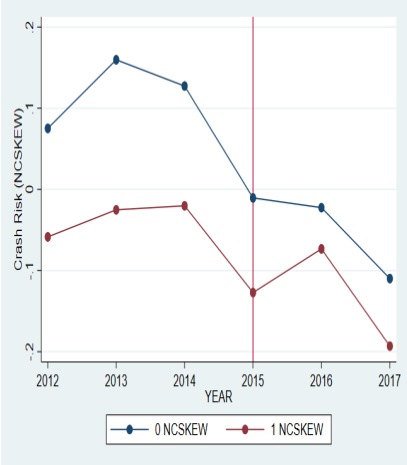
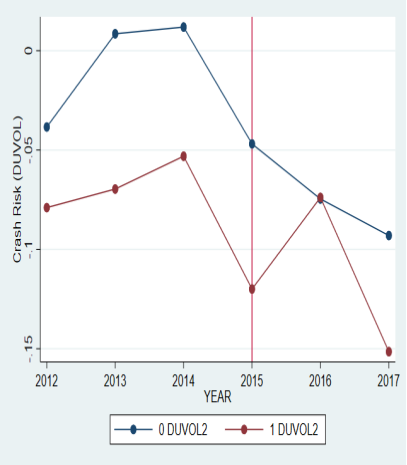


Figure 2.2
Parallel trend plots

Figure 2.2a and Figure 2.2b visualise the parallel trend assumption for the crash risk proxies *NCSKEW* and *DUVOL*, a crucial prerequisite for valid causal inference in difference-in-differences (DiD) analysis. These figures depict the mean crash risk measures for both the treatment group (TG) and control group (CG) in the years preceding and following the implementation of the CSR-135 rule. In both cases, we observe that the mean crash risk measures of both TG and CG exhibit a parallel trend, and the pattern changes post 2015.



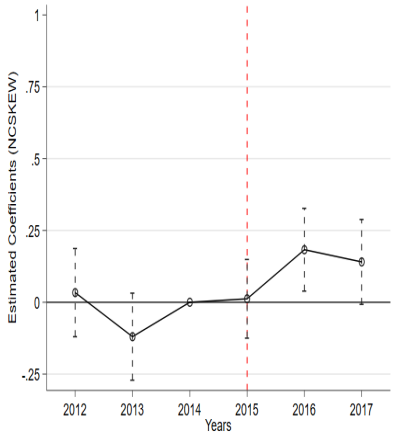
(a) NCSKEW Parallel Trend



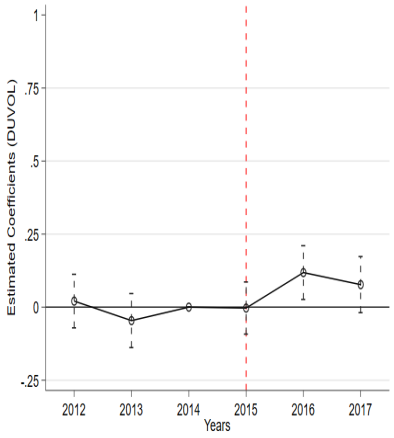
(b) DUVOL Parallel Trend

Figure 2.3
Dynamic effect of CSR law on crash risk proxies

Figure 2.3a and Figure 2.3b shows event study plots depicting the dynamic effect of the CSR law on crash risk proxies, *NCSKEW* and *DUVOL*, respectively, with confidence intervals. The year 2014 serves as the baseline year, representing the period before the law's implementation.



(a) NCSKEW Parallel Trend



(b) DUVOL Parallel Trend

Figure 2.4
Placebo treatment assignment: *NCSKEW*

Figure 2.4 presents visualisation for our second placebo test for *NCSKEW*. It displays a kernel density plot and corresponding p-values for 1,000 estimates of the coefficient on $Treat_F \times Post_t$ constructed through random assignment of firms to a fictitious treatment group. $Treat_F$ indicates a randomly assigned treatment status, while $Post_t$ remains a dummy variable denoting the post-CSR-135 period (2015-2017). We can observe that the distribution of these placebo estimates concentrates around zero, whereas the true estimate from our main analysis is in the far right-hand side, suggesting that random treatment assignment is unlikely to generate the magnitude of effects observed in our main analysis.

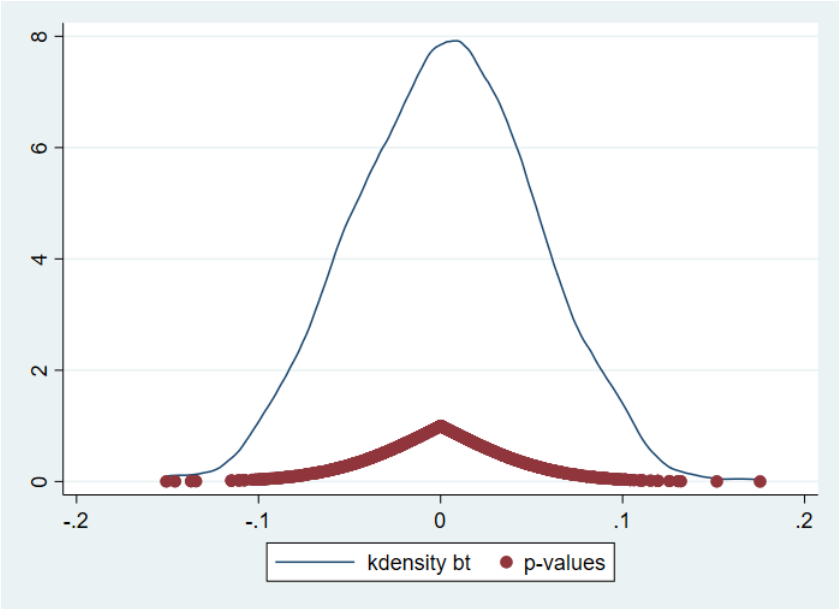


Table 2.1
Descriptive statistics

This table presents the mean values for the variables employed in this study, segmented into three periods: the overall sample period (2012-2017), the pre-CSR-135 years (2012-2014), and the post-CSR-135 years (2015-2017) in columns (1), (2) and (3), respectively. The values in the second row represent the number of observations for each variable. **Panel A** focuses on the two primary measures of stock price crash risk: *NCSKEW* and *DUVOL*. **Panel B** provides summary statistics for additional firm-level and stock market variables. All variables are defined in Appendix A. We winsorise our continuous variables at 2% level on both ends. *** p<0.01, ** p<0.05, * p<0.1. Data source: CMIE Prowess Database.

Panel A: Stock Price Crash Measures					
Variables	Overall Sample	Pre-CSR135(2012-2014)	Post-CSR135(2015-2017)	Diff	t-stat
	(1)	(2)	(3)		
NCSKEW	0.068	0.096	0.041	0.055***	3.7
	17,534	8659	8875		
DUVOL	-0.0194	-0.0047	-0.0337	0.029***	3.2
	17,533	8658	8875		
Panel B: Firm Characteristics					
Variables	Overall Sample	Before CSR-135	After CSR-135	Difference	*t*-statistics
RET	-0.242	-0.228	-0.262	0.009***	3.85
	17,534	8659	8875		
SIGMA	0.071	0.069	0.074	0.001***	-9.85
	17,534	8659	8875		
KURT	4.375	4.413	4.34	0.061	1.2
	17,534	8659	8875		
DTURN	-0.00047	-0.001	0	0.00 ***	-9
	17,301	8522	8779		
SIZE	6.693	6.527	6.854	0.036***	-8.95
	17,534	8659	8875		
ROA	-0.158	0.558	-0.857	0.321***	4.4
	17,466	8627	8839		
LEV	1.77093	1.649	1.893	0.117**	-2.1
	15,074	7537	7537		
M2B	3.113	-1.036	7.16	5.011*	-1.65
	17,531	8657	8874		
ABACC	0.103	0.095	0.111	0.002***	-7.65
	15,321	7653	7668		

Table 2.2
Correlation table

This table presents Pearson correlation coefficients.*** p<0.01, ** p<0.05, * p<0.1 *NCSKEW* and *DUVOL* are our proxies for crash risk. Data source: CMIE Prowess Database.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) *NCSKEW*	1											
(2) *DUVOL*	0.81***	1										
(3) *RET*	-0.242***	-0.08***	1									
(4) *SIGMA*	0.387***	0.28***	-0.499***	1								
(5) *KURT*	0.562***	0.37***	-0.26***	0.391***	1							
(6) *DTURN*	-0.051***	-0.040***	0.203***	-0.358***	0.171***	1						
(7) *SIZE*	-0.0113	0.001	0.079***	-0.127***	0.043***	0.001	1					
(8) *ROA*	0.0085	0.008	0.0014	-0.003	0.001	-0.008	0.218***	1				
(9) *LEV*	0.028***	0.017**	-0.035***	0.083***	-0.0105	-0.002	0.0113	-0.0007	1			
(10) *M2B*	-0.0015	0	-0.004	0.002	-0.004	0.006	-0.107***	-0.093***	0.025***	1		
(11) *ABACC*	0.015*	0.004	-0.02**	0.026***	-0.007	0.003	-0.05***	-0.597***	0.078***	0.008	1	
(12) *CSRAMT*	0.0416***	0.038***	0.02***	-0.065***	0.046***	0.005	0.207***	0.038***	-0.004	-0.0005	-0.009	1

Table 2.3
Propensity Score Matching: Diagnostic regression

This table presents the results for propensity score matching related statistics. **Panel A** presents probit regression results based on the specification in Equation (2.5). Column (1) displays the probit result for predicting the likelihood of receiving treatment from the overall pool in the pre-CSR-135 period. Model (2) presents the probit likelihood model for PSM-matched TG and CG firms. Robust standard errors corrected for heteroscedasticity are presented in parentheses. **Panel B** provides a univariate comparison of treatment and matched control firms' characteristics and their corresponding t-statistics. All the continuous variables are winsorised at 2% on both ends. *** p<0.01, ** p<0.05, * p<0.1 . Data source: CMIE Prowess Database.

Panel A: Pre-match and post-match probit regression

	Dummy=1 if in Treatment Group; 0 if in Control Group	
Variables	Pre-match (1)	Post-match (2)
RET_{t-1}	0.0279	0.0298
	(0.0488)	(0.0555)
$SIGMA_{t-1}$	-10.28***	-0.609
	(1.042)	(1.209)
$KURT_{t-1}$	0.029***	-0.0002
	(0.0057)	(0.0074)
$DTURN_{t-1}$	0.799	0.302
	(1.00)	(1.133)
$SIZE_{t-1}$	0.441***	-0.0196
	(0.0148)	(0.0205)
ROA_{t-1}	0.0386***	0.0045
	(0.0045)	(0.0038)
LEV_{t-1}	0.144	0.0436
	(0.152)	(0.180)
$M2B_{t-1}$	-0.0066**	-0.0005
	(0.0032)	(0.0021)
$ABACC_{t-1}$	-0.0759**	0.0308
	(0.0382)	(0.0511)
Constant	-2.244***	0.216
	(0.245)	(0.279)
Observations	6,245	2,242
Industry FE	YES	YES
Year	2012-2014	2012-2014
Pseudo R^2	0.378	0.0027
Wald χ^2	1498	8.107
Prob $> \chi^2$	< 0.001	0.999

Panel B: Mean Differences in Covariates in Matched TG and CG Pre-CSR-135 Period

Variable(*s*)	Mean Control	Mean Treated	Difference	*t*-statistics	Pr($T > t$)
RET_{t-1}	-0.164	-0.134	0.030	1.40	0.1631
$SIGMA_{t-1}$	0.062	0.062	-0.001	0.62	0.5323
$KURT_{t-1}$	5.050	4.917	-0.133	0.69	0.4922
$DTURN_{t-1}$	-0.002	-0.002	0.000	0.33	0.7380
$SIZE_{t-1}$	6.885	6.823	-0.063	1.04	0.2999
ROA_{t-1}	2.810	3.226	0.415	1.27	0.2053
LEV_{t-1}	0.167	0.166	-0.002	0.23	0.8179
$M2B_{t-1}$	2.769	2.500	-0.269	0.43	0.6641
$ABACC_{t-1}$	0.522	0.533	0.011	0.47	0.6410

Table 2.4
Pre and Post-matched firms' mean difference in covariates: Standardised difference

Panel A reports the standarised differences in the values of the covariates between the untreated (control) firms and the treated firms before any matching is performed. **Panel B** provides the the standarised differences in the values of the covariates between the treated and control firms after matching is performed. Data source: CMIE Prowess Database.

Panel A: Standardised difference for the Unmatched sample			
	Mean in treated	Mean in Untreated	Standardised diff.
RET_{t-1}	-0.09	-0.24	0.303
$KURT_{t-1}$	5.16	4.5	0.138
$DTURN_{t-1}$	0	0	0.011
$SIZE_{t-1}$	8.3	5.72	1.423
LEV_{t-1}	0.16	0.16	0.013
$M2B_{t-1}$	2.67	2.57	0.008
$ABACC_{t-1}$	0.5	0.64	-0.158
Panel B: Standardized Difference for the Matched sample			
	Mean in treated	Mean in Untreated	Standardised diff.
RET_{t-1}	-0.13	-0.16	0.057
$KURT_{t-1}$	5.03	5.02	0.002
$DTURN_{t-1}$	0	0	0.015
$SIZE_{t-1}$	6.87	6.94	-0.048
LEV_{t-1}	0.16	0.17	-0.042
$M2B_{t-1}$	2.16	2.9	-0.053
$ABACC_{t-1}$	0.53	0.52	0.012

Table 2.5
Crash risk: Univariate and multivariate DiD analysis

Panel A reports the univariate difference-in-difference (DiD) result between PSM-matched firms in the Treatment Group (TG) and the Control Group (CG). The sample period spans from 2012 to 2017. **Panel B** reports the main multivariate difference-in-difference (DiD) results for Equation (2.1) using PSM matched TG and CG firms. The variable $Treat_i$ is a binary variable that equals 1 for treatment firms (i.e., if *Net worth*, *Sales*, or *Net profit* exceeds the specified threshold) and 0 for control firms. The variable $Post_t$ is a dummy variable that takes the value 1 for the post-CSR-135 period (2015-2017) and 0 for the pre-CSR-135 period (2012-2014). In all panels, *NCSKEW* and *DUVOL* serve as our proxies for crash risk. Heteroscedasticity-robust standard errors are displayed in parentheses, accompanied by their corresponding t-statistics below them.*** p<0.01, ** p<0.05, * p<0.1 . Data source: CMIE Prowess Database.

Panel A: Univariate Difference-in-Differences test

Outcome var.	Period	Control	Treated	Diff (TG-CG)	Diff-in-Diff
	(1)	(2)	(3)	(4)	(5)
NCSKEW	Before CSR rule	0.122	-0.034	-0.156***	0.137***
				(0.033)	(0.045)
				-4.73	3.04
	After CSR Rule	-0.077	-0.096	-0.019	
				(0.031)	
				0.61	
DUVOL	Before CSR rule	-0.003	-0.073	-0.07***	0.071**
				(0.019)	(0.028)
				-3.56	2.55
	After CSR rule	-0.111	-0.111	-0.001	
				(0.02)	
				0.97	

Panel B: Multivariate PSM-DiD: Mandated CSR and Stock Price Crash Risk

	Industry FE				Firm FE	
	NCSKEW	*DUVOL*	*NCSKEW*	*DUVOL*	*NCSKEW*	*DUVOL*
	(1)	(2)	(3)	(4)	(5)	(6)
$Treat_i \times Post_t$	0.1160**	0.0514*	0.1423***	0.0669**	0.0852*	0.0376
	(0.0479)	(0.0297)	(0.0527)	(0.0329)	(0.0489)	(0.0305)
$NCSKEW_{t-1}$			0.0474***			
			(0.0182)			
$DUVOL_{t-1}$				0.0323**		
				(0.0154)		
RET_{t-1}	0.0582	0.0337*	0.0989**	0.0393*	0.0909**	0.0271
	(0.0364)	(0.0190)	(0.0463)	(0.0232)	(0.0380)	(0.0211)
$SIGMA_{t-1}$	2.344***	0.964***	1.672***	0.693**	-1.945***	-1.195***
	(0.5271)	(0.2886)	(0.6246)	(0.3364)	(0.7267)	(0.3944)
$DTURN_{t-1}$	0.2905	0.2070	-0.2451	-0.1226	1.1955	0.6429
	(0.5191)	(0.2877)	(1.2152)	(0.5678)	(0.9974)	(0.5041)
ROA_{t-1}	0.0042***	0.0022**	0.0040**	0.0021**	0.0037**	0.0020*
	(0.0015)	(0.0009)	(0.0016)	(0.0010)	(0.0019)	(0.0012)
LEV_{t-1}	-0.0412	-0.0448	-0.0812	-0.0673	-0.3561*	-0.1813
	(0.0841)	(0.0501)	(0.0871)	(0.0540)	(0.2024)	(0.1153)
$M2B_{t-1}$	0.0001	-0.0002	-0.0005	-0.0008	0.0006	-0.0003
	(0.0008)	(0.0006)	(0.0014)	(0.0010)	(0.0013)	(0.0009)
$ABACC_{t-1}$	0.0236	0.0046	0.0037	-0.0042	0.0748**	0.0422*
	(0.0233)	(0.0138)	(0.0215)	(0.0140)	(0.0377)	(0.0236)
Observations	6,176	6,176	5,147	5,147	6,159	6,159
R-squared	0.0178	0.0112	0.0215	0.0136	0.2319	0.2123
Firm FE	NO	NO	NO	NO	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	NO	NO

Table 2.6
Difference-in-Difference parallel trend analysis

This table reports the estimates for trend analysis for DiD. *NCSKEW* and *DUVOL* are our proxies for crash risk. The variable $Treat_i$ is a binary variable that takes the value 1 for treatment firms (i.e., if *Net worth*, *Sales* or *Net profit* is greater than threshold) and 0 for control firms. We assume that a treated firm remains treated for the entire sample period. Since the Companies Act 2013 came into effect on April 1, 2014, and was applicable in the fiscal year ending March 2015 i.e., the fiscal year 2015. We use 2015 as the shock. We create three variables denoting three years before the shock as $Shock^{-1}$= 2014, $Shock^{-2}$ = 2013 and $Shock^{-3}$= 2012. So, we denote the post-shock year as $Shock^{1}$=2016 and $Shock^{2}$=2017. Hence, using these pre- and post-shock time dummies, we created the $Treat_i \times Shock^{-1}$ as an interaction between the $Treat_i$ and $Shock^{-1}$. In the same spirit, we created the interaction term $Treat_i \times Shock^{1}$ as an interaction between the $Treat_i$ and $After^{1}$. We have 2012 as our base year. Other variables follow the same construction. Robust standard errors are in parentheses and are clustered by firm ID and year. *** p<0.01, ** p<0.05, * p<0.1 . Data source: CMIE Prowess Database.

	NCSKEW (1)	*DUVOL* (2)	*NCSKEW* (3)	*DUVOL* (4)
$Treat_i \times Shock^{-2}$	0.0303	0.0128	-0.0239	-0.0151
	(0.0494)	(0.0291)	(0.0575)	(0.0337)
$Treat_i \times Shock^{-1}$	0.0076	-0.0053	0.0339	0.0063
	(0.0647)	(0.0398)	(0.0734)	(0.0444)
$Treat_i \times Shock$	0.017	-0.0099	0.0434	0.0017
	(0.0623)	(0.0395)	(0.0713)	(0.0440)
$Treat_i \times Shock^{1}$	0.1871***	0.1116***		
	(0.0669)	(0.0408)		
$Treat_i \times Shock^{1\&2}$			0.1926***	0.1029***
			(0.0651)	(0.0387)
$Shock^{-1}$	0.0713*	0.0453*	-0.0092	0.0057
	(0.0414)	(0.0266)	(0.0452)	(0.0283)
Shock	-0.0519	-0.0265	-0.1324***	-0.0661**
	(0.0382)	(0.026)	(0.0423)	(0.0278)
$Shock^{1}$	-0.1200***	-0.0789***		
	(0.0393)	(0.0274)		
$Treat_i$	-0.133***	-0.0554**	-0.1593***	-0.067**
	(0.0387)	(0.0226)	(0.0519)	(0.0299)
$Shock^{1\&2}$			-0.2404***	-0.1284***
			(0.0389)	(0.0245)
Constant	0.0448*	-0.0446***	0.1253***	-0.0050
	(0.0245)	(0.0146)	(0.0305)	(0.0176)
Observations	7,168	7,168	7,168	7,168
R-squared	0.0050	0.0039	0.0089	0.0066

Table 2.7
Placebo tests (*NCSKEW* and *DUVOL*)

Panel A and B report multivariate placebo DiD regression using PSM matched TG and CG as per the specification in Equation 2.1. In **Panel A**, columns (1) and (2) report multivariate placebo DiD results between the PSM-matched firms' pseudo TG and CG groups. The dummy variable $Post_t$ equals 1 for the post-shock period (2012-2014) and 0 for the pre-shock period (2015-2017). We randomly assign the treatment variable *Treat* to each term, then construct a false treatment variable $Treat_F$ and the associated interaction term $Treat_F \times Post_t$. We conduct the random data generating process 1,000 times and report the mean of the estimated coefficients for both columns (1) and (2). In columns (3) and (4), we use 2010 as the shock year. $Post_F$ is a dummy that equals 1 for the false post-shock period (2010-2012) and 0 for the false pre-shock period (2007-2009). The variable $Treat_i$ is a binary variable that takes the value 1 for treatment firms (i.e., if *Net worth*, *Sales* or *Net profit* is greater than the threshold) and 0 for control firms. **Panel B** reports the distribution of β for the pseudo-CSR rule. *NCSKEW* and *DUVOL* are our proxies for stock price crash risk. Heteroscedasticity robust standard errors are displayed in parenthesis. The sample period is as indicated. *** p<0.01, ** p<0.05, * p<0.1 . Data source: CMIE Prowess Database.

Panel A: Placebo treat and Placebo shock regressions				
	(1) *NCSKEW*	(2) *DUVOL*	(3) *NCSKEW*	(4) *DUVOL*
$Treat_F \times Post_t$	-0.0004	-0.0002		
$Treat_i \times Post_F$			-0.0317	-0.0209
			(0.0574)	(0.0333)
Observations	6,523	6,523	5,978	5,978
Adj. R^2			0.265	0.257
Baseline Controls	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES
Year	2012-2017	2012-2017	2007-2012	2007-2012
Panel B: Placebo test: Distribution of β for pseudo-CSR rule				
Distributionstats	*NCSKEW*		*DUVOL*	
Mean β for pseudo-CSR rule	-0.0004		-0.0002	
Min β for pseudo-CSR rule	-0.118		-0.063	
Max β for pseudo-CSR rule	0.131		0.081	
1% percentile β for pseudo-CSR rule	-0.083		-0.055	
5% percentile β for pseudo-CSR rule	-0.059		-0.036	
25% percentile β for pseudo-CSR rule	-0.024		-0.015	
Median β for pseudo-CSR rule	0		0	
75% percentile β for pseudo-CSR rule	0.024		0.015	
95% percentile β for pseudo-CSR rule	0.061		0.035	
99% Percentile β for pseudo-CSR rule	0.081		0.053	

Table 2.8
Tests of bad news hoarding

This table presents results for the evidence of bad news hoarding. Column (1) presents the regression estimates with the dependent variable *NCSKEWBreak*. Following Chowdhury et al. (2020) approach, we focus on stock price crashes that are triggered by the break in a consecutive earnings string to provide evidence for managerial bad news hoarding. We set the dummy variable *Break* equal to 1 if a firm's current earnings decrease after consecutively increasing in the previous two years. We then multiply this indicator with our propensity of crash risk *NCSKEW* and obtain the *NCSKEWbreak* variable. *ABACC* is the absolute value of the discretionary accruals using the modified Jones model for each industry and year The $CSR_{Amt(t-1)}$ is the natural log of one plus CSR amount incurred by the firm. Heteroscedasticity robust standard errors are displayed in parentheses and the t-statistics below them. All the regressions include industry and year fixed effects. The sample period is 2012-2017. *** p<0.01, ** p<0.05, * p<0.1 . Data source: CMIE Prowess Database.

	NCSKEWBreak	*ABACC*
	(1)	(2)
$CSR_{Amt(t-1)}$	0.0174**	0.0104***
	(0.0088)	(0.0023)
RET_{t-1}	0.0659	-0.0016
	(0.0437)	(0.0034)
$SIGMA_{t-1}$	1.0955**	0.2195***
	(0.4643)	(0.0662)
$DTURN_{t-1}$	5.5176	0.3978
	(7.6590)	(0.2880)
ROA_{t-1}	-0.0001	-0.0002
	(0.0005)	(0.0004)
LEV_{t-1}	-0.0032	-0.0332***
	(0.0465)	(0.0126)
$M2B_{t-1}$	-0.0009	0.0012***
	(0.0025)	(0.0004)
Constant	-0.0801*	0.1032***
	(0.0470)	(0.0136)
Observations	3,063	4,130
R-squared	0.0162	0.0560
Year FE	YES	YES
Industry FE	YES	YES

Table 2.9
Sensitivity analyses

This table presents estimates for sensitivity analyses. Columns (1) and (2) reports multivariate DiD results on an alternative sets of PSM matched TG and CG. The sample is matched on all the previous covariates except *SIGMA*. In columns (3) and (4), we selected a shorter estimation period of 2013-2016 to produce more reliable estimates for DiD. In this case, $Post_S$ equals to 1 for the post-CSR-135 period (2015-2016) and 0 for the pre-CSR-135 period (2013-2014). *NCSKEW* and*DUVOL* are our proxies for crash risk. The variable $Treat_i$ is a binary variable that takes the value 1 for treatment firms (i.e., if *Net worth*, *Sales* or *Net profit* is greater than threshold) and 0 for control firms, $Post_t$ is a dummy that equals 1 for the post-CSR-135 period (2015-2017) and 0 for the pre-CSR-135 period (2012-2014). Heteroscedasticity robust standard errors are displayed in parenthesis and the t-statistics below them. The sample period is noted above. *** p<0.01, ** p<0.05, * p<0.1 . Data source: CMIE Prowess Database.

	NCSKEW (1)	*DUVOL* (2)	*NCSKEW* (3)	*DUVOL* (4)
$Treat_i \times Post_t$	0.111**	0.0366		
	(0.0494)	(0.0301)		
$Treat_i \times Post_S$			0.131**	0.0595*
			(0.0577)	(0.0360)
RET_{t-1}	0.0805**	0.0119	0.108*	0.0014
	(0.0381)	(0.0204)	(0.0587)	(0.0309)
$SIGMA_{t-1}$	-2.633***	-1.389***	-3.408***	-2.058***
	(0.718)	(0.388)	(1.159)	(0.599)
$DTURN_{t-1}$	0.676	0.276	0.564	0.161
	(0.745)	(0.376)	(1.867)	(0.953)
ROA_{t-1}	0.0046**	0.0027**	0.0049**	0.0012
	(0.002)	(0.0011)	(0.0024)	(0.0015)
LEV_{t-1}	-0.400**	-0.281**	-0.686***	-0.502***
	(0.193)	(0.110)	(0.264)	(0.167)
$M2B_{t-1}$	0.0009	8.51e-05	0.0003	-0.0016
	(0.0014)	(0.0009)	(0.0022)	(0.0014)
$ABACC_{t-1}$	0.0108	0.003	0.0038	-0.0021
	(0.0091)	(0.0065)	(0.0077)	(0.0087)
Constant	0.389	-0.0453	0.705	0.169
	(0.939)	(0.326)	(1.491)	(0.512)
Observations	6,921	6,921	4,707	4,707
R-squared	0.238	0.226	0.336	0.320
Firm FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Table 2.10
CSR compliance and Stock price crash risk: *NCSKEW*

This table reports estimates for our triple interaction: $Treat_i$,$Post_t$ and CSR variable. *NCSKEW* is our proxies for crash risk. The variable $Treat_i$ is a binary variable that takes the value 1 for treatment firms (i.e., if *Net worth*, *Sales* or *Net profit* is greater than threshold) and 0 for control firms, $Post_t$ is a dummy that equals 1 for the post-CSR-135 period (2015-2017) and 0 for the pre-CSR-135 period (2012-2014). First, we define CSR_{Full} as an indicator (1/0) of firm full compliance with the law, i.e. minimum 2% CSR spending. Second, CSR_{amt} as the natural logarithm of one plus the actual CSR expenditure. Third, the variable CSR_{Perc} records the percentage amount spent on CSR activities (which could be lower or higher than the minimum 2%). As has been done in the prior studies, we will treat no reporting of CSR as zero money spent on CSR. Heteroscedasticity robust standard errors are displayed in parenthesis and the t-statistic. All regression includes industry and year-fixed effects. The sample period is 2012-2017. *, **, and *** denote statistical significance at the 10%, 5% and 1%, respectively. Data source: CMIE Prowess Database

	NCSKEW (1)	*NCSKEW* (2)	*NCSKEW* (3)	*NCSKEW* (4)	*NCSKEW* (5)	*NCSKEW* (6)
$Treat_i \times Post_t \times CSR_{Full(t-1)}$	0.2487**			0.2229*		
	(0.1134)			(0.1305)		
$Treat_i \times Post_t \times CSR_{Amt(t-1)}$		0.2411***			0.1614**	
		(0.0683)			(0.0777)	
$Treat_i \times Post_t \times CSR_{Perc(t-1)}$			0.0008*			0.0003
			(0.0005)			(0.0005)
$Treat_i \times Post_t$	0.1368***	0.0774	0.1480***	0.0826	0.0333	0.0942*
	(0.0530)	(0.0535)	(0.0516)	(0.0542)	(0.0555)	(0.0534)
RET_{t-1}	0.0803*	0.0762*	0.0806*	0.1150**	0.1116**	0.1135**
	(0.0454)	(0.0447)	(0.0453)	(0.0478)	(0.0470)	(0.0467)
$SIGMA_{t-1}$	2.1837***	2.2373***	2.1975***	-2.5595***	-2.5778***	-2.6070***
	(0.5893)	(0.5929)	(0.5894)	(0.9048)	(0.9027)	(0.9073)
$DTURN_{t-1}$	-1.4245	-1.4048	-1.4234	0.1175	0.1502	0.1160
	(1.5440)	(1.5412)	(1.5441)	(1.9222)	(1.9180)	(1.9235)
ROA_{t-1}	0.0033**	0.0030**	0.0033**	0.0038*	0.0038*	0.0036*
	(0.0015)	(0.0015)	(0.0015)	(0.0020)	(0.0020)	(0.0020)
LEV_{t-1}	-0.0908	-0.0939	-0.0932	-0.5461**	-0.5255**	-0.5568**
	(0.0845)	(0.0846)	(0.0845)	(0.2284)	(0.2286)	(0.2334)
$M2B_{t-1}$	-0.0007	-0.0009	-0.0007	0.0020	0.0020	0.0020
	(0.0014)	(0.0014)	(0.0014)	(0.0021)	(0.0021)	(0.0021)
$ABACC_{t-1}$	-0.0028	-0.0014	-0.0031	0.0258	0.0283	0.0245
	(0.0208)	(0.0208)	(0.0208)	(0.0361)	(0.0358)	(0.0362)
Observations	5,388	5,387	5,388	5,314	5,313	5,264
R-squared	0.0205	0.0234	0.0202	0.2786	0.2799	0.2797
Firm FE	NO	NO	NO	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	NO	NO	NO

Table 2.11
CSR compliance and Stock price crash risk: *DUVOL*

This table reports estimates for our triple interaction: $Treat_i, Post_t$ and CSR variable. *DUVOL* is our proxies for crash risk. The variable $Treat_i$ is a binary variable that takes the value 1 for treatment firms (i.e., if *Net worth*, *Sales* or *Net profit* is greater than threshold) and 0 for control firms, $Post_t$ is a dummy that equals 1 for the post-CSR-135 period (2015-2017) and 0 for the pre-CSR-135 period (2012-2014). First, we define CSR_{Full} as an indicator (1/0) of firm full compliance with the law, i.e. minimum 2% CSR spending. Second, CSR_{amt} as the natural logarithm of one plus the actual CSR expenditure. Third, the variable CSR_{Perc} records the percentage amount spent on CSR activities (which could be lower or higher than the minimum 2%). As has been done in the prior studies, we will treat no reporting of CSR as zero money spent on CSR. Heteroscedasticity robust standard errors are displayed in parenthesis and the t-statistic. All regression includes industry and year-fixed effects. The sample period is 2012-2017. *, **, and *** denote statistical significance at the 10%, 5% and 1%, respectively. Data source: CMIE Prowess Database

	DUVOL (1)	*DUVOL* (2)	*DUVOL* (3)	*DUVOL* (4)	*DUVOL* (5)	*DUVOL* (6)
$Treat_i \times Post_t \times CSR_{Full(t-1)}$	0.1545*			0.1302		
	(0.0839)			(0.0986)		
$Treat_i \times Post_t \times CSR_{Amt(t-1)}$		0.1503***			0.1423**	
		(0.0478)			(0.0587)	
$Treat_iimesPost_t \times CSR_{Perc(t-1)}$			0.0000			-0.0001
			(0.0003)			(0.0004)
$Treat_i \times Post_t$	0.0589*	0.0319	0.0708**	0.0374	0.0095	0.0509
	(0.0331)	(0.0336)	(0.0322)	(0.0344)	(0.0352)	(0.0338)
RET_{t-1}	0.0390*	0.0370*	0.0394*	0.0221	0.0202	0.0225
	(0.0227)	(0.0224)	(0.0227)	(0.0259)	(0.0256)	(0.0259)
$SIGMA_{t-1}$	0.9052***	0.9240***	0.9163***	-1.6832***	-1.7009***	-1.6887***
	(0.3159)	(0.3165)	(0.3159)	(0.4916)	(0.4905)	(0.4937)
$DTURN_{t-1}$	-0.8779	-0.8681	-0.8769	0.0957	0.1254	0.0933
	(0.7759)	(0.7738)	(0.7759)	(0.8901)	(0.8835)	(0.8906)
ROA_{t-1}	0.0020**	0.0019*	0.0020**	0.0018	0.0018	0.0016
	(0.0010)	(0.0010)	(0.0010)	(0.0013)	(0.0013)	(0.0013)
LEV_{t-1}	-0.0669	-0.0697	-0.0691	-0.2702*	-0.2628*	-0.2897*
	(0.0528)	(0.0528)	(0.0528)	(0.1446)	(0.1444)	(0.1481)
$M2B_{t-1}$	-0.0008	-0.0009	-0.0008	-0.0003	-0.0003	-0.0003
	(0.0010)	(0.0010)	(0.0010)	(0.0015)	(0.0015)	(0.0015)
$ABACC_{t-1}$	-0.0107	-0.0102	-0.0108	0.0227	0.0241	0.0199
	(0.0137)	(0.0137)	(0.0137)	(0.0252)	(0.0251)	(0.0254)
Observations	5,388	5,387	5,388	5,314	5,313	5,264
R-squared	0.0143	0.0164	0.0138	0.2507	0.2523	0.2521
Firm FE	NO	NO	NO	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	NO	NO	NO

Appendices

A Variables definition

The following table provides definition for all the variables used in the chapter.

Variables	Definition	Source
NCSKEW	Negative Skewness measured as negative value of 3rd moment of firm-specific weekly returns for each year divided by the variance of firm-specific weekly returns raised to 1.5 power	(Chen et al., 2001)
DUVOL	Down-to-up volatility measured as ln(ratio of standard deviation in the down week to the standard deviations in the up weeks)	(Chen et al., 2001)
NetProfit	Net Profit Before Tax	(Manchiraju and Rajgopal, 2017)
NetWorth	Average product of the shares outstanding and shares face-value centered at the cut-off (Book value of shareholder's equity)	(Manchiraju and Rajgopal, 2017)
Sales	Total Sales	(Manchiraju and Rajgopal, 2017)
$Treat_i$	Treatment Dummy measured as 1 if a firm qualifies to spend under CSR rule and 0 otherwise	(Roy et al., 2022; Manchiraju and Rajgopal, 2017)
$Post_t$	Dummy variable to represent post shock where 1 fiscal year 2015 and onwards ; 0 otherwise	(Roy et al., 2022; Manchiraju and Rajgopal, 2017)
SIGMA	Stock Volatility measured as SD of firm-specific weekly returns over a fiscal year	(Kim et al., 2014)
RET	Average Firm-specific weekly returns over a fiscal year	Kim et al. (2014); Al Mamun et al. (2020)
KURT	Annual average of Kurtosis of firm-specific weekly returns	
MRET	Average weekly return on CNX 500 market Index	Kim et al. (2014); Al Mamun et al. (2020)
DTURN	Change in Trading Volume measured as average monthly stock turnover (the number of shares traded divided by shares outstanding) in year t-1 subtracted from the average monthly stock turnover in year t	
M2B	Market-to-Book ratio measured as average ratio of closing price to book value per share (market value of equity divided by the book value of equity)	Kim et al. (2014); Al Mamun et al. (2020)
ROA	Profitability proxied by return on total assets	Kim et al. (2014); Al Mamun et al. (2020)
LEV	Leverage Ratio measured as ratio of total long-term debts to total assets	Kim et al. (2014); Al Mamun et al. (2020)
SIZE	Firm Size measured as Ln(Market Value of Equity)	Kim et al. (2014); Al Mamun et al. (2020)
ABACC	Earnings Management proxied using abnormal Accruals : Absolute value of the residuals from modified Jones Model by each fiscal year and by each 2-digit National Industry Classification (NIC) code	Kim et al. (2014); Al Mamun et al. (2020)
CSR_{dummy}	One if a firm actually incurs CSR expenses and Zero otherwise	Marshall et al. (2022)
CSR_{Amt}	ln (1+ Actual amount Spent in CSR)	Marshall et al. (2022)
CSR_{Perc}	% spent on CSR activities (which could be lower or higher than the minimum 2%)	Marshall et al. (2022)
CSR_S	Actual amount spent on CSR related activity	Roy et al. (2022)
CSR_I	Amount required to spend in CSR as per the Section 135 rule	Roy et al. (2022)
NP_CSR	Average of the three years net profit according to Section 135 (Average Net Profit CSR)	Roy et al. (2022)

Chapter 3

Mandatory CSR spending and stock price informativeness

Abstract

This study investigates the under-studied area of mandatory corporate social responsibility policy (Indian Section 135 rule) on stock price informativeness (SPI), measured by low synchronicity. We use agency and signalling theories to understand how mandatory CSR could affect SPI. We predict and document that mandatory CSR may not have the same SPI-enhancing effect as voluntary CSR due to lower signalling resulting from its compulsory nature. Our empirical analysis is based on 3,748 non-financial firms operating in India, resulting in 16,886 firm-year observations from 2012 to 2017. Using instrumental variables analysis and difference-in-differences approaches, we show that the impact of mandatory CSR on SPI is amplified for firms with weaker external oversight. We also demonstrate that advertising expenses, stronger external scrutiny (e.g., from foreign investors and analyst coverage), and better internal corporate governance can help mitigate this effect.

3.1 Introduction

The rise of mandatory Corporate Social Responsibility (CSR) and Environmental, Social, and Governance (ESG) policies in various jurisdictions, including China, Indonesia, the European Union (EU), and India, reflects a growing emphasis on ethical business practices and corporate transparency (Christensen et al., 2021). These policies aim to promote CSR engagement, disclosures, and spending, incentivising responsible and transparent corporate behaviour.

However, the effectiveness of mandatory CSR policies in enhancing transparency and responsible business practices remains a question. Do these policies provide additional insights beyond what voluntary engagement offers? Historical greenwashing scandals, such as those involving Enron and Satyam Computer Services, highlight examples of companies that initially received praise for their CSR practices only to be later exposed for fraudulent and unethical conduct (Owen, 2005; Bradley Jr, 2018; Aiyar, 2012; Almeida, 2023)[1]. These cases highlight the importance of corporate responsibility and transparency for stakeholders to make informed decisions and underscore the need to assess the true impact of CSR/ESG policies on corporate transparency.

Drawing on prior research that defines corporate transparency as the widespread availability of relevant and reliable information for external stakeholders (such as Bushman et al., 2004; Bushman and Smith, 2003), this study investigates whether mandatory CSR policies improve the flow of meaningful, firm-specific information to investors and stakeholders, focusing on Stock Price Informativeness (SPI) as an indicator of effective information incorporation into stock prices. High SPI is crucial for efficient financial markets, as it ensures that stock prices accurately reflect a company's true value, facilitating informed investment decisions and discouraging managerial misconduct (Stiglitz

[1] Enron, once praised for its CSR, environmental, and charitable initiatives, was later exposed for widespread unethical and fraudulent practices (Owen, 2005; Bradley Jr, 2018). Similarly, Satyam Computer Services, despite receiving numerous CSR awards (Aiyar, 2012) and recognition for its commitment to corporate governance and accountability (Almeida, 2023), engaged in financial statement manipulation, inflated share prices, and misrepresented its finances

and Weiss, 1981; Durnev et al., 2003, 2004; Jin and Myers, 2006; Veldkamp, 2006). Conversely, low SPI indicates opaque information, leading investors to rely on broader market signals and resulting in stock prices that mimic general trends rather than reflecting individual company information (Jin and Myers, 2006). Therefore, SPI is essential for efficient markets and informed investor decision-making. While existing research predominantly focuses on voluntary CSR, this study explores how mandatory CSR impacts SPI.

Given the goal of mandated CSR policies to promote ethical business practices, this study examines their influence on the flow of firm-specific information into stock prices. However, the effectiveness of CSR initiatives on promoting positive outcomes hinges on stakeholders perceiving a company's commitment as genuine (Mishra and Modi, 2013). Voluntary CSR initiatives typically indicate a firm's genuine commitment to ethical practices, in contrast to mandatory CSR, which may arise from regulatory mandates, potentially lacking authentic motivation (Bonneton, 2023). Moreover, compulsory CSR frameworks preclude the opportunity for firms to distinguish themselves through CSR-related differentiation. Consequently, this research aims to assess if the improved transparency associated with voluntary CSR is extendable to mandated CSR contexts.

To address our research question, we formulate two competing hypotheses: the *Informativeness-Enhancing CSR hypothesis* and the *Informativeness-Reducing CSR hypothesis*. The former posits that CSR initiatives, akin to findings from voluntary CSR studies, enhance transparency and convey positive attributes to investors, potentially leading to a positive correlation between mandatory CSR expenditure and SPI. This is supported by evidence that CSR practices correlate with increased financial disclosure (Gelb and Strawser, 2001), which, by lowering information acquisition costs and promoting the dissemination of firm-specific information, could elevate SPI (Veldkamp, 2006; Haggard et al., 2008; Kim and Shi, 2012), whereas lack of transparency tends to decrease SPI (Jin and Myers, 2006).

Conversely, the *Informativeness-Reducing CSR hypothesis* anticipates a negative relationship between mandatory CSR investment and SPI, suggesting that obligatory CSR participation may diminish SPI. This hypothesis challenges the notion that CSR enhances transparency, proposing instead that mandatory CSR, driven by compliance rather than genuine commitment, may blur the distinction between sincere and superficial engagement (Bonneton, 2023). Moreover, mandatory CSR negates the opportunity for firms to use CSR as a means of product differentiation, as compulsory participation dilutes the distinctiveness of CSR efforts (Albuquerque et al., 2019). This perspective is reinforced by concerns over the efficacy of enforced certification, which may result in strategic manipulation by firms, leaving stakeholders less informed and potentially leading to increased reliance on generic market information, thereby reducing SPI (Garrido et al., 2020). This hypothesis suggests that the lack of informative value in mandatory CSR could result in greater stock price synchronicity with market trends, thus lowering SPI.

Our study utilises a panel of 3,748 non-financial firms from 2012 to 2017, yielding 16,886 firm-year observations. We evaluate SPI through the price non-synchronicity metric, adopting methodologies from seminal studies such as Morck et al. (2000), Piotroski et al. (2004), and Kim and Shi (2012). To compute SPI, we source the weekly stock return data from the Prowess database, maintained by the Centre for Monitoring Indian Economy (CMIE), and market index data from Bloomberg. Firms are categorised according to the National Industry Classification (NIC) system.

The study centres on India's CSR-135 rule, introduced implemented on April 1, 2014 (i.e., fiscal year 2015), which prescribes a 2% CSR spending requirement, offering a consistent basis to assess CSR engagement. By examining the implications of one of the most stringent global CSR policies on SPI, our research significantly enriches the understanding of mandatory CSR in emerging economies and also addresses the further research calls highlighted by Gillan

et al. (2021) and Christensen et al. (2021) concerning CSR in emerging markets and the impact of mandatory CSR reporting on information environment.

As a preview of our main results, we note the following: Our findings support the *Informativeness-Reducing CSR hypothesis*, indicating that mandatory CSR engagement results in a decrease in stock price informativeness, even after controlling for known determinants of informativeness. We identify a key mechanism behind this effect: signalling capacity associated with mandatory CSR, as evidenced by the additional advertising expenditures. We observe that firms with significant advertising expenditures can use this as an additional signal to clarify their motives and mitigate the adverse effects on SPI.

To address endogeneity, we implement two identification strategies. First, we conduct Instrumental Variable (IV) analysis, employing regional CSR cultural norms and industry CSR spending as instruments, which influence CSR engagement without affecting the error term. Second, we leverage the 2015 regulatory change as an exogenous shock within a Propensity Score Matching (PSM)-Difference-in-Difference (DiD) framework. Both IV and DiD analyses corroborate the negative influence of mandatory CSR on SPI and establish a causal link between mandatory CSR under the CSR-135 rule and SPI. Further, our moderating effects reveal that the negative impact of mandatory CSR on SPI is more pronounced in firms with fewer analyst followers, weaker corporate governance, and less transparent cash flow disclosures.

Our research enriches the CSR and SPI literature, particularly focusing on the less explored context of emerging markets such as India. Unlike prevalent studies that investigate the relationship between voluntary CSR and SPI, where firms engage in CSR activities voluntarily, our study delves into the implications of mandatory CSR engagement.

Firstly, by shifting the focus to compulsory CSR practices, our analysis reveals potential drawbacks associated with mandating CSR, despite its well-intentioned goals of enhancing societal welfare. We find that obligatory CSR

may adversely affect SPI, challenging the widely held view that CSR engagement invariably improves information dissemination. The tendency for CSR to enhance information flow, typically observed in voluntary engagements, may diminish or reverse under mandatory frameworks.

Secondly, our research identifies the loss of signalling capacity as a pivotal mechanism behind the negative correlation between mandatory CSR expenditure and SPI. Without supplementary measures to reinforce firm-specific signalling strategies, mandatory CSR may fail to effectively communicate a firm's genuine commitment to social responsibility, thus not improving the informational environment for investors.

Thirdly, our study highlights the importance of robust corporate governance in emerging markets, showing how governance structures and external oversight can counteract the adverse effects of compulsory CSR on SPI. This is particularly crucial in emerging markets, where stock price movements are highly synchronised and investor protection mechanisms are still developing. Our findings suggest that the success of mandatory CSR policies in enhancing informational transparency depends not just on regulatory design but also on the governance quality of individual firms.

Lastly, our investigation explores the wider ramifications of mandatory CSR in emerging markets on capital allocation efficiency. Previous studies (such as Hooper and Kim, 2007) suggest that greater opacity in recipient countries can deter capital inflows. Our analysis indicates that mandatory CSR engagement intensifies the negative impact on SPI in settings characterised by opaque operating cash flows, urging policymakers to consider transparency issues in conjunction with CSR mandates.

In essence, our findings highlight the complex and potentially unintended negative consequences of mandatory CSR on informational transparency and market efficiency, emphasising the need for a considered approach in the development and execution of CSR policies.

Our paper is set as follows. Section 3.2 delves into the previous work on the topic, while Section 3.3 presents our empirical methodology, including baseline model and date. Section 3.4 discusses our empirical results, and Section 3.5 outlines our identification strategy. Our additional analysis appears in Section 3.6, and concluding remarks appear in Section 3.7.

3.1.1 Institutional background

In 2013, India moved from voluntary CSR practices to a mandatory regime through the Section 135 amendment of the Companies Act (CSR-135). Qualifying companies, determined by financial criteria (net profit $\geq$ 50 million INR, net worth $\geq$ 5 billion INR, or sales $\geq$ 10 billion INR), are required to allocate 2% of their average net profit over the past three years to CSR activities. Exemptions from the CSR mandate are granted only to companies not meeting these financial thresholds (Gatti et al., 2019). The mandate is applicable universally to companies operating in India that meet the threshold, and non-compliance may result in fines unless justified. Although the Companies Act was enacted in 2013, the CSR mandate became effective from 1 April 2014, coinciding with the commencement of the Indian financial year.

Despite significant macroeconomic growth, 176 million Indians, equivalent to over half of the US population, remained in abject poverty when the law was enacted (Krafft and Emily, 2021; Gatignon and Bode, 2023). The CSR-135 law aimed to harness the private sector's management expertise, encouraging businesses to actively participate in CSR activities such as planning, observing, and monitoring. These activities range from alleviating hunger and poverty to advancing education, promoting gender equality, reducing child mortality, enhancing maternal health, and combating diseases such as HIV, AIDS, malaria, and others (Gatignon and Bode, 2023).

The CSR-135 rule's limited scope has raised concerns about its capacity to ensure diverse CSR spending and address a wider array of social and envi-

ronmental issues. While the law was intended to tackle social challenges on an unprecedented scale, empirical evidence, such as Gatignon and Bode (2023), indicates that firms comply with the rule without any significant societal impact, with CSR spending concentrated in a few areas. Legally obligated companies have the discretion to select and design their CSR initiatives from among the 28 predefined activities outlined in Section 135. Gatignon and Bode (2023) analysed data on 86,755 CSR initiatives in India during the first four years following the law's implementation, finding that most businesses focused their CSR activities near their headquarters, with the exception of State-owned Enterprises (SOEs) and leading companies within specific sectors. This concentration of projects in areas already benefiting from higher health and education scores and receiving greater attention from Non-Governmental Organisations (NGOs) and the government suggests that from a social perspective, the distribution of projects is sub-optimal and results in a lack of differentiation in businesses' CSR initiatives.

Critics argue that the CSR-135 rule has not effectively tackled widening income inequality, poverty, or environmental issues, falling short of the anticipated impact (Dharmapala and Khanna, 2018; Bansal and Kumar, 2021; Rajgopal and Tantri, 2023; Roy et al., 2022). For example, Rajgopal and Tantri (2023) observed that the rule led high-commitment CSR spenders to significantly reduce voluntary contributions, possibly due to crowding out effects, while low-commitment spenders modestly increased contributions to meet the minimum requirement. Overall, there has been a marginal increase in CSR spending, but as Gatignon and Bode (2023) notes, it has been largely ineffective.

To enhance the rigour of the CSR mandate, the Indian government introduced amendments in August 2021 to Section 135 of the Companies Act, mandating CSR impact analyses within annual board reports and public disclosure of initiatives on company websites (Krafft and Emily, 2021). However, 'comply or explain' clauses persist, potentially undermining the mandate's effectiveness. Given the pivotal role of capital markets in emerging economies

like India (Malpass, 2019), further research is essential to fully comprehend the market consequences of this evolving CSR landscape.

3.2 Previous research work and hypothesis development

3.2.1 Studies on stock price informativeness (SPI)

SPI is concerned with how well stock prices reflect all available information about a company, which includes both positive and negative news. Thus, it serves as a key indicator for market efficiency. A high SPI denotes rapid information integration into stock prices. Hence, it highlights the accuracy in processing and incorporating relevant information (Durnev et al., 2004) and is essential for efficient resource allocation within the market (Durnev et al., 2004).

The literature presents two theories on SPI. The first theory suggests that lower price synchronicity across firms signifies a more extensive incorporation of firm-specific information into individual stock prices (Morck et al., 2000). This view is supported by Roll (1988), who note that reduced synchronicity is associated with a higher level of informed trading based on firm-specific data. Therefore, this approach conceptualises SPI as the inverse of price synchronicity, a method recommended by Ferreira and Laux (2007, p. 952) as 'a good summary measure of information inflow, particularly for private information about firms.'

Conversely, the second theory on SPI posits that lower stock return synchronicity may not always signify greater informativeness, rather it might reflect a decrease in firm-specific information content due to external factors like market noise and investor sentiment (Kelly, 2014). Supporting this view, Kelly (2014) present a microstructure model, which elucidates that informationally efficient prices emerge from traders leveraging their informational advantage. These models suggest that low information acquisition costs and high liquidity

motivate traders to actively pursue and embed diverse information into stock prices.

Empirical studies investigating SPI (such as Durnev et al., 2003; Piotroski et al., 2004; Fernandes and Ferreira, 2008, and Kim and Shi (2012)) tend to use the first theory in their investigation. They demonstrate that lower stock price synchronicity is linked to an increased flow of firm-specific information. Stocks with lower synchronicity are more influenced by unique factors pertinent to the company rather than wider market or industry trends, attributed to investors' improved access to company-specific information, enabling more informed investment decisions.

Studies such as Jin and Myers (2006) and Veldkamp (2006) link SPI to information environment. For instance, Jin and Myers (2006) argue that information opacity, indicative of a lack of transparency about a company's financial condition, can result in higher synchronicity. They explain that limited information leads investors to depend on broad market trends, causing stock prices to become more uniform across companies. Hence, information opacity allows insiders to capitalise on their knowledge, exacerbating stock price synchronicity.

In a related argument, Veldkamp (2006) contend that higher information acquisition costs lead to increased stock price comovement. In the absence of firm-specific information, investors turn to common, cost-effective signals that predict multiple asset values. This reliance on shared signals heightens price correlation while reducing stock-specific informative content.

Building on the findings of Jin and Myers (2006) and Veldkamp (2006), Haggard et al. (2008) empirically show that voluntary disclosure policies lower information acquisition costs for investors, improving firm transparency and resulting in more informative stock prices. Similarly, Beuselinck et al. (2009) demonstrate that the mandatory adoption of International Financial Reporting Standards (IFRS) in Europe decreases synchronicity through enhanced information disclosure.

Overall, these studies shed suggest that improved disclosure practices can increase transparency and, potentially influence SPI (Haggard et al., 2008; Beuselinck et al., 2009).

3.2.2 CSR and stock price informativeness

Previous research highlights the importance of corporate transparency in influencing the SPI through mechanisms such as cross-listing (Ferreira and Laux, 2007), improved governance (Fernandes and Ferreira, 2008), reduced earnings management (Hutton et al., 2009), and enhanced audit quality (Gul et al., 2010). These factors lead to a decrease in stock price co-movement with the broader market by enhancing corporate transparency and reducing information acquisition costs (Veldkamp, 2006; Haggard et al., 2008). Thus, the effect of a firm's CSR activities on SPI depends on its ability to genuinely increase transparency and lower information acquisition costs.

Existing literature on CSR and corporate transparency are ridden by mixed results. Some studies document a positive association between a firm's voluntary CSR engagement and corporate transparency. These benefits include improved disclosure (Gelb and Strawser, 2001), effective corporate governance (Harjoto and Jo, 2011), diminished earnings management (Kim et al., 2012), heightened investor valuation (Plumlee et al., 2015), and strengthened corporate citizenship (Gillan et al., 2021). In support of this, emprical research such as Chen et al. (2021), show that a firm's strong commitment to CSR can lead to better reflection of specific information in its stock prices. Stakeholders often view CSR activities as a reflection of the firm's quality and risk management, which in turn affects stock price informativeness (Cai et al., 2019). Similarly, Cho et al. (2013) demonstrate that both positive and negative CSR performances can affect information asymmetry, with negative performances having a more significant impact. They explain that informed investors use CSR insights to influence the association between CSR performance and the bid-ask spread, especially in firms

with high institutional investments. Also, Becchetti et al. (2015) find that higher CSR scores correlate with increased idiosyncratic volatility, suggesting that CSR can buffer firms against negative market shocks.

Conversely, other empirical research, such as Masulis and Reza (2015*b*, 2023); Grewal et al. (2019), emphasise the cost side of CSR and highlight the agency issues with CSR activities, particularly when driven by managerial interests rather than shareholder value maximization. Drawing on the agency theory proposed by Milton (1970) and Jensen and Meckling (1976*a*), Barnea and Rubin (2010) view CSR engagement as a principal-agent relationship between managers and shareholders. They suggest that insiders may overinvest in CSR to gain private benefits, even if it comes at the expense of shareholders These studies document a negative impact of CSR engagement. Grewal et al. (2019) find a negative link between comprehensive CSR disclosures and stock price synchronicity, indicating that only certain CSR information is valuable to investors and that excessive CSR disclosures can sometimes obscure important firm-specific details. Thus, CSR engagement's effect on SPI would depend on whether it facilitates increased flow of firm-specific information.

These findings suggest that CSR engagement's impact on corporate transparency depends on whether mandatory CSR engagement enhances or disrupts information transparency.

Mandatory Setting and corporate outcomes

The current empirical research on the impact of mandatory regulations on corporate outcomes reveals a mixed picture, with evidence of both positive and negative associations. Some studies, like those by Roy et al. (2022) and Marshall et al. (2022), view mandatory CSR laws positively, showing that firms adhering to these regulations enjoy better liquidity (Roy et al., 2022) and attract more investment from foreign institutions (Marshall et al., 2022). In contrast, other research indicates potential downsides to mandatory CSR. Studies by Matisoff

(2013); Rajgopal and Tantri (2023); Bansal and Kumar (2021); Bansal (2022) suggest that obligatory CSR can discourage firms previously engaged in voluntary CSR, leading to strategic behaviors like revenue misclassification to evade CSR obligations (Bansal and Kumar, 2021; Bansal, 2022), or manipulative CSR disclosures and earnings management (Salewski and Zülch, 2014). Moreover, Matisoff (2013) suggests that in the U.S. context, voluntary CSR efforts were more effective in reducing CO2 emissions than mandatory ones, highlighting the importance of genuine commitment absent in obligatory schemes. Overall, empirical studies on CSR suggest that when CSR is driven solely by compliance or self-interest, it might undermine the very benefits that CSR engagement may provide. This is also supported by Jackson et al. (2020), whose findings reveals that implementing non-financial disclosure regulation does not result in reduced instances of corporate irresponsibility. They observe that there is a decrease in the diversity of corporate social responsibility initiatives over time, as companies begin to adopt practices that are more alike. Hence, this reveals that there is a distinction between voluntary and mandatory CSR engagement, and raises questions on the potential side effects of mandatory policies.

Mandatory Setting and SPI

The mixed result discussed earlier is also observed in the context of mandatory rules (such as the IFRS or mandatory disclosures) and SPI. For instance, as Beuselinck et al. (2009) demonstrate the compulsory adoption of IFRS led to better industry-level information assimilation by analysts and reduced the informational advantage held by institutional investors, thereby improving SPI. Similarly, Wang et al. (2018) discover that mandatory CSR disclosure aids in enhancing the quality of financial reporting. In contrast, Mittelbach-Hörmanseder et al. (2021) document a significant negative correlation between share prices and CSR disclosures following the EU's 2014 directive on mandatory disclosures. Building on this, Guo et al. (2022) explore the impact of China's compulsory CSR

disclosure requirements on SPI, finding that these mandates have a detrimental effect on SPI.

These contrasting outcomes highlight the complex dynamics between mandatory disclosure and the information environment. This diversity in findings indicates the need for further investigation to fully comprehend how such mandatory spending regulations influences SPI.

3.2.3 Differentiation from prior studies

India's unique 2% regulation provides a precise framework for our study, presenting a consistent metric to gauge CSR engagement and its subsequent effect on SPI. This contrasts with research on CSR reporting, which often lacks a uniform measure of genuine engagement. So, our study distinctively employs actual CSR expenditure data to analyse the impact of India's obligatory CSR spending rule on SPI, setting it apart from research focused on the influence of CSR reporting.

No prior research has explored how the specific case of India's mandatory CSR spending rule affects the SPI, a topic of growing relevance given the increasing trend towards mandatory CSR reporting highlighted by Christensen et al. (2021). They note that this towards reporting mandates, necessitating only disclosure is partly driven by the belief that reporting mandates is perceived as less invasive compared to traditional regulatory measures that prescribe explicit actions. So, the Indian CSR-135 rule is particularly intriguing as it compels concrete action rather than just disclosure.

Additionally, obligatory CSR spending rules could impose financial strains on companies, affecting resource allocation and mandating engagement. This is in stark contrast to mandatory disclosure mandates, which may not ensure genuine engagement despite not imposing financial burdens. By utilising actual expenditure figures, we comprehensively assess proactive participation and instances of non-compliance, providing deeper insights than previous studies.

Development of hypotheses

Investors and stakeholders are increasingly focusing on CSR information due to its implications for performance, risk, and societal impact. While voluntary disclosures are common, their credibility has been questioned, highlighting the necessity for mandatory reporting. The effectiveness of such mandates, however, remains debatable, with concerns over deceptive practices like score management and greenwashing, as identified by Cho et al. (2013) and Bansal and Kumar (2021). This scenario underscores the importance of critically examining mandates that require concrete CSR actions, advocating for an in-depth economic analysis to ascertain their real impact (Christensen et al., 2021). Consequently, we propose two contrasting hypotheses regarding the influence of mandatory CSR engagement on SPI.

Hypothesis 1a (*Informativeness Enhancing Hypothesis*): Mandatory CSR spending is positively associated with stock price informativeness, suggesting that mandatory CSR engagement boosts SPI.

This hypothesis is supported by the Ethical, Political, and Integrative (EPI) theory and integrative social contracts theory and signalling theory. The EPI theory posits that CSR initiatives encourage ethical behaviour and responsible governance (Kim et al., 2012). The integrative social contracts theory emphasises businesses' ethical obligations, advocating for an internalised commitment to societal and environmental responsibilities (Donaldson and Dunfee, 1994). This implies that CSR-active firms seek legitimacy and trust, leading to enhanced communication and transparency (Freeman, 1999). Signalling theory further posits that firms undertake CSR to demonstrate their inherent quality to investors and stakeholders, considering CSR as a costly but credible signal of a firm's commitment to long-term value (Albuquerque et al., 2019). Thus, mandatory CSR, by requiring firms to report their activities, could improve the information available to investors, lower the costs of information acquisition, and simplify

the process of accessing and analysing firm-specific data (Veldkamp, 2006; Haggard et al., 2008). This suggests that CSR engagement leads to an increase in firm-specific information reflected in stock prices.

Hypothesis 1b (*Informativeness Reducing Hypothesis*): There is a negative correlation between mandatory CSR expenditure and stock price informativeness, implying that mandatory CSR engagement diminishes SPI.

This hypothesis is supported by from concepts based on market microstructure theory and the signalling theory discussed earlier. The market microstructure theory suggests that when the cost or difficulty of acquiring stock-specific information rises, investors might lean on broad market indicators for their trading decision. So, a regulatory environment saturated with compulsory CSR could obscure genuine efforts from mere compliance, challenging investors' ability to discern authentic engagement, potentially leading to adverse selection, and may not necessarily reduce information acquisition costs. This also increases reliance on broader market and industry trends, which increases stock price synchronicity. Additionally, when CSR regulation causes firms to undertake similar activities, it dilutes the unique signaling advantage of CSR highlighted by signaling theory and by Albuquerque et al. (2019).

In this vein, Ball et al. (2003) note that without proper incentives or enforcement, high standards alone cannot guarantee the effectiveness of such mandates. Garrido et al. (2020) explain that mandates may not always clarify but confuse stakeholders, especially when they fail to differentiate between entities of varying commitment levels. This, coupled with the possibility of deterring disclosures due to stringent penalties, could leave stakeholders underinformed. Moreover, mandatory CSR, as per Bonneton (2023), may attract firms with lower dedication to CSR, diluting the overall quality of CSR engagements. This scenario, intensified by disingenuous practices and a lack of credible signals (Guo et al., 2022), may contribute to increased market noise, negatively impacting CSR's informative value on SPI. **This hypothesis aligns with the agency theory**

of CSR engagement and how CSR could be masking agency issues.

3.3 Data and summary statistics

3.3.1 Sources and sample construction

Our study utilises two primary data sources: Prowess, maintained by the Centre for Monitoring Indian Economy for firm-level data and Bloomberg for market index data. Prowess is used widespread in Indian-focused empirical research and it offers comprehensive coverage of firms listed on India's two main exchanges, the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE). The industry classification data comes from NIC [2]

We merge data on identity, financials, trading, and ownership/governance using company code and year. We further integrate this data with weekly closing prices for the BSE 500 index, chosen for its comprehensive coverage of the Indian market.

Our initial sample comprised 17,820 firm-year observations from 3,748 unique firms across 14 NIC sectors on NSE or BSE from 2012 to 2017 (three years pre- and three post-CSR-135). Excluding firms with less than three consecutive annual observations, and those in the financial services and utility industries (due to their distinct regulatory frameworks as noted by Andreou et al., 2017), our final sample has 16,886 firm-year observations. We winsorise all continuous variables at a 1% level to minimise outliers' influence.

3.3.2 Empirical model

We analyse the effect of mandatory CSR engagement on a company's stock price informativeness by estimating the following baseline model:

[2]We use the NIC 2008 version, which aligns with the International Standard Industrial Classification Revision 4. It was implemented in India in 2008. It features a six-digit hierarchical structure with 21 sections, 99 divisions, 529 groups, and 2076 classes. Most Government offices in India use this NIC system to classify and track various business activities.

$$SPI_{i,t} = \beta_i + \alpha CSRvar_{i,t} + \delta Controls_{i,t-1} + \gamma_j + \tau_t + \varepsilon_{i,t} \tag{3.1}$$

where $SPI_{i,t}$ is stock price informativeness measure calculated for a firm's stock i in year t. $CSRvar_{i,t}$ refers to mandatory CSR engagement-related variables. We control for industry-fixed effects (γ_j), and time fixed effects (τ_t). Firm fixed effects are also included.

Our study uses non-synchronicity measure (developed by Roll, 1988 and further improved by Morck et al., 2000), to measure SPI [3]. This approach is used by previous studies in SPI (such as Morck et al., 2000; Durnev et al., 2003; Kim and Shi, 2012; Almaharmeh, 2017). To estimate the influence of market and industry effects, we use an expanded market model that regresses each firm i's weekly stock return on the current and previous week's value-weighted market and industry returns:

$$r_{i,w} = \alpha_i + \beta_{1i} r_{M,w} + \beta_{2i} r_{M,w-1} + \beta_{3i} r_{K,w} + \beta_{4i} r_{K,w-1} + \varepsilon_{it} \tag{3.2}$$

where $r_{i,w}$ denotes weekly return for firm i in week w. $r_{M,w}$ and $r_{K,w}$ represents weekly returns of the market index (M) and industry (K) for week w, respectively. We include lagged values ($r_{M,w-1}$ and $r_{K,w-1}$) to account for possible autocorrelation concerns (Piotroski et al., 2004). α_i is the firm-specific effects. β capture the sensitivity of firm returns to market and industry returns. Industry returns are calculated based on two-digit NIC codes. We construct *SPI* using the coefficient of determination, R^2, from Equation 3.2 as:

$$SPI = \log\left(\frac{1-R^2}{R^2}\right)$$

[3] To distinguish between the phenomenon and its measurement, we adopt the following convention throughout this study: SPI (non-italicised) refers to the broader concept of stock price informativeness. *SPI* (italicised) denotes the specific metric used to quantify SPI in this study.

The above constructed *SPI* measures firm-specific stock return variation relative to market-wide and industry variation, or the lack of synchronicity with the market and industry. The log transformation overcomes the limitations of the R^2 0–1 bounds and creates an unbounded and normally distributed continuous variable *SPI* (Kim and Shi, 2012).

The *SPI* measure provides insight into a stock's price correlation with the broader market and industry. High *SPI* indicates an informative stock price, characterised by lower market and industry correlation and greater firm-specific variation (lower synchronicity), implying quicker and more accurate response to new information (Chen et al., 2007; Ben-Nasr and Cosset, 2014). Conversely, low *SPI* suggests high correlation with broader market forces, reflecting less firm-specific information.

Our study employs the following key variables as proxies for actual CSR engagement. First, *CSRdummy* is a dummy variable indicating whether a firm will incur any CSR expenditure (1) or not (0). Second, *CSRincurNspent* captures firms that both incur and spend on CSR. It is constructed as the interaction between *CSRdummy* and a dummy for non-zero CSR expenditure (*CSRspent*). A value of 1 means both incur and spend, whereas a vlaue of 0 means incur and not spend, or not incur at all. Third, *CSRfullcomply* is an indicator (1 and 0) of a firm's full compliance with the legal minimum CSR spending (i.e., 2%). Finally, *CSRperc* represents the percentage of CSR spending relative to total CSR incurred times 100. Consistent with prior research (e.g., Roy et al., 2022), we treat unreported CSR as zero expenditure on CSR.

In line with previous studies (Morck et al., 2000; Durnev et al., 2003; Piotroski et al., 2004; Kim and Shi, 2012; Almaharmeh, 2017), $Controls_{i,t-1}$ is a set of variables known to influence how effectively investors extract information from stock prices: firm size (*fsize*), measured as the natural logarithm of market value of equity as larger firms tend to have higher R^2 (lower SPI) (An and Zhang, 2013); ownership concentration (*promoters pct*), calculated as the percentage of

promoter shares [4]; ratio of total long-term debts to total assets (*lev*) as Hutton et al. (2009) note that leverage shifts risk from equity to debt holders, which reduces information asymmetry and may improve SPI; return on assets (*roa*), firm growth (*mtb*), measured by the market to book, ratio; mean of firm-specific weekly returns over the fiscal year (*return*), the annual standard deviation of firm-specific weekly returns over a fiscal year (*sigma*) and change in the trading volume (*dturn*), where trading volume is measured as the number of stocks traded in a year divided by the number of shares outstanding. We lag these control variables by a year to address for possible endogeneity concerns. Variable definitions are presented in Appendix A.

Treatment and control group

Our study examines the causal impact of the CSR-135 rule on Indian firms' stock price informativeness. This rule mandates that any firm exceeding *Net Worth* $\geq$ 5 billion INR, *Turnover* $\geq$ 10 billion INR, or *Net Profit* $\geq$ 50 million INR, to allocate at least 2% of average profits from previous years for CSR [5]. We employ a binary indicator variable, $treat_i$, to indicate whether a firm meets these thresholds or not (1 for yes and 0 otherwise). $post_t$ represents a dummy variable for post-rule years (1 for 2015 and onwards) and 0 otherwise. Our focus is on the parameter associated with the interaction term $treat_i \times post_t$; it signifies the relative change in *SPI* for treatment group (TG) compared to the control group (CG) in the post-CSR-135 period.

[4] In India, the shareholders are broadly divided into two categories—promoter shareholders and non-promoter shareholders.The Indian market regulator, the Securities and Exchange Board of India (SEBI), defines a "promoter" as either an individual or group with overarching control of a company, those instrumental in designing its public offering, or those specifically named as promoters in the company's prospectus. This definition excludes directors, officers, or individuals acting solely in their professional capacity (Ganguli and Agrawal, 2009)

[5] For example, if a company meets any of the criteria in 2015, it is required to spend 2% of its profits averaged over 2013, 2014, and 2015 on CSR

3.3.3 Descriptive statistics

Table 3.1 presents the summary statistics for the variables employed in our analysis. The dependent variable *SPI* is constructed using R^2. The mean value of R^2 is 0.225. Our mean R^2 value is higher than the reported R^2 mean value of around 0.189 for Indian firms in Morck et al. (2000) using bi-weekly stock return for 1995, but is slightly lower than 0.30 in Kim and Shi (2012) for Indian firms during the 1998-2004 period for 488 observations. Examining the pre- and post-CSR-135 rule periods, we observe an increase in the mean value of R^2 from 0.236 in the post-rule period (2015-2017) to 0.214 in the pre-rule period (2012-2014). This suggests a potentially stronger influence of broader market and industry trends on stock prices in the post-CSR-135 rule period.

The sample mean value for *SPI* is 1.5. The mean *SPI* is slightly higher (1.578) in the pre-CSR rule period compared to (1.422) in the post-CSR-135 period. This slight decrease in *SPI* suggest that on average, SPI may have reduced following the introduction of the CSR-135 rule. We need further analysis to confirm it.

Our main independent variable is mandatory CSR engagement. Our first CSR proxy is *CSRdummy*, which represents whether a firm will incur any CSR expenditure (1) or not (0). We observe that on average, 35.5% of firms incur CSR expenses in the post-rule period, up from 0% before the rule, suggesting a significant impact of the regulation. Next, *CSRincurNspent* combines *CSRdummy* with a dummy for non-zero CSR expenditure (*CSRspent*) and captures firms that both incur and spend on CSR, excluding those with zero spending. Therefore, out of those that incurred CSR, only 19.2% of firms spend on CSR. *CSRfullycompy* indicates whether a firm fully complies with the 2% minimum CSR spending requirement (1) or not (0). We see that, on average, only 9.5% fully comply with the regulation. This reflects potential challenges or resistance to full adherence. Finally, *CSRspent* is the actual CSR expenditure in INR millions. Accordingly, the average CSR expenditure in the post-rule period was INR 71.461 million, but

this could be skewed by a few large spenders (as evidenced by the high standard deviation). Following Roy et al. (2022) and Marshall et al. (2022), all above proxies treat missing CSR reporting as zero money spent on CSR.

On average, firms in the post-rule period exhibit larger firm size (*fsize*) and higher promoter ownership (percentage of shares held by promoters, *promoters_pct*). Additionally, the mean values of leverage (*lev*) and market-to-book ratio (*mtb*), all increase after the rule, while return-on-assets (*roa*) and cash holdings (*cash*) decrease. The lower average return on assets and reduction in cash holdings could be attributed to financial constraints imposed by the mandatory CSR law. These changes may reflect shifts in firm financial strategies and performance during the period after the rule.

Further, the post-rule period average shows a decreased magnitude of negative average annual return (*return*). However, the average stock return volatility (*sigma*) exhibit a small but noticeable rise in the standard deviation of weekly returns, suggesting a potentially increasing risk associated with the stock. Finally, the average trading activity (*dturn*) reveals a very small, almost negligible, increase in the change in trading volume relative to the number of outstanding shares.

Additionally, we present separate measures for firms' social and environmental expenses. *social-community_expense* and *environment-related_expense* capture actual CSR expenditures in INR millions, irrespective of the CSR-135 law, and may encompass expenses stemming from it.

Insert Table 3.1 here.

Table 3.2 presents the correlation matrix between the variables included in our regressions. It highlights several key relations. Firstly, a negative correlation exists between *SPI* and all CSR proxies (*CSRdummy*, *CSRincurNspent*, and *CSRfullycomply*). This suggests that firms incurring CSR expenses or with higher CSR expenditures are associated with stock prices that reflect less firm-

specific information. Additionally, *SPI* is negatively associated with firm size (*fsize*), promoter ownership (*promoters_pct*), profitability (*roa*), and return (*ret*). In contrast, it exhibits a positive correlation with leverage (*lev*), cash holdings (*cash*), market-to-book ratio (*mtb*), volatility (*sigma*), and change in trading volume (*dturn*). The pairwise correlations between the covariates are moderately low. This suggests a low risk of multicollinearity and so, we could include these variables in our subsequent analysis.

Insert Table 3.2 here.

3.4 Empirical results

3.4.1 The effect of mandatory CSR engagement on stock price informativeness

We examine the impact of being subject to mandatory CSR spending requirements on *SPI* using panel data analysis with a within-group estimator. Table 3.3 presents the estimation results for the effect of mandatory CSR spending on *SPI*. Standard errors clustered by firm are presented in parentheses. Across all models, variables representing mandatory CSR engagement exhibit a consistently negative correlation with *SPI*, suggesting a decrease in *SPI* for compliant firms.

Columns (1) and (2) explore the relationship between *CSRdummy*, which is a dummy variable indicating whether a firm will incur any CSR expenditure (1) or not (0), and *SPI*. The negative and significant coefficient suggests that firms incurring CSR expenses have lower *SPI* compared to those without. Next, Columns (3) and (4) present estimates for *CSRincurNspent*, a variable representing firms that both incur and spend on CSR from those that may incur and not spend or not incur. The negative coefficient remains, implying a similar decline in *SPI* those spending on CSR.

Columns (5) and (6) focus on firms in full compliance with the minimum 2% CSR spending requirement, represented by *CSRfullcomply*. While the coefficient is negative, it loses significance when controlling for firm-specific effects. This suggests a potential relationship between full compliance and lower *SPI*, but further investigation is needed.

Overall, the negative coefficients across most models suggest that mandatory CSR engagement might not facilitate the flow of firm-specific information as envisioned by the stakeholder perspective. Instead, it may obscure information, aligning more with the agency perspective literature such as Barnea and Rubin (2010) and Grewal et al. (2019). However, further analysis is needed to fully understand our findings.

Insert Table 3.3 here.

3.4.2 Possible mechanisms

We present some empirical explanations for why mandatory CSR engagement negatively affects stock price informativeness:

Loss of signalling

Voluntary CSR initiatives can serve as meaningful signals and differentiate firms while allowing greater agency in selecting and tailoring their engagement (Albuquerque et al., 2019). Mandatory CSR, on the other hand, requires all qualified firms to engage, even those without without intrinsic social responsibility motives are compelled to comply. So, mandatory CSR undermines this differentiation advantage. This homogenisation weakens the ability of individual firms to distinguish themselves through CSR. This results in diminished informational content associated with CSR participation. Thus, we propose loss of signalling as a purported channel that may explain the observed negative correlation on all the columns across Table 3.3.

To capture firms' signalling efforts, we consider a firm's relative advertising intensity, measured as advertising expenses scaled by total assets. We then create a dummy variable, $Advert_{High}$, indicating whether a firm's advertising intensity exceeds the industry median in a given year (1) or not (0). This design allows us to explore two possibilities: First, if mandatory CSR engagement sufficiently conveys additional information about the firm, its impact on *SPI* should be independent of advertising intensity. In this case, firms with "high" (above-median) advertising would not respond differently to mandatory CSR than those with "low" advertising (i.e., redundant signalling).

Second, if mandatory CSR weakens or homogenises existing signalling channels like advertising, firms might employ additional advertising efforts to compensate for the lost differentiation advantage. This would be reflected in a positive interaction sign on the interaction coefficient between the CSR engagement variable and $Advert_{High}$ as firms with higher advertising would have reduced the negative impact of mandatory CSR on stock price informativeness (i.e., compensatory signalling).

Table 3.4 reports our estimates where we interact with various CSR variables (i.e.,*CSRdummy*, *CSRincurNspent* and *CSRfull*) with $Advert_{High}$. While the negative coefficient estimates on the main CSR variables (in each column) confirm a decreased informativeness associated with mandatory CSR, the positive coefficient on the interaction term between CSR and advertising intensity ($Advert_{High}$) suggests a mitigating effect. This implies that firms with higher advertising intensity experience a less negative impact on informativeness from mandatory CSR.

This finding aligns with the possibility of compensatory signalling. As mandatory CSR engagement may homogenise CSR practices, firms can leverage advertising expenditures as an additional signal to clarify their motivations and distinguish themselves from competitors. The positive interaction suggests that such firms effectively mitigate the information loss caused by mandatory CSR

through additional advertising efforts.

Insert Table 3.4 here.

Industry competition

Our additional analysis explores the moderating influence of industry competition on the correlation between mandatory CSR engagement and *SPI*. Previously, we documented that compulsory CSR may diminish firms' capacity to distinguish themselves due to the homogenisation of CSR signals. According to Bonneton (2023), requiring ethical regulations might attract less-motivated firms to participate, potentially resulting in increased industry concentration and the adoption of superficial practices. However, product differentiation remains essential for attaining a competitive advantage. Consequently, first we investigate the relationship between mandatory CSR engagement and *SPI* in diverse competitive environments. Subsequently, we investigate whether advertising offers additional differentiation potential, particularly in competitive environments, and if it can mitigate the negative effects on *SPI* identified earlier.

We carryout this exploration because Rajgopal and Tantri (2023) pointed out that less-motivated but qualified firms entering the market dilute the overall quality of CSR. We believe this dilution could create confusion and reduce the useful information for investors.

We utilise Herfindahl-Hirschman Index (HHI) as a proxy to quantify the competitive industry environment. Employing sales data, we calculate the *HHI* for each year at the 3-digit NIC level. Following Deng et al. (2022), we construct *HighComp*, a dummy variable categorising firms based on their sample median relative to the year-median competition level. Firms exceeding the median are considered low competition (assigned a value of 0), while those below the median are deemed high competition (assigned a value of 1). To accommodate potential

competition fluctuations, annual *HHI* data is computed as a three-year moving average.

Table 3.5 presents the results. Columns (1) and (2) examine the impact of mandatory CSR (represented by the dummy variable *CSRdummy*) on *SPI* in high-competition and low-competition environments, respectively. The findings reveal a negative and statistically significant coefficient on *CSRdummy* in high-competition settings (*HighComp* = 1), indicating that mandatory CSR diminishes *SPI* in such contexts. Conversely, the association between CSR and *SPI* weakens or becomes insignificant in low-competition environments (*HighComp* = 0).

Next, to explore the potential mitigative effects of advertising, we introduce advertising variables (1) $advert_{AT}$, representing a firm's advertising expenses scaled relative to its total assets and (2) *yesadvert* to distinguish firms that advertise (1) from those that do not (0).

Column (3) presents the interaction of *CSRdummy*, *HighComp*, and $advert_{AT}$. We observe a positive coefficient on this triple interaction term. Further, we separately examine high-competition and low-competition environments (columns 4 and 5, respectively). The interaction between *CSRdummy* and $advert_{AT}$ is positive and significant in high-competition settings (*HighComp* = 1). The interaction term is negative and significant in low-competition environments (*HighComp* = 0). The results suggest that advertising may mitigate the negative impact of mandatory CSR on *SPI* in high-competition environments and have a more pronounced effect.

We conduct the same interaction for *yesadvert*, a dummy. However, we do not observe any statistical significance in the interaction term.

Overall, even genuine CSR efforts, especially those with mixed impact, might struggle to demonstrate their value in highly competitive industries, potentially confusing investors and diminishing *SPI*. In such scenarios, advertising helps to mitigate these effects.

Insert Table 3.5 here.

3.5 Identification strategy

Although our baseline analysis uses a panel regression to document a negative correlation between mandatory CSR engagement and *SPI*, our results may be affected by endogeneity bias due to reverse causality or unobservable factors. Firms with more informative stock prices might be more inclined to engage in CSR activities, potentially driving the correlation. Additionally, unobserved firm-specific characteristics could simultaneously influence CSR choices and informativeness, further masking the causal relationship.

While fixed effects help mitigate biases related to unobserved firm heterogeneity, they cannot fully address endogeneity concerns. We employ two complementary identification strategies to improve causal inference: Instrumental Variable (IV) analysis and Difference-in-Difference (DiD) strategy. Leveraging the plausibly exogenous variation introduced by the CSR-135 rule, these techniques aim to alleviate potential endogeneity stemming from both omitted variables and reverse causality, thereby strengthening the validity of our conclusions.

3.5.1 Instrumental variable (IV) regression

First, we employ instrumental variables to address endogeneity concerns in the mandatory CSR and *SPI* relationship. Valid IVs must satisfy two key conditions: a strong correlation with the endogenous variable (CSR spending) for identification, and exogeneity, implying the IVs must not directly impact *SPI* except through their influence on CSR engagement (Angrist and Pischke, 2009). We discuss the economic rationale for our chosen IVs in the next subsection.

We follow the three-stage procedure recommended by Adams et al. (2009) for our binary endogenous variable of CSR engagement. We chose this approach over conventional Two-stage Least Squares (2SLS) due to potential bias in finite samples with binary endogenous variables (Adams et al., 2009) and the impact

of first-stage misspecification on this bias is unclear. Therefore, we opt for their recommended procedure, which specifically accounts for the binary nature of the variable.

In stage one, we estimate a probit model for determinants of CSR engagement. Stage two regresses the CSR variable on first-stage fitted values and controls. Finally, stage three regresses *SPI* to second-stage fitted values and controls. This approach does not require a perfectly specified first-stage probit model, offering further advantage.

CSRdummy

As *CSRdummy* indicates whether the focal firm will incur CSR expenditure or not (1 for yes, 0 for no), we use *geoCSRperc*, capturing the percentage of firms within the same states (excluding the focal firm) incurring CSR expenditure in a given fiscal year, as our instrumental variable [6]. This choice uses the cultural inclination towards CSR within a specific geographic region (state), reflecting the shared social and environmental context that can guide firms' decisions (validity requirement). Existing corporate finance research document that firms within the same geographic area exhibit similar CSR behaviour due to shared cultural norms. For instance, Jiraporn et al. (2014) observe comparable CSR policies among firms within the same three-digit zip code, even after controlling for firm-specific characteristics and other variations.

At the same time, no theoretical or empirical evidence in corporate finance suggests that a region's average CSR-engagement directly affects a firm's SPI (fulfilling the *exclusion restriction*). Our study solely aims to isolate the instrument's influence on CSR decisions (and its subsequent indirect effect on SPI via CSR) —not on SPI itself. Focusing on the regional average CSR spending pattern annually can capture the overall cultural influence on CSR while effectively controlling for firm-specific characteristics and idiosyncrasies.

[6] India consists of 28 states and eight union territories, including the National Capital Territory of Delhi.

CSRfullcomply

For our second CSR variable, *CSRfullcomply*, a binary variable indicating whether a firm fully complies with the law's 2% minimum CSR spending requirement, we use the average of the percentage of CSR spending of the firms that comply with the rule in the same two-digit code. This choice captures potential industry-level compliance norms and peer pressure, influencing firms' decision to comply (validity requirement) fully. Prior research (e.g., El Ghoul et al., 2011; Kim et al., 2014) suggests industries with higher average CSR spending encourage further engagement. Also, it is less plausible that compliant firms' average CSR spending within an industry directly affects a specific firm's SPI beyond its influence on compliance. This aligns with the absence of theoretical or empirical evidence linking industry-level compliance spending to firms' SPI.

CSRIncurNspent

For *CSRincurNspent*, a binary variable indicating firms that incur and engage in non-zero CSR spending, we employ the average percentage of CSR spending among other CSR-incurring firms within the same two-digit NIC code, excluding the focal firm, as our instrumental variance. This choice capitalises on potential industry-specific norms and peer pressure that may influence firms' CSR engagement and spending decisions, satisfying the validity requirement for instrumental variables. This means the instrument directly relates to the specific behaviour we aim to isolate (combined engagement and spending) within the relevant context of shared industry norms and potential peer influence.

IV analysis results discussion

Table 3.6 presents the results from our instrumental variable analyses. Each column showcases three consecutive regressions for a specific endogenous variable. Columns (1) to (3) focus on *CSRdummy* (whether a firm incurs any CSR expenditure). Columns (4) to (6) analyse *CSRincurNspent* (firms both incurring

and spending on CSR), and columns (7) to (9) present the estimates for *CSRfull* (full compliance with the 2% minimum CSR spending). We report the coefficient estimates for the relevant endogenous variable and its associated standard errors within each set of columns.

Our instruments are based on the regional CSR culture and the average CSR spending of peer firms (two-digit NIC code, excluding the focal firm). They are chosen for their relevance to the endogenous variables while satisfying the exclusion restriction. *geoCSRperc*, *MeanIndCSRperc_exI*, *AvgIndCSRperc_fullcomply_exI* are the proposed instruments for their respective endogenous variables *CSRdummy*, *CSRincurNspent* and *CSRfullycomply*, respectively.

First-stage results: The first-stage regressions (columns 1, 4, and 7) confirm the relevance of our proposed instruments. Each instrument exhibits a positive and significant relationship with its respective endogenous variable, indicating a strong correlation. In column (1), the percentage of CSR-engaging firms within the same geographical location positively and significantly predicts a firm's CSR participation (*CSRdummy*), aligning with intuition. This association is robust to standard errors clustered by firm (columns 1 and 2). Similar patterns emerge for the other CSR variables.

Second-Stage Results: Columns (2), (5) and (8) present results for the second stage. Diagnostic tests provide further confidence in our IV estimations. We also present the Kleibergen-Paap F-statistics because of its robustness and lower susceptibility to size distortions under weak identification (Kleibergen, 2007; Stock and Watson, 2020). In each cases, the test statistics exceed 100, decisively rejecting the null hypothesis of weak instruments. This further corroborates the validity of our chosen instrument's sufficient explanatory power for the endogenous variable.

Third-Stage Results: Columns (3), (6), and (9) present the third stage results of the IV analysis. All of the the third-stage regressions show a persistent negative effect of CSR on *SPI*, even after addressing endogeneity concerns. The

negative and significant estimated coefficients on the predicted CSR variables (*CSRdummy* in (3), *CSRincurNspent* in (6) and *CSRfull* in (9)) suggests that mandatory CSR activity reduces *SPI*, reinforcing our finding from the baseline panel regression.

Insert Table 3.6 here.

3.5.2 The Difference-in-Difference (DiD) model

Our second identification strategy employs a DiD design to estimate the causal impact of mandatory CSR on SPI. The exogenous implementation of the CSR-135 rule in the fiscal year 2015 (i.e., April 1, 2014) serves as a quasi-natural experiment. This policy mandated qualified firms to allocate 2% of profits to CSR, with the primary goal of promoting broader societal goals, not directly impacting financial markets. So, this change in regulatory pressure was independent of individual firms' pre-existing SPI (Policy change).

The DID framework compares the *SPI* of firms subject to the rule (treatment) to those not (control) before and after implementation. This isolates the causal effect of the rule on *SPI* while minimising the influence of confounding factors and omitted variables. We utilise a six-year window and estimate the following DID model:

$$SPI_{i,t} = \alpha_i + \beta_1 post_t + \beta_2 treat_i + \beta_3 treat_i \times post_t + \delta C_{i,t} + \gamma_j + \tau_t + \varepsilon_{i,t} \quad (3.3)$$

where $SPI_{i,t}$ refers to stock price informativeness, $treat_i$ denotes the dummy variable for assigning the treatment status, $post_t$ distinguishes the time periods before and after the Section-135 rule. Our main parameter of interest is the coefficient on the interaction term ($treat_i \times post_t$), under the assumption of parallel trends. $C_{i,t}$ refer to the vector of covariates. We include covariates to

reduce residual variance. γ_j and τ_t capture the industry and time fixed effects, respectively.

DiD result

Table 3.7 presents the coefficient estimates from the DiD analysis, focusing on the impact of the Section-135 rule on *SPI*. Standard errors are clustered at the firm level and presented in parentheses. We include the fixed effects as indicated. The coefficient on the interaction term $treat_i \times post_t$ is our main variable of interest.

Columns (1) and (2) report the univariate and multivariate estimates, respectively. Column (3) presents the multivariate estimates with fixed effects controls. The coefficient on the interaction term ($treat_i \times post_t$) remain consistently negative and significant (1%) across all specifications even after controlling for industry, time, and firm-specific factors.

While the negative coefficient suggests a decline in *SPI* for treated firms (those subject to the CSR mandate) compared to controls, this result might be unreliable if the control and treatment groups are not comparable. We address this potential concern in the following subsection by examining group comparability.

Insert Table 3.7 here.

Propensity Score Matching (PSM)

Panel A of Table 3.8 statistically significant differences between the treatment and control groups in the pre-CSR-135 period. These discrepancies raise concerns about potential bias in the estimated parameter for our DiD coefficient, as the effectiveness of this framework hinges on the critical assumption of comparable treatment and control groups (Ashenfelter and Card, 2002; Angrist and Pischke, 2009). To mitigate potential bias arising from non-random treatment assignment and create a balanced control group with similar observed characteristics to the

treatment group, we employ PSM (Rosenbaum and Rubin, 1983; Atanasov and Black, 2016). We generate propensity scores as follows:

$$treat_i = \alpha_0 + \alpha_1 C_{it} + \gamma_j + \delta_t + \varepsilon_{it}$$

where the dependent variable $treat_i$ equals one if any of the three financial thresholds (net profit, net worth, and sales) is met, and 0 otherwise. C_{it} is the vector of controls and includes size (*fsize*), promoter's percentage (*promoters_pct*), leverage (*lev*), profitability (*roa*), market-to-book ratio (*mtb*), return (*return*), volatility (*sigma*) and turnover (*dturn*) (Kim and Shi, 2012; Guo et al., 2022). The terms γ_j and δ_t capture the industry-specific and time effects, respectively. The probit model is estimated on the pre-CSR-135 period (2012-2014)

Each treated firm is matched to its nearest neighbour without replacement using a 0.01% caliper (following Roy et al., 2022; Fang et al., 2014). We opt for this approach to prioritise matching accuracy with comparable firms, even at the cost of smaller sample size. The PSM procedure yields 551 unique matched pairs of treatment and control firms. We also conduct sensitivity tests using alternative PSM specifications without time effects and different variable sets, and maintain the balance test in each case.

Panel B of Section 3.8 presents probit estimates with robust standard errors adjusted for potential heteroskedasticity. Column (1) displays the pre-match probit estimates, indicating significant variation in the treatment assignment variable ($treat_i$), evidenced by a high pseudo-R^2 of 43.2% and a highly significant χ^2 p-value.

Column (2) of Panel B in 3.8 presents probit model results after matching. None of the covariate coefficients are statistically significant, exhibiting substantial decrease in magnitude compared to pre-matching estimates (column 1). Additionally, the pseudo-R^2 drops significantly from 43.2% to 1.2% and the χ^2 test becomes statistically non-significant (p-value of 0.734). These improvements confirm the effectiveness and robustness of our PSM procedure.

Insert Table 3.8 here.

DiD-PSM result

Table 3.9 presents the results of the DID model (Equation 3.3) applied to the matched treatment and control groups. Standard errors are clustered at the firm level and presented in parentheses. Fixed effects are also controlled for in all models

Columns (1) and (2) show univariate and multivariate DID regressions without fixed effects. Column (3) adds industry, firm, and year fixed effects. The coefficients on the $treat_i \times post_t$ interaction are consistently negative and significant in all specifications, indicating a decrease in TG *SPI* compared to CG after the rule. Our inferences remain qualitatively unchanged compared from the estimations in Table 3.7, even with the PSM-matched sample.

Our findings suggest that mandatory CSR engagement reduces *SPI* in compliant firms. This reduction could be attributed to two factors. First is homogenisation of CSR practices. Mandatory compliance might lead to a lack of firm-specific CSR information due to similar practices across treated firms. This could force investors to rely more heavily on broader market and industry trends, ultimately reducing SPI.

Second is instrumental compliance with the rule. Firms complying solely to fulfill the requirement, rather than genuine concern for stakeholders or firm value, might not provide meaningful information about their stock. This lack of genuine engagement can further negatively impact SPI. Ball et al. (2003) note that without proper incentives or enforcement, high standards alone cannot guarantee the effectiveness of such mandates.

Insert Table 3.9 here.

Parallel trend

Presense of parallel trends is a key assumption for DiD framework to be valid, and it posits that the trends in *SPI* for TG and CG should not diverge before the CSR-135 rule implementation. This ensures the absence of anticipation effects, meaning firms did not foresee the rule and alter their behaviour beforehand.

Figure 3.1 depicts *SPI* for both TG and CG over a six-year period centred on 2015 (shock year), the year the CSR-135 rule was implemented. The parallel lines visually suggest no significant differences in SPI trends for both groups before the policy change.

To further confirm this assumption, Figure 3.2 plots the interaction term between the treatment group and a CSR variable over time (2012-2017) with a 95% confidence interval. We selected 2012 as the baseline year – a period before the policy shock – to examine how the relationship between CSR and *SPI* evolves. This choice ensures the treatment group wasn't yet subject to the rule, upholding the "no anticipation" assumption.

The statistically insignificant coefficients before 2015 support the parallel trend assumption between the treatment and control groups. However, the significant coefficient post-2015 suggests a decrease in *SPI* for treated firms after the rule implementation.

Insert Figure 3.1 here.

Insert Figure 3.2 here.

Next, following Bertrand and Mullainathan 2003 and Fang et al. (2014), we estimate the following regression to capture both leads and lags (before and after effects) of the CSR-135 rule implementation:

$$SPI = \alpha_1 + \beta_1 treat_i \times Shock^{-2} + \beta_2 treat_i \times Shock^{-1} + \beta_3 treat_i \times Shock + \beta_4 treat_i \times Shock^{1} + \beta_5 treat_i \times Shock^{2} + \beta_6 Shock^{-2} + \beta_7 Shock^{-1} + \beta_8 treat_i + \beta_9 Shock + \beta_{10} after^{1} + \beta_{11} after^{2} + \varepsilon \quad (3.4)$$

where 2015 marks the shock year (implementation of the CSR-135 rule), the three years before are denoted as $Shock^{-1} = 2014$, $Shock^{-2} = 2013$ and $Shock^{-3} = 2012$. Similarly, the two years after are $Shock^{1} = 2016$ and $after^{2} = 2017$.

Columns (1) and (2) of Table 3.10 present the regression results using a PSM-matched sample. Both columns present statistically insignificant coefficients estimates for interaction terms involving the treatment group ($treat_i$) and periods before and during the shock year (2015), i.e., $treat_i \times Shock^{-1}$, $treat_i \times Shock^{-2}$ and $treat_i \times Shock$. This suggests no pre-existing differences between the TG and CG, supporting the parallel trend assumption for the DID with PSM. This strengthens our causal inference.

Furthermore, the significant coefficients for post-treatment interaction terms $treat_i \times Shock^{1\&2}$ and $treat_i \times Shock^{1}$ in columns (1) and (2) respectively, indicate a persistent negative effect of the treatment on *SPI*.

Insert Table 3.10 here.

Placebo tests

While our DiD regression controls for various firm characteristics and fixed effects, it is possible that unobserved variables correlated with the interaction term may be driving our results. To assess the robustness of our findings and address concerns about omitted variables, we conduct a placebo test. Here, we randomly assign "false treatment" to firms, creating a false treatment variable,

$treat_F$, for DiD analysis. We then repeat the DiD regression 1000 times and analyse the distribution of the resulting coefficient estimates for $treat_F \times post_t$ (see Figure 3.3). This randomisation helps ensure our results are not driven by unobserved factors unrelated to the actual treatment.

We present the coefficient estimates for the interaction term ($treat_F \times post_t$) in column (1) of Panel A in Table 3.11. Panel B of the same table illustrates the distribution of estimated coefficients from the placebo tests alongside the actual coefficient from our DID analysis, highlighting their differences.

Figure 3.3 further supports the results in Panel B by plotting the Kernel density and p-values for 1000 coefficient estimates. We observe that the false estimate distribution is centred around zero, while the true estimate (-0.109, as reported in column (3) of Table 3.9) falls far outside the range of the placebo distribution. These results suggest the observed effect in our DiD regression is unlikely to be driven by omitted variables and strengthens the case for a negative causal relationship between the treatment and *SPI*.

Another concern is that our findings on SPI might be influenced by other policies implemented around the same time as the CSR-135 rule. To check for this this, we conduct a second placebo test uses an artificial shock. We use the period 2008-2012 as a false time frame and set 2010 as the false shock year. We then construct a dummy variable $post_F$, which equals 1 for the false post-shock period (2010-2012) and 0 otherwise. Finally, we re-estimate the DiD specification in Equation 3.3 using this false shock.

Column (2) of Table 3.11 presents the coefficient estimate for the interaction term, $treat_i \times post_F$. The statistically insignificant coefficient estimates suggests that our results in Table 3.9 are unlikely to be driven by other potential policy changes that might have occur prior to the CSR-135 rule.

Insert Table 3.11 here.

Insert Figure 3.3 here.

The DiDiD framework using actual CSR Expenses

The CSR-135 rule includes a provision allowing firms to explain their non-compliance with the full spending requirement each year (Manchiraju and Rajgopal, 2017; Dharmapala and Khanna, 2018). This raises a concern that our treatment group might include firms that didn't fully comply with the regulation. Consequently, our quasi-natural experiment design might not fully capture the effect of mandatory CSR spending on *SPI*.

To address this concern and disentangle the effect of actual CSR spending from potential non-compliance effects, we estimate the following double difference-in-difference model:

$$SPI_{i,t} = \beta_0 + \beta_1 treat_i \times post_t \times CSR_{var} + \beta_2 post_t \times treat_i + \beta_3 post_t + \beta_4 treat_i + \delta C_{i,t} + \gamma_i + \tau_t + \varepsilon_{i,t} \tag{3.5}$$

where all the terms are defined as in Equation 3.3 and CSR_{var} denotes variable related to actual CSR expenditure. We use the following proxies to capture the actual CSR expenses: *CSRfull* a dummy (1/0) indicating whether a firm fully complies with the 2% minimum spending requirement set by the mandatory CSR regulation and *CSRperc* denotes percentage of a firm's total CSR expenditure actually devoted to core CSR activities, as compared to how much they were incurred.

Table 3.12 presents our result. We observe a consistent pattern across all specifications: the coefficient on the triple interaction term between the treatment group, post-CSR-135 period, and any chosen CSR engagement variable is positive and significant. This finding even after controlling for time, industry, and firm fixed effects suggests that higher actual CSR engagement, on average, leads to a reduction in *SPI* within the treated firms compared to the control group during the post-policy period.

From columns (1) and (2), we observe qualifying firms with full compli-

ance in post-CSR-135 rule had lower *SPI*. In columns (3) and (4), the positive coefficient on the triple interaction term involving *CSRperc*, the treatment group, and the post-CSR-135 period suggests that as the percentage of firm-level CSR expenditure devoted to core activities increases, the reduction in *SPI* among treated firms also increases.

Insert Table 3.12 here.

3.6 Additional analyses

Since a lack of information sharing between insiders and outsiders weakens SPI, corporate governance research suggests that external monitors can improve this information flow (Ferreira and Laux, 2007). We therefore examine the moderating roles of analyst following, foreign investors, and institutional holdings proportion on the relationship between mandatory CSR engagement and SPI. These factors may potentially mitigate the negative impact of mandatory CSR engagement on SPI due to their distinct characteristics. Their demand for transparency, access to information, and focus on long-term value creation can all contribute to a more efficient and informative market environment.

3.6.1 External monitor: Number of analyst following

Analysts play a valuable role in disseminating information to investors. Through earnings forecasts, revisions, and stock recommendations, they provide valuable insights, often incorporating non-public information. Consequently, analyst coverage directly influences information flow to investors and their perceptions of individual stocks. Studies like Chan and Hameed (2006) show that increased analyst coverage leads to better incorporation of firm-specific information into stock prices through analyst forecasts.

We examine analyst following as a moderator to investigate whether higher analyst coverage mitigates the negative impact of the CSR rule on SPI for treated firms in the post-rule period. Analyst following data comes from Refinitiv and is measured as the natural logarithm of one plus the number of analysts following a firm (*lnanalystfy*). To address missing data, we replace missing values with zeros (*lnanalystfyw0*). We present results using both variables to demonstrate the robustness of our findings to missing data issues.

Table 3.13 shows a positive and statistically significant coefficient for the triple interaction term ($treat_i \times post_t \times lnanalyst$). This suggests analyst coverage buffers the negative impact of compliance on treated firms' *SPI* in the post-rule period. Investors may interpret this coverage as an endorsement of CSR efforts, enhancing perceived credibility and leading to higher *SPI*.

Insert Table 3.13 here.

3.6.2 Foreign institutional investors (FIIs)

FIIs bring extensive corporate monitoring expertise and a strong incentive to engage actively with firms (Vo, 2017). Their heightened awareness of emerging market volatility intensifies their proactive monitoring role (Vo, 2017). Despite operating globally, FIIs actively monitor and discipline corporate insiders across diverse geographical contexts (Bena et al., 2017). Also, Dang et al. (2023) find a negative correlation between foreign institutional ownership and stock price synchronicity (positive *SPI*). This indicates that FIIs contribute to a better information environment by enhancing transparency and governance practices.

We include FIIs to investigate whether the improved monitoring due to their presence reduces the negative impact of CSR engagement on SPI. We use the percentage of ownership by foreign institutional investors (*fii*) as a proxy. We anticipate positive coefficient estimates for the triple interaction term: $treat_i \times post_t \times fii$.

Columns (1) and (2) in Table 3.14 report coefficient estimates for the moderating effect of FII presence on the relationship between mandatory CSR and *SPI*. Column (1) includes *promoters_pct* as one covariate, while column (2) excludes it to address potential multicollinearity with *fii*. In both cases, we observe a positive sign on the coefficient for the triple interaction. This confirms our expectation that FII presence enhances firm-specific information and mitigates the negative influence of mandatory CSR on *SPI*. Otherwise, the presence of FIIs would not impact the relationship.

3.6.3 Institutional holdings

We now explore the role of institutional investors, known for their advanced research capabilities. Their access to sophisticated analytical tools shapes a firm's information environment and influences price formation. According to Lev (1988), wealthier investors can access information that is prohibitively expensive for others. Jiambalvo et al. (2002) find that higher ownership increases stock prices, reflecting current-period information predictive of future earnings. Piotroski et al. (2004) shows that institutional trading speeds up the incorporation of firm-specific future earnings news into prices. Higher institutional ownership implies enhanced corporate oversight and potentially greater access to non-public information.

In our analysis, we introduce *instHolding*, representing the proportion of non-promoter institutional holdings, as a moderator. Columns (3) and (4) in Table 3.14 present our results (with and without *promoters_pct* as a covariate, respectively). The positive sign on the triple interaction coefficient in both columns suggests that greater institutional holdings mitigate the negative impact of mandatory CSR on *SPI*. Institutional investors, with their sophisticated tools, excel at interpreting firm-specific information, including CSR data. This leads to more informed investment decisions and potentially more efficient price discovery, counteracting the potential negative impact of mandatory CSR on

informativeness.

Insert Table 3.14 here.

3.6.4 Operating Cash Flow (OCF) opacity

This analysis investigates the potential for mandatory CSR regulations to incentivise manipulative practices by firms. While analyst following and foreign institutional investors can enhance information transparency, opacity, particularly in Operating Cash Flow (OCF), can exacerbate information asymmetry. OCF opacity signifies the challenge investors face in evaluating a firm's true financial performance, raising concerns about the transparency of reported OCF. This study examines how OCF opacity, a measure capturing potentially manipulative practices used to inflate CSR image or comply with regulations (Cheng et al., 2020), interacts with mandatory CSR engagement.

Previous research suggests accounting opacity weakens shareholder protection and allows managers to extract more cash flow (Jin and Myers, 2006), specifically heightens stock price synchronicity (Hutton et al., 2009), increases the risk of stock price crashes (Cheng et al., 2020). Following the methodology of Hutton et al. (2009), we compute *ocfopq* as the moving sum of the absolute values of abnormal OCF (AOCF) over the past three years and present the details in Appendix A.

Our findings in Table 3.15 report a negative coefficient on the interaction between $treat_i$, $post_t$, and *ocfopq*. This implies that OCF opacity has a stronger negative impact on *SPI* for treated firms compared to controls in the post-rule period. However, it is not statistically significant in our study. It is possible that CSR regulations, while aiming for transparency, might incentivise firms to manipulate OCF, ultimately diminishing *SPI* and worsening information asymmetry. However, we need further evidence to validate it.

Insert Table 3.15 here.

3.7 Conclusion

How does mandated CSR engagement influence a firm's stock price informativeness? Our study addresses this question, contributing to the discourse within corporate finance, emerging market economies, and CSR literature, especially concerning the relationship between mandatory social responsibility and information transparency. This exploration is pivotal given the notable corporate scandals, which underscore the potential discrepancy between outward CSR representations and actual corporate conduct. Our research specifically examines the effectiveness of such mandates by analysing India's mandatory CSR rule (CSR-135), requiring certain companies to partake in CSR activities compulsorily.

Our focus on SPI is crucial for efficient capital allocation in the market (Durnev et al., 2003, 2004). External investors depend on public information like financial reports and stock prices to evaluate firms' performance and future prospects. However, when stock prices do not accurately reflect a company's real value and potential, it becomes challenging for investors to distinguish between high-quality firms and their less impressive counterparts. This obscurity compels reliance on generic, often unreliable, information signals, leading to adverse selection and increased stock price co-movement with broader market and industry factors, thereby masking firm-specific details.

We propose two contrasting hypotheses to guide our empirical investigation into mandatory CSR's impact on informativeness: The *Informativeness-Enhancing hypothesis* suggests a positive link between mandatory CSR spending and SPI, indicating that such engagement boosts transparency and signals positive firm attributes to investors, enriching firm-specific information reflected in stock prices. In contrast, the *Informativeness-Reducing hypothesis* argues that the role of CSR as a tool for conveying genuine values and intentions diminishes under mandatory regulations, leading to a dilution of CSR's signalling value and an increase in reliance on external information, thereby reducing SPI.

Our analyses, employing IV and DiD methodologies, support the *Informativeness Reducing hypothesis*, establishing a causal connection between mandatory CSR engagement and decreased SPI. The IV strategy utilises geographical and social contexts as instruments, while the DiD approach leverages the CSR-135 rule's exogenous implementation.

Our findings resonate with those of Guo et al. (2022), aligning with studies that underscore the negative consequences of mandatory CSR engagement (Manchiraju and Rajgopal, 2017; Rajgopal and Tantri, 2023,?; Bansal and Kumar, 2021). Unlike voluntary CSR or mandatory disclosure studies, our results suggest that legally imposed CSR can erode firms' ability to signal their unique qualities, blending genuine CSR engagement with mere compliance.

Further analyses exploring the moderating roles of analyst coverage and institutional investors provide additional robustness, indicating that these external actors can lessen the negative impact of mandatory CSR on informativeness by providing alternative signals about a firm's genuine CSR commitment.

Our study enriches the CSR and SPI literature, particularly within emerging markets like India, by using actual CSR expenditure data to offer a more precise understanding of firm engagement. Despite the well-intended goal of mandatory CSR to enhance societal welfare and information flow, our research reveals its unintended adverse effect, underscoring the necessity for careful policy calibration in emerging markets and the importance of robust corporate governance.

In summary, our research emphasises the critical distinction between compliance-driven CSR and authentic social responsibility commitments. The potential reduction in informativeness under mandatory schemes highlights the need for careful assessment of policy designs and motivations behind CSR engagements, reminding us that a CSR mandate does not automatically equate to genuine social responsibility within firms.

Figure 3.1
Stock price informativeness parallel trend plot

Figure 3.1 displays parallel trend of the stock price informativeness proxy,*SPI*, for the TG and CG in the years before and after CSR-135 rule. We observe that the mean crash risk measures of both TG and CG exhibit a parallel trend, and the pattern changes post 2015.

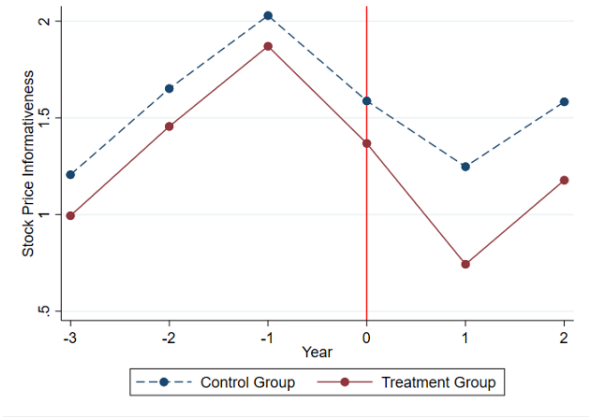


Figure 3.2
Dynamic effect of the CSR law on *SPI*

Figure 3.2 shows event study plots depicting the dynamic effect of the CSR law on stock price informativeness proxy, *SPI*, with confidence intervals. The year 2012 is set as the baseline year implying that each coefficient implies the dynamic effect of the CSR variable relative to that of 2012. The insignificant coefficients prior to 2015 helps to convince that parallel trend between the TG and CG is not likely to be violated, while the significant coefficient after 2015 shows that the stock price informativeness decreased after the enactment of the CSR-135 rule

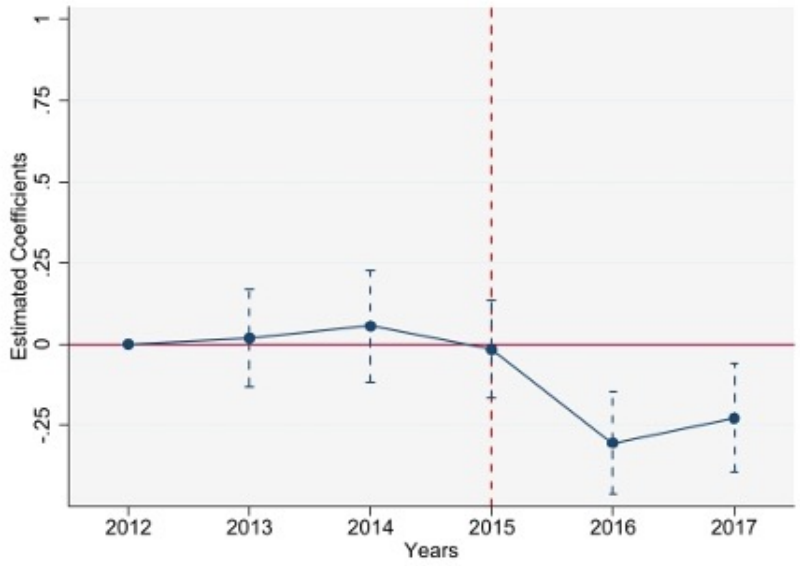


Figure 3.3
Kdensity for placebo tests for *SPI*

Figure 3.3 displays illustrates the Kernel density and p-values for 1000 coefficient estimates of the $treat_F \times post_t$, where $treat_F$ is the false treatment variable. These estimates were obtained via random assignment of the treatment variable across firms.

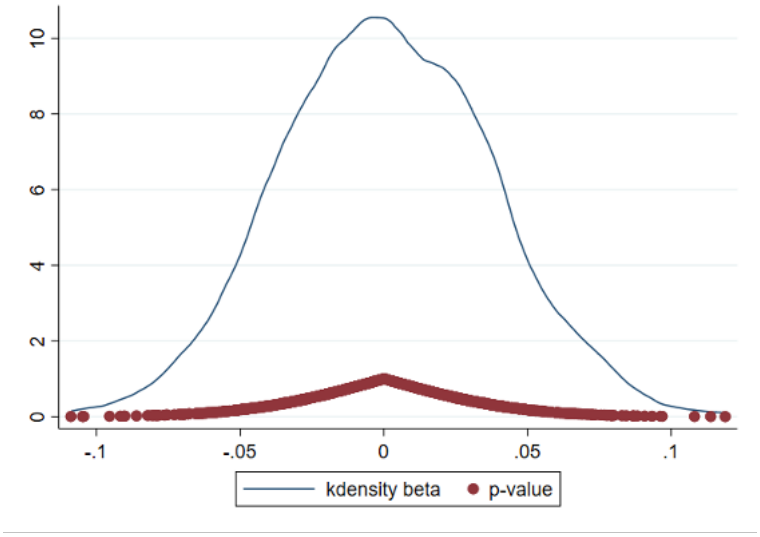


Table 3.1
Descriptive statistics

This table reports summary statistics of all the variables used in this study for the overall sample period (2012-2017) as well as for the pre-CSR-135 years (2012-2014) and the post-years (2015-2017). Values in the second row represent the number of observations for each variable. SPI represents the proxy for stock price informativeness and is measured as the logistic transformation of the ratio $\frac{(1-R^2)}{(R^2)}$. Due to the construct of this SPI variable, a stock with higher SPI value is regarded as highly informative. All the continuous variables are winsorised at 1% and 99% on both ends. Data source: CMIE Prowess Database

Panel A: *SPI* related									
	Variable	Mean (Obs)	St Dev	Min	Max	Before Rule	After Rule	Diff.	t-stat
(1)	R^2	0.225 (16,886)	0.153	0.000	0.826	0.215 (8,492)	0.236 (8,394)	-0.020***	-8.664
(2)	*SPI*	1.501 (16,886)	1.052	-1.555	7.843	1.578 (8,492)	1.422 (8,394)	0.156***	9.685
(3)	*SYN*	-1.501 (16,886)	1.052	-7.843	1.555	-1.578 (8,492)	-1.422 (8,394)	-0.156***	-9.685
Panel B: CSR proxies									
(4)	*CSRdummy*	0.176 (16,886)	0.381	0	1	0 (8,492)	0.354 (8,394)	-0.354***	-67.845
(5)	*CSRincurNspent*	0.1635 (16,886)	0.3698	0	1	0 (8,492)	0.331 (8,394)	0.331***	-64
(6)	$CSRfullycompy$	0.095 (16,886)	0.294	0	1	0 (8,492)	0.192 (8,394)	-0.192***	-44.664
(7)	*CSRspent*	71.74 (2,891)	369.93	0.1	7605.8	476.05 (2)	71.46 (2889)	404.589	0.891
Panel C: Firm characteristics									
(8)	$fsize$	6.803 (16,422)	2.368	2.585	13.125	6.61 (8,299)	7.002 (8,123)	-0.394***	-10.689
(9)	$promoters\_pct$	51.489 (16,701)	19.285	1.260	87.260	50.753 (8,408)	52.235 (8,293)	-1.482***	-4.970
(10)	*lev*	2.738 (14,230)	6.083	0.000	39.115	2.687 (7,273)	2.791 (6,957)	-0.105	-1.023
(11)	*roa*	0.646 (16,358)	10.565	-50.000	26.327	1.018 (8,270)	0.267 (8,088)	0.751***	4.544
(12)	*cash*	0.243 (15,080)	1.175	-0.002	10.667	0.238 (7,668)	0.248 (7,412)	-0.011	-0.570
(13)	*mtb*	2.609 (15,333)	5.041	0.104	37.079	2.181 (7,851)	3.057 (7,482)	-0.876***	-10.744
(14)	*return*	-0.228 (16,422)	0.390	-1.325	2.583	-0.213 (8,299)	-0.244 (8,123)	0.031***	5.033
(15)	*sigma*	0.070 (16,422)	0.029	0.023	0.183	0.067 (8,299)	0.072 (8,123)	-0.005***	-11.120
(16)	*dturn*	-0.000 (16,282)	0.001	-0.008	0.005	-0.001 (8,188)	0.000 (8,094)	-0.001***	-27.457
(17)	$soc-com\_exp$	59.490 (3,820)	327.263	0.000	7610.000	32.017 (834)	67.163 (2986)	-35.147***	-4.204
(18)	*env_exp*	31.296 (660)	84.715	0.000	790.000	26.430 (346)	36.658 (314)	-10.227	-1.526

Table 3.2
Correlation table

This table presents Pearson correlation coefficients.*** p<0.01, ** p<0.05, * p<0.1 *SPI* represents the proxy for stock price informativeness and is measured as the logistic transformation of the ratio $\frac{(1-R^2)}{(R^2)}$. Data source: CMIE Prowess Database.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1)	R^2	1.0000													
(2)	*SPI*	-0.9397	1.0000												
(3)	*SYN*	0.9397	-1.0000	1.0000											
(4)	*CSRdummy*	0.2175	-0.2129	0.2129	1.0000										
(5)	*CSRincurNspent*	0.2140	-0.2080	0.2080	0.9403	1.0000									
(6)	*CSRfullcomply*	0.1729	-0.1665	0.1665	0.7017	0.7462	1.0000								
(7)	*fsize*	0.4292	-0.4065	0.4065	0.3203	0.3145	0.2250	1.0000							
(8)	*promoters_pct*	0.0911	-0.1012	0.1012	0.1604	0.1478	0.1094	0.2455	1.0000						
(9)	*roa*	0.0616	-0.0635	0.0635	0.2488	0.2499	0.1846	0.2145	0.1740	1.0000					
(10)	*lev*	-0.0331	0.0321	-0.0321	-0.1522	-0.1471	-0.1079	0.0841	-0.1317	-0.3643	1.0000				
(11)	*cash*	-0.0447	0.0486	-0.0486	-0.0458	-0.0457	-0.0309	-0.0969	-0.0311	-0.0319	0.0196	1.0000			
(12)	*mtb*	-0.0525	0.0568	-0.0568	0.0568	0.0584	0.0426	-0.0260	0.0126	0.0506	-0.1166	-0.0133	1.0000		
(13)	*return*	0.0885	-0.0680	0.0680	0.1186	0.1198	0.0836	0.1878	0.0963	0.1468	-0.1229	-0.0157	0.1146	1.0000	
(14)	*sigma*	-0.3686	0.3592	-0.3592	-0.1945	-0.2018	-0.1499	-0.4112	-0.2386	-0.2335	0.1589	0.0393	0.0178	-0.3833	1.0000
(15)	*dturn*	-0.0940	0.0802	-0.0802	0.0898	0.0790	0.0551	0.0092	0.0610	0.0095	-0.0018	0.0006	0.0453	-0.0388	0.0959

Table 3.3
Panel regression

This table reports the estimated coefficient for the panel regression. *SPI* represents the proxy for stock price informativeness and is measured as the logistic transformation of the ratio $\frac{(1-R^2)}{(R^2)}$. Due to the construct of this *SPI* variable, a stock with higher *SPI* value is regarded as highly informative. We use three variables to proxy for the actual CSR expenses. First, we define *CSRdummy* as is a dummy variable indicating whether a firm will incur any CSR expenditure (1) or not (0). Second, *CSRincurNspent* is a dummy formed by the interaction between *CSRdummy* and a dummy representing non-zero CSR expenditure (*CSRspent*) (1), meaning it is 1 only for firms that both incur and spend on CSR, and 0 for all others. Third, we define *CSRfullcomply* as an indicator (1/0) of a firm's full compliance with the legal minimum of 2% CSR spending. Following prior studies, we treat no reported CSR as zero money spent on CSR. Standard errors are clustered at firm-level and are displayed in parentheses. Fixed effects are as indicated. The sample period is 2012-2017.*** p<0.01, ** p<0.05, * p<0.1. Data source: CMIE Prowess Database.

	(1) *SPI*	(2) *SPI*	(3) *SPI*	(4) *SPI*	(5) *SPI*	(6) *SPI*
$CSRdummy_{t-1}$	-0.138***		-0.072**			
	(0.032)	(0.033)				
$CSRincurNspent_{t-1}$			-0.131***	-0.064*		
			(0.032)	(0.033)		
$CSRfullcomply_{t-1}$					-0.147***	-0.049
					(0.036)	(0.037)
$fsize_{t-1}$	-0.193***	-0.107**	-0.194***	-0.110**	-0.196***	-0.118***
	(0.007)	(0.045)	(0.007)	(0.045)	(0.007)	(0.045)
$promoters\_pct_{t-1}$	0.001**	0.000	0.001**	0.000	0.001**	0.000
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
lev_{t-1}	0.011***	0.017***	0.011***	0.018***	0.011***	0.018***
	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)
roa_{t-1}	0.004***	-0.005**	0.004***	-0.005***	0.004***	-0.005***
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
mtb_{t-1}	0.010***	-0.004	0.010***	-0.004	0.010***	-0.004
	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)
$return_{t-1}$	0.007	-0.057**	0.006	-0.057**	0.005	-0.058**
	(0.026)	(0.027)	(0.026)	(0.027)	(0.026)	(0.027)
$sigma_{t-1}$	1.640***	-2.963**	1.627***	-2.969***	1.667***	-2.960***
	(0.402)	(0.459)	(0.403)	(0.460)	(0.403)	(0.460)
$dturn_{t-1}$	-5.752	1.732	-5.768	1.715	-5.421	1.881
	(6.639)	(6.859)	(6.636)	(6.858)	(6.624)	(6.855)
constant	2.789***	2.487***	2.793***	2.506***	2.800***	2.554***
	(0.075)	(0.391)	(0.075)	(0.390)	(0.075)	(0.388)
Observations	10,359	10,061	10,359	10,061	10,359	10,061
Adj. R^2	0.239	0.415	0.239	0.415	0.239	0.415
Industry FE	YES	NO	YES	NO	YES	NO
Year FE	YES	NO	YES	NO	YES	NO
Firm FE	NO	YES	NO	YES	NO	YES
Year-Industry FE	NO	YES	NO	YES	NO	YES

Table 3.4
Possible mechanism: Advertising expenses

This table table presents results for the potential mechanism through which mandatory CSR engagement affects stock price informativeness. *SPI*, measured as the logistic transformation of $(1-R^2)/R^2$, signifies greater informativeness with higher values. First, we define *CSRdummy* as a dummy variable indicating whether a firm will incur any CSR expenditure (1) or not (0). Second, *CSRincurNspent* is a dummy formed by the interaction between *CSRdummy* and a dummy representing non-zero CSR expenditure (*CSRspent*) (1), meaning it is 1 only for firms that both incur and spend on CSR, and 0 for all others. Third, we define CSRfullcomply as an indicator (1/0) of a firm's full compliance with the legal minimum of 2% CSR spending. We treat no reported CSR as zero money spent on CSR. To capture relative advertising intensity, we construct a dummy variable, *AdvertHigh*. This indicator takes the value 1 if a firm's scaled advertising expense (relative to total assets) exceeds the year-median level, and 0 otherwise. Consistent with prior research, missing advertising expenses are imputed as zero. Standard errors displayed in parenthesis below are clustered at firm level. The sample period is 2012-2017. p<0.01, ** p<0.05, * p<0.1. Data source: CMIE Prowess Database

	(1)	(2)	(3)
	SPI	*SPI*	*SPI*
$CSRdummy$	-0.124***		
	(0.042)		
$CSRdummy \times Advert_{High}$	0.096**		
	(0.045)		
$CSRincurNspent$		-0.129***	
		(0.042)	
$CSRincurNspent \times Advert_{High}$		0.094**	
		(0.046)	
$CSRfull$			-0.187***
			(0.045)
$CSRfull \times Advert_{High}$			0.156***
			(0.052)
$Advert_{High}$	0.029	0.032	0.033
	(0.033)	(0.033)	(0.032)
$fsize_{t-1}$	-0.111**	-0.110**	-0.115**
	(0.046)	(0.046)	(0.045)
$promoters\_pct_{t-1}$	0.000	0.000	0.000
	(0.002)	(0.002)	(0.002)
lev_{t-1}	0.017***	0.017***	0.018***
	(0.004)	(0.004)	(0.004)
roa_{t-1}	-0.005***	-0.005***	-0.005***
	(0.002)	(0.002)	(0.002)
mtb_{t-1}	-0.004	-0.004	-0.004
	(0.004)	(0.004)	(0.004)
$return_{t-1}$	-0.058**	-0.058**	-0.057**
	(0.027)	(0.027)	(0.027)
$sigma_{t-1}$	-2.975***	-2.975***	-2.942***
	(0.454)	(0.454)	(0.453)
$dturn_{t-1}$	1.942	1.986	1.978
	(6.969)	(6.967)	(6.972)
$constant$	2.493***	2.483***	2.507***
	(0.393)	(0.393)	(0.391)
Observations	10,061	10,061	10,061
Adj R^2	0.414	0.414	0.415
Firm FE	YES	YES	YES
Year-Industry FE	YES	YES	YES

Table 3.5
Industry competition and advertising

This table presents the results for the impact of mandatory CSR on stock price informativeness in the presence of different levels of competitiveness and advertising intensity. *SPI*, measured as the logistic transformation of $(1-R^2)/R^2$, signifies greater informativeness with higher values. *CSRdummy* as a dummy variable indicating whether a firm incurs any CSR expenditure (1) or not (0). We treat no reported CSR as zero money spent on CSR. Industry competition is gauged by the Herfindahl-Hirschman Index (*HHI*), calculated for each industry (at the 3-digit NIC level) in each year. Similar to Deng et al. (2022), we adopt a three-year moving average approach to calculate annual HHI for each year (t). We then categorise firms as *HighComp* based on their annual value relative to the year-median competition level. Firms with values below the median are assigned a *HighComp* indicator 1 and 0 otherwise. *yesadvert* is a dummy variable representing whether the firm spends any money on advertising (1) or not (0). $advert_{AT}$ is a firm's scaled advertising expense (relative to total assets). Standard errors, clustered at the firm level, are shown in parentheses below. The sample period is 2012-2017. p<0.01, ** p<0.05, * p<0.1. Data source: CMIE Prowess Database

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	SPI	*SPI*	*SPI*	*SPI*	*SPI*	*SPI*	*SPI*	*SPI*
CSRdummy	-0.067*	-0.027	-0.025	-0.089**	0.003	-0.051	-0.111**	-0.040
	(0.038)	(0.063)	(0.059)	(0.039)	(0.065)	(0.077)	(0.046)	(0.083)
*CSRdummy#.HighComp#c.advert_AT*0			8.800***					
			(2.833)					
CSRdummy#advert_AT			-5.401**	3.196***	-6.294**			
			(2.644)	(1.003)	(2.569)			
CSRdummy#yesadvert						0.011	0.085	0.024
						(0.096)	(0.054)	(0.101)
CSRdummy#yesadvert#HighComp						0.083		
						(0.108)		
yesadvert#HighComp						0.103		
						(0.068)		
HighComp#advert_AT			-4.167					
			(3.374)					
*CSRdummy#*1*HighComp*			-0.060			-0.061		
			(0.066)			(0.086)		
HighComp			0.077*			0.004		
			(0.046)			(0.057)		
yesadvert						-0.035	0.081	-0.069
						(0.064)	(0.067)	(0.079)
advert_AT			4.636	0.154	12.244**			
			(3.490)	(0.874)	(5.361)			
_cons	2.863***	1.815***	2.405***	2.860***	1.687**	2.487***	2.835***	1.874***
	(0.489)	(0.677)	(0.399)	(0.497)	(0.679)	(0.397)	(0.490)	(0.685)
Observations	6933	2817	10061	6933	2817	10061	6933	2817
Adj. R2	0.407	0.419	0.415	0.407	0.420	0.414	0.407	0.418
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES
Year-Industry FE	YES	YES	YES	YES	YES	YES	YES	YES
Mechanism variable	High Competition=1	Low Competition=1		High Competition=1	Low Competition=1		High Competition=1	Low Competition=1

Table 3.6
Instrumental Variable analysis

The table presents estimates for Instrumental Variable analysis. Stock price informativeness is measured as the logistic transformation of the ratio $\frac{(1-R^2)}{(R^2)}$. A stock with high *SPI* value is regarded as highly informative. Actual CSR engagement is represented using: *CSRdummy*, a dummy variable indicating whether a firm will incur any CSR expenditure (1) or not (0); *CSRincurNspent* and *CSRfullcomply*, an indicator (1 and 0) of a firm's full compliance with the legal minimum of 2% CSR spending. We treat no reported CSR as zero money spent on CSR. Our IV strategy follows Adams et al. (2009) prescribed three-stage procedure for binary endogenous variable. The first stage estimates a probit model for the determinants of CSR engagement, the second stage regresses the CSR variable on the first-stage fitted values and control variables. Finally, the third stage regresses *SPI* on the fitted values from the second stage and control variables. *geoCSRperc* captures the % of firms within the same geographical location (states) that incur CSR expenditure, excluding the focal firm, in a fiscal year. *MeanIndCSRperc_exI* captures average of the percent of CSR spending of the firms that incur csr with the rule in the same NIC two-digit code excluding focal firm. *AvgIndusCSRperc_fullcomply_exI* captures average of the % of CSR spending of the firms that fully comply with the rule in the same NIC two-digit code excluding focal firm. Standard errors, clustered at the firm level, are shown in parentheses below. Lagged control variables are included. Fixed effects are included as indicated. The sample period is 2012-2017.*** p<0.01, ** p<0.05, * p<0.1 . Data source: CMIE Prowess Database.

	(1) CSRdummy Probit	(2) CSRdummy 2^{nd}-stage	(3) SPI 3^{rd}-stage	(4) CSRincurNspent Probit	(5) CSRincurNspent 2^{nd}-stage	(6) SPI 3^{rd}-stage	(7) CSRfullcomply Probit	(8) CSRfullcomply 2^{nd}-stage	(9) SPI 3^{rd}-stage
$IV1(geoCSRperc)$	0.069***								
	(0.0018)								
$CSRdummyfrom(1)$		0.157***							
		(0.0034)							
$CSRdummyfrom(2)$			-0.917***						
			(0.0475)						
$IV2(MeanIndCSR\%\_exI)$				4.801***					
				(0.1286)					
$CSRincurNspentfrom(4)$					0.198***				
					(0.0050)				
$CSRincurNspentfrom(5)$						-1.129***			
						(0.0562)			
$IV3$							4.035***		
$(AvgIndCSR\%\_fullcomply\_exI)$							(0.1196)		
$CSRfullfrom(7)$								0.176***	
								(0.0065)	
$CSRfullfrom(8)$									-1.824***
									(0.1023)
constant	-6.342***	0.629***	2.796***	-5.248***	0.755***	2.771***	-3.939***	0.542***	2.813***
	(0.2033)	(0.0343)	(0.0775)	(0.1832)	(0.0384)	(0.0797)	(0.1467)	(0.0351)	(0.0836)
Observations	10422	10326	10326	10422	10326	10326	10422	10326	10326
Baseline Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm FE	NO		NO	NO		NO	NO		NO
Industry FE	NO		NO	NO		NO	NO		NO
Year FE	NO		NO	NO		NO	NO		NO
Kleibergen-Paap rk Wald F		2107.599	2107.599		1570.571	1570.571		732.756	732.756
Anderson Rubin Wald (ARW) test		424.561	424.561		496.741	496.741		482.770	482.770

Table 3.7
Standard Difference-in-Difference w/o PSM

This table presents the difference-in-difference estimates for stock price informativeness without using a propensity score matching procedure. *SPI*, measured as the logistic transformation of $\frac{(1-R^2)}{(R^2)}$ signifies greater informativeness with higher values. $treat_i$ is a binary variable indicating treatment firms (1) (defined as those with net worth, sales, or net profit exceeding a threshold) and control firms (0). $post_t$ dummy variable, taking 1 for the post-CSR-135 period (2015-2017) and 0 for the pre-CSR-135 period (2012-2014). Our key variable of interest is the coefficient on the DiD interaction term $(post_t \times treat_i)$.Fixed effects are included as indicated. Standard errors, clustered at the firm level, are shown in parentheses below. *** p<0.01, ** p<0.05, * p<0.1. Data source: CMIE Prowess Database.

	SPI	*SPI*	*SPI*
	(1)	(2)	(3)
$treat_i$	-0.560***	-0.115***	
	(0.028)	(0.037)	
$post_t$	-0.070***	-0.323***	
	(0.020)	(0.027)	
$treat_i \times post_t$	-0.174***	-0.121***	-0.071*
	(0.028)	(0.036)	(0.037)
$fsize_{t-1}$		-0.182***	-0.123***
		(0.008)	(0.046)
$promoters\_pct_{t-1}$		0.001	-0.001
		(0.001	(0.002)
lev_{t-1}		0.011*	0.018***
		(0.003	(0.004)
roa_{t-1}		0.005*	-0.005***
		(0.001	(0.002)
mtb_{t-1}		0.009*	-0.005
		(0.003	(0.004)
$return_{t-1}$		0.007	-0.059**
		(0.027	(0.027)
$sigma_{t-1}$		1.168*	-3.088***
		(0.415	(0.446)
$dturn_{t-1}$		-5.050	2.879
		(6.507	(6.650)
$constant_{t-1}$	1.822***	3.017*	2.711***
	(0.018)	(0.075	(0.393)
Observations	16,422	10,359	10,061
Adj. R^2	0.101	0.205	0.407
Firm FE	NO	NO	YES
Year-Industry FE	NO	NO	YES

Table 3.8
Propensity score matching

This table reports propensity score matching statistics. **Panel A** presents a comparison pre-matching difference in covariates between the treated and control group firms in the pre-CSR period. **Panel B** presents probit regression results as per the specification: $treat_i = \alpha_0 + \beta C_{it} + \gamma_j + \delta_t + \varepsilon_{it}$ where $treat_i$ equals one if any of the three financial thresholds (i.e., net profit, net worth, and sales) is met, 0 otherwise. C_{it} is a vector of control that includes size (*size*), promoter's percentage (*promoters_pct*), leverage (*lev*), profitability (*roa*), market-to-book ratio (*mtb*), return (*ret*) and trading volume (*dturn*). The term γ_j and δ_t captures the (NIC) industry-specific effects and time effects respectively Column (1) presents the probit result for predicting the likelihood of receiving treatment from the entire pool in the pre-CSR-135 period. Model (2) presents the probit likelihood model for PSM-matched TG and CG. All the continuous variables are winsorised at 1% and 99% on both ends. Heteroskedasticity robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1 . Data source: CMIE Prowess Database.

Panel A PSM: Pre-CSR rule 2012-2015				
	CG	TG	Diff(TG-CG)	t value
fsize	6.301	9.027	.035	-78.7
	4361	3936		
promoters_pct	45.473	56.789	.409	-27.65
	4485	3923		
lev	3.570	1.749	.129	14.15
	3746	3527		
roa	-3.069	5.52	.195	-44.15
	4335	3935		
mtb	2.286	2.075	.103	2.05
	3964	3887		
return	-0.289	-.129	.009	-19.35
	4363	3936		
sigma	0.079	.054	.001	42.6
	4363	3936		
dturn	-0.001	-.001	0	-.1
	4289	3899		

Panel B: Pre and post PSM probit regression		
	Dummy=1 if affected by CSR-135 rule; 0 otherwise	
	(1)	(2)
	Pre-Match Probit	Matched Probit
fsize	0.584***	-0.023
	(0.017)	(0.032)
promoters_pct	0.012***	0.002
	(0.001)	(0.003)
lev	-0.042***	0.011
	(0.008)	(0.008)
roa	0.066***	0.002
	(0.006)	(0.005)
mtb	-0.003	0.002
	(0.008)	(0.011)
return	0.055	-0.133
	(0.079)	(0.127)
sigma	-7.602***	-1.874
	(0.919)	(1.671)
dturn	24.937*	58.143**
	(13.964)	(25.247)
cons	-4.494***	-0.117
	(0.294)	(0.645)
Observations	6700	1059
Pseudo R^2	0.4499	0.0104
p-value (χ^2)	0.00	0.8502
Industry FE	YES	YES
Year FE	YES	YES
Probit	Unmatched	Matched

Table 3.9
Difference-in-difference with PSM matched TG and CG

This table reports the main difference-in-difference (DiD) results using PSM matched TG and CG firms. *SPI* measured as the logistic transformation of $\frac{(1-R^2)}{(R^2)}$ indicates greater informativeness for higher values. $treat_i$ is a binary variable that takes the value 1 for treatment firms (i.e., if net profit, net worth, or sales is greater than threshold) and 0 for control firms, $post_t$ is a dummy that equals one for the post-CSR-135 period (2015-2017) and zero for the pre-CSR-135 period(2012-2014). Our main variable of interest is the coefficient on the DiD term $(post_t \times treat_i)$. Fixed effects are included as indicated. Standard errors, clustered at the firm level, are shown in parentheses below. *** p<0.01, ** p<0.05, * p<0.1 . Data source: CMIE Prowess Database.

	(1)	(2)	(3)
	SPI	*SPI*	*SPI*
$treat_i$	-0.189***	-0.028	0.000
	(0.052)	(0.053)	(.)
$post_t$	-0.156***	-0.427***	0.000
	(0.036)	(0.045)	(.)
$treat_i \times post_t$	-0.186***	-0.135**	-0.109*
	(0.050)	(0.061)	(0.064)
$fsize_{t-1}$		-0.216***	-0.122*
		(0.015)	(0.072)
$promoters\_pct_{t-1}$		0.004***	-0.001
		(0.001)	(0.004)
lev_{t-1}		0.015***	0.018***
		(0.004)	(0.005)
roa_{t-1}		0.000	-0.005*
		(0.002)	(0.003)
mtb_{t-1}		0.001	-0.005
		(0.006)	(0.007)
$return_{t-1}$		0.046	-0.069
		(0.052)	(0.053)
$sigma_{t-1}$		1.757**	-3.737***
		(0.697)	(0.751)
$dturn_{t-1}$		-2.599	8.116
		(10.545)	(11.048)
constant	1.628***	3.137***	2.757***
	(0.037)	(0.151)	(0.605)
Observations	4,751	3,616	3,508
Adj. R^2	0.036	0.169	0.381
Firm FE	NO	NO	YES
Year-Industry FE	NO	NO	YES

Table 3.10
Difference-in-Difference trend analysis

This table reports the estimates for trend analysis for DiD. *SPI* represents the proxy for stock price informativeness and is measured as the logistic transformation of the ratio $\frac{(1-R^2)}{(R^2)}$. The variable $Treat_i$ is a binary variable that takes the value 1 for treatment firms (i.e., if net profit, net worth, or sales is greater than threshold) and 0 for control firms. We assume that a treated firm remains treated for the entire sample period. Since the Companies Act 2013 came into effect on April 1, 2014, and was applicable in the fiscal year ending March 2015 i.e., the fiscal year 2015. We use 2015 as the shock. We create three variables denoting three years before the shock as $Shock^{-1}$= 2014, $Shock^{-2}$ = 2013 and $Shock^{-3}$= 2012. We denote the post-shock year as $Shock^{1}$=2016 and $Shock^{2}$=2017. Using these pre- and post-shock time dummies, we created the $Treat_i \times Shock^{-1}$ as an interaction between the $treat_i$ and $before^{-1}$. The interaction term $Treat_i \times Shock^{1}$ is an interaction between the $treat_i$ and $after^{1}$. We have 2012 as our base year. Other variables follow the same construction. Standard errors, clustered at the firm level, are shown in parentheses below. *** p<0.01, ** p<0.05, * p<0.1 . Data source: CMIE Prowess Database.

	(1) *SPI*	(2) *SPI*
$treat_i \times Shock^{-2}$	0.017	0.017
	(0.100)	(0.100)
$treat_i \times Shock^{-1}$	0.054	0.054
	(0.100)	(0.099)
$treat_i \times Shock$	-0.007	-0.007
	(0.096)	(0.096)
$treat_i \times Shock^{1\&2}$	-0.236**	
	(0.086)	
$treat_i \times Shock^{+1}$		-0.293***
		(0.098)
$treat_i \times Shock^{+2}$		-0.192*
		(0.100)
$Shock^{-1}$	0.823***	0.823***
	(0.071)	(0.071)
$Shock^{-2}$	0.446***	0.446***
	(0.073)	(0.076)
$Shock^{1\&2}$	0.202***	
	(0.064)	
$Shock^{+1}$		0.041
		(0.073)
$Shock^{+2}$		0.377***
		(0.074)
$Shock$	0.382***	0.382***
	(0.070)	(0.070)
$treat_i$	-0.212***	-0.212***
	(0.070)	(0.070)
Observations	4,750	4,750
Adj. R^2	0.103	0.114
Baseline Controls	NO	NO

Table 3.11
Placebo test (*SPI*)

Panel A and B reports multivariate placebo DiD regression using PSM matched TG and CG. In **Panel A** columns (1)- (2), reports multivariate placebo DiD result between the PSM matched firms pseudo TG and CG groups. $post_t$ is a dummy that equals 0 for pre-shock (2012-2014) and 1 for the post-shock period (2015-2017). We randomly assign the treatment to each term, and then construct a false treatment variable $treat_F$ and the associated interaction term $treat_F \times post_t$. Specifically, we conduct the random data generating process 1000 time, and report the mean of the estimated coefficients for both columns (1) and (2). In columns (3) and (4), we use 2010 as the shock year. The variable $treat_i$ is a binary variable that takes the value 1 for treatment firms (i.e., if net profit, net worth, or sales is greater than respective thresholds) and 0 for control firms, $post_F$ is a dummy that equals 1 for the false post-shock period (2010-2012) and 0 for the false pre-shock period (2008-2009). **Panel B** reports the distribution of β for the pseudo-CSR rule. *SPI* represents the proxy for stock price informativeness and is measured as the logistic transformation of the ratio $\frac{(1-R^2)}{(R^2)}$. Our baseline control includes ownership concentration (*promoter_pct*), leverage (*lev*), profitability (*roa*), market-to-book ratio (*mtb*), firm-specific return (*ret*), sigma (*sigma*) and turnover (*dturn*). Heteroscedasticity robust standard errors are displayed in parenthesis. *** p<0.01, ** p<0.05, * p<0.1 . Data source: CMIE Prowess Database.

Panel A: Placebo treat and Placebo shock regressions		
	(1) *SPI*	(2) *SPI*
$treat_F \times post_t$	-0.0004	
$treat_i \times post_F$		-0.003
		(0.0500)
Observations	4,331	3,353
Adj.R^2		0.548
Baseline Controls	YES	YES
Year FE	YES	YES
Firm FE	YES	YES
Year	2012-2017	2008-2012
Panel B: Placebo test: Distribution of β for pseudo-CSR rule		
Distribution stats		
Mean β for pseudo-CSR rule	0.001	
Min β for pseudo-CSR rule	-0.109	
Max β for pseudo-CSR rule	0.119	
1% percentile β for pseudo-CSR rule	-0.080	
5% percentile β for pseudo-CSR rule	-0.058	
25% percentile β for pseudo-CSR rule	-0.025	
Median β for pseudo-CSR rule	0	
75% percentile β for pseudo-CSR rule	0.027	
95% percentile β for pseudo-CSR rule	0.063	
99% Percentile β for pseudo-CSR rule	0.086	
Actual β in main results table	-0.109	

Table 3.12
Actual CSR expenses and Stock price informativeness

This table reports estimates for our triple interaction with the actual CSR variables. *SPI* is our proxy for stock price informativeness. Due to the construct of this SPI measure, a stock with higher *SPI* value is regarded as highly informative. The variable $treat_i$ is a binary variable that takes the value 1 for treatment firms (i.e., if Net worth, Sales or Net profit is greater than threshold) and 0 for control firms, $post_t$ is a dummy that equals 1 for the post-CSR-135 period (2015-2017) and 0 for the pre-CSR-135 period (2012-2014). We construct *CSRfull* as an indicator (1 and 0) of firm full compliance with the law, i.e., minimum 2% CSR spending. As has been done in the prior studies, we will treat no reporting of CSR as zero money spent on CSR. *CSRperc* represents the percentage of CSR spending relative to CSR incurred times 100. Heteroscedasticity robust standard errors are displayed in parenthesis below. All regression includes industry and year-fixed effects. The sample period is 2012-2017. *, **, and *** denote statistical significance at the 10%, 5% and 1%, respectively. Data source: CMIE Prowess Database.

	(1) SPI	(2) SPI	(3) SPI	(4) SPI
$treat_i \times post_t \times CSRfull$	-0.141**	-0.119*		
	(0.058)	(0.063)		
$treat_i \times post_t \times CSRperc$			-0.021***	-0.004
			(0.007)	(0.009)
$treat_i \times post_t$	-0.074	-0.073	-0.116*	-0.113*
	(0.067)	(0.065)	(0.064)	(0.061)
$treat_i$	-0.040	0.000	-0.040	0.000
	(0.049)	(.)	(0.049)	(.)
$fsize_{t-1}$	-0.211***	-0.135*	-0.210***	-0.138*
	(0.012)	(0.073)	(0.012)	(0.073)
$promoters\_pct_{t-1}$	0.004***	0.001	0.004***	0.001
	(0.001)	(0.004)	(0.001)	(0.004)
lev_{t-1}	0.013***	0.016***	0.013***	0.016***
	(0.004)	(0.006)	(0.004)	(0.006)
roa_{t-1}	0.002	-0.005*	0.002	-0.005*
	(0.002)	(0.003)	(0.002)	(0.003)
mtb_{t-1}	0.001	-0.005	0.001	-0.005
	(0.005)	(0.007)	(0.005)	(0.007)
$return_{t-1}$	0.037	-0.077	0.037	-0.078
	(0.051)	(0.050)	(0.051)	(0.050)
$sigma_{t-1}$	1.367**	-3.740***	1.395**	-3.768***
	(0.657)	(0.765)	(0.657)	(0.766)
$dturn_{t-1}$	1.989	7.514	1.917	7.459
	(11.142)	(11.479)	(11.127)	(11.454)
$CSRfull_{t-1}$	-0.048	0.024		
	(0.063)	(0.063)		
$CSRperc_{t-1}$			-0.012	0.005
			(0.008)	(0.013)
cons	2.846***	2.744***	2.841***	2.762***
	(0.128)	(0.620)	(0.129)	(0.620)
Observations	3552	3506	3552	3506
Adj. R^2	0.226	0.396	0.225	0.395
Firm FE	NO	YES	NO	YES
Year-Industry FE	NO	YES	NO	YES
Industry FE	YES	NO	YES	NO
Year FE	YES	NO	YES	NO

Table 3.13
Moderating effects of analyst following

The table reports the moderating effect of number of analysts giving estimates on the relationship between mandatory CSR engagement and stock price informativeness on PSM matched TG and CG. We have three variables for triple interaction: $treat_i$, $post_t$, and analyst variables. *SPI* is our proxy for stock price informativeness. Due to the construct of this *SPI* measure, a stock with higher *SPI* value is regarded as highly informative. The variable $treat_i$ is a binary variable that takes the value 1 for treatment firms (i.e., if Net worth, Sales or Net profit is greater than respective thresholds) and 0 for control firms, $post_t$ is a dummy that equals 1 for the post-CSR-135 period (2015-2017) and 0 for the pre-CSR-135 period (2012-2014). *lnanalystfy* and *lnanalystfyw0* are two variables measuring the number of analysts giving estimates, where latter variable replaces missing observations with zeros. Robust standard errors clustered at firm-level are displayed in parenthesis below them. The sample period is 2012-2017 *, **, and *** denote statistical significance at the 10%, 5% and 1%, respectively. Data source: CMIE Prowess Database.

	(1)	(2)
	SPI	*SPI*
$treat_i \times post_t \times lnanalystfy$	0.595**	
	(0.247)	
$treat_i \times post_t \times lnanalystfyw0$		0.663***
		(0.232)
$treat_i \times post_t$	-0.065	-0.182**
	(0.125)	(0.071)
$lnanalystfy$	0.019	
	(0.178)	
$treat_i \times lnanalystfy$	-0.206	
	(0.192)	
$post_t \times lnanalystfy$	-0.387	
	(0.238)	
$treat_i \times lnanalystfyw0$		-0.250
		(0.183)
$post_t \times lnanalystfyw0$		-0.459**
		(0.225)
$lnanalystfw0$		0.084
		(0.171)
$fsize_{t-1}$	-0.198*	-0.149*
	(0.106)	(0.076)
$promoters\_pct_{t-1}$	0.003	0.001
	(0.006)	(0.004)
lev_{t-1}	0.031***	0.015***
	(0.011)	(0.006)
roa_{t-1}	0.001	-0.005*
	(0.005)	(0.003)
mtb_{t-1}	-0.008	-0.006
	(0.013)	(0.008)
$return_{t-1}$	-0.144**	-0.072
	(0.066)	(0.050)
$sigma_{t-1}$	-4.531***	-3.584***
	(1.034)	(0.773)
$dturn_{t-1}$	5.494	12.790
	(19.305)	(12.653)
$constant$	3.083***	2.883***
	(0.926)	(0.636)
Observations	1,598	3,360
Adj. R^2	0.418	0.393
Firm FE	YES	YES
Year-Industry FE	YES	YES

Table 3.14
Corporate governance moderators: Foreign institutional investors percentage and Institutional holdings

The table reports the moderating effect of percentage of foreign institutional investors (FII) and institutional holdings on the impact of mandatory CSR engagement on stock price informativeness on PSM matched TG and CG. *SPI* is our proxy for stock price informativeness. Due to the construct of this *SPI* measure, a stock with higher *SPI* value is regarded as highly informative. The variable $treat_i$ is a binary variable that takes the value 1 for treatment firms (i.e., if Net worth, Sales or Net profit is greater than threshold) and 0 for control firms, $post_t$ is a dummy that equals 1 for the post-CSR-135 period (2015-2017) and 0 for the pre-CSR-135 period (2012-2014). *fii* variable measures the percentage of foreign institutional investors. *instHolding* is the proportion of Institutional holdings by non-promoters. Robust standard errors clustered at firm-level are displayed in parentheses below them. The sample period is 2012-2017 *, **, and *** denote statistical significance at the 10%, 5% and 1%, respectively. Data source: CMIE Prowess Database

	(1)	(2)	(3)	(4)
	SPI	*SPI*	*SPI*	*SPI*
$treat_i \times post_t \times fii$	0.017***	0.017***		
	(0.006)	(0.006)		
$treat_i \times post_t \times instHolding$			0.011**	0.011**
			(0.004)	(0.004)
$treat_i \times post_t$	-0.160**	-0.159**	-0.131*	-0.130*
	(0.063)	(0.063)	(0.073)	(0.073)
fii	-0.007	-0.007		
	(0.009)	(0.009)		
$instholdings$			0.009	0.008
			(0.006)	(0.006)
$fsize_{t-1}$	-0.139*	-0.138*	-0.255***	-0.253***
	(0.073)	(0.073)	(0.080)	(0.080)
$promoters\_pct_{t-1}$	0.002		0.004	
	(0.004)		(0.004)	
lev_{t-1}	0.017***	0.016***	0.022***	0.021***
	(0.006)	(0.006)	(0.006)	(0.006)
roa_{t-1}	-0.005*	-0.005*	-0.005	-0.005
	(0.003)	(0.003)	(0.003)	(0.003)
mtb_{t-1}	-0.005	-0.005	-0.014**	-0.013*
	(0.007)	(0.007)	(0.007)	(0.007)
$return_{t-1}$	-0.078	-0.077	-0.098	-0.097
	(0.050)	(0.050)	(0.061)	(0.061)
$sigma_{t-1}$	-3.704***	-3.704***	-4.024***	-4.017***
	(0.766)	(0.767)	(0.850)	(0.852)
$dturn_{t-1}$	8.784	8.524	-4.880	-5.665
	(11.474)	(11.495)	(13.007)	(13.019)
$\_cons$	2.740***	2.833***	3.418***	3.658***
	(0.619)	(0.582)	(0.671)	(0.652)
Observations	3,506	3,506	3,077	3,077
Adj. R^2	0.397	0.397	0.417	0.417
Firm FE	YES	YES	YES	YES
Year-Industry FE	YES	YES	YES	YES

Table 3.15
Operating cash flow opacity

The table reports the moderating effect of operating cash flow opacity on the relationship between mandatory CSR engagement and stock price informativeness on PSM matched TG and CG. We have three variables for triple interaction: $treat_i$, $post_t$, and analyst variables. *SPI* is our proxy for stock price informativeness. Due to the construct of this *SPI* measure, a stock with higher *SPI* value is regarded as highly informative. The variable $treat_i$ is a binary variable that takes the value 1 for treatment firms (i.e., if Net worth, Sales or Net profit is greater than threshold) and 0 for control firms, $post_t$ is a dummy that equals 1 for the post-CSR-135 period (2015-2017) and 0 for the pre-CSR-135 period (2012-2014). Robust standard errors clustered at firm-level are displayed in parenthesis below them. The sample period is 2012-2017 *, **, and *** denote statistical significance at the 10%, 5% and 1%, respectively. Data source: CMIE Prowess Database.

	(1) SPI
$treat_i \times post_t \times ocfopq$	-1.509
	(1.083)
$treat_i \times post_t$	0.016
	(0.150)
$ocfopq$	-0.363
	(0.329)
$fsize_{t-1}$	0.038
	(0.157)
$promoters\_pct_{t-1}$	0.015*
	(0.009)
lev_{t-1}	0.012
	(0.010)
roa_{t-1}	-0.006
	(0.005)
mtb_{t-1}	-0.007
	(0.011)
$return_{t-1}$	-0.048
	(0.096)
$sigma_{t-1}$	-4.701***
	(1.526)
$dturn_{t-1}$	-23.612
	(21.158)
cons	0.837
	(1.321)
Observations	1,060
Adj. R^2	0.321
Firm FE	YES
Year-Industry FE	YES

Appendices

A Variable definition

The following table provides definition for all the variables used in the chapter.

Variables Notation	Measure
SPI	Stock price informativeness Logistic transformation of the ratio $\frac{(1-R^2)}{(R^2)}$
CSRdummy	Dummy variable indicating whether a firm is to incur any CSR expenditure (1) or not (0)
CSRspent	Actual amount spent on CSR related activity
CSRincurNspent	Dummy formed by the interaction between *CSRdummy* and a dummy representing non-zero CSR expenditure (*CSRspent*)
CSRperc	% spent on CSR activities (which could be lower or higher than the minimum 2%)
CSRfullcomply	Indicator (1/0) of a firm's full compliance with the legal minimum of 2% CSR spending
Net Profit	Net Profit Before Tax
Net Worth	Average product of the shares outstanding and shares face-value centred at the cut-off (Book value of shareholder's equity)
Sales	Total Sales
$treat_i$	Dummy variable for treatment 1 is mandated to spend 2% of their average net profit over the last three years on CSR (if (1) Net profit ($\geq$ 50 million INR), Or (2) Net worth ($\geq$ 5 billion INR) Or (3) Sales ($\geq$10 billion INR)) and 0 otherwise
$post_t$	Dummy variable to represent post-shock where post fiscal year 2015 and onwards gets 1 ; 0 otherwise
IV 1 (*geoCSRperc*)	% of firms within the same geographical location (states) that incur CSR expenditure, excluding focal firm, in a fiscal year
IV 2 (*MeanIndCSRperc_exI*)	Avg of % of CSR spending of the firms that incur csr with the rule in the same NIC two-digit code excl. focal firm
IV 3 (*AvgIndusCSRperc_fullcomply_exI*)	Average % CSR spending of the firms that fully comply with the rule in the same NIC two-digit code excluding focal firm
fsize	Firm Size proxied by Ln(Market Value of Equity)
promoters	An individual or group with overarching control of a company, those instrumental in designing its public offering, or those specifically named as promoters in the company's prospectus
promoters_pct	Ownership concentration, measured by percentage of shares owned by promoters
lev	Leverage ratio measures as a ratio of total long-term debts to total assets
roa	Profitability measured as a return on total assets
mtb	Market to book ratio measured as ratio of closing price to book value per share (market value of equity divided by the book value of equity)
return	Average firm-specific weekly returns over a fiscal year
sigma	Standard deviation of firm-specific weekly returns over a fiscal year
dturn	Change in trading volume measured as an average monthly stock turnover (the number of shares traded divided by shares outstanding) in year t-1 subtracted from the average monthly stock turnover in year t
HHI	Herfindahl-Hirschman Index calculated for each industry (at the 3-digit NIC level) in each year
HighComp	Firms with values below the median are assigned 1 and 0 otherwise
lnanalystfy	Analyst following as log of (1+ number of analysts giving estimates) with missing observations not replacec by 0
lnanalystfyw0	Analyst following log of (1+ number of analysts giving estimates) with missing observations replaced with zeros
fii	Foreign insitutional investors variable measures the percentage of foreign institutional investors
instHolding	Proportion of Institutional holdings by non-promoters

Table A1
Comparison of mean changes in yearly analyst following: Imputation vs. No Imputation

The table below displays yearly analyst following data. We have imputed missing values with zeros. Accordingly, the table presents a comparison of the mean changes in analyst following between cases with and without imputation.

Year	N	Mean num of analyst following (analystfy)	N	Mean num of analyst following replaced with 0 (analystfyw0)
2012	350	1.714286	771	.7782101
2013	352	1.627841	787	.7280813
2014	345	1.414493	764	.6387435
2015	348	1.600575	771	.7224384
2016	341	1.58651	742	.7291105
2017	333	1.78979	708	.8418079
Total	2,069	1.621556	4,543	.7384988

B Operating Cash Flow Opacity Measure

Following the methodology of Hutton et al. (2009), we compute *ocfopq* as the moving sum of the absolute values of abnormal OCF (AOCF) over the past three years. This approach, superior to a one-year absolute value or a three-year moving sum of signed value, better reflects potential underlying OCF management policies. It captures multi-year effects and prevents the cancellation of positive and negative abnormal OCF over multiple periods, which could mask deliberate manipulation practices. Such practices raise concerns about the transparency of reported OCF and ultimately increase firm opacity (Hutton et al., 2009; Cheng et al., 2020). The rationale behind this approach is that frequent and large deviations from predicted OCF, positive and negative, can signal deliberate manipulation of operating cash flow.

To estimate AOCF, we adopt a model akin to Dechow et al. (1995), quantifying deviations of actual OCF from its "normal" level based on key financial factors. In our estimation, we rely on industry-year data with at least ten observations to ensure robust model parameters and accurate AOCF calculation.

$$\frac{OCF_t}{TA_{t-1}} = \lambda_0 + \lambda_1 \frac{1}{TA_{t-1}} + \frac{SALE_t}{TA_{t-1}} + \frac{\Delta SALE_t}{TA_{t-1}} + \varepsilon \tag{6}$$

where OCF_t denotes the operating cash flow for period t, TA_{t-1} indicates the total assets for period t-1, $SALE_t$ is the sales during period t, and $\Delta SALE_t$ is the change in sales during period t. We extract the residual term from the above equation as a measure of abnormal operating cash flow ($AOCF$), representing the deviation from the predicted "normal" level.

Chapter 4

CEO education and corporate political spending transparency and accountability

Abstract

This paper examines the determinants of political spending disclosure in the context of U.S. firms. The 2010 Supreme Court decision in *Citizens United v. Federal Election Commission* (*CU*) allowed corporations to make unlimited contributions to independent political expenditure committees, raising concerns about transparency and accountability. We analyse the influence of CEO's educational background (MBA, LAW, or STEM) on voluntary political spending disclosure among S&P 500 financial firms using a panel data analysis. We use the CPA Zicklin Index, created jointly by the Centre for Political Accountability and the Carol and Lawrence Zicklin Center for Business Ethics Research, to measure the S&P 500 firms' political spending information transparency and accountability. Our empirical analysis utilises logistic regression analysis and finds that CEOs with graduate degrees, particularly MBAs, are more likely to disclose information about political spending. Furthermore, firms with lower institutional ownership and independent boards are more likely to disclose political spending. Additionally, firms operating in Republican states are less likely to disclose information about political spending.

4.1 Introduction

The U.S. spends more on politics and political campaigns than any other country in the world (Wilson, 2020). In particular, the corporate sector is one of the major contributors to federal elections (Duchin and Sosyura, 2012). This makes corporation contribution finance an important topic. Further, the controversial 2010 Supreme Court ruling in *Citizens United vs. Federal Election Commission (CU)* spurred substantial shifts in the political expenditure landscape. This decision lifted the restrictions on independent expenditures by corporations, labour unions, and other organisations, allowing unlimited corporate spending on election-related communications (Federal Election Commission, 2010). Consequently, political costs during the 2012 electoral cycle soared to an astonishing 600% increase compared to the pre-*Citizens United* cycle in 2008 (Prokop, 2015). Further, this landmark decision introduced the era of Super Political Action Committee (PAC) (henceforth, Super PACs), legally designated as "independent expenditure-only committees", and fostered the widespread growth of "dark money" groups, whose donors remain concealed. These Super PACs can accept boundless contributions from individuals and corporations, provided they abstain from direct financial support for candidates. The explosive proliferation of these novel political entities, concurrent with the revelation of "dark money" groups, has played a pivotal role in altering the political spending landscape, impacting political dynamics, and raising pressing concerns about corporate political accountability and transparency (Prokop, 2015). Thus, corporate political contributions can amplify corporate voices while impeding the representation of diverse interests and perspectives in the political process.

Given the increase in corporate political contributions, accountability and transparency are key concerns for shareholders and investors. Political spending transparency has been widely advocated by shareholders, as evidenced by the increase in shareholder proposals in S &P 500 companies from 2005 to 2018, primarily focused on political spending transparency (Cohen et al., 2019).

This is because, on one hand, accountability and transparency in corporate political spending help maintain fairness and preserve diverse perspectives in the democratic process. On the other hand, they allow investor base to track their investments effectively and prevent conflicts arising from undisclosed corporate political contributions.

Despite the growing importance, not all firms disclose their political spending information. One reason is that it is a sensitive issue, as political polarization in the U.S. is higher than in other democracies (Boxell et al., 2017). In the U.S., political polarization makes corporate political spending transparency and accountability more susceptible to conflicts than other non-financial disclosures. The 2019 boycott of Equinox illustrates this sensitivity, where the company's association with Donald Trump's political campaign triggered nationwide calls for boycotts, resulting in a loss of public goodwill (Jagannathan, 2019). Given the diverse political views of stakeholders, although political spending transparency is important, disclosing this information can potentially impact corporate image, alienating potential customers or shareholders with differing political opinions and leading to boycotts. Consequently, understanding the factors that influence firms' decisions regarding corporate political spending, particularly its transparency and accountability, has gained increasing attention in recent years. This makes it an exciting and crucial area of research.

Most empirical research in this area has explored the influences of industry, firm, or board of directors' characteristics on a company's willingness to disclose its political spending. However, the specific role of a CEO in shaping corporate political transparency practices has not been thoroughly explored. Our research draws support from the Upper Echelon Theory, which posits that organizational outcomes are driven by decisions made by individuals, especially the top-management team, and that understanding the background characteristics of these individuals can partially predict organizational outcomes (Hambrick and Mason, 1984). For instance, Finkelstein et al. (2009) and Bhagat et al. (2010) ob-

serve the effect of life experiences (such as work experience and technical skills) on CEO cost-benefit judgments, which drive firm decisions on non-financial disclosures. Similarly, Unsal et al. (2016) find that firms led by Republican-leaning CEOs tend to have higher lobbying expenditures. Thus, these studies establish the link between CEO characteristics and organisational outcomes.

Further, studies such as (Lewis et al., 2014*a*) highlight the importance of CEO's background in shaping the perspectives on costs and benefits of environmental disclosure. Therefore, in this study, we explore the role of CEO education on one such organisational outcome, corporate political contribution transparency levels. We pose the following research questions: Does the CEO's educational background influence a firm's level of political contribution disclosure (PCD), and how does this vary across different educational backgrounds (MBA, LAW, and STEM)?

We propose four hypotheses to examine whether CEO's educational background influences corporate political spending transparency. These hypotheses draw from the Upper Echelon Theory and postulate that CEOs with graduate degrees are associated with higher levels of transparency. Further, we utilise the empirical evidence from Lewis et al. (2014*a*) that heterogeneity within CEOs' educational backgrounds can shape their perception of associated risks, so may affect their engagement in disclosure and associate different education backgrounds with different levels of political contribution transparency.

Our empirical analysis utilises a panel dataset for Standard and Poor's 500 (S&P500) index companies from 2013-2019. We choose the S&P 500 companies as our sample because these large publicly traded companies, representing approximately 80% of the total market capitalisation, offer a good representation of the U.S. corporate landscape. Corporate political contribution transparency information is obtained from the Corporate Political Accountability (CPA) and the Carol and Lawrence Zicklin Center Research database, which tracks political contribution transparency levels from non-disclosure to full transparency. We

compile the CEO education data by manually reviewing SEC 14A filings and consulting publicly accessible databases. This is due to the inconsistencies in WRDS Execucomp CEO education data.

As a preview of our main results, we observe that higher political contribution transparency is associated with CEOs holding graduate degrees. Further, the graduate degree type influences transparency levels of corporate political spending. Paralleling the findings of Lewis et al. (2014*a*), our analysis reveals that a higher level of transparency is more prevalent among firms led by MBA-trained CEOs compared to those without MBA-led CEOs.

Further analysis explores the interaction between state political partisanship and CEO education in influencing political contribution transparency. We find that the relationship between CEO education and political spending transparency and accountability is contingent on the state's political climate where the firm operates. In other words, CEOs with certain educational backgrounds may be more or less likely to advocate for higher political spending transparency and accountability depending on the state's political alignment. Similarly, we examine the role of CEO power, measured through duality and shares ownership, in shaping political spending transparency practices. Our results suggest that CEOs' influence varies for firms with different CEO educational backgrounds.

Our analysis yields several empirical findings. First, our research contributes to the literature on corporate political spending transparency and accountability, a relatively understudied area of non-financial disclosure. We emphasize the importance of considering the CEO's role in the context of non-financial disclosure related to corporate political spending. While existing literature focuses on firm characteristics and board dynamics, it has largely overlooked the role of the CEO. By examining the association between CEO characteristics—specifically education and political contribution disclosure, we extend the current study. The statistically significant association suggests that it is insufficient to link firm characteristics alone to political contribution disclosure; the

influence of the CEO's background is also a critical factor.

Second, our research extends the applicability of Upper Echelon Theory to political spending disclosure literature. By documenting a significant association between the CEO's life experiences with the firm's level of political contribution transparency, we illuminate how top decision-makers can shape a firm's approach to a sensitive issue such as political spending transparency. Unlike environmental disclosure, which tends to be less polarizing than political issues, political spending transparency carries significant political sensitivity, especially in the U.S., political parity is high (Boxell et al., 2017) and corporations can channel funds through various mediums. Thus, our results suggests the link that even within similar industry and regulatory environments, companies may exhibit varying levels of political spending transparency and it is associated with the characteristics of top managers' heading those firms.

Next, we go beyond CEO education to explore how additional attributes like CEO share ownership and duality might moderate the relationship between CEO education and political contribution transparency. This comprehensive approach reveals broader determinants of a firm's disclosure practices and expands our knowledge of how personal stakes and power dynamics within the company can influence a CEO's disclosure preferences. Our findings suggest that CEOs with higher share ownership and duality may exhibit distinct transparency patterns based on their educational background, adding previously unrecognised nuances in CEO influence on corporate transparency practices.

Finally, we undertook the unique task of manually collecting and validating CEO graduate degree data. This meticulous approach enabled us to create a comprehensive and reliable dataset, overcoming the limitations of missing CEO graduate degree information in the existing databases. Our analysis using this unique data revealed a compelling connection: companies led by MBA-trained CEOs display significantly higher levels of political contribution transparency than those without MBAs, aligning with findings by Lewis et al. (2014*a*) for

the case of environmental disclosure. This suggests that specific educational backgrounds can be crucial in shaping transparency practices around sensitive corporate activities, not just environmental disclosure.

The remainder of this paper is organised as follows: Section 4.1.1 provides context on the landmark *Citizens United vs FEC*, and the current landscape of political contribution transparency in the United States. Section 4.2 presents a critical review of the literature on disclosure and political spending transparency and accountability. Section 4.4, describes the sample, whereas Section 4.3 discusses the model specification and the proxies employed for the independent and dependent variables. Section 4.5 reports the empirical findings and provides a comprehensive analysis. Finally, Section 4.8 concludes the paper by summarising the key findings and contributions, offering implications for future research and practice.

4.1.1 Background on *Citizens United v FEC* and relevance of political spending transparency and accountability

Political spending transparency and accountability in the United States have been significantly transformed following the landmark Supreme Court decision in *Citizens United v. FEC (CU)* ruling in 2010. Prior to the *CU* ruling, the Bipartisan Campaign Reform Act (BCRA) of 2002 imposed restrictions on corporate and union spending on independent political campaigns. However, a 5-4 Supreme Court ruling in the *CU* case overturned this provision, declaring that the BCRA's spending limits infringed upon the First Amendment's protection of free speech (Goh et al., 2020).

The *CU* ruling has had profound implications for political spending transparency and accountability in the United States. While the Supreme Court intended to encourage firms to be more transparent about their political contributions by allowing unlimited corporate political spending, it instead enabled companies to make unlimited contributions to "independent" electoral efforts.

These contributions could be channelled anonymously from their treasuries towards the political process, leading corporations to spend hundreds of millions of dollars influencing elections while obscuring the details of their spending. This ruling also heralded the era of Super PACs and the proliferation of "dark money" groups, which do not disclose their donors. Super PACs, officially known as "independent expenditure-only committees", can accept unlimited contributions from individuals and corporations, as long as they do not donate directly to candidates (DeBoskey et al., 2018*a*; Goh et al., 2020).

In response, there has been a growing movement advocating for enhanced political spending transparency and accountability. In 2010, Congress passed the DISCLOSE Act, aimed at mandating transparency of political spending by corporations and unions. However, the DISCLOSE Act failed to be enacted. In the years following the *CU* ruling, calls for reform in corporate political spending transparency have gained renewed momentum. Yet, the SEC has not established rules mandating the transparency of corporate political spending. Furthermore, the limited data available on corporate political contributions is often incomplete, scattered across various filings from different agencies, or presented in complex formats. This fragmented information landscape poses challenges for shareholders and investors seeking to assess a company's political involvement. Therefore, corporate political transparency is vital for promoting transparency and accountability in the political process. By mandating the disclosure of political spending by corporations and unions, political spending transparency and accountability empower voters with information about who seeks to influence elections, deter corruption, and ensure fair and just elections.

4.2 Literature review and hypothesis development

4.2.1 Corporate political activity and need for transparency

Previous research on corporate political engagement suggests that political connections can divert a firm's focus from maximising shareholder value to satisfying political interests, leading to negative consequences (He et al., 2018). In such a situation, shareholders and policymakers seek transparency through corporate political spending accountability to assess their investee firms' political involvement and judge whether it aligns with their values (Bebchuk and Jackson Jr, 2012; Coates IV, 2012). Interestingly, in the absence of a legal mandate for political activity disclosure, some firms voluntarily disclose political activities, while others do not. This raises the question: What characterises companies that voluntarily disclose their corporate political activities?

4.2.2 Empirical works on corporate political disclosure

A limited number of empirical studies have identified the factors associated with the voluntary disclosure of political contribution information, primarily focusing on firm-level, board-level, and industry-level determinants. DeBoskey et al. (2018*a*) reveal that a higher level of voluntary corporate political disclosure is associated with firms that have greater gender diversity on their boards (i.e., higher proportions of female directors), and DeBoskey et al. (2018*b*) find that firms with specialised governance mechanisms (such as a political contribution committee) exhibit a higher level. Goh et al. (2020) identify factors such as direct political connections, greater investor activism, enhanced corporate social responsibility performance and governance, and more competitive industry conditions. Additionally, Ali et al. (2022) observes that ownership also plays an influential role, with a higher level of disclosure associated with greater institutional and governmental ownership and lower insider ownership.

Existing literature offers a limited understanding of the role of CEOs

in this context. Cohen et al. (2019) study the political partisanship of CEOs (Republican-leaning versus Democratic-leaning) and find that companies with Republican CEOs tend to make their political spending less transparent to investors regarding whether and how much they spend on politics.

4.2.3 Why do CEO characteristics matter?

Companies are not homogeneous; top executives might have distinct individual inclinations towards specific corporate political actions (Hart, 2004). The Upper Echelon Theory highlights the influential role of CEOs in shaping a firm's decision-making processes (Hambrick and Mason, 1984), and empirical research such as Ozer (2010) and Unsal et al. (2016) support this notion. Specifically, Ozer (2010) observe that CEOs with long-term tenures can persuade other top management team members to allocate resources for political activity. Unsal et al. (2016) note that CEOs' political orientations influence their corporate lobbying efforts, with Republican-leaning CEOs' characteristics associated with firms that exhibit a higher number of bills and greater lobbying expenditures. Bhagat et al. (2010) demonstrate that work experience and technical skills can shape a manager's cost-benefit judgment, influencing various firm decisions, including disclosure practices. Additionally, CEOs in North American firms often hold the dual position of chairperson, granting them substantial authority to impact the board's oversight processes (Tirole, 2010).

In particular, empirical studies look into the role of CEO's personal characteristics such as their education in shaping corporate behaviour, financial decisions, and firm performance (see Urquhart and Zhang (2022) and King et al. (2016)) emphasize the link between CEO education and enhanced firm performance. They observe that CEOs with higher education tend to achieve better firm performance as compared to those with undergraduate degrees.

CEO education and political contribution disclosure

Empirical research in this area suggest that CEOs often leverage their educational backgrounds to interpret available choices and make informed decisions, including those related to disclosure practices. For instance, Farag and Mallin (2018) observe a strong and positive correlation between CEOs with advanced degrees (such as MSc, MBA, and PhD) and corporate risk-taking. Their findings align with those of Anderson et al. (2011) and Orens and Reheul (2013), who assert that a CEO's education influences their decisions beyond psychological and social factors. Similarly, Thomas et al. (1991) and Barker III and Mueller (2002*a*) argue that highly educated CEOs are more inclined to lead innovative companies. Overall, the research on CEO education suggests that highly educated CEOs tend to be less risk-averse, more receptive to innovative ideas, and better informed about the external business environment.

In addition, several other studies document association between CEO higher education and higher awareness of stakeholder issues. Amore et al. (2019) found that better-educated CEOs are more likely to implement environmentally friendly initiatives, such as improving energy efficiency and making greener decisions. Similarly, Malik et al. (2020) highlight that well-educated CEOs demonstrate greater awareness of the importance of social and environmental activities.

These findings suggest that CEO's graduate degrees and rigorous training equip may equip them with analytical skills, less risk-averse, more receptive to innovative ideas, and better informed about the external business environment. All of these factors enable them to recognise the legal and ethical implications of disclosing corporate political activities and align with evolving stakeholder expectations. Thus, drawing upon empirical support for the influence of CEO education on corporate outcomes and the Upper Echelon Theory, which emphasizes the influential role of CEOs in shaping a firm's decision-making processes, we propose the following hypothesis:

Hypothesis 1: CEOs with postgraduate degrees are more likely to engage in corporate political disclosure compared to CEOs with only undergraduate degrees.

CEOs with postgraduate education may have been exposed to more advanced training in risk management and are more open to innovative ideas (Barker III and Mueller, 2002*b*). This could make them more comfortable dealing with sensitive information on corporate political spending transparency, viewing disclosure as a necessary part of managing corporate risks and stakeholder relations (Amore et al., 2019). In contrast, CEOs without graduate degree specialization may lack the necessary awareness and tools required to handle the risks associated with such sensitive information disclosure, leading to less engagement in political spending transparency and accountability.

4.2.4 CEO education heterogeneity and political spending transparency and accountability

Empirical studies such as Anderson et al. (2011) suggest that within higher education, diverse educational backgrounds can introduce varied viewpoints, perspectives, cognitive frameworks, and professional experiences to the board, potentially leading CEOs to make riskier decisions. Supporting this Lewis et al. (2014*a*) document correlation between CEOs' educational background heterogeneity and their perception of associated risks and its effect on their engagement in environmental disclosure, a similar investigation into political disclosure has yet to be conducted.

While MBA programs focus on the development of advanced risk management techniques, legal education tends to develop a more risk-averse mindset. This difference in educational focus may bring divergent attitudes toward corporate political spending transparency among CEOs, with MBA CEOs being more proactive about disclosure and lawyer CEOs being more cautious (Anderson et al., 2011; Lewis et al., 2014*b*).

Next, we propose additional hypotheses to investigate whether the variation in political spending transparency levels among firms could be associated with CEOs' distinct educational paths. Similar to earlier studies on management education, we categorise CEO education into three distinct categories that may be linked to disclosure practices: (1) MBA degree, (2) Law degree, and (3) STEM degree. We proceed to formulate hypotheses for each of these categories in the following sub-sections.

CEOs with MBA education

Extant studies observe that MBA education is associated with a propensity for riskier strategic decision-making and increased overconfidence. CEOs with MBA degrees tend to exhibit higher risk tolerance and a strong belief in their ability to navigate increasingly complex and large-scale business environments. This risk-taking approach may stem from MBA graduates' confidence in their ability to recognise and capitalise on opportunities that can enhance a firm's overall value (Geletkanycz and Black, 2001). In line with this, Beber and Fabbri (2012) observe that overconfident directors with an MBA degree are willing to take more risk.

Also, among postgraduate CEOs, those with MBA degrees would likely have more exposure to sophisticated tools to manage disclosure-related risks than lawyer CEOs. The possession of these risk management tools could explain why MBA CEOs may feel more confident in their decision to disclose compared to other CEOs who might not have the same level of confidence in their risk mitigation strategies, making them less averse to the potential risks associated with disclosing political spending information. Moreover, their training in analysing and communicating financial and non-financial information may incline them towards voluntary disclosure practices, including political disclosure. Hence, they may emphasise the benefits of viewing disclosure as a strategic risk mitigation measure to strengthen the company's legitimacy and transparency in the eyes of

investors and stakeholders.

Hypothesis 2: CEOs with business-related postgraduate degrees (e.g., MBA) are more likely to engage in corporate political disclosure than CEOs with legal or STEM postgraduate degrees.

CEOs with LAW degree

Lawyers are trained to minimise risk and protect their clients' interests (Delmas and Toffel, 2008). When lawyers become CEOs and assume significant responsibility for business decisions (Bagley, 2008), they tend to exercise greater caution in taking business risks. For instance, they may conserve cash during market uncertainty and invest less in research and development (R&D) (Barker III and Mueller, 2002*a*). They are also more attuned to and aware of evolving laws and regulations related to political contribution disclosure.

Given their heightened awareness of the legal risks associated with political spending disclosure, CEOs with law degrees may perceive disclosure as potentially exposing the company to legal challenges, compromising its competitive position, or leading to litigation. Further, Law training may emphasise more of risk-averse tools, whereas MBA training may prioritise the potential benefits associated with risk taking such as political spending disclosure over the potential costs. Furthermore, lawyer CEOs may not share the same level of confidence in their risk mitigation abilities as MBA-trained CEOs, making them more cautious towards political contribution disclosure and less likely to comply with shareholder requests for disclosure. Based on this discussion, we formulate the following hypothesis:

Hypothesis 3 CEOs with legal postgraduate degrees are less likely to engage in corporate political disclosure compared to CEOs with business-related postgraduate degrees.

CEOs with STEM education

Finally, a relatively underexplored area in CEO education research is the impact of STEM education. We define STEM-educated CEOs as those with backgrounds in science, technology, engineering, or mathematics (STEM). We chose to include STEM because a recent Forbes article pointed out that nearly all Fortune 100 CEOs in tech-related fields have degrees directly related to engineering (Whitler, 2019). Also, Lewis et al. (2014*a*) suggest that future studies should introduce other degrees, such as science and engineering, and measure their impact on business disclosure practices and institutional pressures. Individuals with STEM backgrounds often possess unique characteristics and strengths that extend beyond general managerial experience, such as mathematical abilities, spatial reasoning, and mechanical reasoning (Alderman et al., 2022). These CEOs typically place a high value on data-driven decision-making, analytical thinking, and innovation, which can translate into a more transparent and evidence-based decision-making process.

However, at the same time, CEOs with postgraduate STEM degree may have technical knowledge and innovation. However, STEM education does not include risk management courses. Hence, CEOs with postgraduate STEM degrees may exhibit a more data-driven approach to political disclosure, emphasising the use of quantitative metrics and evidence to support their decisions. They may be more likely to adopt standardised disclosure formats or participate in disclosure initiatives that require rigorous data collection and analysis. Consequently, we formulate the following hypothesis:

Hypothesis 4: Firms led by CEOs with STEM degrees are more likely to disclose their political contribution compared to firms led by CEOs with non-STEM degrees.

4.3 Empirical model

Our empirical model showing relationship between political contribution disclosure and *EDUCATION* is as follows:

$$PCD = \alpha_i + \beta EDUCATION + \theta X_{i,t-1} + \gamma C_{i,t} + \rho_j + \mu_t + \varepsilon_{i,t} \tag{4.1}$$

where PCD represents the variable for political contribution disclosure. We use *CPA*, a binary variable to capture whether a firm discloses political spending information or withholds it. Our primary independent variable is *EDUCATION*, which captures the CEO's educational background. We use multiple proxies for the CEO's education: (1) *gradDeg* , which is a binary variable that takes the value 1 if the CEO has an advanced degree, and 0 if no advanced degree and (2) Individual education category dummies such as *onlyMBA*, *onlyLAW* and *onlySTEM*, to capture whether the CEO's background exclusively aligns with MBA, LAW, or STEM, respectively. $X_{i,t-1}$ represents our non-CEO related control variables whereas C_{it} accounts for CEO-related variable respectively. Following previous research, we lag non-CEO variables by one year, whereas we measure CEO-specific controls in the same year t. These control variables are lagged by one year to minimise simultaneity concerns; CEO variables such as education, tenure, age, share-ownership, and duality are based on the current year. We incorporate industry- and time-specific effects as ρ_j and μ_t, respectively, and as usual, $\varepsilon_{i,t}$ is the error term.

4.3.1 Logit model

Some companies choose to disclose their political contributions, while others do not publicly disclose it. Understanding what drives this decision, particularly the role of CEO influence, is crucial for ensuring transparency and accountability in the political process. To this end, we employ logistic regression to analyse how CEO education associated with a firm's decision to disclose their political

contributions.

Logit estimator

Logistic regression is the appropriate methodology for this analysis due to its suitability for modelling dichotomous outcomes (Adkins, 2011; Asteriou and Hall, 2021). This alignment is essential given the binary nature of our dependent variable, which indicates whether a firm publicly discloses its political spending (*CPA*=1) or not (*CPA*=0). We discuss the *CPA* variable in detail later. The logit model effectively captures the relationship between this binary outcome and our independent variables, allowing us to estimate the probability of *CPA* based on factors such as CEO education. This methodology utilises a link function called the sigmoid function, which transforms real-valued inputs into probabilities between 0 and 1. Mathematically, the sigmoid function is represented as:

$$F(x) = \frac{1}{1+e^{-x}}$$

where F(x) denotes the sigmoid function's output, which is the estimated probability of the event occurring (*CPA*=1) and x represents the linear combination that combines the independent variables (such as CEO education level) with their corresponding coefficients. This linear combination, also known as the logit of the probability and is captured as:

$$logit(p) = X'_{it}\beta_i$$

where logit (p) is the log-odds of the probability of disclosure (*CPA*=1). $X'_{it}\beta_i$ represents the linear equation of X_{it}, a vector of independent variables and with β_i, a vector of respective coefficient for each independent variables (Adkins, 2011; Asteriou and Hall, 2021). These coefficients tell us how much each factor influences the probability of CPA.

In our analysis, the primary education variable is "gradDeg", a binary

variable indicating whether the CEO holds a graduate degree (beyond bachelor's). For a more nuanced analysis, we also employ individual education category dummies such as "onlyMBA/onlyLAW/onlySTEM" capturing exclusive alignment with specific fields (e.g., MBA, law, STEM).

The model estimates a coefficient, β_i, for each independent variable, representing its influence on the log-odds of *CPA*. As the magnitude of the estimated coefficient, β_i, from the above logit model can be challenging to interpret, we present odds-ratio and average marginal effects (AMEs) to offer a clearer understanding of how variables influence the outcome. The odds ratio, calculated as e_i^{β}, quantifies how much the odds of the event (i.e., *CPA*=1) change for a one-unit increase in the corresponding variable. An odds ratio greater than 1 implies increased odds of CPA=1, whereas an odds ratio less than 1 signifies decreased odds of *CPA*=1 (Adkins, 2011; Asteriou and Hall, 2021).

The average marginal effects offers a broader picture by capturing the average change in probability of $CPA = 1$ across the entire data set when a variable, X_i, changes by one unit. This concisely summarises how, on average, changing a variable influences the outcome probability for the entire sample:

$$AME = \frac{1}{N}\sum_{i=1}^{N}\left\{\frac{e^{zi}}{(1+e^{zi})^2}\right\}\beta_i$$

where N is the total number of observations in the dataset, e^{zi} is the exponential of the linear prediction zi, where $zi = X_{it}'\beta_i$ the linear combination of the independent variables and their coefficients, and β_i is coefficient associated with the corresponding variable, X_i.

4.4 Data and summary statistics

4.4.1 Sources and sample construction

Our initial sample comprises 2,701 firm-year observations for the constituents of the *S&P*500 Index for 2013-2019. We acquire political contribution disclosure data from the Corporate Political Accountability (CPA)-Zicklin Center's yearly reports. When the CPA-Zicklin index was introduced in 2011, it exclusively covered only S&P 100 firms. It was not until 2015 that its coverage expanded to include all S&P 500 firms. Secondly, there were alterations in the scoring criteria in 2012 and 2013. Consequently, we opted for the 2013-2019 period to ensure consistency in the scoring criteria as they were calculated using the same standards. It is worth noting that some earlier studies, such as DeBoskey et al. (2018*a*) and Goh et al. (2020), made their adjustments to the scores and utilised index data from 2012 to 2016, despite the mixed scoring key. Also, 2019 was the last report available at the time of writing the paper.

Our sample is distinctive because we hand-collect information from CEO's graduate degrees. We compile the CEO education data by manually reviewing SEC 14A filings and consulting publicly accessible databases. We do this because the CEO education data within the Wharton Research Data Services (WRDS) Execucomp database is incomplete; some CEO observations had detailed information about their degree types, while others only mention the universities they attended. To make sure our data is accurate, we thoroughly search for details on CEOs' education details and double-check this information using at least two different sources. This method allows us to deal with any uncertainties about CEO education and create a complete education dataset.

For other variables, we consult various databases within the WRDS: Execucomp for CEO-related data, Thomson Reuters institutional ownership data, I/B/E/S for analysts following data and BoardEx for board-related information. We match these multiple datasets using Gvkeys, Cusips, and CIK codes. When

we make a match between two databases, we double-check the results manually. We prioritise exact firm names and tickers and only include the data with the highest matching scores. After this, we align our created database with the CPA-Zicklin Database.

We present the current study coverage of firms, remaining after matching and excluding firms with less than two years of consecutive firm-year observations in Table C2. We maintain coverage for at least 90% of the firms listed in the CPA-Zicklin Index.

4.4.2 Variable construction

Dependent variable: Political contribution disclosure (PCD) Index

Our primary dependent variable is a binary indicator, *CPA*, derived from the CPA-Zicklin Index. This composite index encompasses various aspects of political spending transparency and accountability, categorizing companies into five tiers based on their score: leading (80-100%), strong (60-79.9 %), moderate (40-59.9 %), limited (20-39.9 %) and minimal (0-19.9 %) as shown in Table 4.1. The bottom tier with a cut-off of 19.9% represents companies who provide extremely limited or no information about their political contributions or policies. Utilising this cut-off, we focus on the distinction between companies actively disclosing some information (those scoring 20% or higher) and those with minimal or no disclosure (below 20%).

We create a binary variable (*CPA*) that takes a value of 1 if the CPA-Zicklin Index percentage score is $\geq 20\%$, and 0 otherwise. This threshold strategically distinguishes firms that actively disclose some political information $\geq 20\%$ from those that are significantly less forthcoming in their political spending transparency, aligning with the significant disparity in transparency observed in the CPA-Zicklin tiers. Also, it is possible that firms with extremely high disclosure scores such as those in higher tiers may not behave much differently than those with simply high scores. So, a dummy variable can capture the stark

difference in the bottom tier versus companies with rest of the disclosure. This binary approach enables a focused investigation of the characteristics and determinants associated with voluntary disclosure and facilitates more straightforward analysis. By relying on the tiers that are published by the CPA-Zicklin reports, we mitigate any subjective judgement.

Insert Table 4.1 here.

Our main dependent variable is a dummy variable, we extend our analysis to fully exploit data available, show robustness of results and allow comparison with previous studies. To this end, we employ both the composite index (similar to Goh et al., 2020) and subcategories (similar to DeBoskey et al., 2018*b*) as alternative proxies for political spending transparency, in our extended analyses. Further details on the CPA-Zicklin scoring and indicators are provided in Appendix B.

Main independent variable: CEOs'education

To investigate the influence of CEO educational backgrounds on corporate political disclosure, we employ two sets of indicator variables. First, the graduate degree status variable, *gradDeg*, is binary variable capturing the broad distinction between CEOs with graduate degrees in any field (1) and those without (0). Next, we use the specific educational pathaways variables to explore the heterogeneity in CEOs' educational backgrounds. We construct dummy variables *onlyMBA*, *onlyLAW*, and *onlySTEM* to isolate CEOs holding exclusively those respective degrees (1) from those with other or no graduate degrees (0) [1].

[1] Some CEO observations have detailed information about their degree types, while others only mentioned the universities they attended. In the cases of missing information, we consult with Section 14A and multiple database sources to find further information. Section 14A of the form specifically requires disclosure of biographies for individuals nominated for election to the board or proposed for appointment to certain high-level positions, including the CEO. These biographies often include educational background details like universities attended, degrees earned, and relevant academic honors. Hence, if there is no higher education listed there, we treat them as not having any higher education degree because SEC 14A filings would definitely information on CEO's educational background

Table 4.2 provides a comprehensive overview of our sample CEO's educational backgrounds from 2013 to 2019. We establish distinct categories for CEOs holding MBAs, LAW degrees, or STEM qualifications ("Only MBA", "Only LAW", and "Only STEM", respectively) to isolate the unique influence of each field. For CEOs with multiple degrees in these domains (e.g., MBA and LAW or MBA and STEM), we have a "Combination degrees" category. "Other degrees" encompasses diverse graduate degrees outside these main areas, and "No graduate degrees" includes CEOs without postgraduate qualifications. We do not account for degrees where specific information is lacking (which tended to be listed either as B.A. or B.S.) or categories where there are insufficient observations for reliable analysis. This categorisation enables us to explore potential correlations between CEO education and their approach to political contribution disclosure.

Insert Table 4.2 here.

Control variables

We incorporate control variables drawn from previous research on corporate disclosure and corporate governance (DeBoskey et al., 2018*a*,*b*; Goh et al., 2020; Lang and Lundholm, 1993). These controls encompass firm-related, industry-related, corporate governance-related, and CEO-related variables.

We account for several firm-level variables that have been shown to influence disclosure practices. One such variable is firm size, as larger firms exhibit increased disclosure to enhance stock liquidity and reduce the cost of capital (Diamond and Verrecchia, 1991). To proxy firm size (*fsize*), we utilise the natural logarithm of the market value of equity. We account for profitability using the earnings ratio before extraordinary items to the total assets (*roa*) as less profitable firms may be more inclined to reduce their disclosure of political spending information to avoid scrutiny for improper use of corporate resources

(DeBoskey et al., 2018*a*). We also control for the leverage ratio (*lev*) using the ratio of total liabilities to total assets, as higher debt levels have been associated with more extensive information disclosure (Goh et al., 2020).

Consistent with previous research that associates increased analyst coverage with a heightened demand for transparency and disclosure (DeBoskey et al., 2018*a*), we include the number of analysts following. Similar to Lang and Lundholm (1996), we calculate the simple average across the twelve-monthly reporting periods on the I/B/E/S tape during a company's fiscal year and construct *lnanalyst* as natural logarithm of one plus the number of analysts following.

We include industry concentration (*HHI100*), measured using the Herfindahl-Hirschman Index (HHI) to account for the influence of industry concentration on corporate disclosure, as suggested by Ali et al. (2014). In highly concentrated industries (dominated by a few large players), there might be less pressure to disclose information publicly. Companies might feel less compelled to be transparent if they don't have many direct competitors vying for investor attention.

Using sales data for each company in the COMPUSTAT database, we compute the HHI by summing the squared sales values scaled by industry-level sales for each Fama and French (1997) 48-industry classifications. A higher HHI value indicates higher industry concentration (dominated by a few large players), signifying less competition within the firm's industry.

$$\text{HHI} = \Sigma_{i=1}^{N} \left(\frac{Sales_i}{\Sigma_{i=1}^{N} Sales_i} \right)^2$$

We examine several CEO-related variables that may influence the disclosure of political contributions. These variables include CEO gender (*femCEO*), reflecting the observed positive association between female CEOs and increased transparency, as noted by Cohen et al. (2019). CEO age (*CEOage*) and tenure (*CEOtenure*) are incorporated to capture adaptability to change (Finkelstein and Hambrick, 1990; Miller, 1991). The duration of a CEO's tenure can significantly influence an organisation's approach to disclosure. Long-tenured CEOs often

accumulate informal power that enables them to resist policy changes and disregard calls for internal transformation (Finkelstein and Hambrick, 1990; Miller, 1991). Consequently, newly appointed CEOs may exhibit greater enthusiasm for experimentation, embrace innovative strategies (Bantel and Jackson, 1989), and demonstrate greater receptivity to fulfilling disclosure requests (Lewis et al., 2014*a*).

Next, we account for variables related to CEO's internal influence. CEO duality (*CEOduality*), which is CEO simultaneously holds the position of chairperson within the board, is accounted for to reflect the CEO's power within the board. CEO duality concentrates power in the hands of the CEO; it enhances managerial control over the information provided to board members (Jensen and Meckling, 1976*b*) and this concentration of power could dilute the supervisory capacity of the board of directors (Cornett et al., 2008). Notably, previous studies on political contribution disclosure (PCD), such as those by DeBoskey et al. (2018*a*,*b*); Goh et al. (2020), do not consider CEO duality in their analyses. Khan et al. (2013) fail to find any significant impact of CEO duality on disclosure.

CEO share ownership (*CEOshrown*) represents the percentage of shares owned by the CEO, as reported in SEC filings. On the one hand, CEOs' share ownership may align their interests with the company's long-term success, potentially encouraging more cautious decision-making. On the other hand, managers, including CEOs, who possess information that investors demand may withhold sensitive data in the absence of adequate incentives, as such disclosure could influence stock prices and overall firm value (Nagar et al., 2003). Both of these dynamics suggest that CEOs with substantial stakes in the company might exhibit reluctance towards political contribution disclosure. Hence, CEO influence variables could decrease the board's ability to monitor and disclose information effectively and may affect the disclosure of information or be influenced by their personal incentives.

The CPA reports note that the oversight of corporate political spending

by the Board of Directors is essential as it ensures internal accountability to shareholders and others. Some earlier studies note the importance of board variables and their oversight in disclosing political spending information. DeBoskey et al. (2018*a*,*b*) observed a positive association between the board characteristics and the outcome of voluntary disclosure. Cornett et al. (2008) note board independence and size as important board composition characteristics that affect a board's effectiveness in reducing agency cost and monitoring management decisions. DeBoskey et al. (2018*a*) find gender diversity on the board to be positively correlated with the voluntary disclosure of political spending.

4.5 Estimation results

4.5.1 Descriptive statistics

Table 4.3 summarises the characteristics of the firms within our sample. Panel A reports the descriptive statistics for the variables related to political contribution transparency and accountability. The average CPA-Zicklin Index for our sample firms is 42.23%, indicating that on average our sample firms tend to fall within the moderate category (40-59.9%). Also, the standard deviation of 32.9133 suggests that the individual PCD score can deviate significantly from the average. This suggests that they disclose some information about their political spending but not at the highest level of detail or transparency. Our dependent variable, CPA, has an average value of 0.613, which implies that 61.3% of the firms in our sample disclose some information about their political spending. There seems to be a slightly higher prevalence of disclosure compared to the average CPA-Zicklin Index of 43%.

Further, we also have descriptive stats for the three sub-indices: the *Disclosure* sub-index reports an average value of approximately 37.5%, and the *Policy* sub-index records a relatively higher mean value of 55.4%. In contrast, the *Oversight* sub-index demonstrates an average value of approximately 38%.

These findings suggest that these companies tend to have weaker practices in disclosing and overseeing political spending information compared to their corporate policies regarding political spending.

Among the CEOs in our sample, 62.8% hold graduate degrees, with MBAs (39.4%), STEM degrees (10.1%), and law degrees (8.2%) the most common types. Notably, the high prevalence of STEM backgrounds among CEOs with graduate degrees diverges from findings in Lewis et al. (2014*a*), and may be attributable to differences in our sample periods. To further analyse this heterogeneity in educational background, we create dummy variables indicating whether CEOs have MBA, LAW, or STEM degree as their sole graduate qualification.

In terms of CEO-specific attributes, we find only 5% of the CEOs in our sample identify as women. On average, over half (51.8%) also serve as chairpersons. Age-wise, the average CEO is around 57 years old, with an average tenure of 7.29 years. These figures suggest a sample populated by relatively older executives with established roots in their positions. This profile raises potential concerns about some CEOs' receptiveness to change. Highlighting CEO influence, over half (51.8%) of our sample CEOs also serve as chairpersons and the share ownership in their companies averages about 0.68%. This suggest that the average CEO in our sample has significant control over their companies, potentially impacting internal and external decision-making processes. This makes it more pressing to consider the role of CEOs in the corporate political transparency.

In terms of firm-level characteristics, our sample firms, have a mean market capitalisation of high value (*fsize*), indicating that our sample firms are relatively large on average. In terms of financial performance, across the sample, the average return on assets (*roa)* is 5.95% implying our sample firms are generally profitable, have a moderate debt level with the mean leverage ratio (*lev*) of 30.3%. In terms of monitoring, an average of 19 analysts tracking these

firms (*lnanalyst*) and they have notable presence of 798 institutional investors (*InstHoldnum*) actively investing in and monitoring their operations. This level of scrutiny reflects the high level of attention and monitoring that our sample firms receive. The higher proportion of shares owned by institutional investors signals good corporate governance quality among our sample firms. Additionally, the industry concentration range (*HHI100*), with an HHI value of 5.85, suggests that the market is moderately competitive, with many firms operating in the industry rather than a few dominating it.

While the combination of large firm size, high analyst coverage, and significant institutional ownership suggests an environment primed for robust political spending disclosure, the moderate CPA-Zicklin Index and high standard deviation paint a different picture. Firms seem to offer some information on political spending, but not at the highest level of detail or with consistent transparency. This disconnect suggests that other factors, particularly the role of CEOs, could play an important role in shaping the level and consistency of corporate political spending transparency practices. Hence, examining how CEO attributes, such as CEO education, tenure, duality, and share ownership, influence transparency decisions can offer valuable insights.

Insert Table 4.3 here.

Correlation table

Table 4.4 presents Pearson correlation coefficients between political disclosure variable (*CPA*) and various CEO-related and firm-specific characteristics. Column (1) shows that the correlation coefficient between the dependent variable (*CPA*) and the independent variables of interest are non-zero. As expected, *CPA* positively correlates with graduate degree variable (*gradDeg*) and MBA-only degree variable (*onlyMBA*), but negatively with with *onlyLAW*. It also has a negative association with *onlySTEM*, which is different from our expectation. In terms

of CEO-specific characteristics, female CEOs (*femCEO*) positively correlate with *CPA* as reported by Cohen et al. (2019), while CEO tenure (*CEOtenure*) and share ownership (*CEOshrown*) show negative associations, both aligning with our expectations. Surprisingly, CEO age and CEO duality have positive correlations. Regarding correlations with firm-specific variables, we observe a positive association with firm size (*fsize*) and analyst following (*lnanalyst*), and a negative association with profitability (*roa*) and leverage (*lev*), consistent with our expectations. The estimated correlation coefficients between the firm-specific variables remain below the threshold of 0.5, indicating no severe multicollinearity concerns. Therefore, we include these variables in our regression analysis.

Insert Table 4.4 here.

4.5.2 Baseline model results

Table 4.5 presents the results of our baseline model, a logistic regression, examining the factors associated with political spending transparency. Coefficients are reported as Odds Ratio (OR), indicating the change in the odds of CPA=1 (i.e., disclosure occurring) for a one-unit increase in the corresponding independent variable. ORs greater than 1 suggest increased odds of disclosure, while those less than 1 imply decreased odds. To facilitate interpretation, we complement ORs with Average Marginal Effect (AME). We report significance levels with robust standard errors to account for potential heteroskedasticity and include fitness statistics such as McFadden's R^2 and Count R^2 to indicate the model's quality.

Column (1) examines the influence of *gradDeg*, the variable representing CEOs' with graduate degrees, on CPA. We see the odds ratio for *gradDeg* is greater than 1, implying that CEOs with graduate degrees are more likely to encourage corporate political spending transparency, consistent with our hypothesis (1). We compute the AME for *gradDeg* is 5.7%; this suggests that on

average, graduate degree CEOs' firm's probability of engaging is 5.7% higher than it is for the firms with no-graduate degrees.

Column (2) focuses on CEOs with only MBA degrees (*onlyMBA*). Again, the OR for (*onlyMBA*) is statistically significant and greater than 1, suggesting that firms led by MBA-holding CEOs exhibit a higher probability of engaging in CPA than those without. Similarly, the AME for *onlyMBA* is 5.03%, signifying that on average, MBA CEOs' probability of engaging in CPA is 5.03% more than that of non-MBA CEOs firm.

Column (3) reports the odds ratio for *onlyLAW*. The OR is below 1, implying that firms with CEOs holding law degrees are less likely to have higher corporate political spending disclosure levels. Still, the non-significant OR provides insufficient evidence to support a relationship between Law degrees and disclosure practices. Further, the AME for the *onlyLAW* variable is -1.06%; however, the value is not statistically significant. Next, Column (4) reports statistically insignificant ORs for law-degree CEOs (*onlyLAW*) and CEOs with STEM backgrounds (*onlySTEM*). Similarly, the odds ratio for *onlySTEM* is not statistically significant, providing insufficient evidence for this claim.

Columns (1) and (2) are in congruence with our hypotheses (1) and (2), respectively. These baseline results suggest that the varying level of corporate political spending disclosure among firms are associated with the heterogeneity in their educational background of the CEOs leading those firms.

Moving beyond CEO education, we also present how other CEO characteristics such as CEO's gender, age, tenure, board power, and share ownership influence political spending disclosure likelihood. In Table 4.5, we observe the OR is statistically significant and greater than 1 for female CEOs (*femCEO*), in congruence with Cohen et al. (2019). The OR for (*CEOage*) is not statistically significant, indicating no clear connection to disclosure in our present analysis. As expected, CEO tenure (*CEOtenure*) exhibits a statistically significant odds ratio below 1, suggesting that longer-tenured CEOs are less inclined to disclose.

This aligns with Lewis et al. (2014*a*) findings for environmental disclosure. Interestingly, CEO duality (*CEOduality*) shows a statistically significant odds ratio greater than 1. This implies that CEOs with concentrated board power are more likely to disclose political spending information. It is worth further investigating whether CEO duality plays a moderating or attenuating role in the relationship between other CEO characteristics and disclosure. Finally, the odds ratio for *CEOshrown* are not statistically significant.

Analysing company-related variables, we find that firm size (*fsize*), profitability (*roa*), leverage (*lev*), and analyst following (*lnanalyst*) all emerge as statistically significant predictors of disclosure, with odds ratios exceeding 1. This suggests that larger, highly profitable, highly leveraged, and higher analysts following all have increased odds of engaging in CPA, which aligns with established research. As noted by Diamond and Verrecchia (1991), for instance, large firms are more likely to be transparent as information disclosure enhances stock liquidity and reduces capital costs. Similarly, Healy and Palepu (2001) and Peters and Romi (2014) observed higher transparency in firms with greater analyst scrutiny, potentially due to their heightened expectations for information access.

Insert Table 4.5 here.

4.6 Additional analyses

To further validate our findings and address potential biases, we undertake two additional analyses. Firstly, we augment our original model with control variables mitigating the risk of omitted variable bias. These additional variables encompass corporate governance indicators (e.g., board composition, institutional ownership) potentially affecting disclosure practices.

Secondly, recognising the potential influence of political context on disclosure behaviour as argued by Cohen et al. (2019) and Di Giuli and Kostovetsky

(2014), we incorporate the partisan affiliation of the state in which the firm is headquartered to examine whether CEO education's effect on the level of corporate political spending transparency interacts with the political context in which the firm operates.

4.6.1 Corporate governance

Strong corporate governance plays a critical role in increasing transparency and promoting disclosure practices. Effective corporate governance frameworks enable markets to better evaluate how well companies align with shareholder interests. Moreover, such frameworks enhance the visibility of both risks and the quality of future cash flows (Healy and Palepu, 2001; Peters and Romi, 2014). CEOs determine whether an information is considered important and of relevance to investors.

Institutional holdings

Powerful shareholders, such as institutional investors, play a crucial role in promoting strong corporate governance practices by holding companies accountable through proxy voting and direct engagement with management. We assess the extent of their influence on PCD through the variable (*percInstHolding*), which captures the proportion of shares owned by institutional investors [2]. Higher percentage (*percInstHolding*) signifies greater ownership and stronger investor pressure for accountability, making it a good proxy for corporate governance quality.

Our results in Table 4.6 present estimates with (*percInstHolding*) added to our baseline logit model. Columns (1) and (2) present results for the impact of *gradDeg* and *onlyMBA* on CPA, respectively, after controlling for institutional holdings. The odds ratios for both *gradDeg* and *onlyMBA* remain statistically

[2]Initially, for some firms, the maximum value of the proportion of shares held by institutional investors exceeded 100%. This may be partly because the 13F data only includes long positions (Lewellen, 2009). Therefore, to limit the maximum institutional ownership percentage to 100%, we winsorised the variable at 3% on one end.

significant and greater than 1 across both models, even after controlling for institutional holdings. The AME also reinforces our finding. In column (1), the AME for *gradDeg* is 6.34%, suggesting that firms with CEOs holding graduate degrees have a 6.34% higher probability of transparency on corporate political contributions (CPA) on average. Similarly, the AME for *onlyMBA* is 5.2%, indicating that firms with CEOs holding only MBAs are 5.2% more likely to engage in CPA. Hence, our results are still in congruence with the baseline results and support our hypotheses (1) and (2). This confirms our earlier results and supports hypotheses 1 and 2.

Moving to institutional ownership, we observe consistently negative odds ratios for *percInstHolding* in both models and the negative AMEs (-0.025% in the *gradDeg* model and -0.022% in the *onlyMBA* model). This implies that firms with higher proportions of shares held by institutional investors are less likely to disclose political contributions. These findings align with the notion that insiders prioritise the company's long-term interests and may avoid disclosures that could potentially damage its reputation or alienate customers. Consequently, each additional unit increase in *percInstHolding* is associated with a 0.025 percentage point (or 0.022 percentage point in column (2)) decrease in the average probability of CPA in column (1).

Board composition

Board of Directors (BoD) composition, particularly its independence and gender diversity, plays a crucial role in ensuring sound corporate governance and disclosure practices. Specifically, board oversight of corporate political spending promotes accountability towards stakeholders and shareholders, making it an evolving and important governance mechanism. Building on the findings of DeBoskey et al. (2018*a*) , who identified a positive association between board gender diversity and political contribution disclosure, we incorporate both board independence and board gender diversity as control variables in our baseline

logit model.

Column (3) and (4) in Table 4.6 presents the augmented model with these additional controls (*BoDfemratio* and *BODindependence*). As expected, the odds ratios for both education proxies, *gradDeg* and *onlyMBA*, remain statistically significant and greater than 1 in columns (3) and (4), respectively. This further strengthens our earlier findings and supports our hypotheses about the influence of CEO education on disclosure.

Turning to the board-related controls, in both of the models, while the odds ratio for the female BoD ratio (*BODfemratio*) exceeds 1 in both columns (with AMEs of 20.8% and 20.7%, respectively), it does not reach statistical significance. This suggests a potential, albeit statistically inconclusive, positive association between board gender diversity and political spending transparency.

Conversely, board independence demonstrates a clear and statistically significant relationship with political spending transparency. In both models, *BODindependence* has an odds ratio greater than 1. The average marginal effect also confirm this trend, with a 1.36% increase in disclosure probability for each additional independent board member in column (3) and a 1.27% increase in column (4). This finding aligns with expectations and highlights the crucial role of independent directors in promoting transparency and accountability in political disclosure practice.

Insert Table 4.6 here.

4.6.2 State's political partisanship

Given the political sensitivity of political spending transparency and the potential for boycotts and reputation damage, external political environment may play an important role. Di Giuli and Kostovetsky (2014) explain that stakeholders' concentration in the state where the firm is headquartered makes external political partisanship a relevant factor influencing the firm. They find that a Democratic

external environment tends to be associated with more socially responsible corporate behavior. Building on Porter (2000)'s concept of geographic clustering of political views and Di Giuli and Kostovetsky (2014)'s technique of using the firm's headquarters state's voting patterns, we construct our proxies for the external political environment to observe their moderating effect.

To capture the external political environment, we construct proxies based on the 2008, 2012, and 2016 national election results of the states where the firm is headquartered. We first categorise states based on whether the Republican or Democratic party won the popular vote in all three elections and create two create two dummies because Republican and Democratic victories might have different, even opposing, effects on firms' behavior or outcomes. States, where no party won all three elections, are categorised as swing states. These categories inform the creation of dummy variables: *RepVictory*, which takes a value of 1 for firms in states where Republicans won all three elections and 0 for those in non-Republican victory states (including swing states), and *DemVictory*, which follows the same logic for Democratic victories. A state with less than three consecutive victories for a party is recorded as a swing state because neither party has a consistent hold. So, it often exhibits distinct political and economic patterns that might not align with Republican or Democratic dominance. A dummy variable would force swing states into either category, potentially obscuring their unique characteristics and influence on firms.

Table 4.7 presents results examining the interaction between CEO education on *CPA* with state's political partisanship as a moderator. In each case, coefficients are reported as odds ratios (ORs).

RepVictory

Columns (1) and (2) focuses on *RepVictory*. We observe that ORs for *gradDeg* and *onlyMBA* are both still statistically significant and greater than 1. The coefficients estimate how much the effect of CEO education on CPA differs

between firms headquartered in Republican Victory states (*RepVictory*=1) versus those in non-Republican victory states (*RepVictory*=0).

While the interaction term in column (1) exhibits statistical significance, interpreting ORs for interaction terms in logistic regression presents challenges due to their non-linear and context-dependent nature. So, we focus on interpreting the average marginal effects. While logistic regression models only assign marginal effects to individual variables, we can effectively interpret the interaction effect through AMEs as follows: CEOs having graduate degrees in Republican Victory states (*RepVictory*=1) have a statistically insignificant effect with AME of is -3.27%. For non-Republican Victory states (*RepVictory*=0), however, the AME for CEOs with graduate degrees is a statistically significant 7.3% increase in CPA. Further, the effect of *RepVictory* for CEOs who do not have graduate degree relative to that of people who have graduate degree on the CPA is statistically significant with an AME of -10.6%. This indicates that in Republican-dominated states CEOs without graduate degrees are 10.6% less likely to be encourage political spending transparency compared to non-graduate degree CEOs in non-Republican victory states.

In column (2), the interaction is not significant. For the *onlyMBA*, the effect of being led by firms with MBA on CPA for firms headquartered in Republican Victory states (*RepVictory*=1) is 3.1%, but it is statistically insignificant, whereas the AME of (*onlyMBA*) on CPA for firms not headquartered in Republican Victory states (*RepVictor*y=0) is 5.4% and statistically significant. The effect of *RepVictory* for non-MBA CEOs relative to that of MBA CEOs is -2.2%, but it is statistically insignificant.

DemVictory

Columns (3) and (4) in Table 4.7 focuses on *DemVictory* variable. ORs for *gradDeg* and *onlyMBA* are both still statistically non-significant, but their respective interactions are still significant.

Our result shows that the AME of *DemVictory* on the CPA for CEOs who have graduate degree relative to that of people who do not have graduate degree is 13.5% and statistically significant. Similarly, the effect of *DemVictory* on CPA for non-MBA CEOs relative to MBA CEOs is 9.8% and statistically significant. This indicates that for firms located in Democratic states, CEO's MBA training seems to exert a significant influence on PCD decisions, which was not the case for MBA CEOs operating in Republican victory states. One of the reason for this could be that that companies operating in a Democratic political environment tend to engage in more socially responsible behaviour (Di Giuli and Kostovetsky (2014)). Hence, we could argue that disclosing corporate political spending information aligns with the principles of stakeholder and shareholder accountability and responsibility.

Overall, our results suggest that relationship between CEO education and political spending transparency is moderated by the political environment of the state where the firms is headquartered. This moderation is particularly evident in Republican victory states. In these states, factors beyond CEO education, such as political considerations or firm characteristics, appear to take precedence in shaping PCD decisions. This may be due to a greater pressure for firms to align their disclosure practices with the dominant political climate, even if it diverges from the preferences of their more educated CEOs, which aligns with Cohen et al. (2019)'s findings of increased discretion among Republican CEOs, potentially to avoid association with divisive issues. In contrast, CEO education plays a more pronounced role in Democratically-dominated environments, where firms generally exhibit greater social responsibility (Di Giuli and Kostovetsky, 2014). Here, CEOs with higher educational attainment are more likely to advocate for increased PCD, suggesting that their influence on disclosure decisions is amplified in a supportive political context.

Insert Table 4.7 here.

4.6.3 CEO's influence–duality and share ownership

CEO duality and CEO shareownership are factors that empower CEOs to influence a company's approach to corporate political spending transparency and accountability (Bliss, 2011). While CEOs may have less direct control over the specific disclosure practices related to political spending, two prominent avenues through which they can exert their influence are their dual role on the board and their position as shareholders with significant financial stakes in the company. These positions of influence allow CEOs to advocate for corporate policies that align with their own preferences regarding political spending transparency and accountability.

CEO duality

Within the context of corporate political spending transparency and accountability, CEOs who also serve as chairmen may possess enhanced power to promote their personal political spending agendas, regardless of whether such agendas align with the best interests of the company or its shareholders. They can diminish external oversight by independent directors on the board, leading to fewer challenges or inquiries regarding disclosure decisions.

Table 4.8 presents the estimation results for moderating effect of CEO duality on the relationship between CEO's education and *CPA*. In each case, coefficients are reported as odds ratios.

Columns (1) and (2) explore the moderating role of CEO duality in the relationship between CEO education and *CPA*. In respective models, the odds ratio for *gradDeg* and *onlyMBA* is still significant and greater than 1.

In column (1), the AME of *CEOduality* for non-graduate degree CEOs compared to graduate degree CEO is statistically significant decrease of -11.25%. This suggests, in absence of *gradDeg*, duality actually disincentivises disclosure. We observe a similar pattern in column (2), where the AME of CEO duality on CPA for non-MBA CEOs compared to MBA CEOs is a statistically significant

decrease of 15.19%.

These findings suggests that CEOs with graduate degrees or MBAs may possess a stronger commitment to stakeholder accountability and accountability, making them more likely to disclose political activities even with CEO duality. Conversely, those lacking such qualifications may be more susceptible to negative duality influences, potentially leading to a focus on self-serving disclosure decisions, advancing CEO's own interests rather than the interests of the company or its stakeholders and a disregard for transparency and accountability, ultimately reducing the likelihood of CPA.

CEO share ownership

CEO share ownership may also play a role in influencing disclosure decisions. A CEO with a significant stake in the company might be more hesitant to embrace full transparency around political spending, potentially due to concerns about reputation damage or shareholder backlash. Supporting this notion, Ali et al. (2022) note a negative association between insider ownership and political spending disclosure. Therefore, we investigate whether the relationship between education and disclosure is moderated by both the CEO's ownership in the company.

Columns (3) and (4) in Table 4.8 explore the moderating role of CEO share ownership in the relationship between CEO education and *CPA*.In respective models, the odds ratio for *gradDeg* and *onlyMBA* is still significant and greater than 1.

In column (3), the interaction is statistically significant, with odds ratios less than one. Further, the AME of *CEOshrown* for non-graduate degrees relative to graduate degree CEOs is statistically significant decrease of $-3.3.\%$ and statistically significant. For column (4), the interaction term is not significant. Similarly, the AME of *CEOshrown* for firms led by non-MBA CEOs relative to MBA CEOs is statistically insignificant.

Overall, our result suggests that the extent of CEO share ownership influ-

ences the positive impact of having an graduate degree on disclosure diminishes as CEO share ownership increases. In essence, higher corporate political contribution disclosure is more likely to be found in companies led by CEOs with graduate degrees and lower share ownership. However, for MBA CEOs, the influence of share ownership on disclosure is less pronounced. Their positive impact on disclosure, compared to non-MBA graduate CEOs, persists even with higher share ownership, suggesting a stronger commitment to transparency amongst this group.

Insert Table 4.8 here.

4.7 CPA-Zicklin composite index and its sub-indices

Our main dependent variable is a dummy variable. However, to fully exploit the available data, show robustness of results and allow comparison with previous studies that employ either the composite index (Goh et al., 2020) or subcategories (DeBoskey et al., 2018*b*) as proxies for political spending disclosure, we conduct empirical analysis using the composite CPA-Zicklin index as our dependent variable. Additionally, in further analyses, to identify the specific dimensions of corporate political accountability most affected by CEO education, we further analyse the individual categories within the PCD index.

4.7.1 CPA-Zicklin composite index

The CPA-Zicklin composite index (PCD index) is a continuous measure spanning 0 to 100%, captures the comprehensiveness of corporate political contribution disclosure practices. We discuss the construction of this index in Appendix B [3].

[3]To distinguish between the phenomenon and its measurement, we adopt the following convention throughout this study: PCD (non-italicised) refers to the political contribution disclosure. *PCD* (italicised) denotes the specific metric used to quantify PCD in this study.

To mitigate potential biases from unobserved, time-invariant characteristics, we employ a within-group estimator. Table 4.9 showcases our results, with the composite CPA-Zicklin index (*PCD*) serving as the dependent variable. We observe a statistically significant and positive coefficient for the variable *gradDeg*, suggesting that CEOs holding graduate degrees are associated with elevated levels of PCD. While other variables lack statistically significant relationships with the PCD index, the positive coefficients for the MBA and Law variables align with our hypotheses, hinting at a potential positive influence, albeit not reaching statistical significance. Further research with larger sample sizes might be necessary to fully elucidate these relationships.

Insert Table 4.9 here.

To reinforce our findings, we re-do the analyses from section 4.6, employing the composite index (PCD index) as our dependent variable. The PCD index for a firm stays roughly the same for multiple years, so there is more of a between variation than a within variation. Firstly, we include corporate governance indicators, such as board composition and institutional ownership, which might influence disclosure practices. Table 4.10 presents the result for models incorporating the corporate governance quality variables. We find that the CEO education variables is statistically significant and positive coefficient for the variable *gradDeg*, even after controlling for corporate governance quality.

Insert Table 4.10 here.

Next, we delve into the potential interaction between CEO education and the political context in which the firm operates. Specifically, we incorporate the partisan affiliation of the firm's state headquarters into our analysis (Table 4.11). Columns (1) and (2) focus on the firm's performance when the Republican party (*RepVictory*) wins the state, while columns (3) and (4) explore the performance under a victory by the opposing party (*DemVictory*). The negative coefficient

on *gradDeg# RepVictory* implies that the influence of CEO education weakens in Republican states. Conversely, the coefficient on *gradDeg#DemVictory* is positive, suggesting that the positive association between CEO education and PCD is amplified in Democratic states. This aligns with our earlier results in Table 4.7 highlighting the moderating effect of the political environment on the relationship between CEO education and corporate political disclosure.

Insert Table 4.11 here.

Further, we also explore the nuances of CEO influence by incorporating CEO duality and share ownership into our analysis with sub-indices as our dependent variable (Table 4.12). These variables have been previously linked to potential conflicts of interest, reduced board effectiveness, and decreased financial disclosure. Columns (1) to (3) specifically examine the moderating role of CEO duality, while columns (4) to (6) focus on the influence of CEO share ownership.

Our findings are qualitatively similar to those observed in Table 4.8, reinforcing the significant impact of CEO influence on disclosure practices. Notably, CEO duality emerges as a disincentive for disclosure, whereas higher levels of CEO share ownership appear to diminish the positive effect of graduate degrees on disclosure. These results underscore the complex interplay between CEO characteristics and corporate transparency.

Insert Table 4.12 here.

In addition to disclosure, the CPA-Zicklin Index also assesses a company's commitment to responsible political engagement through two additional sub-indices: Policy and Board Oversight. These dimensions capture the presence of defined internal guidelines for political expenditures ("Policy") and active board oversight of such activities ("Board Oversight"). To gain a more granular understanding of how factors influence these distinct aspects of disclosure,

we further delve into the three sub-indices of the PCD index as our dependent variables. This approach allows us to analyse the specific drivers of disclosure practices, policy development, and oversight, providing a more nuanced picture of corporate political transparency.

4.7.2 Sub indices of CPA-Zicklin —Disclosure, Policy and Oversight

The CPA-Zicklin Index is composite measure of corporate political accountability, integrating scores from three distinct sub-indices, where each sub-index address distinct facets of the disclosure process. Consequently, the CPA-Zicklin Index scores in our dataset represent a percentage of the total value. The *Disclosure* sub-index, accounts for 36 out of 72 and specifically assesses whether companies provide adequate information about their political spending. This disclosure empowers shareholders to evaluate the alignment of corporate expenditures with their best interests and identify potential sources of risk, thereby enhancing the effectiveness of board oversight (Center for Political Accountability, 2022).

The *Policy* sub-index accounts for 18 out of 72 and examines whether companies establish well-defined guidelines for political expenditures, providing a framework for informed decision-making. Clear policy information on political spending enables shareholders to assess the benefits and drawbacks of such spending and ensure that it aligns with the company's overall goals and values. It also serves as a basis for justifying expenditures and evaluating their effectiveness in achieving intended objectives. The actual total score for *Policy* sums up to 16. However, one of the reference questions asks for a Yes or No response: "Does the company have a publicly available policy permitting political contributions only through voluntary employee-funded PAC contributions?" Hence, we follow previous studies and code Yes=2 and No=0 and our total score for policy is 18.

Finally, the *Oversight* sub-index, accounting for 18 out of 72, focuses on the role of the board of directors in overseeing political contributions and

expenditures within public companies. It evaluates whether these companies maintain a degree of board oversight concerning their political spending activities. Thus, each of these three sub-indices plays a critical role in assessing and understanding a company's approach to political spending transparency and accountability (Center for Political Accountability, 2022).

Employing these sub-categories as our dependent variables, we refine our baseline model presented in Equation 4.1 and estimate the following OLS model:

$$Sub-index = \alpha_i + \beta EDUCATION + \theta X_{i,t-1} + \gamma C_{i,t} + \rho_j + \mu_t + \varepsilon_{i,t} \quad (4.2)$$

where *Sub-index* represents one of the three sub-indices: *Disclosure*, *Policy* or *Oversight*. *EDUCATION* refers to the CEO's educational background. $X_{i,t-1}$ represents the non-CEO related control variables lagged by one year, while C_{it} accounts for CEO-related variables measured in the same year, t. Industry-specific and time-specific effects are incorporated as ρ_j and μ_t, respectively, and as usual, $\varepsilon_{i,t}$ is the error term.

Table 4.13 presents our panel regression analysis results using a within-group estimator, with the three sub-indices of the CPA-Zicklin Index serving as dependent variables. The estimated coefficient on *gradDeg* is statistically significant for both the Policy and Oversight sub-indices but not for the Disclosure sub-index. This suggests that firms led by CEOs with graduate degrees, particularly in fields like business administration or public policy, often emphasise stakeholder management and ethical considerations. This focus might translate into a greater awareness of the importance of transparency and accountability in political spending, leading to more well-defined internal policies. Interestingly, our analysis does not uncover a significant connection between *gradDeg* and the Disclosure aspect, indicating that the influence of CEO education might be specific to policy formulation and board oversight within the political spending domain.

Insert Table 4.13 here.

In earlier analyses, we investigated the moderating effect of the state's partisan affiliation and CEO influence (through duality and share ownership), separately, on the relationship between CEO education and political spending transparency, initially using the CPA-Zicklin Index and subsequently the PCD Index as the dependent variables. These analyses suggest that the partisan context of the state where the firm operates and CEO influence substantially influence the relationship between CEO education and political spending transparency. We replicate our earlier analyses using the sub-indices (Disclosure, Policy, or Oversight) as the dependent variables (*Disclosure*, *Policy* or *Oversight*) as our dependent variable. This refined analysis allows us to investigate the specific aspects of political spending transparency within which CEO education may play a more or less pronounced role.

State political partisanship

Table 4.14 presents the results for our regression analysis to explore potential interactions between CEO education and state political partisanship (*RepVictory* or *DemVictory*) in shaping the three sub-indices of the PCD index (Disclosure, Policy, and Oversight). Fixed effects are included as indicated. In each case, we observe that the interactions of *gradDeg* with *RepVictory* have a negative coefficient, whereas the coefficients on interactions associated with *DemVictory* have a positive coefficient. This pattern suggests that the relationship between CEO education and political spending transparency (with focus on specific categories) is amplified in states with Democratic victories, while it is dampened in states with Republican victories.

Insert Table 4.14 here.

CEO influences —Duality and share ownership

As noted earlier in Section 4.6.3, CEO duality and CEO share ownership can influence a firm's likelihood of disclosing and accounting for political spending information. Hence, we examine whether these two CEO characteristics also affect the distinct aspects of the CPA-Zicklin Index.

CEO duality as a moderator between Subindices and CEO education

Table 4.15 presents the estimates from our regression analysis with the moderator effect of CEO influence variables (*CEOduality* and *CEOshrown*). In columns (1)-(3), we focus on *CEOduality* and *gradDeg*. The three distinct subcategories of the CPA-Zicklin Index serve as our dependent variables. In each case, we observe a negative coefficient in each interaction term, representing the combined effect of graduate degrees and CEO duality. This suggests that when a CEO concurrently holds dual roles within the company, it often results in reduced disclosure practices, unclear guidelines on disclosure, and reduced external oversight.

CEO share-ownership as a moderator between Subindices and CEO education

Columns (4)-(6) in Table 4.15 focuses on the moderator effect of CEO share ownership. The three distinct subcategories of the CPA-Zicklin Index serve as our dependent variables. Only in the case of *Policy* subindex, we observe a negative coefficients and a statistically significant coefficient on the interaction between *gradDeg* and *CEOshrown*. We do not observe a statistically significant coefficient on the other interaction terms with Disclosure and Oversight as dependent variables.

Regarding the interaction between having an graduate degree and CEO share ownership, the negative coefficient suggests that the effect of holding an graduate degree on political transparency might be diminished or even reversed when CEOs have substantial ownership stakes in the company. This implies that

when CEOs possess a significant ownership stake, their personal interests could conflict with transparency efforts, leading to a decrease in disclosure.

Insert Table 4.15 here.

4.8 Conclusion

The corporate sector in the U.S. plays a significant role in influencing political outcomes, as evidenced by its substantial contributions to federal elections (Duchin and Sosyura, 2012). While corporate political spending is not a new phenomenon, the 2010 *Citizens United v. Federal Election Commission* ruling has enabled corporations to channel political contributions anonymously, further complicating efforts to track and understand the extent of corporate political involvement. In response to these concerns, shareholders and policymakers advocate for PCD to enhance corporate transparency and accountability (Bebchuk and Jackson Jr, 2012; Coates IV, 2012). However, PCD remains a voluntary practice, with some firms disclosing their political activities while others refrain from doing so.

This study examined whether CEO characteristics, particularly their educational background, influence a company's decision to voluntarily disclose its corporate political spending. Drawing upon Upper Echelon theory, which postulates that top-level managers' characteristics play a significant role in shaping a company's strategy, we proposed four hypotheses linking CEO educational background to the level of corporate political contribution disclosure and transparency.

We employed logistic regression on a sample of the CEOs of S&P 500 firms, which represent eighty percent of the market value of U.S. public companies to examine the impact of CEO educational background on the disclosure and accountability of political contribution information within a company. This

allowed us to differentiate between firms with substantial transparency on political spending and those with minimal or non-existent information. We chose the main educational pathways for CEOs (MBA, Law, and STEM) that are related to the disclosure practices.

Our analysis of CEOs of S&P 500 firms reveals that heterogeneity in a firm's level of political contribution disclosure and transparency is associated with the variation in their CEO's educational background. Further, CEOs with advanced degrees in MBA are more likely to disclose their companies' political spending compared to CEOs with no MBA training. These findings align with the notion that CEOs with higher levels of education and specialised training may be more attuned to the importance of transparency and accountability in corporate governance.

In addition to CEO characteristics, we also investigate the influence of corporate governance and political context on political contribution disclosure. Our findings indicate that increased institutional investor ownership is associated with decreased political contribution disclosure, while board independence is positively associated with increased disclosure. These results suggest that corporate governance structures play a role in shaping corporate disclosure practices related to political involvement. Furthermore, the political context in which a firm operates influences the relationship between CEO educational background and disclosure practices. The effect of CEO educational background on disclosure is less pronounced in Republican-dominated states compared to Democratic-victory states. This finding highlights the moderating role of political context in corporate disclosure decisions.

Our research contributes to the existing literature on corporate political disclosure (such as DeBoskey et al., 2018*a*; Cohen et al., 2019; Goh et al., 2020) by providing novel insights into the role of CEO characteristics, particularly educational background, in shaping corporate transparency practices related to political involvement. These findings have implications for investors and share-

holders, who should consider CEO background and educational training when assessing a firm's commitment to transparency and accountability. Additionally, our study informs policy discussions aimed at regulating corporate political spending and disclosure practices. By understanding the factors that influence corporate disclosure decisions, policymakers can develop more effective regulatory frameworks to enhance corporate transparency and accountability in the political arena.

To our knowledge, there is no other literature that studies the role of CEO educational background in the likelihood of disclosing political contributions. The managerial relevance of this study stems from the need for shareholders and investors to be aware of the political involvement of the firms in which they invest, the political context within which the firm operates, and the moderating effect of CEO power and ownership stakes. As the information on corporate political contribution is not readily presented in annual statements and remains a voluntary decision, investors should be vigilant in scrutinising the CEO's background and understanding how their CEO's background may be playing a role in influencing the information that corporations are disclosing on political spending.

Brief note on association/reverse causality and Fixed effects

This paper explores the potential links between CEOs' educational backgrounds and corporate political contribution transparency. While our results indicate a relationship between CEOs with MBAs and increased transparency within firms, it is important to consider potential issues of reverse causality or selection bias.

An explanation could be that more transparent firms deliberately recruit CEOs with MBAs, whereas less transparent firms prefer those with law degrees which also values relevant industry experience, a proven track record in previous leadership roles, and the ability to meet the specific needs and challenges of the company. Therefore, it is improbable that a firm would base its CEO selection solely on educational background (e.g., prioritising a law degree) over critical

attributes such as the candidate's industry experience or leadership abilities, even in firms with lower transparency levels. Moreover, existing empirical studies do not definitively show a marked preference among MBA or law graduates for positions in firms with particular levels of political transparency. The specific factors influencing a CEO's decision will vary depending on their individual circumstances and career goals.

Table 4.1
Tiers based on Scores from CPA-Zicklin 2018 report

Tier	Score (in %)
First Tier	80-100
Second Tier	60-79.9
Third Tier	40-59.9
Fourth Tier	20-39.9
Bottom Tier	0-19.9

Table 4.2
CEO's higher education categories 2013 – 2019

The table provides a comprehensive overview of CEO education categories from 2013 to 2019. CEO education degrees are categorised into broad categories: MBA, LAW, STEM, No advanced degree, Combination degree, and Other degrees. CEOs with MBA, LAW, and STEM degrees are classified into distinct categories to reflect their educational specialisations. Additionally, CEOs holding only one of these degrees are separated into "Only MBA", "Only LAW", and "Only STEM" categories. The "Other degrees" category encompasses CEOs with advanced qualifications beyond the MBA, LAW, or STEM fields. "Combination degrees" represent CEOs who possess more than one of these qualifications, such as combinations of MBA, LAW, and STEM degrees. Lastly, "No advanced degree" indicates CEOs without any advanced degrees.

	2013	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
gradDeg	68.75%	65.86%	60%	58.6%	59.64%	60.24%	60.38%
MBA	43.8%	42.1%	39.3%	38.7%	38.7%	38.7%	38.3%
Only MBA	40.3%	39.3%	36.1%	35.7%	36.3%	35.7%	35.0%
LAW	10.8%	10.3%	8.1%	7.6%	7.7%	7.6%	8.1%
Only LAW	8.5%	9.0%	7.1%	6.4%	6.9%	6.4%	7.0%
STEM	11.4%	10.7%	10.5%	9.2%	8.7%	10.0%	11.0%
Only STEM	8.5%	8.6%	7.9%	7.0%	7.1%	8.2%	8.7%
Combination degrees (e.g., MBA & Law or or Law & STEM)	4.0%	3.1%	3.4%	3.3%	2.4%	3.1%	3.4%
Other degrees	9.1%	6.9%	7.5%	8.8%	9.1%	8.6%	8.1%

Table 4.3
Summary statistics of firm and CEO characteristics

The table reports summary statistics for both firm and CEO characteristics used in the study, encompassing the overall sample period from 2013 to 2019. The dataset comprises 2875 firm-year observations. The variable *gradDeg* indicates whether the CEO holds an advanced degree. *only MBA/Law/STEM* denotes CEOs with an advanced degree exclusively in MBA, LAW, or TECH. The variables *onlyMBA*, *onlyLAW*, and *onlySTEM* represent CEOs with advanced degrees specifically in MBA, LAW, and STEM, respectively.

	Observations	**Mean**	**St. Dev.**	**Min**	**Max**
Panel A: Dependent variable					
$PCD(\%)$	2875	42.32	32.913	0	100
$CPA(PCD \geq 20\%)$	2,875	.613	.489	0	1
$Disclosure$	2875	37.55	35.677	0	100
$Policy$	2875	55.39	32.360	0	100
$Oversight$	2875	38.79	35.487	0	100
Panel B: Independent and controls					
$gradDeg$	2,875	0.628	0.483	0	1
MBA	2,875	0.394	0.489	0	1
$onlyMBA$	2875	0.364	0.481	0	1
LAW	2,875	0.082	0.275	0	1
$onlyLAW$	2,875	0.071	0.256	0	1
$STEM$	2,875	0.101	0.30	0	1
$onlySTEM$	2,875	0.079	0.270	0	1
$combination$	2,875	0.032	0.175	0	1
$femCEO$	2,803	0.051	0.220	0	1
$CEOage$	2,802	57.58	5.848	44	76
$CEOtenure$	2,803	7.293	6.267	0.501	30.02
$CEOduality$	2,803	0.518	0.500	0	1
$CEOshrown(\#)$	2,803	13886.84	7889.05	965.98	48753.82
$CEOshrown(\%)$	2,748	0.683	2.091	0.004	14.788
$CEOshrownexcludingOPTS(\%)$	2,779	0.574	2.069	0	14.7
$fsize$	2,821	10.14	1.28	7.742	13.81
roa	2,815	5.956	6.39	-17.826	24.74
lev	2,815	30.30	17.80	0	83.71
$analystnum$	2,612	19.62	7.408	3.333	40.33
$percInstHolding$	2,681	79.233	13.916	.999	135.68
$avInstNum$	2,681	798.74	417.47	322.25	2242
$HHI100$	2,830	5.81	4.655	1.545	27.37

Table 4.4
Correlation matrix between *CPA* and other variables

The table presents correlation coefficients. The dependent variable equals 1 if PCD (Political Contribution Disclosure) is greater than or equal to 20%, and 0 otherwise. The CEO education variables include: *gradDeg* (represents)whether the CEO has a graduate degree), *onlyMBA* (1 if the CEO has an MBA, 0 otherwise), *onlyLAW* (1 if the CEO has a Law degree, 0 otherwise), and *onlySTEM* (1 if the CEO has a degree in STEM, 0 otherwise). Variable definitions and details can be found in Appendix A.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	*CPA*														
2	*gradDeg*	0.049	1												
3	*onlyMBA*	0.066	0.599												
4	*onlyLAW*	-0.011	0.216	-0.214											
5	*onlySTEM*	-0.041	0.229	-0.227	-0.082										
6	*femCEO*	0.083	0.006	-0.013	0.011	-0.045	1								
7	*CEOage*	0.025	-0.026	-0.025	0.051	-0.013	-0.018	1							
8	*CEOtenure*	-0.102	0.014	-0.038	0.066	-0.001	-0.083	0.451	1						
9	*CEOduality*	0.22	0.019	0.004	-0.006	-0.045	-0.009	0.321	0.309	1					
10	*CEOshrown*	-0.053	-0.086	-0.078	-0.015	-0.008	-0.051	0.191	0.439	0.112	1				
11	$fsize_{t-1}$	0.433	0.087	0.082	0.038	-0.068	0.052	0.1	-0.026	0.232	-0.036				
12	roa_{t-1}	-0.074	-0.075	-0.11	0.003	0.041	0.014	0.017	0.028	-0.036	-0.006	-0.318			
13	lev_{t-1}	-0.006	0.026	-0.031	0.105	-0.065	0.01	-0.027	-0.058	-0.035	-0.029	-0.13	-0.083		
14	$analyst_{t-1}$	0.251	-0.062	-0.052	-0.048	0.099	-0.0001	-0.043	-0.06	0.051	-0.032	0.202	0.116	-0.204	
15	$HHI100_{t-1}$	-0.008	0.028	-0.015	-0.011	0.026	0.072	0.053	0.021	0.056	0.125	-0.159	0.147	0.098	-0.002

Table 4.5
Main Result: CEO education and voluntary disclosure of political spending information (*CPA*)

The table presents the results for the logistic regression model with *CPA* as our dependent variable. *CPA* equals 1 if PCD index percentage is equal or greater than 20 and 0 otherwise. *EDUCATION* is our main independent variable of interest, which captures the CEO's educational background. We have multiple measures to proxy for the CEO's education. *gradDeg* represents whether the CEO has an advanced degree. *only MBA/Law/TECH* indicates CEOs with only an MBA, LAW, or STEM degree, respectively. Individual education category dummies such as *MBA*, *LAW* and *STEM*, represent CEOs with only MBA, LAW, or STEM degrees, respectively. Following earlier studies, non-CEO variables are lagged by one year, whereas the CEO-specific controls are measured in year t. The logistic regression coefficients are odds ratios, representing the odds that an outcome will occur given a particular exposure compared to the odds of the outcome occurring in the absence of that exposure. This implies that $OR > 1$ indicates an increased occurrence of an event or increased odds of disclosure. Heteroskedasticity robust standard errors are present and we also provide various fitness statistics associated with logit models. *** p<0.01, ** p<0.05, * p<0.1

	(1) *CPA*	(2) *CPA*	(3) *CPA*	(4) *CPA*
	(1)	(3)	(4)	(5)
gradDeg	1.557*** (0.234)			
onlyMBA		1.513*** (0.233)		
onlyLAW			0.922 (0.266)	
onlySTEM				0.740 (0.205)
$femCEO$	2.028** (0.671)	2.054** (0.702)	2.003** (0.671)	1.977** (0.659)
Ceoage	0.988 (0.013)	0.986 (0.014)	0.988 (0.013)	0.988 (0.013)
CEOtenure	0.977* (0.012)	0.980 (0.012)	0.978* (0.012)	0.979* (0.012)
CEOduality	2.656*** (0.444)	2.633*** (0.444)	2.525*** (0.418)	2.490*** (0.418)
CEOshrown	0.982 (0.035)	0.975 (0.035)	0.974 (0.035)	0.974 (0.035)
$fsize_{t-1}$	3.723*** (0.332)	3.715*** (0.331)	3.781*** (0.338)	3.770*** (0.338)
roa_{t-1}	1.036*** (0.014)	1.036*** (0.014)	1.035** (0.014)	1.034** (0.014)
lev_{t-1}	1.013*** (0.005)	1.013*** (0.005)	1.013*** (0.005)	1.013*** (0.005)
$lnanalyst_{t-1}$	2.136*** (0.446)	2.120*** (0.440)	2.053*** (0.430)	2.076*** (0.436)
$HHI100_{t-1}$	1.115 (0.082)	1.108 (0.085)	1.107 (0.080)	1.108 (0.080)
Observations	1879	1879	1879	1879
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
State FE	YES	YES	YES	YES
McFadden's R^2	0.3798	0.3794	0.3764	0.3768
McFadden's Adj R^2	0.2941	0.2938	0.2907	0.2911
Count R^2	0.8228	0.8212	0.8217	0.8222
AIC	1655.80	1656.66	1663.91	1662.92
BIC	2109.96	2110.82	2118.07	2117.08

Table 4.6
Corporate Governance Quality: Institutional holdings and Board composition (*CPA*)

The table presents the results for the baseline logistic regression model augmented with corporate governance quality variables (i.e.,institutional holdings and board composition) with *CPA* as dependent variable. *CPA* equals 1 if PCD index percentage is equal or greater than 20 and 0 otherwise. Columns (1) and (2) present results after controlling for institutional holdings, whereas Columns (3) and (4) presents results after controlling from board composition variables. The sample includes firms in the S&P 500 for the period 2013-2019. *EDUCATION* is our main independent variable of interest, which captures the CEO's educational background. We measures CEO's education as: *gradDeg* represents whether the CEO has a graduate degree. *onlyMBA* indicates CEOs with only an MBA degree. The logistic regression coefficients are odds ratios, representing the odds that an outcome will occur given a particular exposure compared to the odds of the outcome occurring in the absence of that exposure. This implies that $OR > 1$ indicates an increased occurrence of an event or increased odds of disclosure. Heteroskedasticity robust standard errors are present and we also provide various fitness statistics associated with logit models. *** p<0.01, ** p<0.05, * p<0.1

	Institutional holdings		Board composition	
	(1) *CPA*	(2) *CPA*	(3) *CPA*	(4) *CPA*
gradDeg	1.657***		1.760***	
	(0.257)		(0.294)	
onlyMBA		1.521***		1.792***
		(0.238)		(0.303)
$femCEO$	2.041**	2.075**	1.943*	1.978*
	(0.683)	(0.720)	(0.700)	(0.744)
CEOage	0.989	0.987	0.998	0.995
	(0.014)	(0.014)	(0.016)	(0.016)
CEOtenure	0.976**	0.979*	0.980	0.985
	(0.012)	(0.012)	(0.013)	(0.014)
CEOduality	2.663***	2.623***	2.336***	2.313***
	(0.455)	(0.451)	(0.417)	(0.415)
CEOshrown	0.968	0.961	0.963	0.953
	(0.035)	(0.035)	(0.040)	(0.041)
$fsize_{t-1}$	3.541***	3.546***	3.792***	3.788***
	(0.338)	(0.337)	(0.385)	(0.385)
roa_{t-1}	1.030**	1.030**	1.035**	1.034**
	(0.014)	(0.014)	(0.015)	(0.015)
lev_{t-1}	1.015***	1.015***	1.019***	1.019***
	(0.005)	(0.005)	(0.005)	(0.005)
$lnanalyst_{t-1}$	2.053***	2.029***	2.537***	2.561***
	(0.441)	(0.433)	(0.585)	(0.584)
$HHI100_{t-1}$	1.125	1.117	1.077	1.070
	(0.081)	(0.083)	(0.082)	(0.086)
$percinstholding_{t-1}$	0.981**	0.982**		
	(0.008)	(0.008)		
$BODfemratio_{t-1}$			5.834	5.833
			(6.528)	(6.638)
$BODindependence_{t-1}$			1.122**	1.114**
			(0.059)	(0.059)
Observations	1841	1841	1723	1723
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
State FE	YES	YES	YES	YES
McFadden's R^2	0.3888	0.3875	0.426	0.426
McFadden's Adj.R^2	0.3183	0.3170	0.351	0.351
Count R2	0.8343	0.8251	0.8416	0.8369
AIC	1604.573	1607.57	1439.471	1438.664
BIC	2062.572	2065.57	1891.975	1891.165

Table 4.7
State political partisanship: Republican and Democratic states (*CPA*)

The table presents logistic regression estimation with political partisanship of the state where firm's headquarters as our moderating variable. The variable *RepVictory* represents the state (where the firms is headquartered) has had a consecutive Republican party victories in the 2008, 2012, and 2016 elections. Similarly, *DemVictory* represents the state (where the firms is headquartered) has had a consecutive Republican party victories in the 2008, 2012, and 2016 elections. The dependent variable is *CPA*, where *CPA* =1 if PCD $>$ 20 and 0 otherwise. We measures CEO's education as: *gradDeg* represents whether the CEO has a graduate degree. *onlyMBA* indicates CEOs with only an MBA degree. The sample includes firms in the S&P 500 for the period 2013-2019. The logistic regression coefficients are odds ratios (OR), if $OR > 1$ indicates an increased occurrence of an event, whereas $OR < 1$ indicates a decreased occurrence of an event. Heteroskedasticity robust standard errors are in parentheses. All models include year, industry and state effects. *** p<0.01, ** p<0.05, * p<0.1 .

	Republican Party Victory		Democratic Party Victory	
	(1)	(2)	(3)	(4)
	CPA	*CPA*	*CPA*	*CPA*
gradDeg	1.639***		0.835	
	(0.241)		(0.144)	
onlyMBA		1.444**		1.049
		(0.216)		(0.182)
gradDeg#RepVictory	0.484**			
	(0.136)			
onlyMBA#RepVictory		0.869		
		(0.265)		
gradDeg#DemVictory			2.615***	
			(0.668)	
onlyMBA#DemVictory				2.078***
				(0.548)
RepVictory	2.102***	1.417*		
	(0.443)	(0.256)		
DemVictory			0.749	1.067
			(0.148)	(0.167)
$femCEO$	2.231***	2.178**	2.188**	2.169**
	(0.680)	(0.663)	(0.688)	(0.697)
CEOage	0.985	0.985	0.984	0.982
	(0.012)	(0.012)	(0.013)	(0.013)
CEOtenure	0.967***	0.967***	0.970***	0.972***
	(0.011)	(0.011)	(0.011)	(0.011)
CEOduality	2.504***	2.534***	2.623***	2.655***
	(0.351)	(0.358)	(0.372)	(0.381)
CEOshrown	1.054	1.046	1.033	1.029
	(0.055)	(0.054)	(0.053)	(0.053)
$fsize_{t-1}$	3.138***	3.086***	3.168***	3.113***
	(0.273)	(0.268)	(0.269)	(0.265)
roa_{t-1}	1.035***	1.036***	1.033***	1.033***
	(0.012)	(0.012)	(0.012)	(0.012)
lev_{t-1}	1.008**	1.008*	1.010**	1.010**
	(0.004)	(0.004)	(0.004)	(0.004)
$lnanalyst_{t-1}$	2.513***	2.550***	2.749***	2.904***
	(0.549)	(0.552)	(0.612)	(0.644)
$HHI100_{t-1}$	1.165**	1.150*	1.157**	1.140*
	(0.083)	(0.082)	(0.086)	(0.084)
Observations	2002	2002	2002	2002
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
McFadden's R^2	0.313	0.311	0.316	0.315
McFadden's Adj. R^2	0.270	0.269	0.273	0.272
Count R2	0.791	0.792	0.795	0.791
AIC	1884.137	1888.635	1877.541	1879.429
BIC	2192.242	2196.740	2185.646	2187.534

Table 4.8
CEO's influence: CEO duality and CEO share ownership (*CPA*)

The table presents the moderating effect of CEO's influence within the company measured through CEO's duality and share ownership. *CEOduality* indicates whether the CEO holds the dual role of chairman of the board. *CEOshrown* represents the total percentage of shares owned by the CEO. The dependent variable is *CPA*, where *CPA* =1 if PCD $>$ 20 and 0 otherwise. We measures CEO's education as: *gradDeg* represents whether the CEO has a graduate degree. *onlyMBA* indicates CEOs with only an MBA degree. The sample includes firms in the S&P 500 for the period 2013-2019. The coefficients represent odds ratios (ORs), which indicate the odds of an event occurring given a particular exposure compared to the odds of the event occurring in the absence of that exposure. This implies that $OR > 1$ indicates an increased occurrence of an event, whereas $OR < 1$ indicates a decreased occurrence of an event. Heteroskedasticity-robust standard errors are shown in parentheses. All models include year, state, and industry fixed effects. Significance levels are indicated as follows: *** p<0.01, ** p<0.05, * p<0.1.

	CEO Duality		CEO Shareownership	
	(1)	(2)	(3)	(4)
	CPA	*CPA*	*CPA*	*CPA*
gradDeg	2.206***		1.782***	
	(0.439)		(0.278)	
onlyMBA		2.473***		1.436**
		(0.497)		(0.233)
gradDeg#CEOduality	0.445***			
	(0.135)			
onlyMBA#CEOduality		0.321***		
		(0.097)		
gradDeg#CEOshrown			0.769***	
			(0.057)	
onlyMBA#CEOshrown				1.103
				(0.086)
$femCEO$	2.288**	2.099**	2.060**	2.057**
	(0.789)	(0.723)	(0.681)	(0.704)
CEOage	0.989	0.984	0.993	0.986
	(0.014)	(0.014)	(0.014)	(0.013)
CEOtenure	0.978*	0.982	0.985	0.979*
	(0.012)	(0.013)	(0.012)	(0.012)
CEOduality	4.367***	4.055***	2.363***	2.696***
	(1.062)	(0.788)	(0.407)	(0.463)
CEOshrown	0.966	0.960	1.090	0.961
	(0.036)	(0.035)	(0.058)	(0.036)
$fsize_{t-1}$	3.786***	3.875***	3.876***	3.699***
	(0.343)	(0.356)	(0.358)	(0.329)
roa_{t-1}	1.037***	1.038***	1.038***	1.036***
	(0.014)	(0.014)	(0.014)	(0.014)
lev_{t-1}	1.013***	1.015***	1.011**	1.013***
	(0.005)	(0.005)	(0.004)	(0.005)
$analyst_{t-1}$	2.154***	2.161***	1.882***	2.170***
	(0.447)	(0.450)	(0.396)	(0.461)
$HHI100_{t-1}$	1.116	1.109	1.130	1.107
	(0.080)	(0.077)	(0.087)	(0.084)
Observations	1879	1879	1879	1879
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
State FE	YES	YES	YES	YES
McFadden's R^2	0.383	0.386	0.385	0.380
McFadden's Adj. R^2	0.314	0.317	0.316	0.311
Count R2	0.824	0.815	0.824	0.821
AIC	1650.278	1643.893	1646.192	1657.415
BIC	2109.973	2103.588	2105.887	2117.110

Table 4.9
Panel regression for CPA-Zicklin Index and CEO education (PCD Index)

The table presents the results for the panel regression with CPA-Zicklin composite index (*PCD*) as our main dependent variable. *gradDeg* represents whether the CEO has an advanced degree. *only MBA/Law/STEM* indicates CEOs with only an MBA, LAW, or STEM degree, respectively. Individual education category dummies such as *onlyMBA*,*onlyLAW* and *onlySTEM*, represent CEOs with only MBA, LAW, or STEM degrees, respectively. Following earlier studies, non-CEO variables are lagged by one year, whereas the CEO-specific controls are measured in year t. The sample includes firms in the S&P 500 for the period 2013-2019. Heteroskedasticity robust standard errors are present in parenthesis. *** p<0.01, ** p<0.05, * p<0.1

	(1) *PCD*	(2) *PCD*	(3) *PCD*	(4) *PCD*	(5) *PCD*	(6) *PCD*	(7) *PCD*
gradDeg	3.492**						
	(1.695)						
onlyMBA		1.021					
		(1.654)					
onlyLAW			-2.344				
			(2.689)				
onlySTEM				2.961			
				(2.879)			
MBA					1.751		
					(1.596)		
LAW						-1.545	
						(2.458)	
STEM							4.376*
							(2.452)
$femCEO$	-0.084	-0.364	-0.254	0.138	-0.622	-0.330	0.133
	(2.643)	(2.764)	(2.805)	(2.777)	(2.728)	(2.826)	(2.674)
CEOage	0.223	0.207	0.200	0.203	0.211	0.205	0.209
	(0.206)	(0.209)	(0.209)	(0.208)	(0.208)	(0.208)	(0.207)
CEOtenure	0.163	0.174	0.186	0.177	0.174	0.179	0.177
	(0.192)	(0.193)	(0.195)	(0.193)	(0.192)	(0.194)	(0.193)
CEOduality	-2.486*	-2.505*	-2.539*	-2.428*	-2.557*	-2.503*	-2.524*
	(1.428)	(1.453)	(1.456)	(1.464)	(1.460)	(1.461)	(1.449)
CEOshrown	-1.853*	-1.840	-1.816	-1.874	-1.814	-1.831	-1.842
	(1.123)	(1.166)	(1.196)	(1.181)	(1.157)	(1.191)	(1.181)
$fsize$	0.890	1.001	0.981	0.880	0.995	1.002	0.873
	(2.964)	(2.992)	(2.994)	(2.997)	(2.982)	(2.995)	(2.985)
roa_{t-1}	-0.156*	-0.154*	-0.156*	-0.159*	-0.153	-0.156*	-0.162*
	(0.093)	(0.093)	(0.093)	(0.093)	(0.093)	(0.093)	(0.093)
lev_{t-1}	-0.169*	-0.161*	-0.158*	-0.161*	-0.161*	-0.159*	-0.161*
	(0.091)	(0.092)	(0.092)	(0.092)	(0.091)	(0.092)	(0.092)
$lnanalyst_{t-1}$	-2.438	-2.197	-2.116	-2.061	-2.265	-2.088	-1.992
	(2.848)	(2.862)	(2.850)	(2.849)	(2.861)	(2.851)	(2.847)
$HHI100_{t-1}$	0.493	0.580	0.605	0.612	0.555	0.609	0.605
	(0.761)	(0.762)	(0.759)	(0.756)	(0.766)	(0.758)	(0.756)
Constant	25.292	25.512	26.135	26.431	25.386	25.583	25.834
	(33.516)	(33.976)	(34.116)	(34.068)	(33.835)	(34.107)	(33.960)
Observations	2039	2039	2039	2039	2039	2039	2039
Firm FE	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES

Table 4.10
Corporate governance quality: Institutional holdings and board composition (PCD Index)

The table presents the results for the baseline logistic regression model augmented with corporate governance quality variables (i.e.,institutional holdings and board composition) with CPA-Zicklin Index, *PCD*, as our dependent variable. Column (1) presents result after controlling for institutional holdings, whereas column (2) presents result after controlling for board composition variables (*BoDindependence* and *BoDfemratio*). *gradDeg* represents whether the CEO has a graduate degree. The sample includes firms in the S&P 500 for the period 2013-2019. Following earlier studies, non-CEO variables are lagged by one year, whereas the CEO-specific controls are measured in year t. The sample includes firms in the S&P 500 for the period 2013-2019. Heteroskedasticity robust standard errors are present in parentheses. Fixed effects are as indicated. *** p<0.01, ** p<0.05, * p<0.1.

	(1)	(2)
	PCD	*PCD*
gradDeg	3.309*	3.724**
	(1.705)	(1.853)
$femCEO$	-0.399	-0.693
	(3.068)	(3.193)
CEOage	0.202	0.184
	(0.171)	(0.197)
CEOtenure	0.149	0.181
	(0.167)	(0.189)
CEOduality	-2.140	-2.113
	(1.441)	(1.528)
CEOshrown	-1.779*	-2.306**
	(0.957)	(1.000)
$fsize_{t-1}$	1.828	1.929
	(2.396)	(2.512)
roa_{t-1}	-0.145	-0.181*
	(0.092)	(0.102)
lev_{t-1}	-0.174**	-0.227***
	(0.072)	(0.078)
$lnanalyst_{t-1}$	-3.242	-3.606
	(2.583)	(2.826)
$HHI100_{t-1}$	0.481	0.875
	(0.622)	(0.660)
percInstHolding	0.063	0.086
	(0.093)	(0.100)
BoDindependence		-3.588
		(3.868)
BoDfemratio		3.312
		(8.821)
cons	23.078	29.193
	(28.541)	(31.518)
Observations	1887	1722
Adj. R2	0.854	0.850
Firm FE	YES	YES
Year FE	YES	YES
State FE	YES	YES

Table 4.11
State political partisanship: Republican and Democratic states (PCD Index)

The table presents regression analysis with fixed effects as indicated. In firm fixed effects, *RepVictory* and *DemVictory* is omitted. The table presents the results for the panel regression with CPA-Zicklin composite index (*PCD*) as our main dependent variable. The variable *RepVictory* represents the state (where the firms is headquartered) has had a consecutive Republican party victories in the 2008, 2012, and 2016 elections. Similarly, *DemVictory* represents the state (where the firms is headquartered) has had a consecutive Republican party victories in the 2008, 2012, and 2016 elections. *gradDeg* represents whether the CEO has an advanced degree. Following earlier studies, non-CEO variables are lagged by one year, whereas the CEO-specific controls are measured in year t. The sample includes firms in the S&P 500 for the period 2013-2019. Heteroskedasticity robust standard errors are present. *** p<0.01, ** p<0.05, * p<0.1.

	(1)	(2)	(3)	(4)
	PCD	*PCD*	*PCD*	*PCD*
gradDeg	3.574**	4.440**	-3.915**	2.564
	(1.543)	(2.103)	(1.706)	(2.030)
gradDeg#RepVictory	-9.614***	-2.949		
	(2.760)	(3.541)		
gradDeg#DemVictory			9.791***	2.719
			(2.520)	(3.617)
RepVictory	7.774***			
	(2.126)			
DemVictory			-0.040	
			(2.041)	
$femCEO$	3.069	-0.276	3.181	-0.255
	(2.630)	(2.942)	(2.707)	(3.009)
CEOage	-0.202	0.234	-0.226*	0.218
	(0.129)	(0.173)	(0.129)	(0.169)
CEOtenure	-0.413***	0.163	-0.404***	0.175
	(0.126)	(0.162)	(0.127)	(0.162)
CEOduality	8.196***	-2.705*	9.131***	-2.571*
	(1.444)	(1.442)	(1.436)	(1.413)
CEOshrown	-0.050	-1.824*	-0.198	-1.806**
	(0.419)	(0.930)	(0.413)	(0.918)
$fsize_{t-1}$	11.842***	0.918	11.774***	0.863
	(0.600)	(2.305)	(0.603)	(2.306)
roa_{t-1}	0.378***	-0.157*	0.348***	-0.153*
	(0.123)	(0.087)	(0.125)	(0.087)
lev_{t-1}	-0.003	-0.170**	0.019	-0.168**
	(0.040)	(0.070)	(0.039)	(0.070)
$lnanalyst_{t-1}$	14.486***	-2.392	14.839***	-2.459
	(1.942)	(2.392)	(1.952)	(2.386)
$HHI100_{t-1}$	1.746***	0.537	1.558***	0.514
	(0.289)	(0.611)	(0.295)	(0.609)
constant	-122.843***	32.181	-119.119***	33.638
	(9.891)	(26.479)	(10.051)	(26.169)
Observations	2038	1990	2038	1990
Adj. R^2	0.363	0.846	0.370	0.846
Firm FE	NO	YES	NO	YES
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Table 4.12
CEO influence: CEO duality and CEO share ownership (PCD Index)

The table presents moderating effect of CEO influence on the relationship between PCD variable and CEO education. The CPA-Zicklin composite index (*PCD*) is our dependent variable. *CEO-duality* indicates whether the CEO holds the dual role of chairman of the board. *CEOshrown* represents the total percentage of shares owned by the CEO. *gradDeg* represents whether the CEO has an advanced degree. Following earlier studies, non-CEO variables are lagged by one year, whereas the CEO-specific controls are measured in year t. The sample includes firms in the S&P 500 for the period 2013-2019. Heteroskedasticity robust standard errors are present in parentheses. Fixed effects are as indicated. *** p<0.01, ** p<0.05, * p<0.1.

	(1)	(2)	(3)	(4)	(5)	(6)
	PCD	*PCD*	*PCD*	*PCD*	*PCD*	*PCD*
gradDeg	5.447***	6.621***	3.569**	1.626	2.477*	2.848*
	(1.885)	(1.908)	(1.809)	(1.376)	(1.413)	(1.720)
gradDeg	-9.794***	-9.649***	-0.079			
#CEOduality	(2.537)	(2.582)	(2.259)			
gradDeg				-2.017**	-1.279	1.885
#CEOshrown				(0.967)	(0.887)	(1.374)
femCEO	2.892	3.375	-0.117	2.811	3.204	0.012
	(2.644)	(2.624)	(2.942)	(2.593)	(2.592)	(2.951)
CEOage	-0.167	-0.183	0.223	-0.118	-0.163	0.312*
	(0.128)	(0.125)	(0.172)	(0.128)	(0.126)	(0.181)
CEOtenure	-0.417***	-0.344***	0.173	-0.382***	-0.328**	0.094
	(0.126)	(0.125)	(0.166)	(0.133)	(0.131)	(0.172)
CEOduality	14.416***	13.601***	-2.384	7.686***	7.191***	-2.184
	(2.068)	(2.109)	(1.844)	(1.466)	(1.523)	(1.461)
CEOshrown	-0.339	-0.586	-1.793*	0.514	0.029	-2.649**
	(0.419)	(0.363)	(0.956)	(0.417)	(0.361)	(1.252)
$fsize_{t-1}$	11.935***	12.387***	1.615	11.969***	12.291***	1.646
	(0.602)	(0.600)	(2.383)	(0.593)	(0.602)	(2.374)
roa_{t-1}	0.397***	0.242*	-0.161*	0.405***	0.244*	-0.161*
	(0.123)	(0.128)	(0.089)	(0.125)	(0.130)	(0.089)
lev_{t-1}	-0.000	0.042	-0.178**	-0.008	0.042	-0.177**
	(0.040)	(0.043)	(0.071)	(0.039)	(0.042)	(0.072)
$lnanalyst_{t-1}$	14.475***	12.830***	-2.780	13.478***	12.187***	-2.775
	(1.918)	(1.883)	(2.419)	(1.926)	(1.898)	(2.414)
$HH100_{t-1}$	1.688***	1.827***	0.535	1.644***	1.777***	0.473
	(0.292)	(0.541)	(0.616)	(0.293)	(0.535)	(0.612)
constant	-125.876***	-126.192***	27.310	-123.194***	-121.571***	23.028
	(10.065)	(10.377)	(26.927)	(9.686)	(10.116)	(26.908)
Observations	2038	1960	1913	2038	1960	1913
Adj. R^2	0.364	0.428	0.850	0.362	0.425	0.850
Firm FE	NO	NO	YES	NO	NO	YES
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
State FE	NO	YES	YES	NO	YES	YES

Table 4.13
Panel regression: Subindices and CEO education

The table presents estimation results of panel regression with within-group estimator and the sub-indices of the PCD index as dependent variables–*Disclosure*, *Policy* and *Oversight*. The CPA-Zicklin Index has a maximum score of 72, divided into three sub-categories: *Disclosure* (36), *Policy* (18), and *Oversight* (18), each addressing disclosure-related aspects. *gradDeg* represents whether the CEO has an advanced degree. The sample includes firms in the S&P 500 for the period 2013-2019. All models include industry, year and state effects *** p<0.01, ** p<0.05, * p<0.1.

	(1)	(2)	(3)
	Disclosure	*Policy*	*Oversight*
gradDeg	2.531	4.700***	4.372**
	(2.073)	(1.549)	(1.726)
$femCEO$	-2.056	1.393	2.245
	(4.354)	(2.208)	(2.608)
CEOage	0.166	0.363**	0.195
	(0.224)	(0.151)	(0.168)
CEOtenure	0.253	0.045	0.133
	(0.207)	(0.157)	(0.161)
CEODuality	-3.138	-1.294	-2.110
	(1.907)	(1.358)	(1.455)
CEOshrown	-1.634	-2.421***	-1.482*
	(1.068)	(0.923)	(0.832)
$fsize_{t-1}$	0.931	3.778*	0.682
	(2.843)	(2.257)	(2.362)
roa_{t-1}	-0.196*	-0.127	-0.124
	(0.116)	(0.084)	(0.092)
lev_{t-1}	-0.177*	-0.190***	-0.167**
	(0.096)	(0.065)	(0.067)
$analyst_{t-1}$	-2.166	-1.868	-4.957*
	(3.005)	(2.407)	(2.628)
$HHI100_{t-1}$	1.084	-0.221	0.186
	(0.817)	(0.531)	(0.641)
constant	28.397	11.822	42.362
	(31.989)	(25.513)	(27.874)
Observations	1914	1914	1914
Adj. R^2	0.800	0.855	0.868
Firm FE	YES	YES	YES
Year FE	YES	YES	YES
State FE	YES	YES	YES

Table 4.14
State political partisanship as a moderator for Sub-indices and CEO education

The table presents estimation results of regression analysis with the sub-indices of the PCD Index–Disclosure sub-index, Policy sub-index and Oversight sub-index. The CPA-Zicklin Index has a maximum score of 72, divided into three sub-categories: *Disclosure* (36), *Policy* (18), and *Oversight* (18), each addressing disclosure-related aspects.The variable *RepVictory* represents the state (where the firms is headquartered) has had a consecutive Republican party victories in the 2008, 2012, and 2016 elections. Similarly, *DemVictory* represents the state (where the firms is headquartered) has had a consecutive Republican party victories in the 2008, 2012, and 2016 elections. *gradDeg* represents whether the CEO has a graduate degree. *onlyMBA* indicates CEOs with only an MBA degree. Heteroskedasticity robust standard errors are in parentheses. The sample includes firms in the S&P 500 for the period 2013-2019. All models include industry and year effects *** p<0.01, ** p<0.05, * p<0.1.

	(1) *Disclosure*	(2) *Disclosure*	(3) *Policy*	(4) *Policy*	(5) *Oversight*	(6) *Oversight*
gradDeg	-4.977**	3.371**	-3.139**	4.473***	-2.413	2.410
	(1.965)	(1.684)	(1.599)	(1.544)	(1.904)	(1.638)
gradDeg#RepVictory		-10.539***		-8.552***		-7.689**
		(3.173)		(2.628)		(3.068)
RepVictory		7.491***		9.360***		6.313***
		(2.414)		(1.986)		(2.298)
gradDeg#DemVictory	11.191***		10.435***		5.241*	
	(2.798)		(2.486)		(2.731)	
DemVictory	0.919		-5.316***		2.940	
	(2.238)		(2.034)		(2.166)	
$femCEO$	0.349	0.058	5.952**	6.331***	5.841*	5.657*
	(3.319)	(3.239)	(2.375)	(2.360)	(3.099)	(3.045)
CEOage	-0.169	-0.139	-0.158	-0.129	-0.282**	-0.272*
	(0.134)	(0.135)	(0.133)	(0.132)	(0.143)	(0.143)
CEOtenure	-0.433***	-0.420***	-0.405***	-0.419***	-0.515***	-0.495***
	(0.130)	(0.131)	(0.121)	(0.121)	(0.132)	(0.132)
CEOduality	8.213***	6.987***	9.664***	9.155***	11.398***	10.465***
	(1.587)	(1.602)	(1.393)	(1.394)	(1.575)	(1.573)
$HHI100_{t-1}$	1.761***	1.972***	1.392***	1.397***	1.576***	1.797***
	(0.345)	(0.339)	(0.318)	(0.306)	(0.354)	(0.351)
$fsize_{t-1}$	11.694***	11.785***	10.540***	10.550***	13.195***	13.272***
	(0.661)	(0.659)	(0.605)	(0.604)	(0.658)	(0.654)
roa_{t-1}	0.354***	0.387***	0.224*	0.225*	0.535***	0.557***
	(0.131)	(0.130)	(0.123)	(0.122)	(0.135)	(0.133)
lev_{t-1}	-0.029	-0.056	0.102**	0.091**	0.068	0.044
	(0.043)	(0.043)	(0.041)	(0.041)	(0.043)	(0.043)
$lnanalyst_{t-1}$	17.047***	16.621***	14.074***	13.906***	10.661***	10.281***
	(1.989)	(1.987)	(2.307)	(2.294)	(2.224)	(2.211)
Observations	2072	2072	2072	2072	2072	2072
Adj. R^2	0.338	0.328	0.338	0.338	0.349	0.345
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Table 4.15
CEO Influence as moderator between Subindices and CEO education

The table presents results of regression analysis with the sub-indices of the PCD Index–*Disclosure*, *Policy* and *Oversight*, as dependent variables. The CPA-Zicklin Index has a maximum score of 72, divided into three sub-categories: *Disclosure* (36), *Policy* (18), and *Oversight* (18), each addressing disclosure-related aspects. *CEOduality* indicates whether the CEO holds the dual role of chairman of the board. *CEOshrown* represents the total percentage of shares owned by the CEO. *gradDeg* represents whether the CEO has an advanced degree. Following earlier studies, non-CEO variables are lagged by one year, whereas the CEO-specific controls are measured in year t. The sample includes firms in the S&P 500 for the period 2013-2019. Heteroskedasticity robust standard errors are present in parentheses. Fixed effects are as indicated. *** p<0.01, ** p<0.05, * p<0.1.

	(1) *Disclosure*	(2) *Policy*	(3) *Oversight*	(4) Disclosure	(5) Policy	(6) Oversight
gradDeg	5.297**	8.435***	6.930***	1.630	4.411***	2.049
	(2.106)	(1.963)	(1.996)	(1.598)	(1.386)	(1.547)
gradDeg	-8.747***	-9.712***	-10.765***			
#CEOduality	(2.941)	(2.503)	(2.790)			
gradDeg				-1.342	-1.586*	-0.900
#CEOshrown				(0.940)	(0.897)	(1.005)
$fsize_{t-1}$	12.340***	11.431***	14.063***	12.268***	11.355***	13.944***
	(0.691)	(0.585)	(0.669)	(0.693)	(0.588)	(0.671)
roa_{t-1}	0.234*	0.118	0.393***	0.237*	0.121	0.394***
	(0.138)	(0.127)	(0.140)	(0.139)	(0.129)	(0.143)
lev_{t-1}	-0.011	0.114***	0.084*	-0.012	0.113***	0.085*
	(0.048)	(0.043)	(0.046)	(0.047)	(0.042)	(0.045)
$lnanalyst_{t-1}$	15.020***	12.157***	8.700***	14.350***	11.371***	8.208***
	(1.995)	(2.097)	(2.104)	(2.014)	(2.097)	(2.143)
CEOtenure	-0.387***	-0.257**	-0.338**	-0.367**	-0.234*	-0.334**
	(0.138)	(0.122)	(0.139)	(0.144)	(0.125)	(0.146)
CEOage	-0.156	-0.131	-0.297**	-0.133	-0.103	-0.286**
	(0.138)	(0.128)	(0.142)	(0.140)	(0.129)	(0.141)
femCEO	0.848	5.297**	5.996**	0.700	5.135**	5.789*
	(3.235)	(2.398)	(2.996)	(3.191)	(2.376)	(3.001)
CEOduality	11.774***	13.950***	16.237***	5.879***	7.363***	9.314***
	(2.417)	(2.078)	(2.264)	(1.723)	(1.485)	(1.698)
CEOshrown	-0.238	-0.766*	-1.106**	0.377	-0.054	-0.583
	(0.378)	(0.394)	(0.442)	(0.354)	(0.444)	(0.459)
$HH1100_{t-1}$	2.143***	1.383***	1.621***	2.099***	1.335***	1.559**
	(0.631)	(0.457)	(0.627)	(0.623)	(0.456)	(0.624)
Observations	1961	1961	1961	1961	1961	1961
Adj. R^2	0.384	0.416	0.415	0.382	0.413	0.410
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
State FE	YES	YES	YES	YES	YES	YES

Appendices

A Variables definition

The following table provides definition for all the variables used in the chapter.

Variables	Definition
Panel A: Dependent Variables	
Raw PCD	Total score of all the indicator measures
PCD (%)	(Raw PCD score/ 72) $\times$ 100
CPA	Dummy variable for PCD percentage: 1 if PCD (%) $\geq$ 20% and 0 otherwise.
Disclosure	(Raw Disclosure Sub-Index score/ 36) $\times$ 100 (%)
Policy	(Raw Policy Sub-Index /18) $\times$ 100 (%)
Oversight	(Raw Oversight Sub-Index/ 18) $\times$ 100 (%)
Panel B: Independent Variable and Controls	
onlyMBA	ONLY MBAs degree holder
onlyLAW	ONLY LAW degree holder
onlySTEM	ONLY STEM degree holder
gradDeg	CEOs with a graduate degreee, i.e., beyond BA, BSc, etc.
CEOtenure	# Years as CEO (==> CEO tenure/365)
CEOtenure2	Dummy variable 1 if CEO tenure years < 3 and 0 otherwise
CEOage (yrs)	ln(CEO Age)
femCEO	Dummy variable with 1 for female CEO and 0 otherwise
CEOduality	CEO's dual role as both Chairperson and CEO (1 for yes and 0 for no)
CEOshrown	% Total Shares owned by CEO
fsize	firm size proxied by Ln(Total Assets)
lev	leverage ratio measured as ratio of Total liabilities to total assets
roa	profitability measured as return on asset
lananalyst	ln(Average number of analyst providing EPS estimates for a year)
BODsize	ln(Number of directors)
BODindepen	ln(number of independent board of directors)
femBOD	1- ratio of male proportion of BOD
BODnationality	Percentage of diversity on the board of directors
percinstholding	Average % Institutional holdings (Institutional Investor Holdings)
avinstnum	Average number of institutional investors (Institutional Investor Number)
lnavinstnum	ln (1+ Average number of institutional investors (Institutional Investor Number))
HHI100	Herfindahl-Hirschman Index computed using average sales $\times$ 100
RepVictory	1 if headquartered in a state where Republican party victories in the 2008, 2012, and 2016 elections and 0 otherwise
DemVictory	1 if headquartered in a state with consecutive Democratic party victories in the 2008, 2012, and 2016 presidential elections and 0 otherwise

B CPA-Zicklin Index (PCD Index)

The CPA-Zicklin Index is obtained from a unique database collaboratively generated by the CPA and the Carol and Lawrence Zicklin Center for Business Ethics Research (CPA-Zicklin, 2011-2018) The CPA-Zicklin Index is an objective measure that uses 24 indicators to evaluate companies' disclosure practices and policies regarding expenditures and accountability. It does not encompass company spending on lobbying or contributions to political action committees.

It is the sole measure assessing the transparency and accountability in political expenditures within publicly traded U.S. corporations. Each company's index rating is solely based on the disclosure policies and reports regarding political contributions that companies make publicly available on their websites. This index has a maximum score of 72. The actual sum adds up to 70. However, one of the reference questions asks for a Yes or No response: "Does the company have a publicly available policy permitting political contributions only through voluntary employee-funded PAC contributions?" Other studies such as (DeBoskey et al., 2018*a*; Goh et al., 2020), code Yes=2 and No=0. We follow the same approach, so our total score for CPA-Zicklin Index is 72.

It comprises three subcategories: *Disclosure* (36 out of 72), *Policy* (18 out of 72) and and *Oversight* (18 out of 72). As noted earlier, the maximum score for *Policy* sums up to 16. However, one of the reference questions asks for a Yes or No response: "Does the company have a publicly available policy permitting political contributions only through voluntary employee-funded PAC contributions?". We follow previous studies and code Yes=2 and No=0. Thus, our total score for policy sub-index is 18. These subcategories address distinct facets of the disclosure process. Consequently, the CPA-Zicklin Index scores in our dataset represent a percentage of the total value. Overall, in addition to disclosure, the CPA-Zicklin Index assesses whether a company has established clear guidelines (the "Policy" sub-index) and whether the board of directors actively oversees political contributions (the "Board Oversight" sub-index).

Research analysts periodically collect this information under the supervision of CPA staff and do not consider previous year scores. This approach ensures that firms are assessed according to their present disclosure practices and policies (CPA Zicklin Report, 2018). In May, the CPA sends letters to the S&P 500 to inform them about the project and includes a copy of the indicators used for evaluating businesses. The CPA-Zicklin index for a "t" year is released in late September or early October of the "t+1" year. Each company has ten days to

review its preliminary scores.

In the scoring key below, a qualitative response of “Yes” or “Not Applicable” to an indicator is given the maximum score, a qualitative response of “Partial” is given half of the maximum score, and a qualitative response of “No” is given a score of 0. This scoring key is taken from 2015 CPA-Zicklin Index Report.

Sub-Index	# #	Indicator	Max Score
Disclosure	1	Does the company publicly disclose corporate contributions to political candidates, parties and committees,including recipient names and amounts given?	4
	2	Does the company publicly disclose payments to 527 groups, such as governors associations and super PACs,including recipient names and amounts given?	4
	3	Does the company publicly disclose independent political expenditures made in direct support of or opposition to a campaign, including recipient names and amounts given?	4
	4	Does the company publicly disclose payments to trade associations that the recipient organization may use for political purposes?	6
	5	Does the company publicly disclose payments to other tax-exempt organizations, such as 501(c)(4)s, that the recipient may use for political purposes?	6
	6	Does the company publicly disclose a list of the amounts and recipients of payments made by trade associations or other tax exempt organizations of which the company is either a member or donor?	2
	7	Does the company publicly disclose payments made to influence the outcome of ballot measures, including recipient names and amounts given?	4
	8	Does the company publicly disclose the company's senior managers (by position/title of the individuals involved)who have final authority over the company's political spending decisions?	2
	9	Does the company publicly disclose an archive of each political expenditure report, including all direct and indirect contributions, for each year since the company began disclosing the information (or at least for the past five years)?	4
Policy	10	Does the company disclose a detailed policy governing its political expenditures from corporate funds?	6
	11	Does the company have a publicly available policy permitting political contributions only through voluntary employee- funded PAC contributions?	Yes/No
	12	Does the company have a publicly available policy stating that all of its contributions will promote the interests of the company and will be made without regard for the private political preferences of executives?	2
	13	Does the company publicly describe the types of entities considered to be proper recipients of the company's political spending?	2
	14	Does the company publicly describe its public policy positions that become the basis for its spending decisions with corporate funds?	2
	15	Does the company have a public policy requiring senior managers to oversee and have final authority over all of the company's political spending?	2
	16	Does the company have a publicly available policy that the board of directors regularly oversees the company's corporate political activity?	2
Oversight	17	Does the company have a specified board committee that reviews the company's policy on political expenditures?	2
	18	Does the company have a specified board committee that reviews the company's political expenditures made with corporate funds?	2
	19	Does the company have a specified board committee that reviews the company's payments to trade associations and other tax-exempt organizations that may be used for political purposes?	2
	20	Does the company have a specified board committee that approves political expenditures from corporate funds?	2
	21	Does the company have a specified board committee, composed entirely of outside directors, that oversees its political activity?	2
	22	Does the company post on its website a detailed report of its political spending with corporate funds semiannually?	4
	23	Does the company make available a dedicated political disclosure web page found through search or accessible within three mouse-clicks from homepage?	2
	24	Does the company disclose an internal process for or an affirmative statement on ensuring compliance with its political spending policy?	2
		TOTAL MAXIMUM RAW SCORE	70

C Linear Probability Model

We also estimate LPM model to explore the relationships between the CEO's educational background and the level of political contribution disclosure:

$$PCD = \alpha_0 + \beta EDUCATION + \theta X_{i,t-1} + \gamma C_{i,t} + \rho_j + \mu_t + \varepsilon_{i,t}$$

where PCD presents the dependent variable representing the political contribution disclosure. Our primary independent variable is *EDUCATION*, which captures the CEO's educational background. We use multiple proxies for the CEO's education: (1) *gradDeg* , which is a binary variable that takes the value 1 if the CEO has an advanced degree, and 0 if no advanced degree and (2) Individual education category dummies such as *onlyMBA*, *onlyLAW* and *onlySTEM*, to capture whether the CEO's background exclusively aligns with MBA, LAW, or STEM, respectively. $X_{i,t-1}$ represents our non-CEO related control variables whereas C_{it} accounts for CEO-related variable respectively. Following previous research, we lag non-CEO variables by one year, whereas we measure CEO-specific controls in the same year t. These control variables are lagged by one year to minimise simultaneity concerns; CEO variables such as education, tenure, age, share-ownership, and duality are based on the current year. The PCD index for a firm stays roughly the same for multiple years, so there is more of a between variation than a within variation. We incorporate industry- and time-specific effects as ρ_j and μ_t, respectively, and as usual, $\varepsilon_{i,t}$ is the error term.

Although LPM provides a direct way to examine the association between the education and PCD variables, it assumes a linear relationship between the education variables and the binary outcome. This can lead to problematic predictions, including probabilities outside the [0,1] range, which are not valid probabilities for binary outcomes (Asteriou and Hall, 2021).

Table C1 presents the estimated coefficients from our linear probability

model (LPM). The estimated coefficients are percentage points in all models. The dependent variable, *CPA*, is a binary variable capturing whether a firm discloses political spending information or withholds it. Column (1) presents the predicted probabilities for *gradDeg*, which is positive and significant, suggesting that the likelihood of disclosing political spending information increases by 3.4% for CEOs with advanced degrees compared to those without. This positive and statistically significant relationship indicates a potential connection between CEOs' education levels and their willingness to disclose political contributions.

Columns (2)-(4) presents estimations for each specific type of degree. In column (2), where our main variable of interest is CEOs with MBA (*onlyMBA*), we see a positive and statistically significant coefficient. CEOs with MBAs are 5.4% more likely to have a higher level of corporate political spending disclosure relative to CEOs without MBAs. This direction of effect is in alignment with our hypothesis 2. However, *onlyLAW* and *onlySTEM* have negative predicted probabilities that are not statistically significant. The positive coefficient associated with *gradDeg* and *onlyMBA* aligns with our hypothesis (1) and (2), respectively, suggesting that advanced degrees influence the disclosure of political spending information and higher disclosure is more likely to be associated with MBA CEOs.

While the LPM model output provides some insights into the direction of the relationship between our education variable and political disclosure, it is not the most suitable model as our constructed dependent variable is a dummy variable (0/1). This means we may encounter multiple problems, including out-of-range predicted probability.

Table C1
OLS regression for CEO education and voluntary disclosure of political spending information

The table presents estimations for Linear Probability Model with a dummy *CPA* as the dependent variable and *EDUCATION* as primary independent variable. *CPA* equals 1 if PCD index percentage is equal or greater than 20 and 0 otherwise. *EDUCATION* is our main independent variable of interest, which captures the CEO's educational background. We have multiple measures to proxy for the CEO's education. *gradDeg* is a binary variable, which represents whether the CEO has an advanced degree, i.e., 1 if the CEO has an advanced degree and 0 if the CEO has no advanced degree (this does not include advanced managerial placement courses). This variable does not account for the advanced managerial practice degrees. *onlyMBA/Law/STEM* indicates CEOs with only an MBA, LAW, or STEM degree. Individual education category dummies such as *MBA*, *LAW* and *STEM*, represent CEOs with only MBA, LAW, or STEM degrees, respectively. We have $X_{i,t-1}$ representing our non-CEO control variables and C_{it}. Following earlier studies, non-CEO variables are lagged by one year, whereas the CEO-specific controls are measured in year t. As usual, $\varepsilon_{i,t}$ is the error term, while ρ_j and μ_t are industry- and time-specific effects, respectively. *** p<0.01, ** p<0.05, * p<0.1

	(1) CPA	(2) CPA	(3) CPA	(4) CPA
gradDeg	0.034*			
	(0.019)			
onlyMBA		0.054***		
		(0.019)		
onlyLAW			-0.021	
			(0.035)	
onlySTEM				-0.037
				(0.034)
$fsize_{t-1}$	0.160***	0.161***	0.162***	0.161***
	(0.009)	(0.009)	(0.009)	(0.009)
roa_{t-1}	0.004**	0.004**	0.004**	0.004**
	(0.002)	(0.002)	(0.002)	(0.002)
lev_{t-1}	0.001*	0.001*	0.001*	0.001*
	(0.001)	(0.001)	(0.001)	(0.001)
$lnanalyst_{t-1}$	0.177***	0.179***	0.176***	0.179***
	(0.032)	(0.032)	(0.032)	(0.032)
CEOtenure	-0.005***	-0.005***	-0.005***	-0.005***
	(0.002)	(0.002)	(0.002)	(0.002)
CEOage	-0.002	-0.002	-0.002	-0.002
	(0.002)	(0.002)	(0.002)	(0.002)
femCEO	0.111***	0.110***	0.112***	0.110***
	(0.037)	(0.038)	(0.038)	(0.038)
CEOduality	0.142***	0.142***	0.141***	0.140***
	(0.021)	(0.022)	(0.022)	(0.022)
CEOshrown	0.003	0.003	0.003	0.003
	(0.006)	(0.006)	(0.006)	(0.006)
$HHI100_{t-1}$	0.014***	0.013***	0.013***	0.013***
	(0.005)	(0.005)	(0.005)	(0.005)
_cons	-1.572***	-1.594***	-1.526***	-1.528***
	(0.187)	(0.187)	(0.185)	(0.186)
Observations	2039	2039	2039	2039
Adj $.R^2$	0.324	0.326	0.323	0.323
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Table C2
Percentage coverage of firms by year (2013-2019)

	2013	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Total CPA-Zicklin Index firms	195	299	497	493	499	493	496
Current Study coverage	176	290	468	488	493	488	472
% coverage of firms	90.26	96.99	94.16	98.99	98.80	98.99	95.16

Chapter 5

Conclusion

A nuanced understanding of corporate responsibility and accountability is crucial in today's business landscape, characterised by increased stakeholder scrutiny, media attention, and a rising demand for transparency, applicable to both mandatory and voluntary corporate actions. In this context, this thesis explores two interconnected aspects of corporate accountability: CSR and CPR. By exploring these interconnected fields, we navigate the intricate domain of corporate responsibility and accountability across three independent essays, contributing to both economics and finance literature with insights through analyses conducted within both emerging and developed economies.

Our first investigation reveals that mandating CSR spending can have unintended consequences, as evidenced by an increased stock price crash risk. We attribute this to the differing intrinsic motivations behind mandatory CSR engagement (compared to voluntary). When CSR activities are driven solely by compliance, the positive effects of voluntary CSR, such as reduced information asymmetry and increased transparency, may not fully materialise. As a result, managers may resort to delaying the disclosure of negative news and engaging in earnings manipulation to circumvent regulation, ultimately amplifying crash risk. Our findings, supported by various robustness checks, align with previous studies by Manchiraju and Rajgopal (2017) and Grewal et al. (2019), which also

observed negative outcomes associated with the CSR-135 rule.

Our second investigation delves into the impact of mandatory CSR spending on firm-specific stock price informativeness, utilising IV analysis and the DiD method to establish causality. We document that compulsory CSR engagement fails to enhance stock price informativeness, potentially due to the eroded signalling value. Voluntary CSR activities, as noted by Albuquerque et al. (2019), effectively signal a firm's distinct values, a benefit that mandatory CSR dilutes by enforcing uniform participation, thereby diminishing the informational value of CSR activities. Our conclusions, corroborated by robustness and placebo tests, echo findings in the Chinese context by Guo et al. (2022).

Finally, our third investigation examines corporate accountability in the context of voluntary political disclosure within the U.S. market. Building upon our earlier exploration of managerial motivation, we investigate the factors driving voluntary disclosure of corporate political contributions. Drawing on Upper Echelon Theory, we find that a CEO's educational background, particularly MBA, significantly influences their disclosure practices, with MBA-educated CEOs more inclined towards transparency in political contributions. This suggests that higher education levels may enhance CEOs' appreciation for the importance of transparency and accountability, supporting similar findings by Lewis et al. (2014*a*) on CEO background and environmental disclosure.

5.1 Discussions and implications

This thesis investigated the intricate dimensions of corporate accountability, focusing on how firms navigate varying settings for accountability.

Rather than evaluating CSR's inherent value, our research sheds light on the limitations of blanket mandatory CSR policies, especially their disproportionate effects on firms close to the regulatory threshold, a concern accentuated in emerging markets where financial limitations are prevalent. Imposing broad

social progress responsibilities on these firms might not effectively foster responsible corporate behaviour, highlighting the need for CSR policies that are specifically tailored to the unique challenges faced by emerging economies.

Moreover, implementing CSR mandates without authentic commitment could echo the historical practice of indulgences in Catholicism, where financial contributions were viewed as a means to offset past misdemeanours[1]. Analogously, fixed-percentage CSR mandates could be seen as atoning for social irresponsibility without fostering genuine corporate accountability and responsibility.

Our analyses reveal that superficial mandatory CSR regulations, devoid of intrinsic motivation, may be counterproductive. They could lead to practices like delayed negative news disclosure and weakened signalling effectiveness. Simply enforcing CSR participation without nurturing authentic motivations is unlikely to lead to substantial changes in corporate conduct. Policymakers must consider these potential drawbacks when devising CSR frameworks that aim to achieve positive social and environmental impacts (Gatignon and Bode, 2023; Parameshwaran, 2023). We recommend that policymakers include impact assessment provisions in the policy formulation. The aim is for mandated impact measurements to lead to more meaningful outcomes, moving beyond mere compliance to demonstrate how corporate activities concretely benefit society and the environment, potentially transforming the implications of such policies.

In essence, our findings elucidate how firms' motivations shape their decision-making processes and the broader implications of mandatory CSR regulations intended to promote ethical business practices. These insights are valuable for policymakers crafting mandates to bolster corporate responsibility

[1]Historically, within the medieval Catholic Church, the practice of *indulgences* played a significant role. *Indulgences* were certificates issued by the Church that were believed to lessen the temporal punishment individuals faced in Purgatory after death for their sins. While not directly granting forgiveness, indulgences were associated with claims that they could reduce the duration and severity of this punishment. The sale of *indulgences*, particularly for benefiting deceased loved ones or mitigating personal consequences for transgressions, became controversial and contributed to criticisms of the Church's practices. These criticisms played a significant role in the emergence of the Protestant Reformation (Cassone and Marchese, 1999).

and accountability towards society and the environment, considering their overall effectiveness in the marketplace.

5.2 Limitations

Our study acknowledges certain limitations that, if addressed, could have further enriched our analysis. Firstly, due to time and budget constraints, we were unable to access the Prowess IQ dataset, which might have provided deeper textual insights into CSR classifications in Chapters 2 and 3. Although this limitation does not detract from our core findings, access to such data could have enhanced the qualitative aspects of our research, offering a more comprehensive understanding of firms' approaches to CSR classifications.

In Chapter 3, we acknowledge that examining the influence of corporate governance mechanisms, such as board independence and board gender diversity, on the relationship between the CSR rule and stock price informativeness is indeed valuable. However, due to the unavailability of data on certain corporate governance variables, such as board independence and board gender diversity, we were not able to explore the influence of these channels on the relationship between mandatory CSR regulations and stock price informativeness. Although the inclusion of such governance mechanisms would have enriched the analysis, the lack of accessible data on these variables constrained the study's ability to fully explore these channels. Future research could address this limitation by incorporating these governance-related variables to provide a more comprehensive understanding of the impact of corporate governance on the effectiveness of mandatory CSR regulations.

Additionally, in Chapter 3, we considered institutional investors as a homogeneous group. While existing literature underscores the importance of distinguishing between different types of investors (e.g., mutual funds, hedge funds, insurance companies, and the distinction between green and brown investors),

our study did not explore this differentiation due to its tangential relevance to our primary research focus and the minimal impact on our central conclusions regarding the influence of investor presence on stock price informativeness. The database we used did not provide this level of detail, and we lacked access to alternative sources that could have facilitated such differentiation. Future research could address this limitation by employing more comprehensive databases that allow for the categorisation of institutional investors.

Our investigation in Chapter 4 was limited to the S&P 500 index, mirroring the scope of the CPA-Zicklin Index at the time of our research. Although the S&P 500 represents a relatively concentrated and homogenous group of companies, it encompasses eighty percent of the market capitalisation of U.S. public companies, which provides a level of generalisability to our findings. Moreover, at the time of conducting this research, the most recent data available for the index report was from 2019. Subsequent research could expand the sample size and temporal range by incorporating data from other relevant indices and more recent datasets. Also, while this study focuses on a binary distinction for clarity, future research could explore a tier-by-tier analysis to investigate potential variations in the relationship based on the level of disclosure.

Another limitation of the chapter 4 is the absence of controls for certain CEO-level characteristics, such as military experience, which could potentially be an interesting variable to explore. Due to time constraints, collecting and incorporating this data was not feasible. Future research could address this gap by including these additional CEO-level factors to provide a more comprehensive analysis of the findings and if their sample period is long, they could also control for CEO-level fixed effects.

Also, it is important to note that controlling for actual political spending would be ideal; however, due to data constraints, we were unable to include this as a control in our analysis. Specifically, acquiring data on actual political spending linked to individual CEOs has proven difficult due to issues with data

format and availability. The data are often presented in various formats that require manual collection and may be dispersed across different sources, some of which are not accessible through our university.

These limitations highlight areas for potential improvement and future research directions, suggesting that addressing these gaps could yield even more nuanced insights and enhance the overall contribution of our work to the fields of corporate finance, emerging market economies, and CSR literature.

5.3 Future work

Building upon the identified limitations, we propose several directions for future research. Future studies could engage in cross-country comparisons to assess how institutional factors such as supervisory structures, weak information systems, limited investor protection, government interventions, and market volatility (La Porta et al., 2000) moderate the relationship between mandatory CSR and its various outcomes, including firm behaviour and financial performance. This exploration would shed light on the complexities and challenges of implementing mandatory CSR policies across different settings.

Moreover, as highlighted by Christensen et al. (2021), institutional arrangements can constrain the effects of policy changes like mandatory CSR reporting. Altering individual components such as CSR engagement could lead to unforeseen repercussions within the broader institutional framework, potentially compromising overall system performance or negatively impacting the economy. Therefore, introducing mandatory CSR spending demands a comprehensive analysis of its congruence with the prevailing legal and regulatory structures. Our study did not delve into institutional compatibility; instead, it focused on market implications and underscored the variability of the CSR concept in an emerging market context. Yet, understanding the intricate interactions among various institutions in a market or country, which determine the institu-

tional fit, is crucial when assessing a policy's success. Future research could explore the institutional fit of mandatory CSR regulations within diverse legal and regulatory contexts, evaluating how the pre-existing institutional landscape might influence the policy's effectiveness.

In Chapter 4, although our research is concentrated on the U.S. firms, the relationship between CEO characteristics and political corporate disclosure practices may differ based on the specific political and regulatory backdrop. Subsequent studies could employ a cross-national approach to uncover potential disparities across countries. Additionally, the impact of CEO educational quality on corporate political transparency practices deserves attention, possibly investigating whether the alma mater of a CEO affects the extent of transparency. Another possible interesting avenue could be the military experiences of CEO and their association with disclosure of corporate political spending information.

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