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TROIS ESSAIS SUR LA RECONFIGURATION DU POUVOIR DES PARTIES PRENANTES NUMÉRIQUES, LA MÉDIATION DES COMPLEXITÉS INSTITUTIONNELLES ET L'ÉVOLUTION DE LA RÉSILIENCE ORGANISATIONNELLE

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AR	Abnormal Return
CAR	Cumulative Abnormal Return
CSR	Corporate Social Responsibility
DEI	Diversity, Equity, and Inclusion
ESG	Environment social and governance
IPO	Initial Public Offerings
MSCI	Morgan Stanley Capital International
NASDAQ	National Association of Securities Dealers Automated Quotations
NYSE	New York Stock Exchange
NGO	Non-Governmental Organization
SASB	Sustainability Accounting Standards Board
UGC	User Generated Content

RÉSUMÉ

Cette thèse comprend trois études explorant l'impact des dynamiques de communication induites par les réseaux sociaux et des pratiques ESG sur les marchés financiers et la gouvernance d'entreprise.

Dans le premier article, nous examinons l'effet des discussions sur les réseaux sociaux concernant les tendances environnementales, sociales et de gouvernance (ESG) sur la performance boursière de 74 entreprises chinoises cotées aux États-Unis, en nous appuyant sur la théorie de l'information. L'analyse de 2,110 sujets tendances sur Weibo révèle une corrélation significative entre le sentiment exprimé sur les réseaux sociaux et les fluctuations des prix des actions. Les tendances positives améliorent la performance boursière, tandis que les tendances négatives ont un effet défavorable plus marqué. Notre analyse multivariée montre en outre que les entreprises ayant une plus grande transparence en matière de responsabilité sociale des entreprises (RSE) bénéficient d'avantages supplémentaires. Cette transparence agit également comme un amortisseur face aux tendances négatives sur les réseaux sociaux, absorbant une partie de l'impact financier. Toutefois, cet effet protecteur reste insuffisant pour compenser entièrement les pénalités de marché. Nos résultats soulignent ainsi l'influence des parties prenantes secondaires sur les décisions des entreprises, contribuant à la théorie des parties prenantes. De plus, cette étude étend la théorie du signal dans le contexte des réseaux sociaux, en fournissant des recommandations pratiques aux entreprises sur la gestion des pressions exercées par les parties prenantes.

Poursuivant cette analyse, le deuxième article déplace l'attention des réactions des marchés financiers vers la performance ESG des entreprises elles-mêmes. En examinant 498 entreprises chinoises cotées aux États-Unis, à Hong Kong et en Chine continentale, nous explorons si le discours sur les réseaux sociaux constitue un levier d'amélioration des performances ESG. Nos résultats indiquent que si les discussions en ligne influencent la performance ESG, leur impact est globalement négatif, en particulier sur la gouvernance. En revanche, les discussions sur les enjeux sociaux n'exercent pas d'influence significative sur la performance ESG des entreprises. Cela suggère que, loin de faciliter les efforts ESG des entreprises, les réseaux sociaux jouent souvent un rôle critique, mettant en cause les pratiques de gouvernance des entreprises. Notre étude enrichit ainsi la littérature sur la communication en matière de RSE et la théorie de la légitimité, tout en offrant des perspectives concrètes aux décideurs politiques et aux investisseurs sur la gestion des pressions exercées par les réseaux sociaux.

Élargissant cette réflexion, le troisième article examine l'interaction plus large entre la pression des parties prenantes, l'hétérogénéité institutionnelle et la performance ESG de 498 entreprises chinoises cotées entre 2017 et 2022. Nos résultats offrent des preuves contrastées quant à l'impact de ces facteurs sur les stratégies ESG des entreprises. Si la pression des parties prenantes peut perturber la performance ESG, l'hétérogénéité institutionnelle n'a pas nécessairement d'effet négatif. Les entreprises qui lèvent des capitaux sur des marchés financiers plus développés sont souvent soumises à des réglementations externes plus strictes, ce qui favorise des améliorations en matière de gouvernance et de transparence. Ces évolutions renforcent la résilience des

entreprises et contribuent positivement à leur développement à long terme. Enfin, cette étude contribue à la littérature sur la communication en matière de RSE, la théorie des parties prenantes et la théorie institutionnelle, en apportant des éclairages précieux aux dirigeants d'entreprise et aux décideurs politiques confrontés à des pressions externes.

Mots clés: Communication ESG, Sentiment des médias sociaux, Asymétrie dans la théorie du signal, Influence des parties prenantes secondaires, Effet tampon de la transparence, Dissociation de la légitimité de la RSE, Asymétrie des pressions de gouvernance, Double tranchant du numérique, Conflit des logiques institutionnelles, Isomorphisme mimétique réglementaire, Couverture des attentes des parties prenantes

ABSTRACT

This dissertation comprises three studies exploring the impact of social media-driven communication dynamics and ESG practices on financial markets and corporate governance.

In the first paper, we examine the impact of social media discussions on Environmental, Social, and Governance (ESG) trends on the stock performance of 74 Chinese companies listed in the U.S., drawing on information theory. Analyzing 2,110 trending topics on Weibo, we find a significant correlation between social media sentiment and stock price fluctuations. Positive trends enhance stock performance, while negative trends exert a stronger adverse effect. Our multivariate analysis further reveals that companies with higher Corporate Social Responsibility (CSR) transparency experience additional benefits. This transparency also serves as a buffer against negative social media trends, mitigating a portion of the financial impact. However, this protective effect is insufficient to fully counteract market penalties. Our findings highlight the influence of secondary stakeholders in shaping corporate outcomes, contributing to stakeholder theory. Additionally, the study extends signal theory within the social media context, offering practical insights for companies on managing stakeholder pressures effectively.

Building on this analysis, the second paper shifts focus from financial market reactions to corporate ESG performance itself. Examining 498 Chinese companies listed in the U.S., Hong Kong, and Mainland China, we explore whether social media discourse serves as a catalyst for ESG improvements. Our findings indicate that while social media discussions influence ESG performance, their impact is largely negative, particularly concerning governance. In contrast, discussions related to social issues do not significantly affect firms' ESG performance. This suggests that rather than facilitating corporate ESG efforts, social media often functions as a critical force, challenging firms on governance issues. Our study enriches the literature on CSR communication and legitimacy theory while providing actionable insights for policymakers and investors on responding to social media pressures.

Expanding this inquiry, the third paper examines the broader interplay between stakeholder pressure, institutional heterogeneity, and ESG performance among 498 Chinese-listed companies from 2017 to 2022. We provide mixed evidence on how these factors shape corporate ESG strategies. While stakeholder pressure can disrupt ESG performance, institutional heterogeneity does not necessarily have a negative impact. Companies that raise capital in more developed financial markets often face stricter regulatory environments, which, in turn, drive improvements in governance standards and transparency. These enhancements significantly bolster corporate resilience and contribute to long-term development. This study contributes to the literature on CSR communication, stakeholder theory, and institutional theory, offering valuable insights to corporate managers and policymakers navigating external pressures.

Keywords: ESG Communication, Social Media Sentiment, Asymmetry in Signaling Theory, Secondary Stakeholder Influence, Buffering Effect of Transparency, Decoupling of CSR Legitimacy, Asymmetry in Governance Pressures, Digital Double-Edged Sword, Institutional Logics Clash, Regulatory Mimetic Isomorphism, Hedging of Stakeholder Expectation

INTRODUCTION GÉNÉRALE

Le concept de responsabilité sociale des entreprises (RSE) n'est pas nouveau. Dans les années 1950, il a fait son entrée dans le lexique courant avec l'ouvrage marquant de R. Bowen (1953), Social Responsibilities of the Businessman, et a progressivement gagné en importance dans l'espace public. Le 21ème siècle a vu une prolifération de normes, lignes directrices et cadres en matière de RSE, témoignant d'un intérêt mondial croissant pour la responsabilité des entreprises. Par exemple, le Pacte Mondial des Nations Unies (lancé en 2000) encourage les entreprises à adhérer à dix principes relatifs aux droits de l'homme, au travail, à l'environnement et à la lutte contre la corruption. De même, la norme ISO 26000, introduite en 2010, offre aux organisations un cadre international pour comprendre et mettre en œuvre la responsabilité sociale. Ces cadres visent à aider les entreprises à aborder la RSE de manière plus systématique. Cependant, ils n'ont pas fondamentalement transformé les opérations de nombreuses entreprises. En pratique, la RSE est souvent perçue comme un mécanisme auxiliaire pour pallier les lacunes du néolibéralisme, attirant l'attention des gestionnaires principalement lorsqu'elle présente des risques ou des opportunités significatives de gain financier. Par conséquent, de nombreuses entreprises continuent de traiter la RSE comme un outil de relations publiques visant à maintenir leur légitimité et leur réputation. Cette approche orientée par le profit réduit fréquemment la RSE à des gestes superficiels, échouant à résoudre les conflits profonds entre les entreprises et la société.

Reconnaissant les limites des cadres existants, les partisans de la RSE appellent à un changement de paradigme s'éloignant des vues purement instrumentales. Par exemple, Elving et al. (2015) soutiennent que les entreprises doivent passer d'une approche paternaliste envers les parties prenantes à un partenariat plus collaboratif et égalitaire. Cette évolution reflète la transition d'une approche statique et unidirectionnelle (Web 1.0) vers une ère d'interaction et de participation dynamique (Web 2.0). Alors que les modes de communication entre les individus et les organisations se sont transformés, les parties prenantes ne se contentent plus de flux d'information à sens unique. Elles exigent des relations plus interactives et participatives. Les médias sociaux, emblématiques de l'ère du Web 2.0, offrent un potentiel considérable pour redéfinir la relation entre les entreprises et la société (Saxton et al., 2021).

De nombreuses entreprises ont identifié les avantages des médias sociaux dans des domaines tels que le marketing, la construction de marque, l'augmentation des ventes et la communication client. Par ailleurs, des plateformes comme X (anciennement Twitter) sont également utilisées pour le recrutement en ligne afin de dénicher de nouveaux talents (Bhattacharya et al., 2008). Dans le domaine de la RSE, les médias sociaux sont souvent exploités comme des outils de diffusion d'informations (Pizzi et al., 2021), permettant aux entreprises de partager leurs ambitions en matière de responsabilité sociale et environnementale. Cependant, il est crucial de noter que les médias sociaux ne se limitent pas à des outils de communication pour les entreprises; ils représentent également des outils puissants pour d'autres acteurs.

Toute personne, qu'il s'agisse de clients, d'employés ou de membres de la communauté, peut créer et partager des informations. Grâce aux médias sociaux, ces parties prenantes racontent des histoires, développent des réseaux sociaux et construisent des récits basés sur une perspective externe plutôt que sur une perspective propre à l'entreprise, posant ainsi des opportunités et des défis aux entreprises. Par exemple, en 2018, la campagne « Save Our Species » de Lacoste a suscité un fort engagement sur plusieurs plateformes de médias sociaux, augmentant la sensibilisation aux espèces menacées et entraînant une ruée sur les produits liés à la campagne (IUCN, 2018). À l'opposé, les médias sociaux peuvent générer des risques lorsque des informations négatives se propagent rapidement. Les utilisateurs ordinaires peuvent détourner les initiatives d'autopromotion des entreprises, inonder les publications en ligne de commentaires négatifs, et provoquer des dommages potentiels à la réputation des entreprises (Lyon & Montgomery, 2013). Ainsi, la capacité de « raconter des histoires » s'est démocratisée à travers les réseaux sociaux, permettant aux parties prenantes d'utiliser ces plateformes pour influencer les dynamiques entre les entreprises et la société. Ces transformations nécessitent des stratégies nouvelles pour mesurer l'impact des voix des parties prenantes et y répondre efficacement.

Cette étude cherche à répondre aux questions suivantes:

1) Les voix des parties prenantes sur les médias sociaux ont-elles un impact significatif sur les entreprises?

2) Ces impacts sont-ils de nature à court ou à long terme?

3) La performance RSE antérieure des entreprises peut-elle atténuer les effets de discussions imprévues (particulièrement les discussions négatives)?

4) Quels contenus et sujets spécifiques sont à l'origine de ces impacts?

5) Quels facteurs modérateurs influencent ces effets?

Pour cette étude, nous avons choisi Weibo, l'une des plus grandes plateformes de médias sociaux en Chine, comptant 252 millions d'utilisateurs actifs quotidiens et 586 millions d'utilisateurs actifs mensuels à la fin de 2022. Contrairement à des plateformes anglophones telles que Facebook ou X, dont les bases d'utilisateurs s'étendent sur plusieurs pays et régions, les utilisateurs des réseaux sociaux chinois sont majoritairement basés en Chine. En outre, le « Grand Pare-feu» chinois a limité l'accès aux plateformes internationales, favorisant l'émergence de plateformes domestiques comme Weibo, WeChat et Douyin. Ces plateformes ont créé un écosystème distinct qui influence non seulement le flux d'informations, mais également les comportements et les interactions des utilisateurs. Ainsi, comparativement à leurs homologues occidentaux, les réseaux sociaux chinois mettent davantage l'accent sur le contenu local et l'identité culturelle.

Enfin, le développement économique spectaculaire de la Chine au cours des dernières décennies, marqué par l'urbanisation, la restructuration industrielle et l'évolution des habitudes de consommation, a été accompagné de nombreux conflits entre les entreprises et la société. Des problèmes tels que la pollution de l'environnement, l'épuisement des ressources, les inégalités sociales et les droits des travailleurs ont déclenché de vastes discussions publiques sur les médias sociaux, souvent reprises comme sujets d'actualité. Ces discussions représentent des réponses directes des citoyens chinois aux phénomènes socio-économiques et politiques, offrant ainsi une perspective unique pour la recherche.

Le choix de Weibo repose sur trois arguments principaux. Premièrement, il s'agit d'une plateforme publique axée davantage sur les interactions entre inconnus que sur un réseau de connaissances, avec un contenu majoritairement accessible à tous les utilisateurs. Cela favorise la formation de l'opinion publique. Deuxièmement, la liste des tendances de Weibo est actualisée

chaque minute selon les sujets et leur popularité, affichant les 50 sujets principaux. Contrairement à X, où les tendances sont personnalisées selon les abonnements, les intérêts et la localisation des utilisateurs, les tendances sur Weibo sont uniformes pour tous. Troisièmement, le classement des recherches populaires de Weibo repose sur le comportement des utilisateurs, les discussions et les activités de diffusion, reflétant collectivement l'attention et l'interaction des utilisateurs. De plus, Weibo dispose d'un mécanisme pour identifier et exclure les comportements de comptes automatisés et d'afficheurs payés. Par exemple, Weibo identifie ces comptes à travers des caractéristiques telles que le ratio abonnés/abonnements, la présence d'une photo de profil, le statut de vérification et le niveau de détail des informations personnelles.

Pour construire notre échantillon d'étude, nous avons utilisé trois catégories de mots-clés: (1) les noms complets et abrégés des entreprises chinoises cotées, (2) les noms de leurs fondateurs, et (3) les variations linguistiques associées à ces termes (p. ex., acronymes ou traductions anglaises pour les entreprises listées à l'étranger). Cette approche permet une identification exhaustive des entreprises cibles, tout en minimisant les biais de sélection liés aux désignations multiples. Ces termes ont été entrés dans l'API de recherche Weibo, qui a renvoyé tous les enregistrements de tendances correspondant aux critères. Plusieurs cycles de filtrage des données ont été effectués pour garantir leur pertinence et leur précision. Spécifiquement: 1) Nous avons éliminé toutes les tendances répétées. 2) Nous avons retiré les tendances non liées aux activités des entreprises ou à la RSE, y compris celles impliquant des entreprises ou fondateurs aux noms similaires mais sans rapport avec les entreprises ciblées. 3) Pour les discussions concernant un même événement ou des discussions dérivées, seule l'entrée initiale (généralement celle ayant la plus grande participation) a été conservée.

Après le nettoyage des données, notre échantillon final comprend 10,591 discussions de tendances RSE liées à 498 entreprises chinoises uniques. L'ensemble de données couvre les entreprises cotées dans trois principales places boursières: la Chine continentale (281 entreprises cotées à Shanghai et Shenzhen), Hong Kong (143 entreprises cotées à la Bourse de Hong Kong) et les États-Unis (74 entreprises cotées au NASDAQ et à la Bourse de New York).

Après avoir comparé diverses approches de codage, nous avons adopté une méthode de codage manuel pour classer les discussions de tendances Weibo. Chaque tendance a été classée selon son

sentiment (positif, neutre ou négatif) et son association avec les trois dimensions ESG: environnement, sociétal ou gouvernance.

Notre analyse révèle que les discussions de tendances sur Weibo influencent significativement les prix des actions. Les discussions positives ont un impact positif sur la valeur boursière des entreprises, tandis que les discussions négatives exercent une influence négative, indiquant que les marchés financiers considèrent Weibo comme une source d'information supplémentaire. De plus, la performance ESG d'une entreprise joue un rôle modérateur: les entreprises ayant une meilleure performance ESG font face à des attentes plus élevées et à un examen plus strict, mais leur transparence accrue offre une certaine protection, atténuant l'impact des discussions négatives. Cependant, cet effet tampon est insuffisant pour neutraliser complètement les effets négatifs de l'opinion publique sur Weibo.

En étendant l'analyse aux impacts à long terme, nous constatons que les discussions sur Weibo ont un impact négatif sur la performance ESG des entreprises chinoises. Une classification supplémentaire des discussions publiques en sujets liés à la dimension sociétale et à la gouvernance révèle que les effets négatifs observés sont principalement dus aux discussions liées à la gouvernance. Tandis que les sujets de gouvernance reflètent un impact globalement négatif, les discussions sociétales — qu'elles soient positives ou négatives — n'influencent pas significativement les activités de RSE.

Enfin, nos résultats montrent que le lieu de cotation des entreprises atténue l'impact négatif des discussions publiques sur Weibo. Les entreprises chinoises cotées sur les marchés étrangers sont soumises à une réglementation différente et à des attentes plus élevées de la part des parties prenantes, renforçant leur résilience et leur permettant de résister partiellement à la pression des parties prenantes.

Cette recherche est structurée comme suit: Le premier article examine les effets à court terme des discussions sur les tendances Weibo sur la valeur marchande des entreprises cotées. Le deuxième explore l'influence à long terme des tendances Weibo sur la performance ESG des entreprises. Le troisième analyse le rôle modérateur de l'environnement institutionnel des entreprises sur la relation à long terme entre les tendances Weibo et la performance RSE des entreprises.

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CHAPITRE I

ARTICLE 1

CSR IN THE SPOTLIGHT: NAVIGATING THE COMPLEXITIES OF SOCIAL MEDIA INFLUENCE ON US-LISTED CHINESE FIRMS' VALUE

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CSR IN THE SPOTLIGHT: NAVIGATING THE COMPLEXITIES OF SOCIAL MEDIA INFLUENCE ON US-LISTED CHINESE FIRMS' VALUE

Abstract

Social media has permeated everyday life, providing platforms for information dissemination, personal sharing, and maintaining interpersonal connections. Its role in the business domain has become equally pivotal, serving as a vital conduit for corporate communication, consumer engagement, and community interaction. Crucially, social media levels the communicative playing field, empowering stakeholders previously devoid of a voice to amplify their concerns and rally like-minded individuals, potentially exerting substantial influence on corporate entities. Drawing on information theory, this study examines the impact of social media discussion surrounding Environmental, Social, and Governance (ESG) trends on the stock performance of 74 Chinese companies listed on the US stock market. In this study, "trend" refers to a burst of collective attention on social media surrounding ESG-related topics, typically captured by the volume and temporal concentration of relevant posts or discussions. Analyzing 2,110 Weibo trending topics, our findings reveal a significant correlation between social media sentiment and stock price fluctuations. Positive trends yield a favorable effect, while negative ones incur an adverse impact, with the latter exhibiting greater significance. Furthermore, our multivariate analysis indicates that companies with higher CSR transparency enjoy additional benefits, which also act as a buffer during instances of negative social media trend, absorbing a substantial portion of the costs. However, this protective mechanism is not sufficient to counteract all impacts, and companies still face significant market penalties. Our findings not only demonstrate the capacity of secondary stakeholders to influence corporate actions, enriching the literature on stakeholder theory, but also extend signal theory within the context of social media. This provides pragmatic suggestions for companies on how to navigate stakeholder pressures effectively.

Keywords: ESG Communication, Social Media Sentiment, Asymmetry in Signaling Theory, Secondary Stakeholder Influence, Buffering Effect of Transparency

1.1. Introduction

The corporate social responsibility (CSR) has long been seen as the antidote of conflicts between business and society. Yet the majority of current CSR standards, codes and guidelines is more like a peripheral function, more specifically, a reputation-conscious public relation tool, rather than a new paradigm of a more equal, collaborative partnerships between companies and stakeholders. And the prevalence of social media has the opportunity to change this.

Many companies have identified the benefits of social media in marketing, and have used it for brand building, increased sales, and customer communication. Also, social media like Twitter is used as a tool for online recruitment to uncover new talents (Bhattacharya et al., 2008). In the area of CSR, social media is used as a broadcasting tool without exception to disseminate information (Pizzi et al., 2021) about its ambitions to address social and environmental issues. However, most people ignore the important fact that social media is also a powerful tool for stakeholders. Anyone including customers, employees, community members are allowed to create information and share it. They tell stories, develop a social network, and build narratives based on a stakeholder's perspective rather than business, posing challenges to corporations. For example, in early March 2023, a lady used social media to expose discriminatory hiring practices by NIO, an electric vehicle manufacturer. After a six-month internship in NIO's autonomous driving research department, she was rejected for a full-time position because the HR manager deemed her a "risk." She claimed that this was because she had managed to report a male colleague for attempted sexual assault and had the perpetrator sent to prison. Her post quickly drew widespread attention, with related hashtags trending on Weibo, causing the company's stock price to fall and forcing it to respond and promise a thorough investigation and reform.

Challenges arising from social media are becoming more prevalent, necessitating an examination of how stakeholder voices on these platforms influence companies, particularly in terms of financial performance. The main purpose of this research is to analyze the prevalence of CSR-related trending topics on Weibo, one of China's most popular social media platforms, and examine their impact on the stock market. Given that most Weibo posts are public, they provide a fertile ground for shaping public opinions. Weibo offers a trending topics list that features the top 50 popular subjects daily, based on user engagement, closely resembling Twitter Trends. Notably,

Weibo's trending topics are unified across the platform rather than being tailored to individual users' locations, interests, or following.

Moreover, we propose to explore whether market responses differ based on a company's CSR transparency. In other words, are companies with robust CSR track records less adversely affected during social media crises? More specifically, we investigate whether companies gain credibility from their previous CSR disclosures and if this leads to increased trustworthiness in the market's perception.

To retrieve the trend records of our sample companies, we initially obtained a comprehensive list of Chinese companies from the U.S.-China Economic and Security Review Commission, which included 252 firms raising capital on various U.S. securities markets. Subsequently, we accessed a third-party social media trend archival website, Weibo Trends Search Engine1, which offers free services, to conduct searches using the full names, abbreviations, and founders' names of these companies. This process yielded an initial sample of 4,202 Weibo trends related to 84 companies. Further, we tapped into the Weibo API to acquire more detailed data based on our initial sample, which included descriptions of the trends, their popularity, and the hottest user generated content (UGC) within these trends. We carefully scrutinize the text content to determine whether a trend is related to Environmental, Social, and Governance (ESG) issues, based on the interpretative framework for NGO tweets initiated by Dupire et al. (2021). After multiple screening rounds, we have a final sample containing 2,110 Weibo trends involving 74 unique firms over a five-year period from May 10, 2017, to May 10, 2022. Given that user-generated content on social media is often too subtle and contains a large number of slangs, popular terms, and phrases, we manually coded the sentiment and ESG dimension of each trending topic.

Our study reveals that social media trends concerning CSR issues significantly influence the stock market. Positive social media trends typically bolster stock performance, whereas negative trends tend to detrimentally affect it. This underscores the power of visible stakeholder discussions on social media in shaping a company's market valuation. Additionally, we observe that companies with greater transparency in their CSR often receive more favorable market responses. Importantly, this enhanced market response driven by CSR transparency serves as an

effective buffer against negative social media trends, substantially mitigating potential losses for the company.

Moreover, our observations indicate a stark contrast between the social media discourse of stakeholders and that of industry experts and scholars. In comparison to scholars and experts who tend to focus more on environmental and governance pillars, stakeholders demonstrated a marked preference for social issues such as consumer rights, employee well-being, and community concerns. This discrepancy may be attributed to the fact that social issues 1) have a more direct impact on the personal interests of stakeholders, and 2) may require less specialized expertise than the other two pillars, making them more accessible for average users to engage in.

This study contributes significantly in several areas. Firstly, it provides empirical evidence supporting the signaling role of social media, showing that discussions on CSR topics have a significant influence on the financial market. This influence is attributed not only to the timeliness of the information social media provides but also to its role as a digital-era public square. It offers a platform for the general public to express opinions and engage in dialogue, providing investors with complementary perspectives. Additionally, our research confirms that a firm's transparency regarding its CSR efforts functions as a quality signal, suggesting that firms with superior CSR disclosures are more adept at managing social media trends, especially negative ones, thereby reducing associated costs.

Secondly, this research enriches stakeholder theory in the context of social media, affirming that secondary stakeholders, including the general public and communities, are able to substantially impact a firm. Social media acts as a potent tool and platform, enabling stakeholders to swiftly unite and form coalitions to press companies to respond to their demands. This evolution from passive information recipients to active agents signifies a pivotal transformation in the dynamic between companies and stakeholders. It necessitates an expansion of the current theoretical frameworks by stakeholder scholars to better navigate the business and societal relationships in the digital era.

Similarly, our findings hold practical implications for corporate managers in their CSR communication strategies. Beyond our earlier observation that companies are losing dominating

position over CSR communication due to stakeholders' empowerment through digital tools, it is crucial to note stakeholders exhibit preferences in CSR concerns that differ markedly from those in the industry and academia. They show a greater interest in the social aspects of ESG, as opposed to the environmental issues favored by the investment community. This suggests that the general public is likely to establish a narrative centered around stakeholder interests, rather than corporate benefits, on social media—the civic square—potentially becoming a 'grey rhino' event for corporate sustainable development strategies. This poses a fundamental challenge to a company's CSR communication strategy. Only by respecting stakeholders and engaging with them sincerely can firms gain their trust and develop effective and stable sustainable development strategies.

The remainder of this paper is organized as follows. Section 2 discusses the theoretical background and explains how the discussion of stakeholders on social media act as signals to the stock market. Section 3 presents the particulars of the data, variables, and methodology. Section 4 elaborates on the various analyses employed and presents the results obtained. Finally, Section 5 offers a comprehensive discussion.

1.2. Theoretical Background and Hypotheses Development

1.2.1. Signaling Theory

Signaling theory has its origins in the pioneering work of Spence (1973), who proposed that there are information asymmetries in the job market. Employers rely on the diploma, which is a typical signal of applicants' potential abilities and skills, to distinguish them from their low-quality peers. Likewise, there are also information asymmetries between managers and external stakeholders. External stakeholders, especially those with limited information on the potential value of the company, are eager to gather timely information about whether they should buy, maintain or sell their existing shares (Connelly et al., 2011). They seek signals, such as CSR-related news (Sekerci et al., 2021), acquisition practices (Francis et al., 2008) or income announcements (Karpoff et al., 2008), to establish their perception of the company and make investment decisions, as mirrored by stock price fluctuations.

CSR is defined as "context-specific organizational policies and actions that take into account the expectations of stakeholders and the triple bottom line of economic, social, and environmental performance" (Aguinis, 2011, p. 855, as cited in Sekerci et al., 2021). CSR-related information serves as an important signal for external stakeholders for several reasons. Firstly, participation in CSR can be viewed as a signal that the company cares about its stakeholders and values sustainability practices (Connelly et al., 2011). When a firm invests time and effort in building and maintaining sustainable connections with stakeholders, it is likely to reduce conflicts between the business and the society where it operates or even creates positive ethical capital that may protect the firm from future risks (Godfrey et al., 2009). Secondly, the high engagement of CSR helps the firm obtain more positive responses from stakeholders and create more opportunities. Based on mutual understanding and partnerships, the firm increases opportunities by better understanding the fast-changing environment and gains competitive advantage and reputation, leading to a better understanding of collaboration-based value maximization (Godfrey et al., 2009). Thirdly, given the amount of financial and human resources required for such activities, engagement in CSR conveys positive signals to investors with its superior capabilities, such as more robust corporate governance and financial stability than competitors (Sekerci et al., 2021). Drawing on the signaling theory, Su et al., (2014) argue that: "Adopting CSR practices meets two conditions for a quality signal (Spence 1973). First, it takes more costs and effort to adopt CSR practices for low-capability firms than for high-capability firms. Second, the premium for firms to engage in CSR is only sufficient to compensate the costs for high-capability firms". Therefore, accumulating CSR capabilities will make it difficult for low-quality firms to mimic the same signal.

Previous CSR literature has explored the responses of external investors to CSR news. There is evidence to show that the relationship between corporate financial performance and CSR news is positively significant. Chen et al. (2008) found that firms could receive cumulative abnormal returns in the short term after press releases on philanthropic actions. Montiel et al. (2012) added that the positive relationship between corporate financial performance and CSR news is even more vital in emerging economies than that in developing countries. Likewise, negative CSR news, such as governance scandals or the installation of environmentally unfriendly factories, are negative signals. The stock market generally makes a negative response to negative CSR news

signals as investors will interpret such news as an act of deviation from what the public considers as socially responsible behavior. Investors may also associate negative CSR news with a limited CSR budget, which is a sign of potential financial or competitive challenges, meaning a lack of quality (Sekerci et al., 2021).

Research in recent years has provided greater insight into the stock market response to CSR news. The market responds only when it considers the signals as a true reflection of corporate positions and actions (Connelly et al., 2011). The signals from dishonest actors will be ignored or even interpreted in the opposite way (Sekerci et al., 2021; Wood et al., 2018). Studies of environmental and social accounting have documented that many polluted firms adopt a green-washing strategy that links them with an ecologically responsible image but does not correspond to the reality of facts (Cho & Pattern, 2007; Mahoney et al., 2013). The use of impression management strategies and subsequent scepticism blurs the interpretation of CSR signals, making the stock market react differently to CSR news.

1.2.2. The Stakeholder Discussion on Social Media

From the perspective of stakeholders, the credibility of CSR information depends on the controllability of CSR communication channels. The more the channel is perceived as firm-controlled, the less credible the CSR information (Yoon et al., 2006). CSR information from stakeholders will be judged as more credible than information from corporate sources for two reasons. First, stakeholders are considered less self-interested than the company (Dawkins, 2004). Second, some stakeholders, such as employees, do have access to some information about the company's CSR operations. One important question not yet covered in the literature is whether CSR-related discussions by stakeholders on social media can convey signals to market participants?

We argue that stakeholders' discussions on social media can send a signal about the credibility of firm CSR engagement (Wasike, 2022). Positive sentiments by employees, customers and communities can enhance the credibility of firm CSR activities while negative sentiments can reduce such credibility. Signaling could also happen when social media discussions convey new information. Based on the traditional signaling theory, one party (e.g. firm managers) sends a

signal and the other party (e.g. investors) receives the signal (firm-specific information). Our theoretical framework considers a second sender of relevant firm-specific information (social media users) in addition to firm managers. For instance, many studies suggest that employee opinions about their workplace convey relevant information in connection with future firm performance (Cluley & Green, 2019; Huang et al., 2020; Ylinen & Ranta, 2023). In the same line of reasoning, the "wisdom of the crowd" mechanism (Surowiecki, 2004; Martinez and Walton, 2014; Benjamin et al. 2022) can convey the average predictions of the crowd (social media users) that can be more accurate than experts' predictions. Hence, one party (social media users) can send its best signal and another party (investors with incomplete or inadequate information) can tap into the wisdom of the crowd (Benjamin et al. 2022).

On the other hand, one may argue that social media trends may only repeat existing information leading to a replication of existing signals without conveying new information. Even if a large amount of social media information is repeated via sharing, it is still possible that some boundedly rational agents could treat repeated signals as new information (Jiao et al., 2016). DeMarzo et al. (2003) have proposed a model of bounded rationality in which agents fail to account for repetition in the information they receive. As suggested by Jiao (2016), some forms of bounded rationality can be based on persuasion bias (DeMarzo et al. 2003), repetition-induced learning (Hawkins & Hoch, 1992) and other behavioural biases. Jiao et al. (2016) research suggests that social media boosts the confidence of boundedly individuals leading to higher return volatility and trading volumes. In sum, we conjecture that investors may place more value on social media sentiments.

In this respect, stakeholders' discussion, especially negative ones on social media, can be regarded as a negative signal of company prospects for the following reasons. First, take the example of employees' complaints and accusations against the company. Employees are beneficiaries of CSR, as CSR principles include employee health and safety, fair promotion opportunities, continuous vocational training, and appropriate personal development planning (Bhattacharya et al., 2008). Companies that attach importance to employee rights are supposed to have relevant policies and effective mechanisms in place. It is not hard to argue that within the organization, employees prefer closer contact through direct meetings, mails or the Internet. And

only when they cannot resolve problems through internal communication will they turn to the public platform, leveraging the public opinion to pressure the organization.

As mentioned in our introduction, the case of NIO serves as an example. In March 2023, a female intern exposed the company's discriminatory recruitment practices on Weibo, sparking significant controversy. The reposts and comments from other Weibo users included many unfriendly speculations and discussions, the public relations countermeasure by the company or not, which had a considerably negative impact on the personal life of the whistleblower. Similar cases have repeatedly surfaced on Weibo, and each potential whistleblower is acutely aware of the cost of putting themselves in the spotlight. Therefore, each such case sends a signal to the public: that the company's workplace policies fail to provide fair and reasonable treatment to employees, or even an effective feedback mechanism for those who need to defend their rights. Therefore, the negative discussion of internal stakeholders can be regarded as a signal of the company's dysfunctional internal communication system.

Second, negative stakeholders' discussion implies dishonesty of the firm. The driving force of stakeholders' disclosure on social media is likely to be an inconsistency between the firm's actual behavior and its public image (Plumlee & Yohn, 2015). It is possible that a firm, which claims the needs of stakeholders are valued and respected, does not incorporate such interests and voices into its business. For example, Nike claimed that the labour practices of its subcontractors in the third world were in compliance with its 2002 CSR reports. However, the claim was subsequently proven false (Sankey, 2018), allowing Nike to develop a reputation for dishonesty and spend a considerable amount of money to turn around unfavourable opinions.

Third, stakeholders' discussions on social media can be interpreted as a reflection of insufficient resources. As mentioned above, the cost of CSR activities is an explicit monetary cost and implicit management cost, which poses challenges to low-quality firms (Ali et al., 2017). In poor economic situations, the firm must focus on corporate survival (cost reduction and steady income), cutting CSR budgets, and putting more emphasis on its economic well-being than long-term sustainability in response to surging uncertainty (Wood et al., 2018). For instance, in August 2021, the case where a female employee of Alibaba was forced to drink on a business trip and subsequently assaulted by her supervisor and a client, which was exposed on Weibo, led to a

significant crisis for Alibaba. A key opinion leader pointed out that this could indicate a decline in Alibaba's control over e-commerce, its traditional area of strength. Her argument was as follows: the lady in question worked for Alibaba, China's leading e-commerce empire. She should have had an advantage in negotiations with local clients, but why did she have to sacrifice her own rights for potential orders? Does this imply that Alibaba's competitive edge is rapidly eroding? While the connection between an employee's personal ordeal and the corporation's market dominance is admittedly tenuous, the case nonetheless exposed palpable management deficiencies and heightened operational risks at Alibaba.

As such, stakeholders' complaints can be seen as a signal of insufficient financial and human resources. In sum, it is expected that stakeholders' negative discussion on social media is a negative signal of the firm quality and will cause a negative reaction in the stock market. The first hypothesis is stated as follows:

H1: Negative CSR trends on social media targeting listed companies has a negative impact on stock market value.

In contrast, the effect of stakeholders' positive discussion may be more complex. Sprenger et al. (2014) investigated over 400,000 S&P500 stock-related tweets and found that the stock market indeed valued positive and negative news differently. As suggested earlier, diverse information from stakeholders could effectively complement each other and verify the credibility of positive CSR news published by the company itself. For example, Lee (2021) documented that employee advocacy intentions on anonymous social media, such as altruistic and discretionary efforts, implied positive internal CSR practices and employee-orientated relationship building. Previous studies of organizational behavior also showed that positive social media content posted by employees, such as comfortable workplaces, inclusive company culture and continuing education opportunities, is more efficient than job advertisement in terms of employer attractiveness (Bhattacharya et al., 2008; Van Hoye & Lievens, 2007). Similarly, some fashion brands have adopted the same strategy of working with influencers to promote their products as influencers may be accorded a similar level of trust to friends by consumers (Goh et al., 2013).

As the signaling theory states, one party has an advantage over the other, although both parties hold different information. The dominant side will decide on the way of conveying information to the recipient (Connelly et al., 2011; Spence, 1973). In this regard, the real motives of stakeholders' discussions are not clear to outsiders. Some social media users might post false positive opinions after placing buy orders. Pump and dump schemes and other similar schemes (e.g. meme stocks) may also take place on social media. Such schemes are the results of misleading positive statements making investors more skeptical about positive posts.

Furthermore, it is not uncommon for companies to rely on seemingly independent information published by a third party to manage their public impression. Insiders may also use positive information to keep public attention away from negative CSR impressions and mitigate potential reputation damage from social media backlash (Schultz et al., 2011). In such a case, CSR scepticism is likely to happen among stakeholders when the information is a type of celebration or achievement without criticism (Farache et al., 2018). Lyon and Montgomery (2013) argue that firms that turn positive "tweets" of stakeholders to their own purposes can create a backlash. Coombs and Holladay (2015) documented that stakeholders punished companies due to too much discussion about the self-promotion of CSR activities. Similarly, Kollat and Farache (2017) analyzed stakeholders' responses to different CSR communication on social media based on 507 respondents in the UK. The findings suggested that consumers do not appreciate it when a company is too much involved, particularly when self-promotion is detected. As such, it is expected that positive discussion will constitute a positive signal and cause a positive but slight reaction due to CSR skepticism. The hypothesis is stated as follows:

H2: Positive CSR trends on social media targeting listed companies has a positive but slight impact on stock market value.

1.2.3. The Risk Mitigation View of CSR

As mentioned above, prior research has provided greater insight into the stock market response to CSR news. The market responds only when it considers the signals as a true reflection of corporate positions and actions (Connelly et al., 2011). In contrast, discussions of CSR practices spontaneously emerging on social media, commonly referred to as "trending topics" or "trends",

are user-driven and largely beyond corporate control. These organic narratives are increasingly viewed as authentic signals reflecting stakeholder perceptions. When a firm's own narrative diverges from the discourse among stakeholders on social media, the authenticity of its CSR performance comes under scrutiny. In such contexts, the past CSR disclosure can play the role of a simple scale that enables stakeholders to assess a firm's credibility similar to credit ratings which provide information about transparency and the social practice of firms (Jiraporn et al., 2014). According to the risk mitigation view in CSR literature, CSR actions can effectively reduce a firm's risk exposure. Multiple CSR efforts, such as honest and open communication, consistent word and deed, and commitment to being responsive can build trust between the firm and stakeholders. And this trust can translate into relational wealth in different forms among different stakeholders, such as credibility and enhanced brand among customers, affective commitment among employees, legitimacy among communities and regulators, trust among suppliers and partners (Godfrey 2005). All these relational wealth will unleash its value during bad times, subtly changing stakeholders' beliefs towards the firm, making stakeholders attribute a negative event (e.g. an environmental accident, or an employee hazard in the workplace) to coincidental factors and managerial maladroitness, instead of malicious fraud against stakeholders (Godfrey, 2009).

In such a way, higher CSR transparency temper stakeholders' reaction, protect the corporate public impression, relieve regulatory pressure, and insulate the firm from scrutiny (Luo & Bhattacharya, 2009). In other words, stakeholders will impose less severe sanctions on the firm with better CSR disclosure records in the case of negative events (Bansal and Clelland 2004). Conversely, poor CSR disclosure performer, without such an ''insurance-like'' protection, are expected to experience higher market penalty in period of crisis. The hypotheses are stated as follows:

H3: Negative CSR trends on social media targeting well CSR performers have no impact on stock market value.

H4: Negative CSR trends on social media targeting poor CSR performers has a negative but stronger impact on stock market value.

1.3. Data and Methodology

1.3.1. Sample

Our sample contains 2,110 Weibo trends involving 74 unique Chinese firms that are listed in US stock exchanges. We consider these foreign primary listing companies because they are subject to dual regulation. They must comply with the regulatory requirements of Chinese regulatory bodies, including Chinese accounting and disclosure standards, tax laws, labor laws, environmental laws, and other regulations. Also, they must comply with US accounting and disclosure standards, securities laws, and other regulations that apply to public companies listed on US stock exchanges. We further select U.S.-listed firms as our sample because the U.S. stock market is widely regarded as one of the most informationally efficient markets globally. This efficiency ensures that stock prices rapidly and accurately reflect new information, making it an ideal setting for event studies that rely on timely market reactions. Fama (1991) articulates that in an efficient market, prices fully reflect all available information, implying that any new, unexpected information is quickly incorporated into stock prices. Moreover, the U.S. market's high liquidity and minimal capital flow restrictions facilitate swift information dissemination and price adjustments. Dow and Gorton (1995) further emphasize that such market conditions are conducive to precise measurement of firms' responses to information events. Therefore, focusing on U.S.-listed Chinese firms allows for a more accurate assessment of market reactions to information events. In a word, these firms are expected to behave as a result of being subject to dual regulation and increased scrutiny.

1.3.2. Data Collection

At present, Weibo is the most appropriate social media context in this research. The composition of China's internet market significantly differs from other regions globally. Due to the 'Great Firewall of China' (a term commonly used to describe the Chinese government's internet censorship project), international leading social media operators like Facebook, Twitter, and YouTube are blocked in China. However, this does not render Chinese social media incomparable. The landscape of social networking media in China is almost identical to that of other countries around the world, with the primary distinction being that these sites are domestic

platforms designed within the country. For instance, Sina Weibo, akin to Twitter, stands as one of China's most popular social networking services.

As one of the most influential social media platforms within China, it has a total of 252 million daily active users and 586 million monthly active users as of the end of 2022. On this platform, various users and representatives from different sectors (e.g. corporations, regulators, media, customers and citizens) express their opinions. Most importantly, Weibo is more conversational than other platforms, due to that most posts are visible and easy to format public opinions and influence business operation. The Weibo Trending list, which is highly similar to the Twitter trends, contains the top 50 popular topics every day based on user participation. It is worth noted that, unlike Twitter trends, which are tailored for users, based on who they follow, their interest and their location, the Weibo trend list is unified.

To access historical Weibo trends as much as possible, we rely on a social media trend archive site, Weibo Trends Search Engine[1], which is available for free. The archive API provides a Search API where, upon entering a seed word, it returns all trend records matching this pattern. We use the full names, abbreviations, and founders' names of these 252 Chinese companies listed in US, provided by the U.S.-China Economic And Security Review Commission1[2], and obtained 4,202 trends from 84 companies over the 5 years period from May 10, 2017 (i.e. the date the archived site established) to May 10, 2022.

As shown in Figure 1.1, we obtained an initial dataset of 4,202 trending topics from Weibo via its API, including each trend's description, the content of the hot posts, and user engagement metrics such as the evolution of views, discussions, interactions, and the original content over time. These numerical indicators help assess whether the popularity of a trend emerged organically or was potentially manipulated. The textual information, in turn, allows us to determine whether a trend is relevant to a firm's ESG practices and to evaluate its sentiment polarity (positive or negative).

[1] https://weibo.zhaoyizhe.com
[2] https://www.uscc.gov/research/chinese-companies-listed-major-us-stock-exchanges

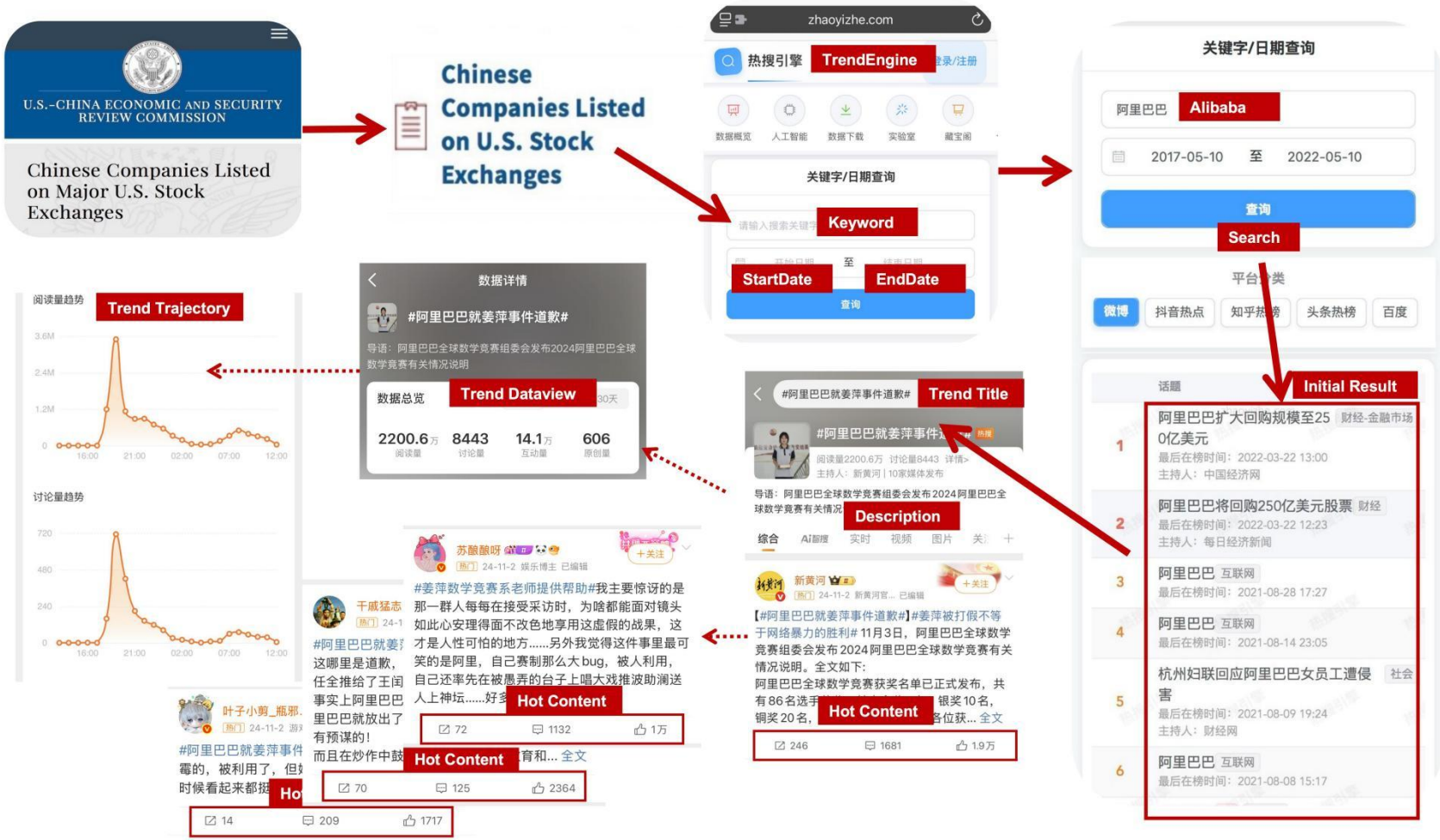

Figure 1.1: Workflow of Weibo Trending Topic Retrieval and Processing

Based on this information, we conducted several rounds of screening: 1) We excluded trends that shared names with companies or their founders but were unrelated to the firms themselves; 2) We filtered out marketing-related topics as tagged by Weibo; 3) We removed similar or derivative trends stemming from the same event within a single week, retaining only the first occurrence, which typically attracted the most attention. This procedure is generally adequate to reduce confounding effects. Exceptions exist when well-known companies face major ESG controversies, keeping the related discussions highly visible for extended periods. However, our manual review indicated that in the vast majority of such cases, the focus of social media discourse had shifted—for example, from social issues (e.g., employee rights protection) to governance issues (e.g., insufficient gender diversity among executives). Finally, we get to our final sample, which contains 2,110 Weibo trends involving 74 unique firms.

1.3.3. Text Analysis

Stakeholders on social media can issue positive and negative opinions over a corporate ESG issue. Yet the object of this research, the content generated by regular social media users, is often too subtle, as the language used on social media tends to be more informal and casual, compared to professional content. Moreover, the language is often used in creative and unconventional ways, and users adapt language trends and slang in order to communicate with their peers and fit in with certain online communities. These trends can change rapidly, as new terms and phrases become popular and others fall out of use. Therefore, the common two methods for textual analysis, the dictionary-based approach and the machine learning method, are not appropriated in our case.

We conducted an assessment to evaluate the tone of trends on Weibo. Initially, we employed a randomized sampling strategy, selecting 500 trends. Following the interpretative framework established by Dupire et al. (2022), we conducted manual coding of each Weibo trending topic based on its title, description, and the content of hot posts. As illustrated in Figure 1.2, each topic was categorized along two dimensions: its ESG domain (Environmental, Social, or Governance) and its sentiment polarity (positive, negative, or neutral).

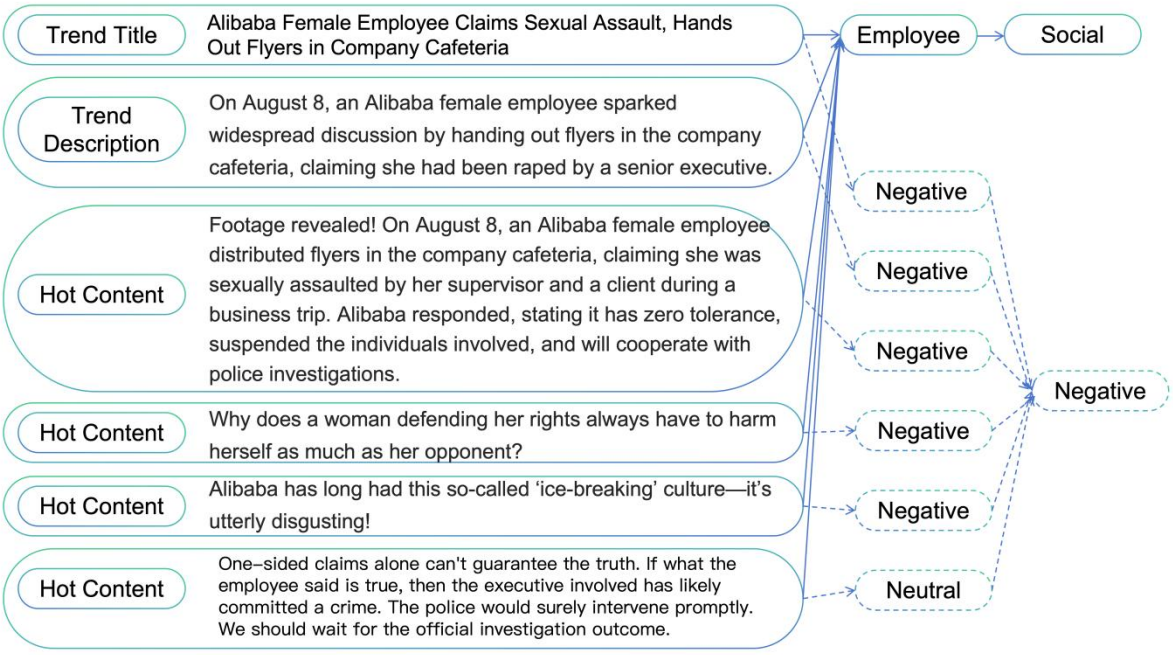

Figure 1.2: Schematic Illustration of the Classification Process of Weibo Trending Topics

For further details on the sentiment classification process, please refer to Appendix D. We assigned a value of 1 to a trend when its sentiment was considered positive or negative, effectively using these categories as dummy variables. Subsequently, we continued to refine our tone definition, setting decision-making rules (refer to Appendix A) for posts with less obvious tones. Finally, we applied these rules to code the entire sample of 2,110 Weibo trends. To ensure consistency and validate the reliability of our revised classification principles, we re-analyzed the initially sampled 500 trends. This step served as a quality check and provided an opportunity to verify the applicability of our coding methodology across the entire dataset. To ensure that the selected events accurately reflected ESG-related attention rather than general company popularity, we manually reviewed all trending topics to exclude non-ESG-related discussions appearing at the same time for the same firm. Only trends explicitly connected to environmental, social, or governance issues were retained in the final dataset. This filtering process minimized potential noise from unrelated public attention and ensured that the subsequent event study captured market reactions to ESG-specific stimuli.

1.3.4. Variables of Interest

To examine the impact of stakeholders' discussion on stock performance, we plan to employ the event study methodology, which is widely used to capture market reactions to various events through stock price movements. This method first captures the abnormal component of returns (AR) of stock *i* on day *t*, which is estimated through the market model.

$$AR_{i,t} = R_{i,t} - (\alpha_{i,t} + \beta_{i,t} \times R_{m,t}) \tag{1.1}$$

where $AR_{i,t}$ represents the abnormal return of stock *i* on the event date *t*, which refers to the date of the Weibo trending topic event. If an event occurs after market closure or during a non-trading period, *t* is set as the next trading day. $R_{i,t}$ shows the observed returns of firm *i* at time *t*, and the (α_i+$\beta_i R_{m,t}$) indicates the expected return (i.e. the estimation of the return if the event had not happened). Specifically, $R_{m,t}$ presents the market return at time *t*, which is based on the S&P 500 Index, which comprises the largest and most actively traded companies listed on the New York Stock Exchange (NYSE) and the NASDAQ Stock Market, providing a benchmark for overall market performance. Finally, the coefficient α and the market beta β refer to the parameters estimated. In this study, we estimate these two coefficients $\alpha_{i,t}$ and $\beta_{i,t}$ of stock *i* over the period from 250 days to 10 days before the date of trend. Then we calculate the Cumulative Abnormal Returns (*CARs*) for the firm *i* over the 5 trading days surrounding the trend:

$$CAR_{i,t} = \sum_{t=-2}^{2} AR_{i,t} \tag{1.2}$$

We include the day prior to the event to examine whether there is any information leakage on the day prior to the trend. And the short horizon helps us to exclude confounding events during the event window to the greatest extent possible.

In order to account for the factors that affect stock market volatility, we introduce a series of control variables into our models. First, we controlled for several firm-related characteristics, including firm size (*Size*), firm age (*Age*), and customer distance (*Distance*), as the effect of social media voice may be more pronounced for firms that are more scrutinized, such as larger firms, older firms, and those that the general customers are familiar with. Previous studies have shown that these firms are generally more well-known and visible to the public, and therefore

may be subject to greater scrutiny and expectations from stakeholders, which could lead to greater emphasis on CSR activities and stronger performance. Firm size (*Size*) is computed by taking the logarithm of total assets, while firm age (*Age*) is calculated based on the number of years since the firm's IPO. Finally, the distance (*Distance*) is a dummy variable that equals 1 if the company sells directly to end consumers, and 0 otherwise.

In our study, we utilized the ESG disclosure score as a proxy for assessing the level of CSR transparency (*CSR*). This score, widely employed in prior CSR communication research (e.g., Hamrouni et al., 2019; Helfaya et al., 2023; Manita et al., 2018), is furnished by Bloomberg. It evaluates the extent of a company's ESG disclosures, analyzing 100 out of 219 raw data points, focusing on the most frequently disclosed indicators to ensure comparability across firms. Bloomberg further tailors the score to industry-specific contexts by normalizing the selected data fields according to the ESG issues most relevant to each industry. The data sources for this score include an array of corporate publications such as annual reports, CSR reports, press releases, direct communications, third-party research, and news items (Basar, 2021). The scope of the information assessed is comprehensive: Environmental data encompasses aspects like water usage, emissions, energy consumption, waste management, and policies regarding environmental impact. Social information covers topics related to employees, human rights, product impacts, and community engagement. Governance information includes insights into board structure and function, executive compensation, and the company's political activities (Basar, 2021). The ESG disclosure score is standardized on a scale from 0 to 100, where a score of 0 indicates no disclosure of ESG information, and a score of 100 signifies complete disclosure.

In addition, we control for the Book-to-Market ratio (BTM), defined as the ratio of a firm's book value to its market value. Prior research suggests that the impact of news on stock return volatility may differ depending on a firm's growth opportunities (Cho et al., 2019), which are often reflected by the BTM ratio and linked to sustainable development considerations. And financially successful companies are likely to expand ESG activities because they can afford it (Cho et al., 2019; Otero-González et al., 2021), thus reducing the conflicts with stakeholders and the probability of being scrutinized by the public. Last, we introduce a social media related characteristic, popularity (*Popularity*), calculated by the logarithm of the view data, automatically

calculated by Weibo. A trend with more users engaged is likely to be more visible and have more pronounced impact than the trend with fewer engaged.

1.4. Results

1.4.1. Descriptive Statistics

Table 1.1: Sample Distribution

Year	Number of Trends	Number of Positive Trend	Number of Negative Trend	Firm Frequency	Sector Frequency
2017	176	53	84	24	12
2018	296	70	172	33	16
2019	360	83	226	40	16
2020	393	99	233	47	14
2021	621	171	403	48	16
2022	264	61	175	36	15
All	2,110	537	1,293	74	17

Note: This table presents the annual distribution of Weibo trends. The year 2017 refers to the period from May 10, 2017 (the date of the database's inception) to December 31, 2017. The year 2022 encompasses January 1, 2022, to May 10, 2022 (the cutoff date for data collection). Industry categorization in the table follows the North American Industry Classification Standard. Firm frequency and Sector frequency indicate the number of different firms and sectors involved.

Table 1.1 presents year-by-year information about the Weibo trend around ESG issues over the five year period. As shown in the column 1, the ESG related discussion shows a significant growth over the five-year period, implying an increasing concern from the general public. Though only the data of the first five months of 2022 is collected, it is believed that the annual number of ESG trends over 2022 will exceed that of 2021, according to the proportion. The data presented in columns 2 and 3 indicate that the number of negative trends substantially exceeds that of positive ones, despite both categories showing significant growth. This observation aligns with the general public perception that bad news stories tend to occupy more space than good ones (Rotberg & Weiss, 1996). Further, it is important to consider the nature of our sample, which consists of foreign primary listed companies. These entities, by virtue of their large size, are inherently more exposed to public scrutiny. The size of a firm acts as a marker of visibility **(**Ali et al., 2017; Brammer & Millington, 2005; Cho & Patten, 2007; Ting, 2021), often attracting heightened attention on social media platforms. Consequently, it is expected that these companies would encounter a greater number of negative trends, as they are subject to more rigorous examination. This tendency is particularly pronounced in the case of B2C companies, where direct consumer interactions further amplify the scrutiny and potential for negative feedback.

Most companies in this sample are tech companies, especially big techs, because, with no doubt, the tech sector is the most stunning sector over the last decade (See Appendix B). Just like the Big Five Tech in US, Chinese tech giants, including Alibaba, Tencent, Netease, Bilibili and so on, have developed a variety of new services and products to serve the community. The participants of a trending topic, social media users, are large likely to be stakeholders of a tech company at the same time. Therefore, it is expected that the tech sector is under the spotlight on social media. In addition, as the tech sector has become overdeveloped and even part of the infrastructure, public concern about monopolies has been sparked and compliance regarding these tech giants has become a frequent trending topic on social media. The only exception was Eastern Airlines, which was involved in a major air crash in late March 2022 that raised widespread public concern about aviation safety.

Table 1.2: Trends Around ESG by Content

	All		**Positive**		**Negative**	
	N	**%**	**N**	**%**	**N**	**%**
Social Dimension						
Customer relations	643	30%	123	19%	399	62%
Employee rights	295	14%	58	20%	230	78%
Community relations	264	13%	87	33%	146	55%
Innovations	39	2%	36	92%	1	3%
Governance Dimension						
Transparency and integrity	249	12%	95	50%	95	50%
Compliance and regulation	244	12%	22	9%	214	88%
Shareholder rights	141	7%	67	48%	65	46%
Anti-competitive practices	120	6%	18	15%	76	63%
Executives	88	4%	11	13%	60	68%
Governance	26	1%	20	77%	6	23%
Environment Dimension						
Environment	1	0%	0	0%	1	100%
All	2,110	100%	537	25%	1,293	61%

Note: In this table, N=number of trends, %= the percentage of that trends. Specifically, under the 'All' section, '%' refers to the proportion of that particular content relative to the total content. The '%' under the 'Positive' section indicates the proportion of positive content within that segment, while the '%' under the 'Negative' section represents the proportion of negative content within that segment. For the classification of ESG trends by content and their specific descriptions, please refer to Appendix C.

Table 1.2 demonstrates that social dimension trends make up more than half of the sample. Within the social pillar, customer relations are the most frequent topics, accounting for approximately 30% of all trends each year. This is followed by customer experience, which accounts for an average of 14% of all trends, and employee rights, which account for an average of 13%. These three topics are not only the priorities of social media users in the social field, but

also in the whole ESG field. In contrast, within the governance pillar, except for the topic of compliance and regulation that is being noticed by users, the occurrence of other topics is less frequent.

An interesting phenomenon is that the concerns of Weibo users on ESG topics shows an inconsistent distribution compared to professional institutions, such as Morgan Stanley Capital International (MSCI) and Sustainability Accounting Standards Board (SASB). According to the MSCI Materiality Matrix[3], in the technology sector, social issues are the most critical in ESG topics, accounting for 43%, followed by governance issues at 39.9%, and environmental issues at 17.1%. Within the social dimension, issues related to employee rights (including Human Capital Management, Controversial Outsourcing, Labor Management, etc.) are most important, constituting 67.4% of the social dimension, far exceeding issues related to consumer rights (including Privacy & Data Security, Product Safety & Quality, etc.), which account for 23.3%. SASB[4] identifies competitive behavior and systemic risk management as key issues in the governance dimension for the technology industry. In terms of environmental aspects, both MSCI and SASB consider clean tech, waste and emission as significant issues.

It is evident that, compared to professional institutions like MSCI and SASB, there is a notable lack of attention paid by Weibo users to the environmental dimension of ESG. There are three potential reasons for this. First, Chinese regulators have been reinforcing regulations to combat environmental issues (Liu & Wallace, 2023), driving businesses to minimize their negative environmental impact. This stringent regulation acts as a strong driving force for firms to reduce emissions and pollution, and to take their environmental responsibilities more seriously. Second, as previously mentioned, most of the samples are tech companies, which do not directly pollute the land or ocean like oil and mining companies do. The ways in which they contribute to carbon emissions (e.g. the electricity and water consumed by data centers, tailpipe emissions from e-commerce delivery) are invisible and unknown to the general public, making it difficult to form a discussion or public opinion on these issues. Third, users on social media, or at least Weibo, may not be concerned with environmental issues.

[3] https://www.msci.com/our-solutions/esg-investing/esg-industry-materiality-map

[4] https://sasb.org/standards/materiality-finder/find/

The results of sentiment analysis, suggest that more than half trends related to the social dimension are negative, indicating a general impression deterioration of brand image on Weibo. Also, the compliance and regulation topic are mainly driven by negative discussions. It is not surprising that people's views of tech firms, the main component of the sample, have become significantly more negative on social media over the past five years. This is likely due to the increased scrutiny of tech firms by both the press and the government, and people perceived them as greedy exploiters of personal data and anti-competitive behemoths. Other trending topics, such as ESG innovation, transparency and integrity, are, however, generally positive or at least neutral. It is possible that this is because without companies' voluntary disclosure, external stakeholders are unlikely to be aware of such information, if they are really interested in. And companies will carefully control this type of information, maintain an information asymmetry in order to protect their brand reputation and legitimacy.

Our observations from the data on trend popularity, detailed in Appendix G, are consistent with previous statements that Weibo users are most concerned with consumer relations, employee rights and the compliance and regulation. Following China's economic transformation into a digital economy, a growing number of businesses are using social media channels to provide customer care as well as engage their audience. The customers also view social media as a platform for raising complaints about negative customer experiences because of their familiarity with and ease of access to these platforms. Similarly, a widely variety of jobs are offered by the digital economy, such as online content producers, software developers, and web designers, etc. The young generation, who's awareness of workers' rights is rising, will pay extra attention to trends directly related to their own well-beings. Other trends, including ESG innovation, transparency and integrity, and so on, however, have much lower popularity values, compared to the first three. One possible explanation is that ordinary users lack the background information and expertise to engage in these discussions and cannot tell whether certain topics (e.g., 5G, blockchain, bitcoin, metaverse) are hype for new concepts or are truly significant for the future. As a consequence, they also lack the motivation to engage in professional discussions. This is consistent with the observation from sentiment analysis that, possibly because these topics have fewer participants and therefore few emotionally, or even extreme opinions, participants are able to exchange ideas peacefully.

In sum, social trends in consumer relations, employee rights and community relations are the top concerns of social media users, with far more trends and engaged users than other topics. These topics, which average users are more familiar with, are more likely to draw their attention and motivate them to engage. Other discussions, such as ESG-related innovation, relations with the industry, and transparency and integrity, which average users lack the necessary knowledge and motivation to engage and are more likely to be led by professionals or the companies themselves, resulting in fewer topics and less participants, but mostly neutral and positive sentiment.

Table 1.3: Descriptive Statistics: All

Variables	N	Mean	SD	Min	Median	Max
Stock Market Reaction						
CAR	2,110	-0.012	8.469	-55.2	-0.25	107.24
Trend Sentiment						
Positive	537	0.255	0.436	0	0	1
Negative	1,293	0.613	0.487	0	1	1
Trend Characteristics						
Popularity	2,104	11.494	1.028	8.540	11.646	15.417
Firm Characteristics						
Firm Distance	2,110	0.983	0.128	0	1	1
Firm Age	2,110	7.471	7.294	0	4	25
Firm Size	1,846	11.524	1.973	4.640	11.942	15.403
CSR	1,846	59.007	12.720	36.424	57.917	93.046
ROA	1,846	-0.282	18.411	-118.730	2.870	90.807
BTM	1,846	0.353	0.363	0.015	0.228	3.353

Note. This table presents descriptive statistics for our sample. Our sample contains 2,110 Weibo trends between May 10, 2017 and May 10, 2022. Variable definitions are provided in Appendix E. N=number of observation, SD = standard deviation.

Table 1.3 displays the descriptive statistics of each of our variables of interest and controls. Out of 2,110 trends, the average *CAR* is -0.012% with 25.5% positive and 61.3% negative. The remaining topics were classified as neutral because they contain neither a mainly positive nor a mainly negative message about the ESG actions of the firm. The vast majority of discussions (98.3%) target companies that have a direct connection with end consumers. The average age of firms is 7.4 years, ranging from less than one year to 25 years. The average disclosure level (*CSR*) is 59.007, ranging between 36.424 and 93.046. Finally, the average of Book-to-Market ratio is 0.353.

1.4.2. Univariate Statistics

Table 1.4 presents the average *CARs* of Weibo trends for a 5-day event window ([−2 days:+2 days]). The first row reports the average *CAR*, the number of observations involved, and the t-statistics for the entire sample, the positive sub-sample, and the negative sub-sample. Furthermore, we derive sub-samples based on control variables, according to their median, and provide the average *CARs*.

Across the entire sample, the average *CAR* of Weibo trends is not statistically significant, indicating that stakeholder discussions on social media generally do not have a significant impact on stock returns. However, the average *CAR* for the sub-sample of positive trends is significantly positive at 1.366%, providing support for H2. No statistically significant correlations were observed between the sub-sample of negative trends and stock market reaction, implying that the stock market appeared to be unaffected by negative social media trends. Therefore, H1 is not supported here. However, it is challenging to draw any conclusions at this stage because these univariate results do not take important covariates into consideration.

Upon conducting a sub-sample analysis, it becomes evident that the market exhibits a positive response to both firms with higher CSR transparency ("green") firms (0.945**) and their low transparency peers ("brown") firms (1.911**) upon the release of positive news, lending robust support to H2. Intriguingly, compared to green firms, brown ones often receive greater market rewards (Diff: 0.966). This may be attributed to the perception that negative controversies are more aligned with the character of a brown company, and actions demonstrating concern for employees and consumers are viewed as atypical.

For green companies, negative news serves as a stark warning, demonstrated by a significant market downturn (-1.583***), affirming H1. Additionally, these companies face harsher market penalties for their CSR transparency (Diff: -2.71), contradicting the protective or shielding effect hypothesized in H3. This suggests that companies praised for their CSR transparency undergo more rigorous evaluation, as their openness elevates stakeholder expectations and establishes a more stringent standard. Ethical behavior is no longer perceived as exceptional but as a basic expectation.

Table 1.4: Explaining Stock Market Reactions Around Weibo Trends

Samples	All			Positive			Negative		
	N	Mean	t-Stat	N	Mean	t-Stat	N	Mean	t-Stat
CAR	1,423	0.315	1.236	407	1.366***	3.196	819	-0.232	-0.403
Firm Level Control: CSR Disclosure									
Green Firms	723	-0.690***	-2.702	229	0.945**	2.062	398	-1.583***	-4.622
Brown Firms	671	1.398**	1.982	177	1.911**	2.448	420	1.127	1.028
Social Media Trend level control: Content Classification									
Environmental Pillar	1	3.913	-	-	-	-	1	3.913	-
Social Pillar	656	0.755	1.141	157	0.299	0.636	471	0.864	0.956
Governance Pillar	639	-0.409	-1.031	216	1.773**	2.606	342	-1.833***	-3.206
Firm Level Control: Firm Size									
Large Firms	712	-0.864***	-4.839	229	0.431	1.412	398	-1.835***	-7.689
Small Firm	682	1.546**	2.146	177	2.575***	2.892	420	1.288	1.180
Firm Level Control: Firm Age									
Old firms	884	-0.688***	-2.888	299	0.657	1.366	472	-1.841***	-6.509
Young firms	512	2.048**	2.269	109	3.311***	3.757	348	1.951	1.512
Firm Level Control: Profitability									
High ROA	656	-0.173	-0.779	230	0.431	1.233	332	-0.848***	-2.680
Low ROA	738	0.750	1.134	176	2.586***	2.985	486	0.190	0.201
Firm Level Control: Firm Value									
High BTM	691	-0.206	-0.793	231	1.294***	3.498	349	-1.400***	-3.338
Low BTM	705	0.826	1.22	177	1.460*	1.697	471	0.634	0.668
Social Media Trend level control: Topic Popularity									
High Popularity	707	0.542	0.866	187	0.558	1.098	445	0.713	0.743
Low Popularity	687	0.082	0.223	219	2.057***	3.113	373	-1.359***	-2.616

Note. This table presents the the cumulative abnormal returns (CARs) calculated on an event study [−2 days;+2 days]. Our sample contains 2,110 trending topics from 74 US listed Chinese firms on Weibo between May 2017 and May 2022. Variable definitions are shown in Appendix E. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. All tests are two-tailed. Results based on grouping by 'Distance' are not presented due to the significantly reduced sample size following the segmentation.

Conversely, brown companies' negative disclosures do not trigger a significant market response, rejecting H1 and H4, and lack of CSR communication does not result in harsher penalties for them, maintaining insignificance akin to the broader sample. This phenomenon is attributed to the market's habituation to adverse news from brown companies, viewed as typical and unsurprising, leading to a general tolerance for negative information about such firms without notable repercussions.

Table 1.4 also presents the results of the sub-sample analysis based on social media trend characteristics in the lower section. It is rather counterintuitive that only less popular trends are capable of eliciting a stock market response. Specifically, the average *CAR* for the sub-sample of less popular trends with positive sentiment is significantly positive (1.057%), while the average *CAR* for the negative group is significantly negative (-0.630%). One possible explanation is that less popular trends mostly pertain to governance-related matters, which require specialized knowledge and expertise from the involved users, thereby resulting in lower participation and popularity. Conversely, discussions related to social matters are easier for a broader range of users to comprehend and thus engender higher engagement but are prone to veer off track from the original agenda and are less likely to elicit a stock market response.

1.4.3. Multivariate Statistics

To address our testable hypothesis, we estimate the following regressions:

$$CAR_{i,t} = \delta_0 + \delta_1 Positive_{i,t} + \delta_2 X_{i,t} + \varepsilon_{i,t} \tag{1.3}$$

$$CAR_{i,t} = \theta_0 + \theta_1 Negative_{i,t} + \theta_2 X_{i,t} + \varepsilon_{i,t} \tag{1.4}$$

where $CAR_{i,t}$ indicates the Cumulative Abnormal Returns of firm i surrounding the topic t date. The variables $Positive_{i,t}$ and $Negative_{i,t}$ are dummy variables, taking a value of 1 if a trending topic on day t related to firm i is classified as positive or negative, respectively, and 0 otherwise. It is noted that a topic can also be classified as neutral, meaning it is neither positive nor negative. The vector X_i includes firm-specific characteristics and social media trend-related factors that affect a firm's stock market return.

For H3 and H4, we present the following equation:

$$CAR_{i,t} = \gamma_0 + \gamma_1 Negative_{i,t} + \gamma_2 CSR_{i,t} + \gamma_3 (Negative_{i,t} \times CSR_{i,t}) + \gamma_4 X_{i,t} + \varepsilon_{i,t} \quad (1.5)$$

where the interaction variable *Negative*×*CSR* has been introduced to highlight the moderating effect of CSR transparency on the negative market response triggered by negative topics.

Table 1.5 presents the results of a multivariate regression analysis. Model 1 incorporates control variables only, Model 2 includes positive trends, Model 3 is focused on negative trends, and Model 4 integrates both negative trends and the interaction variable. The results indicate a positive impact of positive trends on CAR (0.021** in Model 2), lending further support to H2, and negative trends have a detrimental effect on CAR (-0.03*** in Model 3), substantiating H1. Additionally, the positive coefficient on CSR transparency is noteworthy in Models 2 (0.082**) and Model 3 (0.078**), which suggests that CSR transparency is a potentially important and favorable signal to external stakeholders, leading to higher stock returns. An increase in CSR-related information disseminated by firms is likely to result in an enhancement of their financial performance. Positive sentiments on social media are observed to amplify the favorable stock market response to CSR disclosures of firms, whereas negative sentiments may exert the reverse effect.

Interpreting the interaction variable *Negative*×*CSR* presents certain challenges, given that *Negative* is a dummy variable. When considering the moderating effect of CSR, the combined regression coefficient for *Negative* becomes $\gamma_1+\gamma_3 \times$CSR, as shown in Model 4 with results (-0.02)+(-0.003)×CSR. The negative coefficient of the interaction variable suggests that the impact of negative news increases with higher levels of CSR. However, due to the non-significance of the interaction variable coefficient γ_3, and considering the consistently positive significant coefficient of CSR transparency across various models—indicating a positive impact of CSR on market reaction—it can be interpreted that green firms might face greater reputational risk with negative posts, yet their "relational wealth" could acts as a buffer, effectively neutralizing the impact of such posts. This suggests that firms with higher CSR transparency may be partially insulated from the negative repercussions of adverse sentiments, supporting H3. Conversely, the

Table 1.5: Regression Analysis of Market Reactions to Social Media Trends

	Model 1		Model 2		Model 3		Model 4	
	Coeff	**t-stat**	**Coeff**	**t-stat**	**Coeff**	**t-stat**	**Coeff**	**t-stat**
Positive			0.021**	2.211				
Negative					-0.03***	-3.316	-0.020	-0.176
*Negative*CSR*							-0.003	-0.085
CSR	0.031**	2.389	0.082**	2.189	0.078**	2.049	0.079*	1.946
Popularity	-0.004	-1.279	-0.007	-1.581	-0.008*	-1.755	-0.008*	-1.758
Firm Size	-0.004	-1.724	0.002	0.18	0.005	0.326	0.005	0.333
Firm Age	-0.007	-1.149	0.001	0.034	0.002	0.048	0.002	0.052
Firm Distance	0.061	1.735	-0.261	-1.108	-0.240	-1.017	-0.246	-0.984
ROA	0.001	2.235	0.001	1.252	0.001	1.113	0.001	1.103
BTM	0.001*	1.266	0.064*	1.889	0.065*	1.914	0.065*	1.917
Intercept	-0.063	-0.889	-0.261	-1.108	-0.240	-1.017	-0.246	-0.984
F test	2.132		2.127		2.986		2.611	
p-value	0.038**		0.038**		0.004***		0.008***	
Adj. R^2	7%		2.60%		1.80%		1.90%	
Individual Fixed Effects	Yes		Yes		Yes		Yes	
Year Fixed Effects	Yes		Yes		Yes		Yes	
Number of observations	1,425		1,425		1,425		1,425	

Note: This table presents the results of an OLS regression analysis of the cumulative abnormal returns calculated on an event study [−2 days;+2 days]. Our sample contains 2,110 trending topics from 74 US listed Chinese firms on Weibo between May 2017 and May 2022. All regressions control for a year and individual-fixed effects. Variable definitions are shown in Appendix E. ***, **, and *indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

same coefficient also implies that brown firms, when faced with negative sentiments, do not experience a reduction in *CAR*, which does not appear to support H4. This might be because brown firms have less to lose from negative discussions, given their already compromised reputation.

Additionally, in Models 3 and 4, which pertain to negative discussion, the popularity is inversely related to *CAR*s, which is consistent with the univariate statistics. In other words, for negative discussions, achieving a higher level of engagement does not necessarily imply a significant outcome. In comparison to less popular topics, extensively engaged discussions are less likely to trigger a stock market reaction.

Overall, the multivariate statistical findings refine the interpretation derived from the univariate analysis, indicating that both positive and negative social media trends are capable of influencing the stock market, with positive trends being generally perceived in a positive light (H1), and negative trends being viewed negatively (H2). Contrary to univariate findings, the moderate effect of CSR transparency during negative events is insignificant, which is consistent with H3 but not with H4.

1.4.4. Robustness Test

To ensure the robustness of our research findings, a series of robustness tests have been planned. These tests are designed to verify whether our preliminary findings remain valid across different observation periods and window lengths. Initially, we varied the observation period, applying window parameters commonly used in event studies, such as 180 days and 120 days. We discovered that altering the window length does not affect the value of *CAR*s. Subsequently, we experimented with different event window lengths to observe the stability of the results.

In addition to the initial [-2 days: +2 days] window, narrower windows (i.e., [-1 day: +1 day]) and wider windows (i.e., [-5 days: +5 days]) were also tested. In addition, to rule out potential interference from concurrent non-ESG-related events for the same firms, we verified that each event in the sample corresponded exclusively to an ESG-related trending topic.

Table 1.6: Explaining Stock Market Reactions with Narrow Event Window Around Weibo Trends

Samples	All			Positive			Negative		
	N	Mean	t-Stat	N	Mean	t-Stat	N	Mean	t-Stat
CAR	1,423	0.307	0.793	409	2.194***	4.196	837	-0.753	-1.261
Firm Level Control: CSR Disclosure									
Green Firms	732	-0.717***	-2.848	228	1.001**	2.422	419	-1.920***	-5.398
Brown Firms	687	1.416*	1.868	179	3.728***	3.513	415	0.431	0.376
Social Media Trend level control: Content Classification									
Environment Pillar	1	1.324	-	-	-	-	1	1.324	-
Social Pillar	661	0.662	1.023	158	0.636	1.534	475	0.651	0.731
Governance Pillar	641	-0.322	-0.630	216	3.160***	3.497	344	-2.762***	-3.838
Firm Level Control: Firm Size									
Large Firms	717	-0.847***	-4.747	228	0.722**	2.407	404	-1.935***	-7.952
Small Firm	702	1.511**	1.968	179	4.086***	3.658	422	0.368	0.323
Firm Level Control: Firm Age									
Old firms	889	-0.689***	-2.775	300	0.962*	1.96	476	-2.207***	-7.131
Young firms	514	2.030**	2.106	109	5.587***	4.058	350	1.225	0.915
Firm Level Control: Profitability									
High ROA	664	-0.233	-1.049	230	0.759**	2.212	338	-1.355***	-4.088
Low ROA	755	0.785	1.116	177	4.075***	3.680	501	-0.346	-0.355
Firm Level Control: Firm Value									
High BTM	691	-0.049	-0.167	231	2.506***	4.294	349	-2.032***	-5.251
Low BTM	712	0.654	0.922	178	1.790*	1.917	477	0.183	0.184
Social Media Trend level control: Topic Popularity									
High Popularity	711	0.494	0.762	187	1.835***	3.262	449	-0.003	-0.003
Low Popularity	690	0.115	0.276	220	2.500***	2.970	375	-1.651***	-2.979

Note. This table presents the the cumulative abnormal returns calculated on an event study [−1 day;+1 day]. Our sample contains 2,110 trending topics from 74 US listed Chinese firms on Weibo between May 2017 and May 2022. Variable definitions are shown in Appendix E. ***, **, and *indicate statistical significance at the 1%, 5%, and 10% levels, respectively. All tests are two-tailed.

Table 1.7: Explaining Stock Market Reactions with Broad Event Window Around Weibo Trends

Samples	All			Positive			Negative		
	N	Mean	t-Stat	N	Mean	t-Stat	N	Mean	t-Stat
CAR	1,349	-0.521	0.431	399	-0.346	-0.510	781	-0.747	-1.014
Firm Level Control: CSR Disclosure									
Green Firms	679	-2.253***	-5.455	224	-1.883**	-2.372	372	-2.620***	-4.798
Brown Firms	668	1.239	1.424	174	1.629	1.411	408	0.961	0.732
Social Media Trend level control: Content Classification									
Environment Pillar	1	5.823	-	-	-	-	1	5.823	-
Social Pillar	615	-0.023	-0.026	154	-1.912**	-2.35	433	0.611	0.514
Governance Pillar	635	-1.301**	-2.378	212	0.009	0.009	342	-2.473***	-3.345
Firm Level Control: Firm Size									
Large Firms	673	-1.368***	-4.045	227	-1.264*	-1.967	361	-1.902***	-4.258
Small Firm	674	0.324	0.361	171	0.870	0.656	419	0.248	0.189
Firm Level Control: Firm Age									
Old firms	844	-1.579***	-4.135	296	-1.197	-1.638	435	-2.220***	-4.295
Young firms	505	1.246**	1.121	104	2.075	1.329	347	1.100	0.722
Firm Level Control: Profitability									
High ROA	653	-1.075***	-2.821	227	-1.458**	-2.133	332	-1.279**	-2.404
Low ROA	694	0.000	0.000	171	1.128	0.876	448	-0.352	-0.289
Firm Level Control: Firm Value									
High BTM	691	-0.327	-0.771	231	0.163	0.23	349	-1.140*	-1.792
Low BTM	658	-0.725	-0.824	169	-1.042	-0.811	433	-0.430	-0.35
Social Media Trend level control: Topic Popularity									
High Popularity	669	-0.470	-0.566	182	-1.710*	-1.725	412	-0.111	-0.089
Low Popularity	678	-0.572	-1.156	216	0.804	0.868	368	-1.459**	-2.083

Note. This table presents the the cumulative abnormal returns calculated on an event study [−5 days;+5 days]. Our sample contains 2,110 trending topics from 74 US listed Chinese firms on Weibo between May 2017 and May 2022. Variable definitions are shown in Appendix E. ***, **, and *indicate statistical significance at the 1%, 5%, and 10% levels, respectively. All tests are two-tailed.

This ensured that the observed market responses were not confounded by simultaneous but unrelated company news or discussions. This approach helps to explore the immediate and delayed impacts of social media trends on stock market performance. Table 1.6 presents the results of event studies conducted using narrower windows. The market's reaction remained consistent and showed no significant variation, thereby providing robust support for our earlier findings. For instance, the market's response to positive trends in the [-1 day: +1 day] window was 2.194, compared to 1.366 in the [-2 days: +2 days] window, indicating a swift and pronounced market reaction. This observation not only suggests a tangible link between Weibo trends and market behavior but also affirms that information on social media can significantly influence stock prices and mitigate information asymmetry. However, Table 1.7 reveals a shift in the market's response to positive information during an extended event window analysis. Specifically, the market reaction to positive information in the total sample becomes non-significant. Furthermore, in the sub-sample analysis, the market's response to positive news for green companies turns significantly negative and becomes non-significant for brown firms. This change is likely attributed to the inclusion of confounding events within the extended window period, which could have influenced the study's outcomes. Negative sentiments still have a negative impact on CAR for green firms, consistent with H1.

1.5. Discussion

This study is a survey on the trending topics related to ESG on Weibo, one of China's largest social media platforms. We collected a total of 2,110 trending topics from 74 Chinese companies listed in the US over a five-year period from May 10, 2017, to May 10, 2022.

Our investigation reveals that social media does serve as a community square, providing a space for stakeholders to disclose ESG-related information, exchange opinions, and engage in discussions. Furthermore, we found that most discussions centered around companies that are familiar to social media users, including those with high visibility or those that directly sell products or services to users. In addition, unlike professionals, social media users' attention is highly focused on the social pillar, such as consumer rights and employee benefits. Fourthly, we also found that discussions about these companies on social media are predominantly negative, and the proportion of negative content is increasing year by year.

Our research provides evidence of the relationship between discussions from social media users and fluctuations in company stock prices. Discussions on Weibo can indeed have an impact on stock prices, with favorable discussions having a positive impact and unfavorable discussions having a negative impact. As predicted by signal theory, the finding indicates that the market accepts information from Weibo and responds accordingly. This suggests that stakeholders can use Weibo as a platform to supplement company disclosures to a wider audience. Companies that value stakeholders can receive rewards in terms of rising stock prices, while those that offend stakeholders can be punished with a decline in stock prices.

Our study underscores that maintaining high transparency in CSR practices indeed serves as a insurance like protection for companies. Although univariate tests initially suggest that the market is harsher on companies with high transparency due to elevated external expectations, further multivariate analyses reveal that CSR transparency indeed yields additional market benefits. These benefits serve as a buffer, absorbing a significant portion of negative impacts, though not enough to counteract all the adverse effects of negative social media sentiment.

This research contributes in several ways. Firstly, it enriches signal theory by demonstrating that discussions on ESG topics on social media, especially on platforms like Weibo, act as a significant signal to the financial markets. This influence stems from two aspects: social media's role as a digital public square, enabling secondary stakeholders like the public to bypass traditional media's gatekeeping and voice their perspectives, and its immediacy and accessibility, allowing for low-cost communication and reducing corporate interference in opinion formation. Our findings also validate that a firm's CSR disclosures can act as a proxy for signal quality, with companies showing higher transparency in CSR commitments gaining greater market rewards. These additional returns also buffer against the costs associated with negative publicity.

Secondly, our findings enrich stakeholder theory within a digital context. With social media as a tool, previously marginalized secondary stakeholders, such as the public and communities, have gained the ability to influence companies significantly. They are not only able to quickly access information but can also exchange views, form alliances, and compel companies to address their demands, marking a shift from passive information receivers to active participants in corporate-social relationships. Moreover, our research reveals that secondary stakeholders display preferences on CSR issues that diverge from industry and academia, focusing more on social issues over environmental concerns. This has practical implications for corporate managers: stakeholders are demonstrating narrative-building capacity, challenging the company-centric CSR agendas and necessitating a strategic reevaluation of communication with stakeholders. In essence, companies must recognize the rise of secondary stakeholders and their needs to establish genuine and equitable relationships, laying the groundwork for authentic sustainable development strategies.

Our research does have some limitations to consider. Firstly, the study sample is based on a somewhat unique group of companies - Chinese companies listed in the United States. This group was selected because they are subject to dual regulation by both China and the US, and are therefore expected to perform better. However, with the recent escalation of geopolitical tensions between China and the US, there may be increased risks faced by overseas IPO companies, which could potentially exacerbate shareholder reactions to news. Additionally, foreign primary listing may not necessarily strengthen regulatory oversight over companies, but rather create a loophole for companies to escape scrutiny. When Chinese consumers and the public are outraged, they

cannot use the stock market to punish the company. Meanwhile, US investors cannot perceive the risks of investment caused by public outrage in the same way as Chinese domestic investors.

Also, in confirming the impact of social media ESG trends on the stock market, an intriguing question arises: Who is shaping these trends? The possibility of manipulation within these trend topics cannot be dismissed, especially in an era where social media marketing is prevalent and disinformation is rampant. While our analysis does not suggest widespread manipulation within our sample, the absence of measures to explicitly rule out this possibility points to a significant area for future investigation.

Secondly, there exists a need to differentiate the impact of social media ESG trends from that of traditional news media. Prior studies have extensively explored how conventional media reporting affects stock markets. Understanding the nuances and differences between these two sources of information could provide deeper insights into investor behavior and market dynamics.

Lastly, our study, grounded in a Chinese social media platform, highlights a different preference of users in ESG communication, distinct from that of professional institutions. Investigating the representativeness and scope of these preferences offers an interesting research direction. Future studies could explore whether similar preferences are exhibited by users on social media platforms in other languages and cultural contexts. Such comparative analyses would contribute to a more comprehensive understanding of global ESG communication trends and their market implications.

APPENDICES

Appendix A. Interpretative Framework for Social Media Trends

Rule 1: Message about a specific firm.

We strictly focus on trending topics, of which the main message is about a specific listed firm. There can be cases where the message is about an unlisted firm that have a duplicate name of a listed company. Also, some trends target an industry, rather than a specific firm, which generally sparks discussion around more than one firm. In such a case, the trending topic is removed.

Rule 2: Message from stakeholder's lens.

We strictly focus on the point of view of stakeholders, especially external stakeholders. There can be cases where the topic was started by the firm, such as the example provided in Appendix D, "JOYY calls Muddy Waters' report erroneous and welcome verification from third-party." Though the initial message was disclosed by the firm, around which the subject of the ensuing discussion is constitute of opinions posted by stakeholders. Therefore this case is reserved. In contrast, there may be instances where a trend is manipulated by advertising and marketing agencies to implicitly promote specific products and brands. In such cases, we remove the trend from our analysis once we detect that it is a promotional trend.

Rule 3: Message attributed to ESG practice.

We strictly focus on aspects that relate to ESG dimensions. There can be cases where the trend involves a firm for a reason that does not relate to any specific action by that firm involving ESG dimensions. One trend that an executive cheated on his wife is removed, as the person he cheated on is unrelated to the company he worked for at all. Another trend that an executive is having an affair is reserved, because he was cheating on the executive of strategic suppliers of the firm he works for. The trend has sparked widespread concerns regarding the fairness and transparency of the previous acquisition between the firm and this strategic supplier. Therefore, this trend is classified as related to ESG issues, rather than the executive's personal matters.

Rule 4: Reflections on Sustainability.

We consider ESG news function as a signal on stock market due to its reflection of a company's sustainability. There can be cases that a trend is emotionally positive, yet it signals some weakness of the firm's sustainability. For example, the trend "Business dispute between Tencent and a chilli maker, Laoganma", though the sentiment of which is mainly positive (because the majority of participants are very happy to see this tech titan being fooled), signals the corporation's failure of internal risk control mechanisms and its weak corporate governance. In such a case, the trend is classified as negative.

Appendix B. Top 10 Sample Firms And Industries

Panel A. Top 10 Targeted Firms	
Firm Name	**Firm Frequency**
Alibaba	300
JD.com	200
Baidu	188
Bilibili	131
NetEase	95
China Eastern Airlines	91
Pinduoduo	89
iQiyi	87
NIO	68
Tencent	63
Panel B. Top 10 Targeted Industries	
Industry Name	**Industry Frequency**
Administrative and Support and Waste Management and Remediation Services	540
Retail Trade	299
Professional, Scientific, and Technical Services	271
Information	221
Transportation and Warehousing	142
Finance and Insurance	135
Construction	95
Arts, Entertainment, and Recreation	87
Manufacturing	77
Educational Services	59

Appendix C. Description of Trends With Their Classification

Trend Classification	Description
Social	
Customer relations	Topic related to the products and services, including the quality and safety of the product; the health, data privacy of customers and false advertising, etc.
Employee rights	Topics related to employee rights, including employee salary, benefits, overtime culture, physical and mental health, and career development.
Community relations	Topics related to relations with stakeholders other than employees and customers (e.g. suppliers, vendors and people in surrounding communities) and philanthropic activities.
Innovations	Topics relate to technology innovation topics around ESG issues.
Governance	
Transparency and integrity	Timely disclosure and response, maintain an effective communication, and ensure alignment between the practice and values.
Compliance and regulation	Topics related to a broad variety of ESG-related regulations and the ever-evolving regulatory demands.
Shareholder rights	Topics related to the active participation of shareholders around ESG issues.
Anti-competitive practices	Topics related to anti-competitive behaviors, which is defined as a company use its powerful position to unfairly hurt its rivals.
Executives	Topics related to board independence, diversity, compensation and other ESG issues around executives.
Governance	Topics related to the reform of the corporate governance structure.
Environment	
Environment	Topics relate to firm's practices environmentally beneficial or harmful.

Appendix D. Examples of Trends With Their Classification and Sentiment Analysis

Classification	Example of Trend	Sentiment
Social Pillar Trend		
Customer relations	# *Customers sued **iQiyi** for charging additional fees for pre-screens of dramas* #	Negative
Employee rights	# ***Alibaba** Female Employee Claims Sexual Assault, Hands Out Flyers in Company Cafeteria* #	Negative
Community relations	# ***Alibaba**'s new policy sheltered small businesses from pandemic risks* #	Positive
Governance Pillar Trend		
Transparency and integrity	# ***JOYY** calls Muddy Waters' report erroneous and welcome verification from third-party* #	Positive
Compliance and regulation	# ***DiDi** face cybersecurity review and related administrative punishments* #	Negative
Anti-competitive practices	# ***Baidu** required health care providers to sign exclusionary contracts* #	Negative
Executives	# ***JD.com** founder and CEO Richard Liu Qiangdong is taken into custody on suspicion of criminal sexual conduct* #	Negative

Appendix E. Variable Description.

Variable	Description	Source
CAR	The cumulative abnormal returns for acquiring firms over the five trading days that surround the Weibo trend dates [−2 days;+2 days].	Wharton
Positive (Dummy)	1 if the main sentiment of the trend is positive according to our interpretative framework for Weibo trends presented in Appendix D, 0 otherwise.	Manual
Negative (Dummy)	1 if the main sentiment of the trend is negative according to our interpretative framework for Weibo trends presented in Appendix D, 0 otherwise.	Manual
Social (Dummy)	1 if the content of the trend is social-related according to our trend classification description presented in Appendix D, 0 otherwise.	Manual
Governance (Dummy)	1 if the content of the trend is governance-related according to our trend classification description presented in Appendix D, 0 otherwise.	Manual
Popularity	The trend popularity value is calculated based on a composite of user behaviors, including searches, discussions, and dissemination activities related to the trend.	Weibo
Distance (Dummy)	1 if the target firm sells directly to end consumers and 0 otherwise.	Manual
Size	The natural logarithm of total assets.	Bloomberg
CSR	The company's ESG disclosure score, based on a scale of 0-100.	Bloomberg
BTM	Ratio of book value to market value at the beginning of the year.	Bloomberg
ROA	Ratio of net income to total assets at the beginning of the year.	Bloomberg

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CHAPITRE II

ARTICLE 2

THE DARK CURRENTS OF DIGITAL DELIBERATION: SOCIAL MEDIA'S PARADOXICAL IMPACT ON CSR PRACTICES IN CHINESE LISTED FIRMS

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THE DARK CURRENTS OF DIGITAL DELIBERATION: SOCIAL MEDIA'S PARADOXICAL IMPACT ON CSR PRACTICES IN CHINESE LISTED FIRMS

Abstract

With the rise of social media, the dynamics of Corporate Social Responsibility (CSR) communication and even the power dynamics between organizations and stakeholders have shifted. Stakeholders can now swiftly voice opinions, exchange ideas, and form alliances on social media, creating substantial public pressure that drives companies to alter their CSR practices. This study investigates 498 Chinese companies listed in the US, Hong Kong and the mainland China, delving into whether the voices on social media serve as positive catalysts for enhancing their ESG (Environmental, Social, and Governance) performance. Our findings indicate that discussions on social media do impact ESG performance, but in a negative way, particularly in the governance dimension. In contrast, social-related discussions do not significantly influence firms' ESG performance. This suggests that social media acts more as a challenger than a facilitator in corporate CSR communication and practices. Our study enriches the literature on CSR communication and legitimacy theory while providing actionable insights for policymakers and investors on responding to social media pressures.

Keywords: Decoupling of CSR Legitimacy, Asymmetry in Governance Pressures, Digital Double -Edged Sword

2.1. Introduction

Nowadays, corporate social responsibility (CSR) has become an important agenda in both academia and business. With increasing prominent conflicts between business and society, CSR has been viewed as an effective strategy to alleviate them. Several attempts have been made to investigate the determinant of being a responsible organization. The existing body of research suggests that both internal and external factors affect a firm's decision to engage in CSR. Internal factors include financial resources (Cho et al., 2019), management commitment (Yin, 2015), and organization culture (Yu & Choi, 2016). Regarding external factors, previous research has observed that competitive pressures within the industry (Dupire & M'Zali, 2018), regulation from the government (Ali et al., 2017), and media attention (Dyck et al., 2010; El Ghoul et al., 2019) can significantly influence firm's CSR activities.

In recent years, a growing number of studies have explored how communication channels shape CSR outcomes. Traditional media have been shown to influence corporate reputation and market value by amplifying public scrutiny (e.g., Bednar, 2012). However, the emergence of social media has introduced new dynamics to CSR communication and stakeholder engagement (Etter et al., 2019; Pizzi et al., 2021). Unlike traditional one-way communication, social media enables two-way and multi-stakeholder interactions, allowing users to co-create, interpret, and challenge corporate narratives in real time. Despite this, most studies still focus on how firms use social media as a strategic tool to enhance legitimacy, rather than examining how social media discourse generated by stakeholders may, in turn, influence corporate CSR performance.

It is not difficult to observe that the research to date has tended to focus on those salient stakeholders (e.g. Customers, employees, regulators and the media, etc.). According to Mitchell et al. (1997), the salience of a stakeholder can be defined by the urgency of meeting the stakeholder's current needs, his legitimacy to interact with organizations, and his power of negotiation. Consequently, diffuse or secondary stakeholders have long been overlooked, given their lower level of salience. However, the rise of social media has transformed this landscape.

As a typical product of web 2.0, social media plays a vital role in reshaping the interaction between business and society (Saxton et al., 2021). Many companies have identified the benefits

of social media in marketing, and have used it for brand building, increased sales, customer communication, and so on. In the area of CSR, social media is used as a broadcasting tool without exception to distribute information (Pizzi et al., 2021) about firms' ambitions to address social and environmental issues. However, most management might ignore the important fact that social media is also a powerful tool for primary and secondary stakeholders. With rising public awareness of corporate externalities, stakeholders are increasingly learning to engage with ESG issues. They often respond to the most accessible sources of ESG information, such as ESG topics discussed on social media, through actions such as investment or divestment by shareholders and boycotts or buycotts by consumers, which can materially affect a firm's financial performance. All stakeholders, especially the marginalized ones (e.g., the public, communities) are allowed to create information, share it, tell stories, develop social networks, and build narratives based on a stakeholder's perspective rather than business. In other words, with the proliferation of social media, previously unsalient stakeholders are no longer voiceless.

Against this background, this study investigates the impact of ESG related social media trends—specifically Weibo discussions—on corporate ESG performance. We aim to answer the following research questions: (1) How do social media discussions surrounding ESG issues affect corporate ESG performance? (2) Do different types of social media content (e.g., social vs. governance-related, positive vs. negative) have distinct effects? Our sample includes 2,570 observations derived from 10,591 ESG-related Weibo trends related to 498 Chinese firms listed in Mainland China, Hong Kong, and the United States over a six-year period from January 1, 2018, to December 31, 2022. Through detailed analyses of sentiment (positive vs. negative) and thematic content (social vs. governance-related), we uncover a paradoxical relationship: while governance-related discussions significantly and negatively affect ESG performance, social-related discussions exert no measurable influence. Notably, both positive and negative governance-related discussions lead to similar adverse outcomes, highlighting the counterproductive role of social media in shaping CSR practices.

This study makes several important contributions. First, it extends the CSR communication literature by integrating social media discourse as a central element of stakeholder engagement. Prior studies have largely examined corporate use of social media for self-presentation and

legitimacy management (Etter et al., 2019; Golob et al., 2013). By contrast, we focus on externally generated discussions, demonstrating that stakeholder-driven social media content can produce distinct and sometimes adverse effects on corporate ESG outcomes.

Second, our study contributes to legitimacy theory by revealing that legitimacy pressures emerging from social media can undermine rather than enhance corporate sustainability performance. This finding complements the traditional view that legitimacy-seeking behavior is uniformly beneficial, suggesting that fragmented and polarized public discourses can generate short-term compliance pressures that hinder long-term CSR development and shaping ESG performance or something like that.

Finally, this research enriches the understanding of stakeholder theory by empirically showing that non-salient stakeholders, empowered by social media, can exert real influence on corporate behavior. It highlights the evolving nature of stakeholder salience in the digital era, where diffuse and decentralized actors shape corporate accountability through online visibility and collective attention.

The remainder of this paper is organized as follows: Section 2 delves into the theoretical framework and the development of hypotheses. Section 3 describes the composition of the sample, and the method used for data collection. Section 4 provides a detailed account of the research methodology. Section 5 presents the findings of our study. Finally, Section 6 discusses these findings and draws conclusions.

2.2. Theoretical Framework and Hypotheses Development

2.2.1. Stakeholder Theory

Neoliberalism, the dominant ideology in the previous century, led to societal issues. It has prioritized short-term corporate interests over long-term societal sustainability, resulting in numerous business scandals. This gave impetus to the stakeholder theory. Freeman (1984) suggested that organizations are influenced by and impact various external groups or stakeholders. An organization's success hinges on satisfying and creating value for these stakeholders (Clarkson, 1995; Chung et al., 2009). The stakeholder theory posits that companies should extend

their focus beyond mere shareholders' profits to include the needs and interests of all stakeholders, aiming to generate value for them (Donaldson & Preston, 1995).

2.2.1.1. Stakeholder Management

The stakeholder theory does not mean that all stakeholders are considered in the same way in organizational decision-making (Donaldson & Preston, 1995). The organization must decide which stakeholder group can be involved in which process, according to the scope, value and responsibility of stakeholders and the outcome of stakeholder engagement. Stakeholder salience investigates the extent to which the company gives priority to competing stakeholders' claims, which is one of the most important streams in stakeholder theory (Mitchell et al. 1997; Neville et al. 2011). Mitchell et al. (1997) put forward a three-factor model (power, legitimacy and urgency) to explain how managers prioritize relationships with stakeholders. Power refers to the ability of stakeholders to let an organization do something that would not have been done otherwise. Legitimacy means the generalized perception that stakeholders' requests are appropriate. Urgency refers to the immediate need for action to determine the organizational response at the time of receiving stakeholders' requests, which should consider time sensitivity and criticality. In short, stakeholder salience can be defined by the urgency of meeting current needs, the legitimacy of relationships with organizations, and the stakeholder power of negotiation (Friedman & Miles, 2006). A stream of research argues that companies implement efficient stakeholders' management through salience analysis, and prioritization can achieve competitive advantage and better performance (Wang & Sarkis, 2017).

Traditionally, companies pay particular attention and devote resources to primary stakeholders as they impose their own intentions on the organization. Among these three attributes, stakeholder power has long been viewed as the most influential contributor to salience (Parent & Deephouse, 2007). When a company relies on powerful stakeholders for resources, they will work on direct strategies to address their concerns (Mitchell et al., 1997). For example, radical protest groups can block factories or shops to stop the company from daily operation (i.e. withhold physical resources). Shareholders can sell the stock, putting downward pressure on the stock price (i.e. withhold financial resources). The media can release unfavorable stories to delegitimize the company (i.e. withdraw symbolic resources). When the company does not depend on them,

powerful stakeholders can also apply indirect strategies, such as coalitions formed between stakeholder groups to enhance their negotiating position with organizations (Neville & Menguc, 2006).

In contrast, organizations do not respond but ignore marginalized stakeholders, such as individual citizens and related communities who have little power in their relationships with companies due to the prohibitive communication costs and the incapacity for collective actions (Saxton et al., 2021). Typically, these diffused stakeholders have heterogeneous interests, which leads to considerable differences in individual attitudes within and among stakeholder groups, hindering their ability to mobilize for collective actions and set actionable priorities (Cordano et al., 2004).

2.2.1.2. The Dynamics Transformation Between Companies and Stakeholders

In the pre-social media era, managers acknowledged that only primary stakeholders (e.g., customers, employees, the government) have the greatest power to impact firm's activities while secondary stakeholders (e.g., the public, communities) have little power (Jurgen et al. 2016). Secondary stakeholders were also perceived to have less legitimacy and urgency behind their requests (Jurgen et al. 2016; Saxton et al. 2021). As a result, they have received little attention from firms' managers. This conventional approach to manage secondary stakeholders' requests (Mitchell et al, 1997) is no longer relevant in the digital age. In the absence of firms' actions, secondary stakeholders can exert a direct influence by using social media as a platform to question and held firms accountable (Jurgen et al. 2016; Saxton et al. 2021). As suggested by Saxton et al. (2021), since secondary stakeholders cannot exert their power through utilitarian means (e.g. material and financial means), they can use a new type of power that social media can offer: *the connective power* (Saxton et al. 2021). According to Jurgens et al. (2016), secondary stakeholders display several features of participants in social movements. For instance, they represent a disparate group of individuals with diverse interests regarding firms' practices. Furthermore, they have many concerns about firms' activities and their goal is to question the legitimacy of firms' operations and provoke changes. In the pre-social media era, the initiation of collective actions (e.g., social movements) that mobilize diverse groups of individuals and bring about changes was arduous and burdensome. This has changed because social media technologies,

through their connective power, facilitate cooperation between secondary stakeholders while providing legitimacy to their requests.

More specifically, social media can 1) help secondary stakeholders gather and share information about an injustice or firms' misdeeds at a rapid pace and low costs, 2) increase communication and coordination between individuals/networks, 3) speed up injustice/identity frames, and 4) boost the development of a consensus that will help support a large participation in a social movement against firms' practices (Jurgen et al. 2016; Saxton et al. 2021). Hence, by allowing secondary stakeholders to develop a new type of power (connective power), social media can increase their salience (Jurgen et al. 2016; Saxton et al. 2021). In addition, because stakeholder salience is positively linked to firm's social performance (Ullman, 1985; Roberts, 1992; Mitchell et al. 1997; Parent and Deephouse, 2007; Saxton et al. 2021), we should expect social media trends to have an impact on CSR. The connective power of social media could also facilitate cooperation between secondary and primary stakeholders, increasing even further the power of all stakeholders.

Furthermore, the impact of such connective power should be linked to the characteristics of social media trends. We argue that ESG issues with large numbers of trends will have a more connective power because frequent trends reflect the priorities of social media users and reach out to more people. Hence, trends in connection with the most frequent topics discussed across social media are most likely to receive more attention from firm's managers and lead to high social performance. In the same line of reasoning, managers should have less incentives to improve their social performance when ESG issues do not reflect secondary stakeholders' priorities (low numbers of trends). Our observations from the data on trends popularity suggest that social media users are most concerned with social issues (e.g., consumers relations, employees' rights, community relations) which account for 58% of all trends, and governance issues (e.g. transparency and integrity, compliance and regulation etc.) which account for 41% of all trends. In contrast, trends in connection with environmental issues only account for less than 1% of all trends respectively. Hence, we should predict that discussions in connection with more engaged users are more likely to draw managers' attention and motivate firms to engage in more social activities that lead to high social performance.

In addition to stakeholders' power, firm response is also shown to be related to stakeholders' legitimacy and urgency (Mitchell et al. 1997; Saxton et al. 2021). We argue that secondary stakeholders can also use social media platforms to increase their legitimacy and the urgency of their requests. As suggested by Jurgens et al. (2016), the connective power of social media should make it easy for individual citizens to also reach and appeal to "opinion makers" (e.g., influencers, celebrities, journalists, politicians…) who can have a large impact on public opinions because of their integrity, expertise, reputation, and prestige. These opinion makers can draw public attention to a cause, reinforce interest on trending topics, and provide legitimacy making it easy for individual citizens to raise an issue to prominence in the public debate (Jurgens et al. 2016). Hence, opinion makers reactions to secondary stakeholders' messages may contribute to provide legitimacy to the issues in question and support the efforts of individual citizens (Jurgens et al. 2016). We then argue that the connective power of social media could translate to a normative power to the extent that opinion makers become parts of the network of connections. This may help secondary stakeholders to also acquire normative power (legitimacy) and have an impact on firms' social performance.

Finally, the connective power of social media could also have an impact on the urgency of secondary stakeholders' requests. In the literature, many authors (e.g., Coleman and Wu, 2010; Ferrara and Yang, 2015; Saxton et al. 2021) consider that non-neutral sentiments (positive or negative sentiments) have a stronger impact on public opinions and firms' reputation because such sentiments convey more powerful emotions and are more likely to spread and be shared at a rapid pace. In this study, we argue that negative sentiments should have a larger effect because content with negative messages could easily damage firm's reputation and credibility. On the other hand, as suggested by Jurgen et al. (2016) and Saxton et al. (2021), firms should depend on positive sentiments to maintain their reputation and credibility. As a result, social media negative sentiments should reflect a greater urgency in comparison to positive sentiments and will have a greater impact on firms' social performance.

In summary, with the connective power of social media, secondary stakeholders can exert the same influence that is routinely enjoyed by primary stakeholders (Jurgen et al. 2016; Saxton et al. 2021). Consequently, social media has transformed the dynamics between companies and their stakeholders. It enhances stakeholder participation in CSR communication (Farache et al., 2018)

and contrasts with traditional media's role in structuring a company's advantageous position (Carroll & McCombs, 2003; Schultz et al., 2011). Traditional media fostered a one-to-many communication hierarchy (Colleoni, 2013), whereas social media allows for abundant information creation, enabling more stakeholders to actively engage in communication. As suggested earlier, social media also increases the salience of marginalized stakeholders and reduces the cost for them to reach companies, contrasting with prestige media's elite-focused content (Dawkins, 2004). On social media, individuals can directly share experiences and opinions in real-time. Furthermore, marginalized stakeholders can gain new power through connective relationships on social networks (Saxton et al., 2021; Chung & Cho, 2017). Additionally, social media helps organize these stakeholders into coherent interest groups, overcoming historical communication barriers (Neville & Menguc, 2006; Cordano et al., 2004; Rowley & Moldoveanu, 2003; Gray et al., 2012). Moreover, it enhances stakeholder salience in terms of urgency. Traditional CSR communication was periodic and firm-centered (Elving et al., 2015), but social media provides a dynamic, interactive space for continuous discussions (Castelló et al., 2016).

2.2.1.3. The Impact of Social Media Trends on Corporate CSR Performance

With enhanced connective power, stakeholder discussions on social media, particularly concerning CSR communication, should significantly impact corporate social performance, yet this aspect remains under-researched. Most studies have focused on a business-centric broadcast strategy rather than genuinely incorporating stakeholder voices (Elving et al., 2015). Among various stakeholder groups, customer engagement on social media has been extensively studied. This includes their activities like accessing information, writing reviews, and participating in word-of-mouth campaigns (Van Doorn et al., 2010). Such customer interactions help companies identify concerns, understand criticisms, and enhance service quality (Sashi, 2012). They also enable predictions of product and service demand (Morsing & Schultz, 2006). Effective engagement leads to increased customer trust, purchase intention, and brand loyalty (Uzunoğlu et al., 2017). Additionally, customers often act as active brand ambassadors, influencing company reputation and product recognition positively (Goh et al., 2013; Morsing & Schultz, 2006; Flammer, 2015).

Beyond consumers, the activities of other stakeholder groups on social media have not received substantial scholarly attention. For instance, employees often face corporate monitoring and constraints on their social media expressions. Studies indicate that social media is utilized for tracking and supervising employees, potentially influencing their behavior outside of work (Thompson et al., 2020). Such surveillance may limit employees' freedom of expression, leading to a reduction in their online activities to avoid unnecessary troubles when they become aware that their posts or blogs are observed and analyzed (Stohl et al., 2017; Thompson et al., 2020). Nonetheless, it can be posited that the voices of stakeholders on social media can oversee corporate behavior, motivating improvements and optimization, thereby enhancing corporate social responsibility.

Furthermore, the interactivity and transparency of social media can augment the credibility and authenticity of corporations. For example, feedback from various stakeholders, especially individual citizens, provides emotional authenticity, thereby reducing public skepticism (Gomez & Borges, 2017). The transparency and authenticity with which corporations handle both positive and negative information can increase stakeholder trust in corporate social responsibility communications (Men & Tsai, 2014). In summary, with the connective power of social media, the voices of stakeholders on social media can drive corporations to adopt more proactive strategies. This adaptation to the changing dynamics of stakeholder power (e.g., the rise of connective power) and agenda setting in the era of social media can thereby enhance corporate social performance. Based on the above arguments, we therefore propose the following hypothesis：

H1a: Social media trends targeting ESG practices of listed companies have a positive impact on their ESG performance.

H1b: Social media trends targeting social practices of listed companies have a positive impact on their social performance.

H1c: Social media trends targeting governance practices of listed companies have a positive impact on their governance performance.

H1d: The positive impact of social media trends targeting the ESG practices of listed companies is more pronounced for negative sentiments.

It should be noted that the environmental dimension is not included in this study due to its low prevalence in the collected sample. Environmental topics accounted for less than 1% of all relevant social media trends, whereas social and governance discussions represented 58% and 41%, respectively. Consequently, we did not formulate or test specific hypotheses regarding environmental performance, and the analysis focuses instead on the more salient topics within the social and governance dimensions.

2.2.2. Legitimacy Theory

The concept of legitimacy, originating in socio-political research and institutional theory, is pivotal in corporate environmental research. Suchman (1995) defines it as a perception that an entity's behavior aligns with socially constructed systems of norms and values. The legitimacy theory is based on the premise that there is a social contract between a firm and the society in which it operates (Deegan, 2002; Reverte, 2009). A failure to respond to the multitude expectations society has can threaten firm's survival (Deegan, 2002; Reverte, 2009). In this respect, strong CSR engagement should enable firms to conform to societal expectations and high CSR disclosure should represent an important means by which firms can inform and influence the public perceptions (Deegan, 2002; Reverte, 2009).

Legitimacy should then reflect an entity's alignment with societal expectations and often extends beyond legal compliance. For instance, certain legal yet unethical practices may be deemed illegitimate by communities in which firms operate. Furthermore, Legitimacy is a dynamic concept that is influenced by ongoing discussions and negotiations within public discourse (Palazzo & Scherer, 2006; Schultz et al., 2013; Castelló et al., 2016).

Stakeholder theory and legitimacy theory share similarities, conceptualizing companies as part of a broader social system. On the other hand, while the stakeholder theory (Freeman, 1984) posits that organizations gain support by aligning with particular groups within society (powerful stakeholder groups), the legitimacy theory focuses on the general expectations of society at large (Deephouse & Suchman, 2008).

Furthermore, several studies (e.g., Boxenbaum & Jonsson, 2017; Heimer, 1999; Ruef and Scott, 1998) suggest that in the presence of contradictions among multiple institutionalized pressures and societal expectations, legitimacy can be more about societal perception than actual practices. As suggested by Boxenbaum & Jonsson (2017), decoupling occurs when a firm pretends to do something (e.g., strong CSR engagement) that it does not actually do. Decoupling can be a rational response by a firm that seeks legitimacy while responding strategically to simultaneous contradictory pressures (Boxenbaum & Jonsson, 2017). Hence, a legitimate organization can be perceived as 'fair and worthy of support' (Dowling & Pfeffer, 1975) even if its actual conduct differs from its proposed policies. Organizations may maintain legitimacy through inappropriate activities, like environmental pollution or unethical business practices, if these actions remain unnoticed. Legitimacy can be then judged on 'appropriateness' rather than 'rightness' (Suchman, 1995) and should vary across cultures due to different norms about legitimate corporate activities (Ali et al., 2017).

In this study, we argue that the rise of social media has accelerated the evolution of social expectations and business-society negotiations, presenting new challenges to organizations that seek to adapt to institutional pressures and operate in a legitimate manner.

2.2.2.1. The Impact of Social Media on Organizational Legitimacy

Media's role in shaping social expectations has evolved with the advent of social media. Traditional media, known for setting public agendas and influencing opinions (McCombs & Valenzuela, 2020), is now complemented by social media platforms that allow direct public discourse and democratize content creation (Papacharissi, 2009). Movements like #MeToo illustrate social media's ability to give voice to diverse topics and viewpoints. In this respect, social media have become an important medium for mobilizing social activism and a key instrument to disseminate social claims (Gomez-Carrasco & Michelon, 2017). As suggested earlier, the connective power of social media facilitates the initiation of collective actions and social movements. Gomez-Carrasco & Michelon (2017) argue that online protests can fulfill the three requirements of social movements: they are collective, organized, and public. Furthermore, the social movement theory suggests that social movements can lead to institutional changes in modern societies. Hence, by allowing the development of effective social movement protests,

social media can have an impact on the relationship between firms and society and ultimately on the social contract between firms and society. In other words, social media can become an important medium that shapes the norms of what is socially acceptable and legitimate.

In the same line of reasoning, the immediacy and wide reach of social media intensify the impact of corporate scandals, as exemplified by the viral video of a United Airlines passenger's mistreatment (Hayden & Dooley, 2017). This immediate dissemination of content poses significant challenges to traditional PR strategies and alters the dynamics of public perception. Social media's credibility as an information source (Westerman et al., 2012; Kollat & Farache, 2017) makes it a powerful tool in shaping organizational legitimacy. Personal experiences shared on platforms like Reddit can quickly resonate with a wide audience, influencing public opinion on corporate behavior, as seen in Apple's software update controversy (Clayton, 2020). As a result, social media can play an important role in increasing the public pressure faced by firms leading them to change their CSR practices in order to maintain their legitimacy.

In conclusion, social media not only accelerates changes in social expectations but also magnifies the impact of these changes on organizational legitimacy. The platform's ability to rapidly disseminate information and foster polarized views presents complex challenges for organizations striving to maintain their legitimacy in an evolving social landscape.

2.2.2.2. The Impact of Social Media Trends on CSR Performance Through Legitimacy

Numerous CSR studies, grounded in legitimacy theory, concentrate on environmental and social accounting or sustainability reporting (Cho & Pattern, 2007; Cordano et al., 2004; Mahoney et al., 2013; Montiel et al., 2012; Yoon et al., 2006). According to legitimacy theory, companies are required to align with societal rules, values, and norms, and must demonstrate this compliance through transparent disclosures. Such alignment is crucial for securing operational support from the community. Empirical studies suggest that the pursuit of legitimacy drives the adoption and effective implementation of social responsibilities, consequently enhancing social performance (Hickman & Cote, 2019; Bai et al., 2019). Research, including works by Hunter and Bansal (2007), Flammer (2015), Wang and Sarkis (2017), Martin-de Castro et al. (2020), and Baah et al. (2021), underscores the role of environmental legitimacy as a catalyst for corporate

environmental and social responsibilities. However, a contrasting perspective posits that organizations may place greater emphasis on CSR disclosures over actual practices to manage their legitimacy. For instance, Cho and Pattern (2007) identified that companies with inferior environmental performance tend to make more, particularly quantitative, disclosures. Similarly, Chen et al. (2008) discovered that companies facing product and environmental safety issues often make more charitable donations than their higher-performing counterparts. These findings indicate a potential tendency among companies to adjust their disclosures, rather than their actual practices, to preserve or enhance their perceived legitimacy though decoupling.

Decoupling allows firms to seek legitimacy without increasing their social performance. As suggested by Boxenbaum & Jonsson (2017), decoupling policies and practices involves a risk of detection that can lead to illegitimacy and shame. The risk of detection remains low as long as firms can avoid scrutiny or at least control the process of scrutiny (Boxenbaum & Jonsson, 2017). While traditional legitimacy research, informed by management perspectives, holds that organizations can somewhat control their legitimacy (McCombs & Valenzuela, 2020), the rise of social networks challenges this view. Social media diminishes the influence of traditional news media in setting public agendas (Carroll & McCombs, 2003; Castelló et al., 2016) and empowers a broader range of stakeholders to engage in discourse about a company. This democratization of conversation reduces a company's control over its image and narrative. Stakeholders now use social media to express their experiences, expectations, and perspectives on a company's CSR practices, thereby circumventing traditional corporate impression management strategies.

However, while social media reduces business organizations' dominance over narratives and public relations, it does not necessarily foster collaboration among diverse stakeholder groups or translate into greater stakeholder influence over firms' CSR practices. Barnett et al. (2020) argue that the increased immediacy and abundance of information exchange on social media do not necessarily facilitate communication and collaboration between firms and stakeholders. Instead, these dynamics often amplify pre-existing views due to human cognitive limitations, creating an "echo chamber" effect that poses significant challenges to corporate CSR activities. Specifically, Barnett et al. (2020) suggest that the massive increase in information flows associated with social media makes it more difficult for stakeholders to process the overwhelming volume of unfiltered and unverified information. To deal with this information overload, stakeholders tend to filter out

content inconsistent with their interests and identities, considering only on information that is coherent with their established views (Barnett et al. 2020), thereby reinforcing the echo chamber effect. In the digital era, such cognitive limitations have led to greater polarization and reduced convergence of public opinions and interests on many critical social issues. For instance, many conservative activists have criticized Diversity, Equity, and Inclusion (DEI) programs while liberal activists have embraced such initiatives. More recently, in response to effective social media campaigns organized by conservative groups, many firms (e.g. Molson Coors, John Deere etc.) are scaling back DEI programs which should impact negatively their social performance. These simultaneous contradictory pressures that result from the personalization of stakeholders' interests and identities push firms to micro-manage stakeholders mostly based on their capacity to affect negatively firm's financial performance instead on the nature of their demands. This creates substantial challenges for corporate communication and CSR practices. Moreover, as the costs of this micro-management exceed its diminishing returns—given that breaking stakeholders' established frameworks and constructing new ones around specific issues becomes increasingly difficult—firms may opt for symbolic strategies to shift public perceptions without making meaningful changes to their actual practices. In other words, according to legitimacy theory and cognitive theory, social media trends may decrease firms' social performance by exacerbating such legitimacy challenges.

In governance, corporations face similar challenges. Activist groups on social media increasingly oppose companies endorsing ESG policies, demanding the withdrawal of DEI initiatives and accusing firms of violating fiduciary duties. The possibility of more shareholder lawsuits looms, especially if regulatory enforcement of ESG practices continues, thus equipping activist shareholders with additional ammunition. However, comparing the stakeholder groups involved in the social dimension (e.g., customers, employees, suppliers, NGO's and communities) with those in the governance dimension (e.g., minority shareholders, creditors, and analysts), reveals that stakeholders in the social dimension are more diverse and exhibit a higher degree of personalized demands. This implies that the cost for firms to engage in micro-management to maintain legitimacy is substantially higher in the social dimension. Therefore, we hypothesize that social media trends focusing on social issues lead to a greater decline in corporate social

performance than do trends related to governance issues. Given the aforementioned analysis, we therefore propose the following hypothesis:

H2a: Social media trends targeting ESG practices of listed companies have a negative impact on their ESG performance.

H2b: Social media trends targeting social practices of listed companies have a negative impact on their social performance.

H2c: Social media trends targeting governance practices of listed companies have a negative impact on their governance performance.

H2d: The negative impact from social media trends is more pronounced for social practices than for governance practices of listed companies.

2.3. Sample

2.3.1. Data Sample

Our sample comprises 2,570 observations, drawn from 10,591 social media trends involving 498 unique Chinese companies. The dataset for this study covers publicly listed companies from three major destinations for Chinese firms seeking capital: Mainland China (281 firms listed on the Shanghai and Shenzhen Stock Exchanges), Hong Kong (143 firms listed on the Hong Kong Stock Exchange), and the United States (74 firms listed on the NASDAQ and New York Stock Exchange).

As for the selection of social media trends, we have chosen Weibo, one of the largest Chinese social media platforms, boasting a total of 252 million daily active users and 586 million monthly active users as of the end of 2022. The rationale for selecting Weibo is threefold. Firstly, it is a public platform that focuses more on interactions among strangers rather than within a network of acquaintances, with most content being visible to all users, thereby facilitating the formation of public opinion. Secondly, Weibo's trending list is updated every minute based on topic and popularity, displaying the top 50 topics. Unlike Twitter trends, which are tailored for users based on whom they follow, their interests, and their location, Weibo trends are uniform for all users.

Thirdly, the ranking of Weibo's hot search considers user search behavior, discussion, and dissemination activities, collectively reflecting the extent of user attention and interaction. Moreover, Weibo has a mechanism to identify and exclude behaviors of bot accounts and paid posters. For instance, Weibo identifies bot accounts or paid posters through certain characteristics such as the ratio of following to followers, the presence of a profile picture, verification status, and the detail of personal information.

2.3.2. Data Collection

We first rely on a third-party archive site, *Hot Search Engines*[5], which returns all trend records matching a seed word. At this stage, we employed the names and abbreviations of all sample companies as keywords, resulting in the collection of 46,594 social media trends from 641 companies over the 5 years period from January1, 2018 to December 31, 2022. After removal of invalid, duplicated, and unrelated (e.g. market advertisement) trends, we finally get our sample which contains 10,591 Weibo ESG related trends involving 498 listed firms.

It is pertinent to note that the dependent variable in this study, ESG performance, is annual data. Therefore, it necessitates the transformation of independent variables to ensure consistency in temporal comparison and correlation analysis. After thorough consideration, we opted for the summation method, which involves calculating annual data by aggregating the respective counts over a year. This approach not only simplifies the aggregation process but also effectively captures the intensity and ESG trends on social media throughout the year. Based on our ESG dimension coding of social media trends, three variables were generated: the total trend count for all ESG issues (*SMT_All*), encompassing all discussion topics regardless of dimension, the total trends count for social dimension (*SMT_S_All*) and the total trends count for governance dimension (*SMT_G_All*).

2.4. Methodology

2.4.1. Independent Variable

A social media trend can contain either positive or negative opinions from users over a ESG issue. In addition to evaluating sentiment, we also classified each trend according to the specific ESG

[5] https://weibo.zhaoyizhe.com/

dimension it addresses—Environmental (E), Social (S), or Governance (G)—based on its textual content. This dual-layered coding approach allows us to capture not only the tone of the public discourse but also the thematic focus within ESG domains. The evaluation of the tone of a Weibo trend depends on the textual analysis method we choose. After careful comparison of common methods, we decided to apply a manual assessment for two reasons. First, the object of this research, the content generated by regular social media users, is often too subtle. Its interpretation generally depends on the discussion context involved and is not appropriate for the dictionary-based approach. Second, the language trends and slang adapted by users, especially bandwagoners, change rapidly. Therefore, machine learning may not be suitable for social media discourse comprised of rapidly evolving new terms and phrases.

Following the interpretative framework initiated by Dupire et al. (2022), we read a sub-sample of 500 trends and classified them into three groups: positive, negative and neutral. At the same time, we also coded each post's ESG dimension during the reading process, using contextual cues to determine whether a trend falls under the E/S/G category. During this process, we kept fine-tuning the tone definition to set decision-making rules for those posts that are not straightforward to identify the tone. Then, we use this definition rule to code all the Weibo trends. To avoid any inconsistency resulting from evolution of the definition rules, in this stage, we re-code the 500 trends that had been analyzed before, ensuring a single identical definition across the whole sample.

As the dependent variable, ESG performance, is available only as annual data, we transformed the independent variables accordingly to ensure temporal alignment for correlation analysis. After careful consideration, we adopted a summation approach: counting all relevant trends per year. This method not only facilitates consistent comparison but also effectively captures the intensity and ESG focus of social media activity over time.

Based on our sentiment classification and ESG dimension coding of social media trends, we constructed several independent variables. Three count variables reflect topic volume by ESG dimension: total trend count for all ESG issues (*SMT_All*), total trend count for the social dimension (*SMT_S_All*), and total trend count for the governance dimension (*SMT_G_All*). Additionally, we created six sentiment-specific indicators: Positive (*SMT_Pos*) and Negative

Trend Counts (*SMT_Neg*); Positive (*SMT_S_Pos*) and Negative (*SMT_S_Neg*) counts for the social dimension; and Positive (*SMT_G_Pos*) and Negative (*SMT_G_Neg*) counts for the governance dimension.

2.4.2. Dependent Variable

The social performance data, the dependent variable, is provided by Bloomberg's comprehensive suite of ESG and Climate Indices. The Bloomberg ESG Pillar scores (*ESG*) range from 0 to 10, with 10 being the best possible score, reflecting superior social performance. Except for the aggregate measure of a firm's ESG performance, we also consider two disaggregate measures, namely Social and a Governance pillar. Each of these pillars is comprised of a core set of ESG-related issues. The Social pillar (*ESG_S*) focuses on a company's relationships with its stakeholders, including employees, customers, and the community, while the Governance pillar (*ESG_G*) assesses a company's leadership, audits, internal controls, shareholder rights, and transparency.

2.4.3. Control Variables

In this study, multiple control variables were comprehensively considered. Company size (*FirmSize*), calculated as the logarithm of total assets, was included based on the hypothesis that it may influence public attention and subsequently affect the company's ESG practices (Brammer & Millington, 2006; Udayasankar, 2008). Company age (*FirmAge*), measured as the number of years since listing, was considered as a control variable to acknowledge variations in management system maturity and adaptability to ESG trends across companies of different ages (D'Amato & Falivena, 2020). Additionally, board independence (*Bd_Indep*) and gender diversity (*Bd_Gen*) were incorporated, with board independence quantified as the proportion of independent directors on the board, and gender diversity measured by the percentage of female directors. These factors are hypothesized to impact decision-making processes and the development and implementation of ESG strategies (Birindelli et al.,2018; Velte, P., 2016). Leverage (*Leverage*), defined as the debt-to-asset ratio, was included based on the theory that financial stability might influence the company's ability to make long-term ESG investments (Kao et al., 2018; Yang & Baasandorj, 2017). Return on equity (*ROE*), as a crucial indicator of a company's profitability and capital efficiency, is calculated as net income divided by shareholder

equity and could reflect the company's capacity to invest in ESG activities (Cho et al., 2019; Otero-González et al., 2021). Similarly, Tobin's Q (*TobinQ*), calculated as the market value of a company divided by the replacement cost of its assets, represents market expectations of the company's future growth potential and may influence the level of attention given to the company's ESG practices (Cho et al., 2019).

2.4.4. Model Specification

To examine the impact of stakeholder voice on ESG performance, the following regression is planned to be estimated:

$$ESG_{i,y} = \alpha_0 + \alpha_1 SMT_{i,y} + \alpha_2 X_{i,y} + \epsilon_{i,y} \quad (2.1)$$

In the model, $ESG_{i,y}$ represents the ESG performance of company *i* in year y. The term $SMT_{i,y}$ quantifies the total number of social media trends concerning the ESG issues of company *i* during year *y*. The variable $X_{i,y}$ encompasses a vector of other control variables that are hypothesized to influence the ESG performance of the company, including firm size, firm age, leverage, board independence and board diversity. Lastly, $\varepsilon_{i,y}$ denotes the error term, capturing the variation in ESG performance not explained by the model.

Considering the disaggregate measurements of ESG, the model to estimate is specified as follows:

$$ESG\_S_{i,y} = \beta_0 + \beta_1 SMT\_S_{i,y} + \beta_2 X_{i,y} + \epsilon_{i,y} \quad (2.2)$$

In this specified model, $ESG\_S_{i,y}$ denotes the social performance aspect of company *i* 's ESG achievements in year *y*. The independent variable $SMT\_S_{i,y}$ is defined as the count of social media trends that are specifically related to the social dimension of company *i*'s ESG issues during the year *y*. The vector $X_{i,y}$ remains as the set of control variables that may affect the company's social performance. The term $\varepsilon_{i,y}$ represents the error term for the social performance equation, capturing the unexplained variation by the model.

$$ESG\_G_{i,y} = \gamma_0 + \gamma_1 SMT\_G_{i,y} + \gamma_2 X_{i,y} + \epsilon_{i,y} \quad (2.3)$$

In the subsequent model, $ESG\_G_{i,y}$ signifies the governance performance dimension of company i's ESG profile in year y. The variable $SMT\_G_{i,y}$ captures the number of social media trends that pertain to the governance-related ESG concerns of company i in the specified year. The control variables in $X_{i,y}$ are maintained to include any factors that might influence the company's governance performance. The error term $\varepsilon_{i,y}$ in this equation accounts for the variation in governance performance that is not explained by the included variables.

Given the presence of skewness in the original data, a pattern consistent with the empirical reality that most firms receive minimal attention while only a few large, highly visible companies attract the highest discussion levels, we carefully evaluated two methodological approaches. Initially, we considered applying a logarithmic transformation to the independent variable and estimating the model using OLS regression. However, due to concerns over potential heteroskedasticity, this approach was deemed unsuitable. Alternatively, we employed a Generalized Linear Model (GLM), which theoretically accommodates the right-skewed distribution through an appropriate error structure and a log-link function. By directly modeling the relationship between the mean and variance of the dependent variable, the GLM inherently addresses heteroskedasticity at the model level, thereby yielding more robust estimation results.

To further assess model suitability, we conducted a Hausman test to determine whether unobserved industry- and time-specific effects were correlated with the explanatory variables. The test results rejected the null hypothesis of no correlation, confirming the appropriateness of a fixed-effects specification. Consequently, to more accurately control for these time-invariant factors and reduce potential biases, we employed a model with time and industry fixed effects to enhance the explanatory and predictive power of our analysis.

2.5. Results

2.5.1. Univariate Analysis

We present in Table 2.1 the descriptive statistics of our variables (except dummy variables for industries). Table 2.1 reveals a right-skewed distribution for ESG-related Weibo trend discussions, the most notable companies managed to feature on Weibo trends as many as 98 times within a single year, while most companies typically remained unnoticed, with an average

of approximately 2.452 trends per company and significantly more negative trends (mean of 1.454) compared to positive ones (mean of 0.686). For the social dimension, the average Weibo trends count stands at 1.170, with negative sentiment (mean of 0.757) being more prevalent than positive (mean of 0.275). Governance-related Weibo trends follow a similar pattern, averaging 1.297 trends with negative discussions (mean of 0.726) outweighing positive (mean of 0.396). This suggests that the Weibo discussion on both social and governance issues are more often skewed towards negative sentiment.

The ESG scores show an average of 2.194, with the social (*ESG_S*) and governance (*ESG_G*) components averaging 1.203 and 4.189, respectively. In terms of company characteristics, the average age (*FirmAge*) is over 12 years, with a broad range up to 31 years, indicating a mix of established and younger firms. The average size (*FirmSize*) indicates substantial variability, with the mean significantly higher than the median due to the presence of very large firms, as evidenced by the maximum value (10,428,940.003 million RMB). Board gender diversity (*Bd_Gen*) has an average of 16.715%, with some boards having up to 80.0% female directors. Board independence (*Bd_Indep*) averages over 38.551%, suggesting that more than one third of the board members are independent in most companies. Return on equity (*ROE*) shows a wide range, from deeply negative to highly positive, suggesting significant variation in profitability among the companies. Tobin's Q has a mean of 2.064, with an exceptionally high maximum, pointing to high valuation for certain firms relative to their assets.

Table 2.2 presents the Spearman correlation analysis results for all variables. Overall, Weibo trend discussions show no significant relationship with the ESG performance of the sampled companies. However, when examining specific dimensions, we find that, in the social dimension, positive trend discussions are significantly positively correlated with corporate social performance (0.119), aligning with predictions from stakeholder theory. In contrast, in the governance dimension, the relationship is much more pronounced: both positive and negative trend discussions are significantly negatively correlated with corporate governance performance (-0.145^{**} and -0.204^{**}, respectively). This indicates that discussions in the governance dimension are detrimental to improving governance performance.

Table2.1: Descriptive Statistics

	N	Mean	Min	Q1	Median	Q3	Max	SD
SMT_All	2,570	2.452	0	0	0	2	98	7.412
SMT_Pos	2,570	0.686	0	0	0	0	58	2.988
SMT_Neg	2,570	1.454	0	0	0	1	69	4.544
SMT_S_All	2,570	1.170	0	0	0	1	64	3.993
SMT_S_Pos	2,570	0.275	0	0	0	0	36	1.409
SMT_S_Neg	2,570	0.757	0	0	0	0	56	2.927
SMT_G_All	2,570	1.297	0	0	0	1	81	4.490
SMT_G_Pos	2,570	0.396	0	0	0	0	28	1.725
SMT_G_Neg	2,570	0.726	0	0	0	0	61	2.694
ESG	1,875	2.194	0	0	2.584	3.766	7.118	2.055
ESG_S	1,875	1.203	0	0	1.064	2.062	5.145	1.281
ESG_G	1,875	4.189	0	0	6.147	7.520	9.374	3.648
FirmAge	2,569	12.438	0	5	12	19	31	8.078
FirmSize	2,570	20,213.774	0	914.516	3,037.821	13,139.716	1,469,444.003	70,363.741
Leverage(%)	2,570	48.009	0	32.551	47.570	63.951	132.588	21.008
Bd_Gen(%)	2,471	16.715	0	6.25	14.290	25.000	80.000	13.370
Bd_Indep(%)	2,463	38.551	0	33.330	37.500	42.860	90.000	13.205
ROE(%)	2,570	5.276	-501.983	1.309	7.838	15.194	776.420	29.119
TobinQ	2,560	2.064	0	1.028	1.445	2.310	19.947	1.772

Note: This table shows the descriptive statistics of our variables. The sample includes 2,570 observations from 498 listed companies, with a total of 10,591 Weibo trends related to ESG topics from January 1, to December 31, 2022. For explanations and sources of all variables, refer to Appendix A. 'Q1' represents the first quartile, 'Q3' the third quartile, and 'SD' stands for standard deviation.

Table 2.2: Spearman Correlation Matrix

	SMT_All	*SMT_Pos*	*SMT_Neg*	*SMT_S_All*	*SMT_S_Pos*	*SMT_S_Neg*	*SMT_G_All*	*SMT_G_Pos*	*SMT_G_Neg*
SMT_All	--								
SMT_Pos	.556**	--							
SMT_Neg	.793**	.158**	--						
SMT_S_All	.754**	.381**	.672**	--					
SMT_S_Pos	.512**	.719**	.257**	.596**	--				
SMT_S_Neg	.633**	.149**	.769**	.854**	.280**	--			
SMT_G_All	.644**	.514**	.468**	.123**	.250**	.074	--		
SMT_G_Pos	.446**	.812**	.123**	.151**	.308**	.062	.634**	--	
SMT_G_Neg	.530**	.166**	.653**	.149**	.144**	.150**	.786**	.220**	--
ESG	-.027	.019	-.075	-.042	.046	-.070	-.064	-.041	-.123**
ESG_S	.104*	.096*	.053	.065	.119**	.036	.027	.028	-.033
ESG_G	-.158**	-.103*	-.182**	-.117**	-.054	-.132**	-.182**	-.145**	-.204**
FirmSize	.326**	.310**	.199**	.294**	.295**	.206**	.179**	.244**	.054
FrimAge	-.186**	-.082	-.235**	-.151**	-.067	-.203**	-.174**	-.093*	-.205**
Leverage	.050	.044	.007	.077	.129**	.010	.009	-.034	-.016
Bd_Gen	-.252**	-.194**	-.180**	-.313**	-.204**	-.286**	-.002	-.102*	.017
Bd_Indep	.219**	.231**	.128**	.216**	.215**	.173**	.108*	.179**	.041
ROE	-.138**	-.036	-.147**	-.154**	-.063	-.166**	-.008	.004	-.010
TobinQ	.036	.023	.099*	-.059	-.032	-.022	.163**	.091*	.237**

(Continued on next page)

Note: This table presents the Spearman correlation results for all variables. Our sample includes 2,570 observations composed of Weibo trends related to ESG topics from 498 listed companies, spanning from January 1, 2018, to December 31, 2022. Detailed explanations and sources of all variables can be found in Appendix A. ***, **, and *indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 2.2: *(continued)* Spearman Correlation Matrix

	ESG	*ESG_S*	*ESG_G*	*FirmSize*	*FrimAge*	*Leverage*	*Bd_Gen*	*Bd_Indep*	*ROE*	*TobinQ*
SMT_All										
SMT_Pos										
SMT_Neg										
SMT_S_All										
SMT_S_Pos										
SMT_S_Neg										
SMT_G_All										
SMT_G_Pos										
SMT_G_Neg										
ESG	--									
ESG_S	.871**	--								
ESG_G	.811**	.556**	--							
FirmSize	.546**	.514**	.435**	--						
FrimAge	.420**	.238**	.550**	.269**	--					
Leverage	.101*	.079	.086	.283**	.131**	--				
Bd_Gen	.064	-.003	.089*	-.279**	.043	-.041	--			
Bd_Indep	.051	.121**	-.072	.167**	-.069	-.012	-.263**	--		
ROE	.079	.030	.056	-.049	.075	-.278**	.204**	-.024	--	
TobinQ	-.255**	-.214**	-.320**	-.392**	-.277**	-.329**	.260**	.044	.412**	--

(End of Table 2)

Note: This table presents the Spearman correlation results for all variables. Our sample includes 2,570 observations composed of Weibo trends related to ESG topics from 498 listed companies, spanning from January 1, 2018, to December 31, 2022. Detailed explanations and sources of all variables can be found in Appendix A. ***, **, and *indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Additionally, Weibo discussions are positively correlated with company size (0.326**), whereas the proportion of independent directors (0.219**) exhibits significant negative correlations with firm age (-0.186**), the proportion of female directors (-0.252**), and profitability (-0.138**). and the proportion of independent directors (0.219**) is significantly negatively correlated with firm age (-0.186**), the proportion of female directors (-0.252**), and profitability (-0.138**). As expected, corporate ESG performance is positively correlated with various firm attributes, including company size (0.546**), firm age (0.420**), leverage (0.101*), while being negatively correlated with Tobin's Q (-0.255**).

2.5.2. Multivariate Analysis

Table 2.3 presents GLM tests results of all ESG related Weibo trends on ESG performance. Models 1-3 include only the independent variable, Models 4-6 incorporate control variables, while Models 7-9 add time and industry fixed effects. We employed the Likelihood Ratio Test (LRT) and Akaike Information Criterion (AIC) to compare the goodness-of-fit across models. The comparative results indicate that adding control variables and accounting for time and industry effects significantly improved model fit. The coefficient for *SMT_All* was negative and significant (-0.187*** in Model 4 and -0.191*** in Model 7), supporting H2a and rejecting H1a. This finding further corroborates our assumptions regarding legitimacy theory (decoupling), suggesting that stakeholder voices on Weibo—particularly negative ones—exert heightened and complex pressures on companies, prompting more conservative decision-making processes that ultimately affect their ESG performance. When categorizing Weibo trends into positive (*SMT_Pos*) and negative (*SMT_Neg*) sentiments, we find that both exert significant negative effects on corporate ESG performance, with negative topics having a more pronounced adverse impact compared to positive ones.

Table 2.4 illustrates GLM tests results of social dimensions Weibo trends on the social dimension of ESG performance. Neither the overall social related discussions (*SMT_S_All*) nor the breakdown into positive (*SMT_S_Pos*) and negative discussions (*SMT_S_Neg*) yield significant regression coefficients, failing to support neither H1b nor H2b. This suggests that Weibo users' discussions about the social performance of listed companies do not substantively influence ESG

Table 2.3: GLM Regression Results of ESG Performance on ESG-related Weibo Trends

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
SMT_All	-0.105*			-0.187***			-0.191***		
SMT_Pos		0.008			-0.096***			-0.103***	
SMT_Neg			-0.084*			-0.115***			-0.118***
FrimAge				0.581***	0.549***	0.547***	0.588***	0.539***	0.542***
FirmSize				0.235***	0.264***	0.263***	0.157***	0.179***	0.182***
Leverage				-0.061	-0.075	-0.070	0.057	0.044	0.049
Bd_Gen				0.172***	0.055***	0.174***	0.107***	0.119***	0.110***
Bd_Indep				0.058	0.182	0.032	0.006	-0.008	-0.017
ROE				-0.013	0.011	-0.014	0.016	0.049	0.019
TobinQ				0.013	-0.010	-0.002	0.019	-0.004	0.004
Constant	0.000	0.000	0.000	0.089***	0.009***	0.008***	0.753***	0.85***	0.815***
AIC	1,421.261	1,426.745	1,423.261	1,110.489	1,127.484	1,124.476	1,004.87	1,023.394	1,020.912
LRT	5.514	0.031	3.514	304.826	287.831	290.839	440.445	421.922	424.404
p-value	0.019**	0.861	0.061*	<0.001***	<0.001***	<0.001***	<0.001***	<0.001***	<0.001***
Year Fixed Effects	N	N	N	Y	Y	Y	Y	Y	Y
Industry Fixed Effects	N	N	N	Y	Y	Y	Y	Y	Y
Number of Observations	2,123	2,123	2,123	2,123	2,123	2,123	2,123	2,123	2,123

Note: This table presents the GLM regression results for the impact of ESG-related Weibo trends on ESG performance. The sample comprises 2,570 observations from 498 publicly listed companies between January 1, 2018, and December 31, 2022. Models 1-3 include only the independent variable, Weibo trends. Models 4-6 incorporate both the independent variable and a series of control variables. Models 7-9 further add two-way fixed effects for industry and year.The Akaike Information Criterion (AIC) is used as the information criterion for model selection, while the Likelihood Ratio Test (LRT) is employed to compare model fit. For variable explanations and sources, please see Appendix A. All continuous variables are standardized before regression. Significance levels are indicated as follows: * for 0.1, ** for 0.05, *** for 0.01.

Table 2.4: GLM Regression Results of Social Performance on Social-related Weibo Trends

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
SMT_S_All	0.074			-0.015			-0.044		
SMT_S_Pos		0.077			-0.007			-0.050	
SMT_S_Neg			0.043			-0.003			-0.026
FrimAge				0.508***	0.506***	0.505***	0.510***	0.505***	0.500***
FirmSize				0.120***	0.121***	0.122***	0.056	0.053	0.059
Leverage				-0.076*	-0.077***	-0.077*	0.049	0.050	0.047
Bd_Gen				0.158***	0.063***	0.063***	0.040**	0.039**	0.039**
Bd_Indep				0.110**	0.159**	0.159**	0.087	0.089	0.088
ROE				-0.021	-0.018	-0.020	0.019	0.031	0.019
TobinQ				-0.023	-0.024	-0.023	-0.008	-0.012	-0.008
Constant	0.000	0.000	0.000	0.000	0.000	0.000	0.183	0.198	0.189
AIC	1,423.989	1,423.798	1,425.891	1,243.491	1,243.602	1,243.624	1,174.104	1,173.617	1,174.94
LRT	2.786	2.977	0.933	179.064	178.953	178.931	278.451	278.937	277.615
p-value	0.095*	0.084*	0.334	<0.001***	<0.001***	<0.001***	<0.001***	<0.001***	<0.001***
Year Fixed Effects	N	N	N	Y	Y	Y	Y	Y	Y
Industry Fixed Effects	N	N	N	Y	Y	Y	Y	Y	Y
Number of Observations	2,123	2,123	2,123	2,123	2,123	2,123	2,123	2,123	2,123

Note: This table presents the GLM regression results exploring the relationship between Weibo trends regarding the social dimension of corporate ESG issues and the social performance aspect of ESG. The sample comprises 2,570 observations from 498 publicly listed companies between January 1, 2018, and December 31, 2022. Models 1-3 include only the independent variable, Weibo trends. Models 4-6 incorporate both the independent variable and a series of control variables. Models 7-9 further add two-way fixed effects for industry and year.The Akaike Information Criterion (AIC) is used as the information criterion for model selection, while the Likelihood Ratio Test (LRT) is employed to compare model fit. For variable explanations and sources, please see Appendix A. All continuous variables are standardized before regression. Significance levels are indicated as follows: * for 0.1, ** for 0.05, *** for 0.01.

Table 2.5: GLM Regression Results of Governance Performance on Governance-related Weibo Trends

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
SMT_G_All	-0.16***			-0.159***			-0.124***		
SMT_G_Pos		-0.093**			-0.12***			-0.099***	
SMT_G_Neg			-1.178***			-0.142***			-0.103***
FrimAge				0.36***	0.346***	0.34***	0.305***	0.29***	0.283***
FirmSize				0.437***	0.448***	0.445***	0.398***	0.399***	0.404***
Leverage				-0.088**	-0.094**	-0.087**	-0.037	-0.039	-0.036
Bd_Gen				0.080***	0.089***	0.076***	0.050***	0.053***	0.047***
Bd_Indep				0.122*	0.122*	0.118**	0.112**	0.112**	0.108***
ROE				-0.019	-0.015	-0.025	-0.008	-0.001	-0.009
TobinQ				-0.001	-0.011	-0.006	0.017	0.011	0.012
Constant	0.000	0.000	0.000	0.027	0.027	0.027	1.085***	1.117***	1.094***
AIC	1,413.756	1,422.41	1,410.59	1,036.841	1,046.67	1,040.313	1,013.896	1,018.205	1,017.15
LRT	13.020	4.365	16.185	344.618	334.79	341.146	397.564	393.254	394.309
p-value	<0.001***	0.037**	<0.001***	<0.001***	<0.001***	<0.001***	<0.001***	<0.001***	<0.001***
Year Fixed Effects	N	N	N	N	N	N	Y	Y	Y
Industry Fixed Effects	N	N	N	N	N	N	Y	Y	Y
Number of Observations	2,123	2,123	2,123	2,123	2,123	2,123	2,123	2,123	2,123

Note: This table presents the GLM regression results exploring the relationship between Weibo trends regarding the governance dimension of corporate ESG issues and the governance performance aspect of ESG. The sample comprises 2,570 observations from 498 publicly listed companies between January 1, 2018, and December 31, 2022. Models 1-3 include only the independent variable, Weibo trends. Models 4-6 incorporate both the independent variable and a series of control variables. Models 7-9 further add two-way fixed effects for industry and year.The Akaike Information Criterion (AIC) is used as the information criterion for model selection, while the Likelihood Ratio Test (LRT) is employed to compare model fit. For variable explanations and sources, please see Appendix A. All continuous variables are standardized before regression. Significance levels are indicated as follows: * for 0.1, ** for 0.05, *** for 0.01.

decision-making. This phenomenon can be explained through cognitive theory: the cognitive frameworks of stakeholders limit the connecting power of social media. Stakeholders in the social dimension are particularly diverse, with heterogeneous and often conflicting demands.

Consequently, it becomes especially difficult for them to construct new, unified frames around specific issues, leading most discussions to remain fragmented and incoherent rather than forming clear, actionable demands. This reduces the likelihood that managers will respond.

Table 2.5 shows the GLM regression results concerning the impact of Weibo governance dimensions discourse on governance performance. The overall discussion in the governance dimension (*SMT_G_All*), whether positive (*SMT_G_Pos*) or negative (*SMT_G_Neg*), consistently shows a robust negative significant effect in all models, supporting H2c and rejecting H1c. This indicates that when corporate governance activities are brought to the attention of Weibo users, whether through positive or negative discussions, governance performance significantly declines. This may be due to the different demographics of users participating in discussions about governance dimensions. Unlike the social dimension, where the majority of participants are general users, the governance dimension primarily involves professional groups such as investors, analysts, and financial commentators. General users tend to discuss their personal experiences and perceptions, whereas professionals excel at looking beyond mere appearances and analyzing the underlying causes and processes.

In this context, when negative discussions on governance gain attention, the exposure of governance-related deficiencies is likely to be amplified by experts due to their sensitivity to professional information. Moreover, as hypothesized based on legitimacy theory, negative external discussions may prompt companies to reconsider their resource allocation strategies, opting for symbolic responses, such as short-term tactical measures, rather than substantive strategies like long-term sustainable development planning, to address their CSR commitments.

Similarly, the decline in governance performance caused by positive governance-related discussions can also be explained by decoupling strategies. The deepening social polarization and conflicts, partly attributable to the nature of social media itself, exacerbate the contradictions among various stakeholder groups, presenting challenges to corporate legitimacy. Specifically, a

company's positive response to one stakeholder group's demands may lead to dissatisfaction among another group, further intensifying conflicts between stakeholder groups and between the company and its stakeholders. As a result, decoupling CSR communication from actual strategies, or even reducing CSR transparency, may become a rational response for companies seeking to safeguard organizational efficiency.

2.5.3. Robustness Tests

To further validate the robustness of our findings, we employed the Generalized Method of Moments (GMM), a robust approach to addressing heteroskedasticity and serial correlation issues. By using GMM, we effectively control for potential endogeneity biases, thereby improving the accuracy of our estimates. Given the potential endogeneity of the independent variable, social media trends SMT_{γ}, we selected its one-year lagged value $SMT_{\gamma-1}$ as an instrumental variable. This choice satisfies the requirements for a valid instrument, namely that the lagged variable is strongly correlated with the endogenous independent variable SMT_{γ} and uncorrelated with the error term ϵ. Additionally, we conducted weak instrument tests to ensure the strength of the instrumental variable, thereby enhancing the credibility of our model's analytical results.

Table 2.6 presents the GMM estimation results of all ESG-related Weibo trends on ESG performance. Models 1-3 do not include any fixed effects, Models 4-6 control for two-way fixed effects of company and year, and Models 7-9 control for two-way fixed effects of industry and year. The GMM analysis results align with those obtained from the GLM analysis. The significant negative impact of overall Weibo trends (*SMT_All*) on corporate ESG performance remains robust in Models 1, 4, and 7, providing support to H2a and rejecting H1a. When further categorizing Weibo trends into positive and negative, we observe that while both coefficients remain robust across all models, the negative impact of negative trends (*SMT_Neg)* is larger and exhibits higher significance levels compared to positive discussions (*SMT_Pos)*.

Table 2.7 presents the GMM estimation results of social-related Weibo trends on social performance. Consistent with the GLM analysis, Weibo trends in the social dimension do not significantly influence social performance within corporate ESG performance, regardless of

Table 2.6: GMM Estimation Results for the Effect of ESG-related Weibo Trends on ESG Performance

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
SMT_All	-0.367***			-0.382***			-0.387***		
SMT_Pos		-0.252**			-0.368**			-0.245**	
SMT_Neg			-0.362***			-0.379***			-0.365***
FrimAge	0.188***	0.234***	0.218***	0.163***	0.195***	0.201***	0.100***	0.139***	0.133***
FirmSize	0.641***	0.597***	0.609***	0.652***	0.639***	0.615***	0.684***	0.600***	0.640***
Leverage	-0.043	-0.067*	-0.056	-0.02	-0.042	-0.032	0.065	0.041	0.049
Bd_Gen	0.171***	0.189***	0.165***	0.124***	0.144***	0.120***	0.093***	0.116***	0.087*
Bd_Indep	0.100**	0.077	0.066	0.082*	0.078	0.040	0.065*	0.024	0.006
ROE	-0.035	0.016	-0.059	0.013	0.076*	-0.007	0.045	0.054	-0.034
TobinQ	0.039	0.001	0.028	0.035	0.004	0.024	0.042	-0.002	0.027
Constant	0.000	0.000	0.000	-306.557***	-318.832***	-322.255***	-0.695***	-0.441***	-0.647***
Adj.R^2	0.217	0.236	0.250	0.273	0.242	0.257	0.254	0.248	0.268
C-statistic	0.285	0.897	0.440	0.779	0.882	0.719	0.749	0.640	0.793
p-value	0.388	0.185	0.330	0.218	0.189	0.236	0.227	0.261	0.214
F Statistic	534.865	559.869	608.361	674.231	632.978	715.257	522.29***	1,415.348	1,593.734
Year Fixed Effects	N	N	N	N	N	N	Y	Y	Y
Individual Fixed Effects	N	N	N	Firm	Firm	Firm	Sector	Sector	Sector
Number of Observations	2,123	2,123	2,123	2,123	2,123	2,123	2,123	2,123	2,123

Note:This table presents the GMM estimation results for the effect of ESG-related Weibo trends on ESG performance. One-year lagged ESG-related Weibo trends were used as instrumental variables, and the validity of these instruments was tested using the C-Statistic. The sample consists of 2,570 observations from 498 publicly listed companies between January 1, 2018, and December 31, 2022.Models 1-3 include the independent variable and control variables. Models 4-6 incorporate two-way fixed effects for firm and year. Models 7-9 further add two-way fixed effects for industry and year.For variable explanations and sources, please see Appendix A. All continuous variables are standardized before regression. Significance levels are indicated as follows: * for 0.1, ** for 0.05, *** for 0.01.

Table 2.7: GMM Estimation Results for the Effect of Social-related Weibo Trends on Social Performance

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
SMT_S_All	-0.27			-0.287			-0.321		
SMT_S_Pos		-0.2			-0.228			-0.228	
SMT_S_Neg			-0.341			-0.37			-0.404
FrimAge	0.073	0.082*	0.074	0.088**	0.097**	0.097**	0.001	0.006	0.001
FirmSize	0.569***	0.541***	0.561***	0.561***	0.533***	0.55***	0.612***	0.549***	0.606***
Leverage	-0.060	-0.065	-0.062	-0.033	-0.036	-0.034	0.056	0.052	0.055
Bd_Gen	0.138***	0.155***	0.12***	0.111**	0.131***	0.098**	0.050	0.075*	0.027
Bd_Indep	0.163***	0.157***	0.162***	0.115**	0.110*	0.108*	0.113**	0.107*	0.110*
ROE	-0.048	0.002	-0.085	0.011	0.066*	-0.029	-0.009	0.061	-0.056
TobinQ	-0.008	-0.032	0.007	-0.010	-0.036	0.007	0.008	-0.021	0.027
Constant	0.000	0.000	0.000	-307.975***	-307.596***	-298.611***	-0.843***	-0.683***	-0.830***
Adj.R^2	0.108	0.044	0.126	0.138	0.059	0.144	0.140	0.076	0.179
C-statistic	1.271	1.222	1.265	1.151	0.700	1.156	1.113	1.090	1.122
p-value	0.102	0.111	0.103	0.125	0.242	0.124	0.133	0.138	0.131
Wald Statistic	304.065	271.653	306.986	407.997	368.101	396.26	763.158	653.523	772.271
Year Fixed Effects	N	N	N	N	N	N	Y	Y	Y
Individual Fixed Effects	N	N	N	Firm	Firm	Firm	Sector	Sector	Sector
Number of Observations	2,123	2,123	2,123	2,123	2,123	2,123	2,123	2,123	2,123

Note: This table presents the GMM estimation results for the effect of social-related Weibo trends on social performance. One-year lagged ESG-related Weibo trends were used as instrumental variables, and the validity of these instruments was tested using the C-Statistic. The sample consists of 2,570 observations from 498 publicly listed companies between January 1, 2018, and December 31, 2022.Models 1-3 include the independent variable and control variables. Models 4-6 incorporate two-way fixed effects for firm and year. Models 7-9 further add two-way fixed effects for industry and year.For variable explanations and sources, please see Appendix A. All continuous variables are standardized before regression. Significance levels are indicated as follows: * for 0.1, ** for 0.05, *** for 0.01.

Table 2.8: GMM Estimation Results for the Effect of Governance-related Weibo Trends on Governance Performance

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
SMT_G_All	-0.32**			-0.323**			-0.27*		
SMT_G_Pos		-0.331**			-0.335**			-0.286*	
SMT_G_Neg			-0.359***			-0.356***			-0.305**
FrimAge	0.414***	0.417***	0.391***	0.361***	0.372***	0.367***	0.367***	0.366***	0.349***
FirmSize	0.426***	0.437***	0.431***	0.442***	0.445***	0.417***	0.385***	0.382***	0.392***
Leverage	-0.052	-0.066*	-0.050	-0.051	-0.066*	-0.047	0.004	-0.002	0.005
Bd_Gen	0.151***	0.152***	0.141***	0.103***	0.106***	0.091**	0.133***	0.133***	0.123***
Bd_Indep	-0.062	-0.04	-0.09*	-0.024	0.000	-0.055	-0.100**	-0.075	-0.126**
ROE	-0.024	-0.015	-0.041	-0.021	-0.014	-0.035	-0.024	-0.013	-0.039
TobinQ	0.024	0.017	0.026	0.018	0.011	0.018	0.033	0.028	0.033
Constant	0.000	0.000	0.000	-105.188**	-92.231*	-124.728***	0.069	0.154	0.017
Adj.R^2	0.236	0.259	0.191	0.298	0.319	0.244	0.340	0.376	0.279
C-statistic	0.372	0.499	0.446	0.343	0.446	0.404	0.507	0.551	0.568
p-value	0.355	0.309	0.328	0.366	0.328	0.343	0.306	0.291	0.285
Wald Statistic	531.174	503.212	486.895	578.082	539.477	529.146	1,115.133	1,057.343	1,044.19
Year Fixed Effects	N	N	N	N	N	N	Y	Y	Y
Individual Fixed Effects	N	N	N	Firm	Firm	Firm	Sector	Sector	Sector
Number of Observations	2,123	2,123	2,123	2,123	2,123	2,123	2,123	2,123	2,123

Note: This table presents the GMM estimation results for the effect of governance-related Weibo trends on governance performance. One-year lagged ESG-related Weibo trends were used as instrumental variables, and the validity of these instruments was tested using the C-Statistic. The sample consists of 2,570 observations from 498 publicly listed companies between January 1, 2018, and December 31, 2022.Models 1-3 include the independent variable and control variables. Models 4-6 incorporate two-way fixed effects for firm and year. Models 7-9 further add two-way fixed effects for industry and year.For variable explanations and sources, please see Appendix A. All continuous variables are standardized before regression. Significance levels are indicated as follows: * for 0.1, ** for 0.05, *** for 0.01.

whether the discussions are positive or negative, rejecting both H1b and H2b. Table 2.8 shows the GMM estimation results of governance-related Weibo trends on governance performance. As expected, governance-related Weibo trends have a significant negative impact on governance performance within corporate ESG performance, supporting H3b and rejecting H3a. Specifically, the negative impact of negative governance discussions (*SMT_G_Neg*) is greater and achieves the highest significance level across all models. In contrast, although positive governance discussions (*SMT_G_Pos*) also exhibit a significant negative effect consistent with the GLM analysis, their significance level fluctuates in Model 8.

Overall, robustness tests further validate our initial findings: Weibo trends negatively affect firms' ESG performance, with the adverse effects primarily driven by governance-related discussions. In contrast, social-related discussions have no significant impact on firms' ESG activities.

2.6. Discussion

This study focuses on 498 Chinese listed companies, analyzing 2,570 observations formed by 10,591 Weibo trends from January 1, 2018, to December 31, 2022. We examined the impact of Weibo trending topics on corporate ESG performance. Our findings indicate that overall, Weibo trends have a negative influence on ESG performance, which supports the legitimacy theory that stakeholder voice on social media platform negatively influence corporate social responsibility activities.

Specifically, when we classified Weibo trends into positive and negative discussions, we found that both types had similar negative impacts on CSR activities, with negative trends exerting a more pronounced effect. Further categorization of Weibo trends by content—into social-related and governance-related discussions—revealed that these negative impacts stem primarily from governance-related discussions, rather than social-related ones. Governance-related discussions mirrored the overall negative effect observed, while social-related discussions, whether positive or negative, showed no significant impact on CSR activities.

This study makes several key contributions. First, it expands the literature on CSR communication by incorporating a rising entity playing a crucial role in public discourse, social media, into the realm of CSR communication research. Although previous studies have included social media in CSR communication, they predominantly portrayed it as a tool for corporations, not stakeholders. This overlooks the burgeoning power and desire of stakeholders to oversee corporate behavior. Our findings demonstrate that stakeholders indeed have the capacity to exert substantial influence on companies through social media. By dissecting the sentiment and themes of social media discussions, our research identifies governance as the core dimension driving these negative impacts.

Second, this study provides empirical evidence for extending legitimacy theory into the digital age. Stakeholders' use of social media to pressure companies often forces strategic adjustments. However, these adjustments tend to prioritize symbolic responses to alleviate immediate pressures rather than substantive, long-term improvements. This reflects a need to critically evaluate current stakeholder strategies that leverage social media for corporate accountability.

Contrary to the intention of fostering corporate improvements, such strategies may inadvertently lead to declines in ESG performance.

Third, our findings also support the application of cognitive theory in the social media era. Among the two dimensions—social and governance—social-related discussions significantly exceed governance-related ones in terms of volume, intensity, and diversity. However, social-related discussions fail to generate a convergent voice capable of pressuring companies effectively. This is due to the more dispersed cognitive frameworks of stakeholders in the social domain. When faced with information overload on social media, stakeholders tend to rely on pre-existing cognitive schemas to simplify their understanding, which poses fundamental challenges to the formation of a cohesive stakeholder network.

This work also has important practical implications for corporate managers, policymakers, and investors: By revealing the significant negative impact of social media trends on ESG performance, this study highlights that social media serves more as a challenger than a facilitator for CSR practices, particularly in the governance domain. We recommend that companies adopt a more cautious approach when responding to governance-related discussions. Without greater transparency and more robust governance frameworks to reduce the sensitivity of governance issues, companies should consider conservative and restrained communication strategies to avoid creating stakeholder expectations that are difficult to meet.

In the social domain, our findings suggest that social media discussions, regardless of sentiment, do not significantly influence corporate practices. This indicates that stakeholders engaging in social-related discussions on social media, even when they achieve widespread attention, fail to generate the momentum required to drive corporate change. Policymakers may need to reconsider budget allocations toward the social domain, as the current pattern of public discourse appears to lack the efficacy to induce meaningful corporate actions. While genuine communication with stakeholders is essential for long-term development, in a polarized and adversarial public discourse environment, a strategy of resource withdrawal might be a more pragmatic choice.

Last, this study offers valuable insights for ESG-focused investors. Governance-related discussions on social media are far more sensitive and less resilient than those related to the

social dimension. Investors concerned about ESG performance should pay closer attention to governance-related trends on social media, rather than focusing on social-related ones.

Like any other study, this research has its limitations. First, it is based on a Chinese social media platform, reflecting the preferences of Chinese social media users regarding public issues. Other platforms, such as X, Facebook, and TikTok, differ in terms of topic dissemination and audience composition, potentially leading to different impacts. This offers promising directions for future research. For instance, in our Weibo sample, discussions related to environmental issues—more prominent on English-language platforms—are notably lacking. Consequently, we were unable to explore the role of social media voices in the environmental dimension, which merits further investigation.

Similarly, our study focuses on a specific group: Chinese firms. Chinese companies operate within a unique external environment, shaped by China's macroeconomic landscape, which has seen a slowdown from decades of high-speed growth. This trend likely exerts additional pressure on firms' operations and competitive strategies, influencing their CSR decision-making in ways distinct from those of firms in other contexts. Hence, to enhance the generalizability and validity of our conclusions, further research using samples from diverse countries and regions is needed. Last, the intensifying geopolitical tensions between China and the United States since 2018 have introduced uncertainties that may affect the market performance and investment decisions of Chinese companies, especially those foreign primary listed internationally. These dynamics warrant deeper investigation in future studies.

APPENDICES

Appendix A. Variables definition and measurement

Name	Definition	Source
Independent variables		
SMT_All	The count of trend topics on social media regarding the company's ESG, measuring the overall ESG-related discussion activity.	Manual
SMT_Pos	The count of positive trend topics on social media about the company's ESG, reflecting public approval of the company's ESG practices.	Manual
SMT_Neg	The count of negative trend topics on social media about the company's ESG, indicating public criticism of the company's ESG practices.	Manual
SMT_S_All	The count of trend topics on social media about the company's ESG in the social dimension.	Manual
SMT_S_Pos	The count of positive trend topics on social media about the company's ESG in the social dimension.	Manual
SMT_S_Neg	The count of negative trend topics on social media about the company's ESG in the social dimension.	Manual
SMT_G_All	The count of trend topics on social media about the company's ESG in the governance dimension.	Manual
SMT_G_Pos	The count of positive trend topics on social media about the company's ESG in the governance dimension.	Manual
SMT_G_Neg	The count of negative trend topics on social media about the company's ESG in the governance dimension.	Manual
Dependent variable		
ESG	The company's ESG pillar score, evaluating the company's performance in environmental, social, and governance aspects.	Bloomberg
ESG_S	The company's ESG social pillar score, focusing on assessing the company's performance in social responsibilities, including employee relations and community involvement.	Bloomberg
ESG_G	The company's ESG governance pillar score, assessing the company's performance in governance structure, policy formulation, and execution.	Bloomberg
Control variable		
FirmSize	The logarithm of the company's total assets, quantifying the company's market size and economic impact.	Bloomberg

(Continued on next page)

Appendix A. *(continued)* Variables definition and measurement

Name	Definition	Source
FirmAge	The number of years since the company has been listed, measuring the company's maturity and market experience.	Bloomberg
Leverage	The company's debt-to-asset ratio, measuring the degree of financial leverage and reflecting the company's dependency on debt and financial stability.	Bloomberg
Bd_Indep	Board independence, typically measured by the proportion of independent directors on the board, reflecting the board's decision-making independence and objectivity.	Bloomberg
Bd_Gen	The percentage of female directors, measuring the board's gender diversity, reflecting the company's commitment to gender equality and diverse values.	Bloomberg
ROE	The company's return on equity, reflecting the efficiency of using shareholder capital, measuring profitability and financial health.	Bloomberg
TobinQ	The ratio of the company's market value to its asset replacement cost, assessing the company's investment attractiveness and market valuation.	Bloomberg

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CHAPITRE III

ARTICLE 3

ESG IN THE CROSSFIRE: NAVIGATING STAKEHOLDER PRESSURES AND INSTITUTIONAL HETEROGENEITY IN CHINESE LISTED CORPORATIONS

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ESG IN THE CROSSFIRE: NAVIGATING STAKEHOLDER PRESSURES AND INSTITUTIONAL HETEROGENEITY IN CHINESE LISTED CORPORATIONS

Abstract

The development of Environmental, Social, and Governance (ESG) practices is facing growing skepticism. This skepticism is multifold: investors question the authenticity of ESG commitments, suspecting them to be a façade for green-washing, while right-wing politicians politicize ESG, labeling it a conspiracy by large asset management firms. The Wall Street Journal has even depicted businesses striving to distance themselves from ESG terminology, going so far as to dub it the latest 'dirty word' in the corporate world. In addition to these new challenges, firms that cross-list on foreign markets face additional challenges because their ESG strategies are also shaped and bounded by different institutional constraints. Amidst this whirlwind of conflicting forces, can businesses continue to uphold their ESG commitments? This study covers 498 Chinese-listed companies from 2017 to 2022, providing mixed evidence on the influence of stakeholder pressure and institutional heterogeneity on ESG performance. Specifically, while stakeholder pressure can disrupt corporate ESG performance, institutional heterogeneity does not necessarily have a negative impact. Companies that raise capital in other financial markets, particularly in more developed regions, may face more complex external regulations. However, the resulting improvements in governance standards and transparency significantly enhance their resilience and have a positive effect on their long-term development. Finally, this study contributes to the literature on CSR communication, stakeholder theory, and institutional theory, offering valuable insights to corporate managers and policymakers who strive to manage external pressures.

Keywords: Institutional Logics Clash, Regulatory Mimetic Isomorphism, Hedging of Stakeholder Expectations

3.1. Introduction

The concept of "ESG" (Environmental, Social, and Governance) rose to prominence in the early 2000s, alongside growing concerns about the environmental and social impacts of corporate operations. Over the past two decades, climate disasters, environmental pollution, unethical labor practices, and unequal community relations have increasingly driven public scrutiny of corporate social responsibility (CSR). More investors have realized the importance of recognizing these potential environmental and social risks in evaluating long-term financial performance, beginning to incorporate ESG considerations into investment analysis and strategy. Moreover, an increasing number of companies have started to demonstrate their commitment to environmental management, social responsibility, and sound governance practices beyond financial returns, to prove their long-term value.

However, this trend toward greater sustainability is changing. In recent two years, many companies have started to shy away from prominently featuring the acronym "ESG" in their communications and strategies. This shift is driven by a confluence of challenges, including investor backlash, political pressure and legal threats. Critics from the investment community argue that the current focus on ESG is overly preoccupied with measurement and disclosure requirements, or worse, being used as a tool for "green-washing", contributing little to genuine sustainable development goals. On the political front, ESG has been derided by some right-wing politicians as "woke capitalism"(Johnson, 2022), criticized for its perceived naivety, especially during periods of macroeconomic instability. Legislatively, states like Texas and (Norton, n.d.) West Virginia (Rundell, 2023) have initiated steps to counteract the ESG movement, passing laws to sever ties with financial institutions that do not support local fossil fuel industries. These challenges have cast a shadow over the growth and acceptance of ESG principles. According to Morningstar data, investors withdrew over $2.5 billion in the last quarter of 2023 from global sustainable funds, or ESG funds which was the first time that net flows fell into negative territory (Bioy, 2024). A Wall Street Journal article from January 2024 even went as far as to label ESG the latest "dirty word" in financial and corporate circles (Glazer, 2024).

Businesses today find themselves in an uncertain landscape, pressed by diverse demands from multiple stakeholders. In the Wall Street Journal article, many CEOs have pledged to continue

adhering to long-standing ESG policies and contributing to efforts against climate change, even if they choose to speak less publicly about them, possibly to avoid regulatory scrutiny or political criticism. While changing stakeholder pressures can disrupt corporate ESG performance, different institutional contexts may also impact CEOs engagement. The question remains: can they truly fulfill these sustainable development commitments in such a conflicting environment?

In this paper, we examine whether institutional heterogeneity provides opportunities or constraints firms in their response to stakeholders' pressures. We selected Chinese-listed firms as our sample due to the significant amount of these firms opting for foreign primary listing, offering a rich and diverse dataset. Foreign primary listing, the practice of listing a company's shares on foreign stock exchanges, presents a unique set of institutional research. Unlike the often -studied multinational enterprises (MNEs) caught in multi-institutional conflicts, foreign listed firms primarily contend with the accounting, financial reporting standards, and tax policies of their listing countries. These demands are explicit and relatively stable compared to the broader and evolving demands from multiple stakeholders in host countries that MNEs must address, making it possible to quantify the heterogeneous institutional pressures faced by firms. The choice of Chinese companies for this study is driven by their prevalence among foreign primary listing firms. Despite the buoyant economy of China (which remains one of the world's fastest-growing economies despite recent decline in its GDP growth), imperfections in the domestic financial system have left many firms' liquidity needs unmet, prompting them to seek foreign primary listing. In particular, the United States and Hong Kong have become the preferred destinations for overseas IPOs of many Chinese firms. According to the Worldwide Governance Indicators developed by the World Bank—which include dimensions such as "Rule of Law,"—both the U.S. and Hong Kong exhibit consistently higher institutional quality compared to mainland China. This decision places these firms in a unique position: while they operate within a domestic environment characterized by relatively weaker institutional governance, they are simultaneously subject to the more advanced regulatory frameworks of their overseas listing markets.

An important strand of the CSR and institutional literature (e.g. Jasinenko et al., 2024; Khan et al., 2024; Lee et al., 2024; Wang et al., 2018; Walker et al., 2019) suggests that strong institutional settings (e.g. robust governance standards and investors' protection rules) can lead to strong CSR

engagement. As a result, foreign primary listing in markets with strong governance mechanisms and stakeholders' protection rules may push firms operating in weak corporate governance standards to improve their CSR performance. In contrast to the institutional pressures argument, CSR engagement is also explained as the result of agency choices at the managerial level (e.g. Walker et al. 2018). The agency view indicates that managerial values, power, leadership, and characteristics play an important role in CSR engagement rather than institutional pressures (e.g. Chin et al. 2013; Walker et al. 2018; Walls and Berrone, 2015). Based on the agency approach, institutional heterogeneity should have a neutral impact on CSR performance.

Drawing from a sample comprising 498 listed companies, including 281 in mainland China, 143 in Hong Kong, and 74 in the United States, spanning six years from January 1, 2017, to December 31, 2022, we find significant negative impacts of stakeholder pressure on firms' ESG performance. We find that stakeholder pressure significantly suppresses corporate ESG practices, hindering sustainable development. However, when companies raise capital in markets outside their local context, the negative impact of stakeholder pressure is mitigated to some extent but not completely neutralized.

First, this research enriches the CSR communication literature by positioning social media as a tool for stakeholders to voice their demands, rather than merely a channel for corporate communication. Our findings demonstrate that stakeholders indeed have the capacity to disrupt corporate practices through social media. Second, by focusing on the unique group of foreign primary listing companies, this study innovatively quantifies institutional heterogeneity and provides empirical evidence on how complex external institutional environments impact corporate ESG performance, contributing to institutional theory. Also, this research has significant practical implications for corporate management. At the current stage, managers should view social media stakeholders as challengers to corporate ESG practices rather than facilitators. Last, we recommend that companies seeking funding actively to consider raising capital in overseas markets, as the stringent disclosure and regulatory frameworks there mandate proactive compliance, thereby building organizational resilience against potential future risks. Facing stricter regulations and higher societal expectations abroad can ultimately benefit their long-term sustainable development.

The remainder of the paper is organized as follows: The second section delves into two primary theories that influence corporate sustainable development decisions: stakeholder theory and institutional theory. This section also explores the connections between these theories. The third section discusses the development of our hypotheses, while the fourth section details the methodology, elaborating on the sample selection, key variables, and analytical methods used in this study. The results are presented in the fifth section, followed by discussions in the sixth section.

3.2. Theoretical Framework

3.2.1. Stakeholder Theory

The stakeholder theory was proposed by Freeman in 1984, as a response to the claim of Friedman in 1970 that the company's sole responsibility is to increase the wealth of shareholders. Freeman pointed out that an organization is not considered self-sufficient but depends on an external environment composed of groups outside the organization. These are external groups that influence or may be affected by operations and policies, which are therefore termed as "stakeholders" by Freeman (1984). The survival and prosperity of an organization depend on its ability to build up satisfaction, value or wealth for major stakeholders (Clarkson, 1995; Chung et al., 2009). Stakeholder theory posits that firms should go beyond the financial performance and shareholder interests by consider the effects, interests and needs of stakeholders, thereby creating value for them (Donaldson & Preston, 1995).

Although stakeholder theory has evolved into one of the main theories in the field of CSR after decades of development, the distribution of research in this area remains highly imbalanced (Odziemkowska & Henisz, 2021; Saxton et al., 2021). Mainstream research adopts an organization-centrism perspective, treating stakeholders as entities to be managed. It attempts to intervene with them in a way that serves the interests and objectives of the corporation (Bhattacharya et al., 2009; Chung et al., 2009; Clark et al., 2015; Clarkson, 1998). For instance, Donaldson & Preston (1995) argued, the organization must decide which stakeholder group can be involved in which process, according to the scope, value and responsibility of stakeholders and the outcome of stakeholder engagement. Mitchell et al. (1997) proposed that stakeholder

salience can be defined by the urgency of meeting the current needs, the legitimacy of relationships with organizations, and the stakeholder power of negotiation.

Research within this school of thought is driven, on one hand, by a habitual inclination towards instrumental reasoning, and on the other, by the current state of corporate-stakeholder relationships. Corporations occupy a dominant and central position in the network of stakeholders. Apart from a few salient stakeholders such as shareholders, media, and governments who can exert constraints on corporations using their resources and tools, other decentralized stakeholders like consumers, employees, the public, and communities are generally more dispersed and find it challenging to consolidate resources to confront corporations. Corporations not only possess ample financial and human resources, but also have a clear advantage in communication, backed by substantial financial capabilities, professional public relations and legal teams, and media.

In sum, despite decades of development and extensive research within the field of stakeholder theory, much of the existing literature continues to view stakeholders as passive recipients of information and managerial actions. This observation underscores a critical area for future exploration and potential reorientation within stakeholder theory: recognizing and cultivating genuine stakeholder participation and dialogue beyond instrumental logic, thereby acknowledging stakeholders' proactive role in shaping corporate social responsibility.

3.2.2. Institutional Theory

Institutional theory, which also focuses on the external pressures influencing companies to adopt certain organizational practices, provides a more macroscopic framework for explaining CSR behaviors (Campbell, 2007; Jackson & Apostolakou, 2010; Montiel & Husted, 2009; Özen & Küskü, 2009). Institutional scholars argue that, apart from market and economic factors, corporate behavior is more significantly constrained by surrounding institutions. These institutions include social norms, cultural cognitions, and regulatory structures that offer certainty and legitimacy to organizations and society (Scott, 1995). In other words, once companies realize their dependence on these institutions, they are likely to act.

The logic behind companies acting or, in other words, yielding to external pressure, is driven by the need to acquire or maintain legitimacy, which happens through three main isomorphic

mechanisms, these being: a) coercive isomorphism, b) mimetic processes and c) normative pressures (DiMaggio & Powell, 1983). Coercive isomorphism is defined by influences carried out by those in power, e.g. through pressure from regulators and actors on which the organization is dependent for resources. Governments, for example, are usually powerful stakeholders who can exert pressure through legislation, regulation and policies (Sarkis et al., 2010).

Mimetic isomorphism occurs when companies imitate competitors' behavior. Companies may mimic or copy the actions of successful competitors to replicate their successful paths and hence legitimacy (Aerts et al., 2006; Sarkis et al., 2011). For instance, when a company satisfies stakeholders and enhances its legitimacy and reputation through communication via a social media account, this successful pattern is likely to be emulated by other companies to replicate this success and similarly achieve legitimacy (Castelló et al., 2016). Normative isomorphism occurs when companies are under pressure from social institutions such as business associations, non-governmental organizations (NGOs) or media. As NGOs increasingly focus on the issue of global warming and the media extensively covers climate topics, companies are compelled to demonstrate their concern for the planet and their desire to contribute to climate safety. This effort is a crucial step in maintaining their legitimacy as responsible corporate citizens who are entitled to continue their operations. In a word, institutions define what is appropriate or legitimate, and thus render other actions unacceptable or even beyond consideration (DiMaggio and Powell, 1991). Through the above mechanisms**,** institutions then affect how organizations make decisions.

3.2.3. Institutional Heterogeneity and Overseas-listing

The institutional environments confronting firms are inherently heterogeneous, yet scholarly consensus remains elusive on how organizations navigate conflicting institutional demands in sustainable development decisions. Traditional research has predominantly focused on multinational enterprises (MNEs) as primary subjects of institutional conflict analysis (Kostova et al., 2008). MNEs operate across diverse market regimes (e.g., liberal market economies versus coordinated market economies as per Hall & Soskice, 2001), interacting with multifaceted stakeholders ranging from host governments to local workers and communities. This complexity, compounded by divergent cultural, legal, and social norms (Xu & Shenkar, 2002), hinders

systematic classification and quantitative isolation of institutional effects. For instance, a Chinese MNE could have operations at the same time in Africa (where institutions are weak) and Europe and North America (where institutions are strong). Hence, will it adopt weaker or stronger CSR practices based on the host country?

In this study, we propose overseas primary listing companies as an alternative research sample that effectively reduces the analytical noise inherent in institutional heterogeneity. Rather than focusing on cross-listed firms—which list equity shares on foreign stock exchanges alongside their domestic ones (Karolyi, 2006)—we center our analysis on Chinese firms that pursue direct overseas listings, meaning they are listed exclusively on foreign exchanges without any domestic IPO. This approach avoids the dual institutional logics typically faced by cross-listed companies and provides a more uniform regulatory context for examining market reactions. Prior research has explored the motivations and characteristics of such firms. For example, Zhang and King (2010) find that Chinese companies seek overseas IPOs to benefit from stronger investor protections, higher disclosure standards, and greater access to capital.

Chinese direct overseas listing firms, our focus sample, predominantly operate within the domestic market (Liu & Magnan, 2011), yet are embedded in regulatory environments of more developed capital markets. For instance, over 90% of Alibaba's revenue and JD.com's business activities are derived from mainland China despite their U.S. listings (SEC filings, 2023). Their primary extraterritorial interactions are confined to investors and securities regulators in listing jurisdictions, whose expectations exhibit greater stability and measurability (Sarkissian & Schill, 2009). For instance, Chinese firms overseas IPO in the U.S. must comply with SEC mandates and cater to institutional investors' ESG preferences while domestic operations remain subject to home-country governance. This operational localization, reinforced by China's data security regulations (CSRC, 2023), ensures that their overseas listings primarily serve financing purposes more than global business expansion. This bifurcation enables clearer attribution of ESG decisions to specific institutional drivers, offering methodological advantages for disentangling heterogeneity effects.

Regarding corporate behavior in cross-border listings under institutional heterogeneity, two contrasting scholarly perspectives exist. First, the agency perspective emphasizes managerial

autonomy, positing that firms proactively respond to external pressures through cost-benefit analysis, using CSR as a strategic tool for differentiation (Barnea & Rubin, 2010). Whether a firm strengthens its ESG commitments to attract investors or maintains only the minimum level necessary for compliance depends on managerial values, power, leadership, and characteristics rather than institutional pressures. Second, the mirror effect perspective argues that corporate behavior passively mirrors external institutional demands, with ESG serving merely as a "compliance tool" to meet legitimacy expectations (Campbell, 2007). For instance, under strict ESG regulations in the host country, firms' CSR performance will converge toward local standards, whereas in markets with lax regulatory oversight, firms may scale back their ESG commitments.

Overall, our work integrates stakeholder theory and institutional theory to provide a dual-perspective framework for understanding the multi-level impact of external pressures on CSR decision-making and the complex dynamics between these factors. Building on this foundation, the next section will further refine the interaction mechanisms between institutional heterogeneity and stakeholder pressures, proposing a testable set of hypotheses.

3.3. Model and Hypotheses

3.3.1. The New Landscape of Corporate Stakeholder Relations

In the pre-social media era, managers predominantly recognized the influence of primary stakeholders, such as customers, employees, and governments, while secondary stakeholders, including the public and local communities, were often deemed to have minimal impact on firms' activities. This perception stemmed from the belief that secondary stakeholders lacked both the legitimacy and urgency behind their demands, as noted by Jurgen et al. (2016) and Saxton et al. (2021). Consequently, secondary stakeholders received limited attention from corporate managers, as traditional stakeholder management frameworks (e.g., Mitchell et al., 1997) prioritized addressing the needs of primary stakeholders.

However, this conventional approach has been fundamentally challenged in the digital age. Social media has enabled secondary stakeholders to bypass traditional barriers and hold firms directly accountable, even in the absence of proactive corporate engagement (Jurgen et al., 2016;

Saxton et al., 2021). Unlike primary stakeholders who exercise influence through tangible means such as financial leverage, secondary stakeholders harness the "connective power" offered by social media platforms (Saxton et al., 2021). This power facilitates collective action, amplifies their voices, and legitimizes their demands. Secondary stakeholders also exhibit characteristics reminiscent of participants in social movements, as described by Jurgen et al. (2016). They are a diverse group united by shared concerns about corporate practices, often challenging the legitimacy of firms' operations and advocating for change. While such collective actions were historically difficult to organize due to logistical and resource constraints, social media technologies now serve as a catalyst for collaboration, enabling these stakeholders to coordinate more effectively and gain broader public legitimacy.

Although social media is often celebrated for its potential to democratize corporate accountability (e.g., Castelló et al., 2016; Neu et al., 2020; Saxton et al., 2019), the extent to which stakeholders have leveraged its connective power remains underexplored. One plausible explanation for this underutilization is the restrictive corporate environment many stakeholders face. For example, employees—a critical stakeholder group—may be reluctant to express dissent on social media due to the increasing use of such platforms by firms to monitor and regulate behavior outside of work (Thompson et al., 2020).

Additionally, Barnett et al. (2020) argue that cognitive limitations further constrain stakeholders' ability to exercise connective power. The exponential growth of information flow on social media has created an overwhelming volume of unfiltered and often unverified content. To manage this overload, stakeholders tend to filter information that aligns with their preexisting interests and identities while disregarding conflicting narratives. This selective engagement can fragment stakeholder networks, reducing their ability to converge around shared objectives or articulate unified demands. Consequently, stakeholder polarization becomes more pronounced, while consensus on critical social issues diminishes (Barnett et al., 2020).

This polarization generates asymmetric pressures on corporations. On one hand, *negative discourse*, such as campaigns led by conservative activists opposing Diversity, Equity, and Inclusion (DEI) programs, often produces a more cohesive and mobilized form of pressure. Because such movements are typically framed around a clear rejection or reversal of corporate

actions, they create straightforward, easily coordinated demands. As a result, firms may find it expedient to comply by scaling back ESG initiatives to mitigate potential backlash. For example, several companies, including Molson Coors and John Deere, have recently reduced their DEI commitments following social media criticism from conservative groups.

By contrast, positive discourse, such as progressive advocacy urging firms to embrace broader social responsibilities, tends to encounter greater internal diversity and conflicting interests among stakeholders. Calls for firms to prioritize marginalized or secondary stakeholders, such as consumers or local communities, often imply trade-offs that may disadvantage other groups, including employees or investors. This internal tension makes it harder for progressive movements to form a unified voice or sustain coordinated pressure. Taken together, this asymmetry suggests that negative stakeholder pressures—being more unified and forceful—are more likely to elicit reactive and potentially detrimental corporate responses. Therefore, we propose the following hypothesis:

H1: Stakeholder pressure on social media targeting companies has a negative impact on their ESG performance.

3.3.2. ESG in Institutional Heterogeneity

As discussed in Section 2.2, institutional heterogeneity in the context of cross-border listings influences firms' ESG performance through three key mechanisms: regulatory pressure, normative pressure, and mimetic pressure. Regulatory pressure stems from coercive demands by authoritative stakeholders like governments. In China, the government acts as both market regulator and economic participant through state-owned enterprises (Lin & Milhaupt, 2013). For example, China's Environmental Protection Law emphasizes corporate compliance but allows flexible enforcement (Generis Global Legal Services, 2024; Zhang, n.d.). In contrast, the U.S. relies more on legal deterrence and market discipline. The Foreign Corrupt Practices Act (FCPA), for instance, enforces transparent operations through heavy fines and judicial accountability (Coffee, 2007). After a U.S. primary listing, Chinese firms should face intensified regulatory pressures, leading them to strike a balance between home-country formalism and host-country substantive enforcement.

Normative pressures usually originate from non-governmental organizations, customers, civil society etc. (Liu et al., 2010). However, how these pressures evolve for cross-border listed companies remains unclear. On the one hand, geographical distance may weaken the influence of the home country's public, as domestic consumer behavior and public opinion events are less likely to reach investors in a foreign market. At the same time, overseas primary listing companies may encounter new normative pressures from the host country's public. For instance, in China, ESG concerns tend to focus on product quality and corporate philanthropy (e.g., the Hongxing Erke donation case)(Harvard Business Publishing, n.d.; Liu, 2024), whereas in the United States, public attention is more centered on human rights, labor rights, and climate responsibility (e.g., labor disputes in Apple's supply chain)(CLW_Admin, 2023). This "spatial shift" in the sources of normative pressure compels corporate behavior to align more closely with the societal norms of the listing country.

In addition, mimetic pressures arise from imitating other firms' successful policies to minimize uncertainty. According to Min-Jae Lee et al. (2024), mimetic pressures are less emphasized, particularly in the context of emerging economies like China, where corporate sustainability is still evolving, and outcomes are uncertain. The lack of established models in such settings diminishes the role of mimetic pressure, as there are fewer established practices to emulate (Min-Jae Lee et al. 2024). In emerging economies, where sustainability practices have not yet matured and clear industry models are absent, firms tend to prioritize regulatory compliance and stakeholder engagement over mimetic behavior. Particularly in emerging markets like China, where societal expectations for businesses are still being crafted and where firms are actively involved in setting sustainability norms (Min-Jae Lee et al. (2024). If Chinese firms cross-list in the US where sustainability practices are more prevalent, perhaps they will mimic ESG practices of established US models because of the mimetic pressure. As a result, we can have a positive effect on ESG performance.

In summary, institutional heterogeneity exposes overseas primary listing firms to heightened regulatory scrutiny, diverse normative expectations, and the influence of industry-leading peers. Under the combined weight of these pressures, firms are likely to enhance their ESG performance as a strategic response. Therefore, we propose the following hypothesis:

H2: Institutional heterogeneity faced by companies has a positive impact on their ESG performance.

3.3.3. The Moderating Role of Institutional Heterogeneity

Foreign primary listing not only directly enhances ESG performance but may also mitigate the negative impact of domestic stakeholder pressures by reconstructing pressure transmission pathways. Chinese firms listed in the U.S. are compelled to adopt stricter regulatory frameworks (e.g., SEC climate disclosure rules) and mature ESG standards (e.g., SASB criteria), which drive improvements in governance structure and operational transparency. For instance, Alibaba significantly increased its proportion of independent directors and established an ESG committee to systematically manage environmental and social risks after listing on the NYSE (Alibaba Group Upsizes Share Repurchase to US$25 Billion, n.d.; ESG - Alibaba Group, n.d.). Such institutionalized governance upgrades strengthen resilience against negative public opinion—when facing sudden social media crises (e.g., data privacy controversies), firms can leverage transparent measures like regular ESG reporting and third-party audits to restore trust, rather than resorting to short-term public relations tactics.

Furthermore, foreign primary listing shifts the primary source of pressure from domestic non-institutionalized stakeholders (e.g., Weibo users) to international institutionalized stakeholders (e.g., institutional investors, global NGOs). The latter exert pressure through formalized channels such as shareholder proposals and ESG rating downgrades, pushing firms toward substantive improvements rather than symbolic responses. For example, Baidu received multiple shareholder proposals post-U.S. listing urging enhanced AI ethics review and accelerated its carbon neutrality plan in response to NGO reports on supply chain emissions (Baidu AI Ethics Measures, n.d.; ESG Reports, n.d.; Public Information, n.d.). In contrast, domestic social media trending topics may trigger short-term stock volatility but lack sustained institutionalized pressure mechanisms. Consequently, overseas-listed firms are incentivized to allocate resources to long-term ESG practices aligned with global standards, thereby diluting the adverse effects of fragmented local public opinions. Therefore, we propose the following hypothesis:

H3: Institutional heterogeneity weakens the negative relationship between stakeholder pressure and firms' ESG performance.

3.4. Methodology

3.4.1. Sample

In this study, we selected Chinese listed firms as our sample due to the significant amount of these firms opting for listing outside mainland China, offering a rich and diverse dataset. Following the establishment of China's mainland major stock exchanges—the Shanghai Stock Exchange and the Shenzhen Stock Exchange—in 1990, the Chinese economy entered a period of rapid growth. Between 1990 and 2023, GDP surged from $390 billion to $17.8 trillion, a 45.6 fold increase. However, the development of China's financial markets has been relatively slow. The bond market, primarily dominated by government bonds, expanded from $28.6 billion in 1990 to $15.8 trillion in 2023. Similarly, the stock market grew from $5.6 billion to $1.13 trillion over the same period. Despite this rapid growth, the domestic financial markets have not fully met the financing needs of private enterprises. Consequently, seeking funding in international financial markets has become an anticipated strategy for many Chinese firms.

Our initial dataset included all Chinese firms listed domestically and abroad. Data on domestically listed firms were sourced from the Shanghai and Shenzhen Stock Exchanges, encompassing 4,917 firms, while the Beijing Stock Exchange was excluded due to its recent establishment in 2021 and limited number of listed firms. Data on overseas-listed firms were obtained from the China Securities Regulatory Commission's (CSRC) registry for overseas listings[6]. After excluding firms lacking financial data, stakeholder-related information, or ESG performance metrics, as well as companies in the financial sector, which often exhibit distinct characteristics, the final dataset comprised an unbalanced panel of 2,570 observations spanning 498 firms from 2017 to 2022. Among these, 281 firms were listed in mainland China, 143 in Hong Kong, and 74 in the United States.

It is noted that the classification of industries differs between regions. Mainland-listed firms follow the "Industry Classification Guidelines for Listed Companies," issued by the CSRC to

[6] http://www.csrc.gov.cn/csrc/c101936/c1515176/content.shtml Accessed 23 Aug. 2023.

reflect the internal structure of the national economy. Conversely, firms listed in Hong Kong and the United States are categorized based on the Global Industry Classification Standard (GICS), which organizes industries by output characteristics to facilitate investment. To ensure consistency, we reclassified the industry categories of domestic firms using the GICS framework (see Appendix A).

Table 3.1: Sample Distribution by Industry

Industry	Domestic	Overseas	Whole Sample	
	N	N	N	%
Consumer Discretionary	87	76	163	32.7%
Information Technology	37	51	88	17.7%
Healthcare	45	12	57	11.4%
Properties & Construction	20	35	55	11.0%
Consumer Staples	38	12	50	10.0%
Industrial	28	9	37	7.4%
Materials	13	7	20	4.0%
Telecommunications	6	7	13	2.6%
Energy	5	5	10	2.0%
Utilities	2	3	5	1.0%
Total	281	217	498	100%

Note: This table shows the distribution of samples involved in this study in various industries. 'Domestic' refers to Chinese companies listed in Mainland China; 'Overseas' refers to those listed in the United States and Hong Kong; 'Whole sample' includes all listed companies in the corresponding industry; '%' indicates the proportion of listed companies in each industry relative to the total sample. We re-coded the industry classifications of the domestic group (i.e., companies listed in Mainland China) based on the principles of the Global Industry Classification Standard (GICS) to ensure inter-group comparability with the overseas group (i.e., companies listed outside Mainland China). The detailed re-coding process is provided in Appendix C.

As Table 3.1 illustrates, the sample companies span all industries within the GICS, with the Consumer Discretionary sector being the most represented, accounting for about a third of the sample. This is followed by the Information Technology, which comprise 17.7% of the sample. It is noted that the companies included in our sample were specifically targeted by social media stakeholders. Unsurprisingly, the two most prominent industries—Consumer Discretionary and Information Technology—are those most closely tied to the daily lives of the general public, collectively accounting for over half of the sample. In contrast, other sectors, such as Materials and Energy, received minimal attention, as their operations are relatively removed from the everyday experiences of ordinary individuals. Also, the sample distribution reveals distinct listing preferences: firms in the Information Technology and Properties & Construction sectors are more likely to seek overseas listings, while Healthcare, Consumer Staples, and Industrial companies

prefer domestic markets. Other sectors, including Telecommunications, Materials, Energy and Utilities, each represent less than 5% of the total sample.

3.4.2. Variables of Interest

3.4.2.1. Dependent Variable

In our research, we adopted Bloomberg's ESG Pillar score as a metric for evaluating ESG (*ESG*) performance levels. This choice is supported by its previous application in ESG studies (e.g., Apergis et al., 2022; Atan et al., 2018; Deng et al., 2023; Wang & Sarkis, 2018), highlighting its reliability and relevance. The ESG Pillar score, part of Bloomberg's extensive ESG and Climate Indices, measures a company's ESG and sustainability performance. This evaluation considers voluntary disclosures, publicly available information, and industry alignment. The score, which ranges from 0 to 10, with 10 indicating exemplary social performance, offers a comprehensive assessment of a firm's sustainability efforts.

We prioritized this score for several reasons. Firstly, it provides a nuanced perspective on sustainability practices, going beyond mere disclosure metrics to encompass overall transparency. Secondly, in contrast to other ESG rating agencies like Kinder, Lydenberg, and Domini (KLD), which utilize a binary system of "1" or "0" based on specific criteria adherence, Bloomberg's method offers a more detailed and quantitative analysis. Lastly, Bloomberg's approach is distinguished by its incorporation of practical, industry-specific considerations into the scoring process. This method normalizes the data, thereby enhancing comparability by reducing extraneous variation.

3.4.2.2. Independent Variable

Stakeholder Pressure

We use the number of social media trends as the proxy to measure the pressure (*StkPres*) stakeholders exert on a company. As for the selection of social media trends, we have chosen Weibo, one of the largest Chinese social media platforms, boasting a total of 256 million daily active users and 583 million monthly active users as of the second quarter of 2024. The rationale for selecting Weibo is threefold. Firstly, it is a public platform that focuses more on interactions among strangers rather than within a network of acquaintances, with most content being visible to

all users, thereby facilitating the formation of public opinion. Secondly, Weibo's trending list is updated every minute based on topic and popularity, displaying the top 50 topics. Unlike X (formerly Twitter) trends, which are tailored for users based on whom they follow, their interests, and their location, Weibo trends are uniform for all users. Thirdly, the ranking of Weibo's hot search considers user search behavior, discussion, and dissemination activities, collectively reflecting the extent of user attention and interaction. Moreover, Weibo has a mechanism to identify and exclude behaviors of bot accounts and paid posters. For instance, Weibo identifies bot accounts or paid posters through certain characteristics such as the ratio of following to followers, the presence of a profile picture, verification status, and the detail of personal information.

To comprehensively access historical Weibo trends, we utilized the *Hot Search Engine*[7], a freely available social media trend archive site. This archive's API features a Search API that, upon inputting a seed word, retrieves all trend records matching the specified pattern. We input the full names, abbreviations, and founders' names of our initial sample companies, yielding 46,594 Weibo trends from 641 companies over a five-year period from May 10, 2017 (i.e. the date the archived site established) to December 31, 2022. We then conducted multiple screening rounds:1) We removed all duplicate trends; 2) Trends sharing names with our sample companies or their founders but irrelevant to our study's context were excluded; 3) Trends not related to ESG were filtered out, including those focusing on sports events sponsored by the companies or market advertisements they originated, as identified through Weibo's tagging system.

Ultimately, our final sample includes 10,591 Weibo trends associated with 498 firms. To align the independent variable with the annualized dependent variable (*ESG*), we converted the independent variables to annualized metrics. After comparing various aggregation methods, including maximum value, median, and frequency, we opted for the straightforward and intuitive summation method. This approach aggregates the number of Weibo trends discussing a firm within a given year, yielding the total annual trend discussion count for each firm, as represented by the following formula:

[7] https://weibo.zhaoyizhe.com

$$StkPres_{i,y} = \sum_{t=1}^{n} WeiboTrend_{i,t} \quad (3.1)$$

Where $StkPres_{i,y}$ represents stakeholder attention to firm *i*'s ESG activities in year *y*, $WeiboTrend_{i,t}$ denotes the number of discussions about firm *i* during the *t*-th trend in year *y*, and *n* is the total number of discussions involving firm *i* in year *y*.

Institutional Heterogeneity

To measure institutional heterogeneity, we developed a dummy variable (*InstHete*) based on the *Rule of Law* dimension of the Worldwide Governance Indicators (WGI) developed by the World Bank. The WGI is a comprehensive dataset that provides annual governance scores for over 200 economies across six dimensions: *Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law*, and *Control of Corruption.* Among these, the *Rule of Law* indicator is particularly relevant for our study, as it captures perceptions of the extent to which agents have confidence in and abide by the rules of society—specifically the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.

Institutional environments characterized by a strong rule of law provide transparent, credible, and consistently enforced legal and regulatory frameworks. Such settings not only establish clearer expectations for corporate ESG conduct but also enable stakeholders to resort to formal mechanisms to hold firms accountable. As a result, in high rule-of-law contexts, stakeholder pressures transmitted through social media are more likely to be perceived by firms as credible and consequential, reinforced by the tangible risk of institutional sanctions or litigation. This synergy between informal social media discourse and formal institutional oversight is thus expected to amplify the effect of stakeholder sentiment on corporate ESG performance. Conversely, in low rule-of-law contexts, the absence of reliable legal enforcement and institutional credibility may lead firms to perceive online stakeholder pressures as less binding, reducing the incentive for substantive ESG improvements.

Given the strong similarity in Rule of Law scores between the United States and Hong Kong throughout the 2017–2022 period (see Appendix C), we assigned a value of 0 to firms listed in mainland China (indicating lower institutional development in legal enforcement) and 1 to those

listed in the United States or Hong Kong (indicating higher institutional quality and thus higher institutional heterogeneity when compared to mainland firms). This binary classification allows for clearer interpretation of the moderating role of institutional environment in our empirical models.

3.4.2.3. Control Variables

In this study, multiple control variables were comprehensively considered. Company size (*FirmSize*), calculated as the logarithm of total assets, was included based on the hypothesis that it may influence public attention and subsequently affect the company's ESG practices (Brammer and Millington, 2006; Udayasankar, 2008). It is noted that our final sample originates from various stock exchanges using different currencies, to ensure data consistency and comparability, we have converted these figures into a unified currency, the US dollar. Additionally, to eliminate the impact of exchange rate fluctuations, we have used the year-end exchange rate of each year to convert data such as total assets and market capitalization.

Company age (*FirmAge*), measured as the number of years since listing, was also considered as a control variable to acknowledge variations in management system maturity and adaptability to ESG trends across companies of different ages (D'Amato and Falivena, 2020). Profitability, measured as return of equity (*ROE*), as firms with superior financial performance may have greater resources for ESG practices (Cho et al., 2019; Otero-González et al., 2021). We also controlled for Capital Intensity (*CapInten*), measured as the ratio of assets to sales, and the leverage (*Leverage*) as the ratio of debt to asset (Marano and Kostova, 2015). Besides, we included governance structure (*GovStru*), measured by the proportion of independent directors and ownership structure (*OwnStru*), measured by the proportion of internal shareholdings, and Tobin's Q (*TobinQ*), measured by the market value of a company divided by the replacement cost of its assets (Cho et al., 2019).

3.4.3. Data Analysis

First, we observed that the dataset exhibited skewed stakeholder attention. Firms frequently discussed on social media tended to be larger, more recognizable, and closely linked to public interests. Second, we were concerned about potential heteroskedasticity issues in our regression

models, given that the variance in the error term was likely to increase with the level of social media attention. Therefore, after careful comparison, we decided against applying logarithmic transformation to the independent variable followed by OLS regression, and instead adopted the Generalized Linear Model (GLM) approach. This method effectively accommodates the heteroskedasticity inherent in the data by directly specifying an appropriate mean-variance relationship, thereby providing more reliable statistical inference.

To further validate the model specification, we conducted a Hausman test, which rejected the null hypothesis and confirmed the appropriateness of fixed effects. Accordingly, we incorporated time and industry fixed effects to control for unobserved, time-invariant heterogeneity and to improve the accuracy of estimation. The regression equation is as follows:

$$\begin{aligned} ESG_{i,y} = \alpha_0 + \alpha_1 StkPres_{i,y} + \alpha_2 InstHete_{i,y} \\ + \alpha_3 X_{iy} + \epsilon_{i,y} \end{aligned} \tag{3.2}$$

Where $ESG_{i,y}$ represents the ESG performance of company *i* in year y. The term $StkPres_{i,y}$ represents the pressure exerted by stakeholders on company *i* in year y. The term $InstHete_{i,y}$ denotes the institutional heterogeneity within the external environment faced by company *i* in year *y*. The variable $X_{i,y}$ includes a vector of control variables hypothesized to impact the ESG performance of the company. These variables comprise firm size, firm age, leverage, profitability, governance structure, and ownership structure. Lastly, $\varepsilon_{i,y}$ denotes the error term, capturing the variation in ESG performance not explained by the model.

To examine the moderating effect of institutional heterogeneity on the relationship between stakeholder attention and ESG performance, we introduced the interaction term *StkPres*×*InstHete* into our model. The regression equation is as follows:

$$\begin{aligned} ESG_{i,y} = \beta_0 + \beta_1 StkPres_{i,y} + \beta_2 InstHete_{i,y} \\ + \beta_3 StkPres_{i,y} \times InstHete_{i,y} + \beta_4 X_{i,y} + \epsilon_{i,y} \end{aligned} \tag{3.3}$$

The interaction variable *StkPres*×*InstHete* illustrates the moderating effect of institutional heterogeneity on the pressure from stakeholders.

Finally, to address potential endogeneity concerns, such as reverse causality arising from the possibility that a firm's ESG performance may influence its social media visibility and stakeholder pressure, we employed the Generalized Method of Moments (GMM) estimator. This approach effectively accounts for dynamic endogeneity and unobserved firm-specific heterogeneity. A detailed discussion of the GMM model specification and corresponding results is provided in the robustness checks section later.

3.5. Results

3.5.1. Univariate Analysis

We present in Table 3.2 the descriptive statistics of our variables (except dummy variables for industries). The sample's ESG performance was generally suboptimal, with an overall mean score of 2.194. Stakeholder attention showed significant variability, with firms averaging 2.452 instances of attention annually, though the majority received little to no attention (median = 0). Institutional heterogeneity averaged 0.421, indicating that 42.1% of firms pursued financing outside China, while 57.9% remained within domestic markets. The average firm size was US$ 2 0,213.774 million, with an average age exceeding 12 years. The average capital intensity was 18.231, driven upward by a small number of firms undergoing rapid expansion. Profitability, measured by return on equity (*ROE*), averaged 5.276%, although some companies faced severe financial distress, with a minimum ROE of -501.983%. Leverage, assessed by the debt-to-asset ratio, averaged 48.009%, indicating that the financial leverage of the sample firms was generally appropriate. However, a few companies experienced extreme conditions, with the maximum leverage reaching 132.588%. The average internal ownership and the proportion of independent directors were relatively moderate, at 46.2% and 38.551%, respectively. Lastly, Tobin's Q, often used as an indicator of a company's growth prospects, had an average value of 2.064, suggesting a generally positive outlook for the sample firms.

Table 3.3 presents the outcomes of Spearman correlation tests for all examined variables, revealing insights that partly diverge from our anticipations. The correlation coefficient between ESG performance and stakeholder pressure was negative but insignificant, indicating no substantial effect of stakeholder pressure on corporate ESG policies. Conversely, ESG

Table 3.2: Descriptive Statistics

	N	Mean	Min	Q1	Median	Q3	Max	SD
ESG	1,875	2.194	0	0	2.584	3.766	7.118	2.055
StkPres	2,570	2.452	0	0	0	2	98	7.412
InstHete	2,570	0.421	0	0	0	1	1	0.494
FirmSize	2,570	20,213.774	0	914.516	3,037.821	13,139.716	1,469,444.003	70,363.741
FirmAge	2,569	12.438	0	5	12	19	31	8.078
CapInten	2,570	18.231	0.147	1.571	3.082	12.914	301.777	42.104
ROE (%)	2,570	5.276	-501.983	1.309	7.838	15.194	776.420	29.119
Leverage (%)	2,570	48.009	0	32.551	47.570	63.951	132.588	21.008
OwnStru (%)	2,471	46.200	0	19.018	48.021	72.099	97.219	29.800
GovStru (%)	2,463	38.551	0	33.330	37.500	42.860	90.000	13.205
TobinQ	2,560	2.064	0	1.028	1.445	2.310	19.947	1.772

Note: This table shows the descriptive statistics of our variables. Our sample encompasses 2,570 observations from 498 Chinese listed firms, spanning the period from January 1, 2017, to December 31, 2022. For explanations and sources of all variables, refer to Appendix B. ‘Q1’ represents the first quartile, ‘Q3’ the third quartile, and ‘SD’ stands for standard deviation.

Table 3.3: Spearman Correlation Matrix

	ESG	*StkPres*	*InstHete*	*FirmSize*	*FirmAge*	*CapInten*	*ROE*	*Leverage*	*OwnStru*	*GovStru*	*TobinQ*
ESG	--										
StkPres	-.027	--									
InstHete	.102*	.413**	--								
FirmSize	.546**	.514**	.282**	--							
FirmAge	.420**	.238**	-.335**	.269**	--						
CapInten	.268**	-.196**	-.266**	.200**	.263**	--					
ROE	.079	.030	-.296**	-.049	.075	-.018	--				
Leverage	.101*	.079	.038	.283**	.131**	.057	-.278**	--			
OwnStru	.064	-.003	-.545**	.279**	.043	.142**	.204**	-.041	--		
GovStru	.051	.121**	.465**	.167**	-.069	-.515**	-.024	-.012	-.263**	--	
TobinQ	-.255**	-.214**	-.160**	-.392**	-.277**	-.219**	.412**	-.329**	.260**	.044	--

Note: This table presents the Spearman correlation results for all variables. Our sample includes 2,570 observations composed of Weibo trends related to ESG topics from 498 listed companies, spanning from May 20, 2017, to December 31, 2022. Detailed explanations and sources of all variables can be found in Appendix A. ***, **, and *indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

performance was significantly positively correlated with institutional heterogeneity (0.102*), suggesting that, on average, companies listed overseas exhibited better ESG performance compared to those listed domestically. ESG performance also showed positive correlations with firm size (0.546**), firm age (0.420**), leverage ratio (0.101*), and capital intensity (0.268**). These results align with prior research, which consistently finds that larger and older firms tend to demonstrate stronger ESG performance.

Stakeholder pressure exhibited significant positive correlations with institutional heterogeneity (0.413**), firm size (0.326**), and the proportion of independent directors (0.121**). This suggests that overseas-listed companies, larger firms, and those with more robust governance structures are more visible and, consequently, more likely to become targets of stakeholder attention on social media. Institutional heterogeneity also correlated positively with firm size (0.282**) and the proportion of independent directors (0.465**), indicating that overseas-listed companies tend to be larger and exhibit superior governance. However, institutional heterogeneity was significantly negatively correlated with firm age (-0.335**) and ROE (-0.296**), implying that overseas-listed companies are generally younger and less profitable compared to domestically listed counterparts.

3.5.2. Multivariate Statistics

Table 3.4 presents GLM tests results of the stakeholder pressure on ESG performance. Models 1 include only the independent variable, Models 2 incorporates only control variables, while Model 3 combines the independent variable and control variables. Model 4 adds the interaction term *StkPres*×*InstHete*. We employed the Likelihood Ratio Test (LRT) and Akaike Information Criterion (AIC) to compare the goodness-of-fit across models. The comparative results indicate that adding control variables and the interaction term improved model fit. Stakeholder pressure coefficients remained consistently negative and significant across all models (-0.105* in Model 1, -0.185*** in Model 3, and -0.204** in Model 4), providing support for H1. This suggests that stakeholder pressure has a significant negative impact on corporate ESG practices, consistent with our hypothesis. However, the regression coefficients for institutional heterogeneity, while positive, are not statistically significant across all models, failing to support H2. This suggests that although foreign primary listings may exert a positive influence on ESG performance, the effect is not robust enough to achieve statistical significance. This finding contradicts the

Table 3.4: GLM Regression Results of ESG Performance

	Model 1		Model 2		Model 3		Model 4	
	Coefficient	**S.E.**	**Coefficient**	**S.E.**	**Coefficient**	**S.E.**	**Coefficient**	**S.E.**
StkPres	-0.105*	0.048			-0.185***	0.038	-0.204**	0.083
InstHete					0.083	0.102	0.079	0.104
StkPres×*InstHete*							0.023	0.084
FirmSize			0.533***	0.053	0.592***	0.043	0.592***	0.043
FirmAge			0.095*	0.058	0.220***	0.046	0.220***	0.044
ROE			0.059	0.057	-0.018	0.038	-0.018	0.038
Leverage			-0.071	0.049	-0.063	0.040	-0.063	0.039
CapInten			0.045	0.053	0.055	0.046	0.055	0.045
GovStru			0.139**	0.067	0.071	0.047	0.071	0.047
OwnStru			0.117***	0.043	0.160***	0.040	0.160***	0.040
TobinQ			0.034	0.046	0.010	0.038	0.010	0.038
Constant	0.000	0.045	0.186***	0.047	0.043	0.053	0.037	0.059
LRT	5.514		131.333		305.499		305.577	
p-value	0.019**		<0.001		<0.001		<0.001	
AIC	1,421.261		1139.051		1111.812		1113.753	
Industry Fixed Effects	N		N		N		N	
Year Fixed Effects	N		N		N		N	
Number of Observation	2,123		2,123		2,123		2,123	

Note: This table presents the GLM regression results for the impact of stakeholder pressure on ESG performance. The sample comprises 2,570 observations from 498 publicly listed companies between January 1, 2017, and December 31, 2022. Model 1 incorporates only independent variables; Model 2 incorporate only control variables; Model 3 introduces institutional heterogeneity alongside the control variables. Model 4 combines stakeholder pressure, institutional heterogeneity, and their interaction term (stakeholder pressure * institutional heterogeneity) with the control variables. The Akaike Information Criterion (AIC) is used as the information criterion for model selection, while the Likelihood Ratio Test (LRT) is employed to compare model fit. For variable explanations and sources, please see Appendix B. All continuous variables are standardized before regression. Significance levels are indicated as follows: * for 0.1, ** for 0.05, *** for 0.01.

assumptions of the mirror effect and instead aligns more closely with the agency perspective. That is, despite entering a stricter institutional environment, overseas-listed firms do not appear to experience a significant direct impact on their CSR decisions. Instead, they are more likely to retain managerial discretion and navigate regulatory gaps strategically. Interestingly, the interaction term *StkPres* × *InstHete* in Model 4 was also insignificant, providing no empirical support for H3. This suggests that institutional heterogeneity does not significantly moderate the negative impact of stakeholder pressure on ESG performance.

Table 3.5: GLM Regression Results of ESG Performance with Fixed Effects

Variables	Model 1		Model 2		Model 3	
	Coefficient	**S.E.**	**Coefficient**	**S.E.**	**Coefficient**	**S.E.**
StkPres	-0.229***	0.082	-0.194**	0.081	-0.226**	0.077
InstHete	0.176*	0.073	0.062	0.092	0.180*	0.078
StkPres×*InstHete*	0.048	0.093	0.014	0.097	0.054	0.083
FirmSize	0.610***	0.046	0.600***	0.040	0.602***	0.043
FirmAge	0.145***	0.038	0.198***	0.038	0.118***	0.040
ROE	-0.049	0.039	0.028	0.040	0.009	0.035
Leverage	0.025	0.037	-0.042	0.038	0.051	0.038
CapInten	0.008	0.044	0.067	0.041	0.020	0.041
GovStru	0.051	0.042	0.048	0.042	0.032	0.042
OwnStru	0.124***	0.038	0.116***	0.038	0.081***	0.036
TobinQ	0.016	0.038	0.007	0.036	0.016	0.035
Constant	0.038	0.096	0.392***	0.108	0.368***	0.106
LRT	376.852		359.565		441.839	
p-value	<0.001		<0.001		<0.001	
AIC	1090.458		1069.745		1005.471	
Industry Fixed Effects	Y		N		Y	
Year Fixed Effects	N		Y		Y	
Number of Observation	2,123		2,123		2,123	

Note: This table presents the GLM regression results for the impact of stakeholder pressure on ESG performance., employing fixed effects approach. The sample comprises 2,570 observations from 498 publicly listed companies between January 1, 2017, and December 31, 2022. Model 1 employs only industry fixed effect; Model 2 employs only time fixed effect; and Model 3 employs a two-way fixed effect. The Akaike Information Criterion (AIC) is used as the information criterion for model selection, while the Likelihood Ratio Test (LRT) is employed to compare model fit. For variable explanations and sources, please see Appendix B. All continuous variables are standardized before regression. Significance levels are indicated as follows: * for 0.1, ** for 0.05, *** for 0.01.

To further validate our findings, we employed fixed-effects models after conducting the Hausman test (with significant test statistics). Table 3.5 reports GLM regression results with fixed effects. Model 1 controlled for industry fixed effects to account for unobserved variables that differ

across industries but remain constant over time. Model 2 controlled for time-fixed effects to capture temporal changes consistent across entities. Model 3 included both individual and time-fixed effects. We find that stakeholder pressure coefficients remain negatively significant across all models, further supporting H1. Moreover, interestingly, the regression coefficients for institutional heterogeneity are positively significant in Models 1 and 3, providing support for H2. However, in Model 2, which does not control for industry fixed effects, the coefficient becomes insignificant. We speculate that the impact of institutional heterogeneity varies across industries, and the inclusion of industry fixed effects helps remove systematic differences between industries, allowing its true effect to emerge. Finally, the interaction term *StkPres*×*InstHete* remains positive but not statistically significant, suggesting that institutional heterogeneity may have a slight enhancing effect on stakeholder pressure exerted on firms. However, this effect is not strong enough to reach statistical significance, providing no support for H3.

The composite effect coefficient of stakeholder pressure on ESG performance should be $\beta_1+\beta_3\times InstHete$. Given *InstHet*e is a dummy variable, being either 1 or 0, the composite regression coefficient for stakeholder pressure when institutional heterogeneity is present is $\beta_1+\beta_3$. According the results of Table 3.5, while stakeholder pressure's negative impact on ESG practices is mitigated for overseas-listed firms, it is not entirely neutralized. We posit that companies listed overseas often access capital from foreign markets, where stakeholder pressures on cash flows are comparatively reduced relative to domestically listed firms. Specifically, while stakeholder pressures on social media do impact ESG practices, these pressures likely operate through multiple channels, such as directly harming corporate reputation, persuading influential stakeholders to exert additional pressure, or obstructing normal business operations. For companies raising funds in markets outside their home region, some of these channels may be less effective, thereby mitigating the disruptions to corporate decision-making and practices. However, channels like reputational damage remain active and continue to exert influence.

Overall, our findings support H1, suggesting that stakeholder pressure has a substantial negative impact on corporate ESG practices, regardless of whether the company raises capital locally or abroad. Additionally, for companies raising funds outside their local market, their ESG commitments are positively impacted, supporting H2. Lastly, for overseas listed firms, the negative effect of stakeholder pressure may diminish but does not entirely disappear.

3.5.3. Robustness Tests

Table 3.6: Group-specific GMM Estimation Results of ESG Performance

Variables	Overseas group		Domestic group	
	Coefficient	**S.E.**	**Coefficient**	**S.E.**
StkPres	-0.280***	0.063	-0.545***	0.143
FirmSize	0.622***	0.060	0.663***	0.091
FirmAge	0.230***	0.061	0.115	0.094
ROE	-0.124**	0.057	-0.159**	0.079
Leverage	0.017	0.052	0.084	0.075
CapInten	0.006	0.067	0.005	0.086
GovStru	-0.013	0.048	-0.002	0.062
OwnStru	0.055	0.078	0.088	0.125
TobinQ	-0.157**	0.061	-0.053	0.081
Constant	-0.127	0.088	-0.468	0.195
Adj.R^2	0.331		0.273	
HansenJ Test Statistics	2.618		1.302	
p-value	0.106		0.254	
Wald Statistic	657.547		235.566	
p-value	<0.001		<0.001	
Industry Fixed Effects	Y		Y	
Year Fixed Effects	Y		Y	
Number of Observation	1,083		1,040	

Note: This table presents the group-specific GMM estimation results for the effect of stakeholder pressure on ESG performance. The instrumental variables used are the average stakeholder pressure within the company's industry and the lagged stakeholder pressure of the company itself. The sample comprises 1,040 observations of companies listed in the Mainland China market and 1,083 observations of companies listed outside Mainland China (including the United States and Hong Kong) during the period from January 1, 2017, to December 31, 2022. For variable explanations and sources, please see Appendix B. All continuous variables are standardized before regression. Significance levels are indicated as follows: * for 0.1, ** for 0.05, *** for 0.01.

To address potential endogeneity concerns, we employed the Generalized Method of Moments (GMM) using two instrumental variables: lagged stakeholder pressure $StkPres_{i,y+1}$ and industry-average stakeholder pressure $IndsPres_{i,y}$. Both instruments satisfied validity requirements, showing strong correlations with $StkPres_{i,y}$ and no significant correlation with the error term ϵ. Weak instrument tests confirmed the strength of these instruments.

Table 3.6 presents GMM estimation results using these instruments. Given the complexity of interaction terms, we conducted group-specific estimations, categorizing firms based on their listing destinations: domestic (no institutional heterogeneity) and overseas (institutional heterogeneity present). Our findings reveal that stakeholder pressure significantly inhibits ESG

practices for both domestic and overseas groups, providing robust support for H1. Furthermore, the constant terms in the subgroup regressions are not statistically significant, suggesting that ESG performance may not be subject to significant additional constraints, whether in the domestic or overseas market. This finding aligns with our baseline analysis. Last, the inhibitory effect of stakeholder pressure on ESG practices is markedly weaker for the overseas group (-0.280***) compared to the domestic group (-0.545***), offering robust support for H3.

We also considered the possibility of using firms listed on China's domestic B-share market as a robustness check to further explore the potential differences between domestic and foreign investor influence. Since B-shares are accessible to foreign investors, such a test could theoretically help isolate the effect of investor composition from broader institutional environments. However, only 8 firms in our sample are listed on B-share markets, making this group statistically under-powered for meaningful analysis. Consequently, we refrain from conducting additional subgroup regressions based on B-share status. Nonetheless, we acknowledge the theoretical relevance of this approach and encourage future studies with broader datasets to examine this question more comprehensively.

In summary, our results, validated through GMM testing, provide strong evidence for our hypotheses. Stakeholder activism on social media demonstrably interferes with corporate practices and decision-making, posing challenges to sustainable development. Additionally, the effect of overseas listing on firms' ESG decisions is not statistically significant, indicating that stronger institutions in more developed financial markets do not necessarily enhance corporate governance. Managerial autonomy remains intact. However, the increased transparency and improved ESG resilience associated with overseas listing partially reduce firms' exposure to stakeholder pressure, ultimately benefiting firms.

3.6. Discussion

This study investigates external factors influencing corporate ESG practices and their interactions, using a sample of Chinese-listed companies. Specifically, we examine 498 companies listed in China and other regions (the United States and Hong Kong) between 2017 and 2022, exploring how their ESG performance responds to two external factors: stakeholder pressure on social media and institutional heterogeneity associated with different listing destinations.

We find that stakeholder pressure on social media significantly suppresses corporate ESG practices, hindering sustainable development, regardless of whether companies raise capital locally or abroad. Additionally, institutional heterogeneity resulting from foreign primary listing does not have a significant impact on firms' ESG practices, contradicting the mirror effect hypothesis. However, entering a stricter institutional environment alleviates the negative impact of stakeholder pressure to some extent, though it does not fully neutralize it.

Our findings indicate a significant negative impact of stakeholder pressure on ESG performance. This suggests that stakeholder demands, rather than serving as a catalyst for companies to enhance communication and improve ESG practices, act as a barrier to sustainable development. This effect may arise for two main reasons: first, stakeholders on social media tend to focus on short-term corporate actions rather than long-term objectives, making their demands misaligned with the company's sustainable policies. Second, as cognitive theory suggests, individuals often become more conservative and rigid in their existing beliefs rather than benefiting from abundant information. This leads to increasingly fragmented stakeholder networks, making it harder to form unified and convergent demands. Such fragmentation presents significant challenges for companies, making stakeholder communication and the integration of diverse demands into long-term development plans an increasingly unattainable goal. In this context, companies are more likely to adopt conservative and defensive ESG strategies.

We also find that although overseas listing exposes firms to a stronger institutional environment, it does not significantly improve their ESG practices. This contradicts the mirror effect hypothesis derived from institutional theory, which assumes that corporate ESG practices passively respond to external institutional demands. Instead, our findings support the agency

perspective, suggesting that corporate management retains considerable strategic autonomy, allowing firms to proactively navigate external pressures and flexibly utilize ESG as a strategic tool. Furthermore, our results confirm that overseas IPO enhances corporate transparency and resilience, partially mitigating the adverse effects of stakeholder pressure, although these effects are not entirely eliminated.

This study makes several key contributions. First, it expands the literature on CSR communication by incorporating a rising entity playing a crucial role in public discourse, social media, into the realm of CSR communication research. Although previous studies have included social media in CSR communication, they predominantly portrayed it as a tool for corporations, not stakeholders. This overlooks the burgeoning power and desire of stakeholders to oversee corporate behavior. Our findings demonstrate that stakeholders indeed have the capacity to exert substantial influence on companies through social media.

Our research also contributes a new perspective to institutional theory. By focusing on the unique group of overseas listed companies, we integrate institutional heterogeneity into the analytical framework to better understand the influence of external institutional environments on corporate practices. Our results indicate that while overseas listing embeds firms within dual institutional environments, it does not significantly alter their ESG decision-making. This challenges the mirror effect hypothesis and instead supports the agency theory perspective. It suggests that corporate management demonstrates a considerable degree of strategic autonomy and agency, effectively navigating the institutional contradictions between the home and host countries.

This work also has important practical implications for corporate managers: By revealing the significant negative impact of stakeholder pressure on ESG performance, this study highlights that stakeholder (at least those active on social media) serve more as challengers than facilitators of CSR practices. Therefore, we recommend that corporate policymakers adopt a more cautious approach when responding to stakeholder demands. Given the highly personalized nature of stakeholder networks, addressing the demands of one group may provoke dissatisfaction among others, leaving companies caught in a dilemma. In contrast, a more conservative and restrained strategy, minimizing visibility on social media and avoiding the spotlight, might be a wiser choice.

Additionally, our findings indicate that institutional heterogeneity does not have a significant impact on ESG performance, challenging the assumption that accessing overseas markets inherently enhances corporate sustainability practices. While differing financial systems from the home country may introduce complexities in corporate operations, management, and disclosures, the expected benefits of greater transparency and improved governance in more developed financial markets do not appear to translate into significant ESG improvements. However, enhanced regulations and higher transparency can bolster corporate resilience when facing stakeholder pressures. Thus, raising capital in more developed markets remains a viable and advantageous option.

This study has its limitations. Firstly, we proxy stakeholder pressure with the volume of trends on social media, believing that it's a more representative source of stakeholders than traditional news, which is dominated by journalists and media professionals trained in news narrative. However, we must acknowledge that each social media platform has its distinct user community and preferences for different topics. For instance, in this study, we utilized data from Weibo, one of the largest Chinese social media platforms, whose user community shows the least enthusiasm for environmental issues, which are among the most crucial pillars of ESG. Therefore, our research might be constrained by the Weibo sample, and we call for studies based on other social media samples (e.g., Twitter or Reddit).

It's also noted that we identified the empowerment of dispersed stakeholders within this new "participatory context," without delving deeply into how companies—entities in positions of power—navigate this changed relational landscape. For instance, it remains to be explored whether companies respond to public outrage, mitigate risks with timely and sincere communication, or suffer other damage due to excessive caution and silence. Furthermore, there's the question of whether companies exhibit a preference for certain trending topics on social media, such as stakeholder praise, while deliberately overlooking sharp criticisms, achieving a form of strategic green-washing through selective responses. Future research can further investigate the complex relationships and interaction mechanisms between companies and stakeholders, offering theoretical significance for stakeholder research and practical implications for corporate managers.

Likewise, due to data availability and comparability reasons, we utilized ESG pillar scores provided by the Bloomberg dataset, to measure the ESG performance, which could also influence our findings. This is because the three major ESG rating providers (ASSET4, Bloomberg, and KLD) employ different methodologies in their scoring, assigning various weights to the sub-categories under E, S, and G pillar, leading to notable discrepancies among the ESG scores they provide (Berg et al., 2020; Billio et al., 2021; Gyönyörovà et al., 2021; Senadheera et al., 2021). Moreover, the institutional context seems to further diminish this correlation. Zumente and Lāce (2021) found greater discrepancies in ESG ratings among European companies. Hence, we anticipate that our study sample, foreign primary listed Chinese corporations, may also be limited by this constraint. We look forward to future research employing different ESG rating results to provide richer insights into the dynamics of external factors driving corporate sustainable development practices.

APPENDICES

Appendix A. Re-Coding Process for Industries of Mainland China-listed Companies

Chinese Industry Classification Guidelines	GICS Industry Group	GICS Sector
Coal Mining And Washing Industry Oil and Gas Extraction Industry Oil Processing, Coking and Nuclear Fuel Processing Industry	Energy	Energy
Chemical Raw Materials and Chemical Products Manufacturing Industry Ferrous Metal Smelting and Rolling Processing Industry Metal Products Industry Non-Ferrous Metal Mining and Dressing Industry Non-Ferrous Metal Smelting and Rolling Processing Industry Paper And Paper Products Industry Wood Processing and Wood, Bamboo, Rattan, Palm, Grass Products Industry	Materials	Materials
Chemical Fiber Manufacturing Industry Electrical Machinery and Equipment Manufacturing Industry General Equipment Manufacturing Industry Non-Metallic Mineral Products Industry Other Manufacturing Industries Railway, Shipbuilding, Aviation and Other Transportation Equipment Manufacturing Industry Rubber and Plastic Products Industry Special Equipment Manufacturing Industry	Capital Goods	Industrials
Business Services Industry Ecological Protection and Environmental Management Industry Professional and Technical Services Industry	Commercial & Professional Services	
Air Transportation Industry Postal Industry Railway Transportation Industry Water Transportation Industry	Transportation	

(Continued on next page)

Appendix A. *(Continued)* Re-Coding Process for Industries of Mainland China-listed Companies

Chinese Industry Classification Guidelines	GICS Industry Group	GICS Sector
Automobile Manufacturing Industry Motor Vehicle, Electronic Product and Daily Product Repair Industry	Automobiles & Components	Consumer Discretionary
Culture, Education, Arts And Crafts, Sports and Entertainment Products Manufacturing Industry Furniture Manufacturing Industry Leather, Fur, Feathers and Their Products and Shoe-Making Industry Textile Clothing, Apparel Industry Textile Industry	Consumer Durables & Apparel	
Culture and Art Industry Education Catering Industry	Consumer Services	
Retail Industry Wholesale Industry	Consumer Discretionary Distribution & Retail	
Agricultural and Sideline Products Food Processing Industry Agriculture Animal Husbandry Fisheries Food Manufacturing Industry Wine, Beverage and Refined Tea Manufacturing Industry	Food, Beverage & Tobacco	Consumer Staples
Research and Experimental Development	Pharmaceuticals, Biotechnology & Life Sciences	Health Care
Health Industry Pharmaceutical Manufacturing Industry	Health Care Equipment & Services	
Broadcasting, Television, Film and Video Recording Production Industry Culture and Art Industry News and Publishing Industry	Media & Entertainment	Communication Services
Telecommunications, Radio and Television And Satellite Transmission Services	Telecommunication Services	
Electricity, Heat Production and Supply Industry Gas Production and Supply Industry Public Facilities Management Industry Water Production and Supply Industry	Utilities	Utilities

(Continued on next page)

Appendix A. *(Continued)* Re-Coding Process for Industries of Mainland China-listed Companies

Chinese Industry Classification Guidelines	GICS Industry Group	GICS Sector
Real Estate Industry	Properties	Properties & Construction
Civil Engineering Construction Industry Housing Construction Industry	Construction	
Internet and Related Services Software and Information Technology Services Industry	Software services	Information Technology
Computer, Communication and Other Electronic Equipment Manufacturing Industry	Technology Hardware & Equipment	

Note: This table displays the recoding process for industries of Mainland China-listed companies. The Chinese Industry Classification Guidelines are established by the China Securities Regulatory Commission (CSRC), while the Global Industry Classification Standard (GICS) is a globally recognized framework co-developed by S&P Dow Jones Indices and MSCI. We refer to the latest version, effective as of March 2023.

Appendix B. Variables Definition and Measurement

Name	Description	Source
ESG	The company's ESG pillar score, evaluating the company's overall performance in environmental, social, and governance aspects.	Bloomberg
StkPres	The sum of social media trends regarding ESG issues related to the company, quantifying the stakeholders' level of concern regarding the company's ESG practice.	Manual
InstHete	A binary variable assigned a value of 1 when the company is listed in an exchange with high institutional heterogeneity (e.g., the United States and Hong Kong), and 0 when listed in an exchange with low institutional heterogeneity (e.g., mainland China).	Manual
FirmSize	The logarithm of the company's total assets, quantifying the company's market size and economic impact. To ensure data comparability and to convert figures into U.S. dollars, we use the exchange rate at the end of each year.	Bloomberg
FirmAge	The number of years since the company has been listed, measuring the company's maturity and market experience.	Bloomberg
ROE	The company's return on equity, reflecting the efficiency of using shareholder capital, measuring profitability and financial health.	Bloomberg
CapInten	The capital intensity, calculated by dividing the total value of capital assets by total labor expenses, quantifies the degree to which a firm relies on capital.	Bloomberg
Leverage	The company's debt-to-asset ratio, measuring the degree of financial leverage and reflecting the company's dependency on debt and financial stability.	Bloomberg
GoveStru	The percentage of independent directors, measuring the board's independence and reflecting the transparency and impartiality of corporate decision-making processes.	Bloomberg
OwneStru	Internal ownership, calculated by the percentage of equity held by the company's insiders such as executives, directors, and employees, quantifies the alignment of the company's leadership with its long-term development.	Bloomberg
TobinQ	The ratio of the company's market value to its asset replacement cost, assessing the company's investment attractiveness and market valuation.	Bloomberg

Appendix C. Rule of Law Scores of Three Major IPO Destinations for Chinese Firms

Year	US Rule of Law (%)	HongKong Rule of Law (%)	China Rule of Law (%)
2017	1.61 (91.9%)	1.68 (93.8%)	-0.26 (45.2%)
2018	1.48 (89.0%)	1.73 (95.2%)	-0.19 (48.6%)
2019	1.42 (89.0%)	1.57 (91.4%)	-0.26 (44.8%)
2020	1.34 (88.6%)	1.55 (91.4%)	-0.10 (51.4%)
2021	1.39 (88.1%)	1.41 (90.0%)	0.01 (52.9%)
2022	1.37 (88.7%)	1.28 (87.7%)	-0.04 (52.8%)

Note: This table shows the basis for calculating institutional heterogeneity, using the Rule of Law scores of the United States, Hong Kong, and China during the 2017–2022 period. '%' indicates the percentile rank globally. Rule of Law is a key dimension of the Worldwide Governance Indicators, a framework developed by the World Bank to provide cross-country comparisons and long-term trends in governance. For details, please refer to: https://www.worldbank.org/en/publication/worldwide-governance-indicators

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DISCUSSION GÉNÉRALE

Cette recherche vise à explorer l'impact du discours public des parties prenantes (nos tests empiriques ne séparent pas explicitement les parties prenantes primaires et secondaires) sur les plateformes des médias sociaux — la « place publique » de l'ère numérique — sur les organisations commerciales. L'analyse inclut les effets à court et long terme ainsi que les facteurs modérateurs influençant ces impacts. En utilisant les entreprises chinoises cotées en bourse comme échantillon de recherche, nous avons collecté 10,591 discussions sur les tendances des médias sociaux, impliquant 498 entreprises entre 2017 et 2022.

Dans le premier article, nous examinons l'impact des discussions initiées par les parties prenantes sur les réseaux sociaux sur les cours des actions des entreprises chinoises cotées aux États-Unis. Un tel choix est justifié par la maturité du marché financier américain sachant que notre approche empirique repose sur la méthodologie des études des événements. Notre analyse préliminaire des tendances sur Weibo révèle que les plateformes sociales fonctionnent dans une certaine mesure comme une « place publique », offrant aux utilisateurs ordinaires un espace communautaire où ils peuvent évaluer, échanger des opinions et élaborer un discours sur le comportement des entreprises. Contrairement aux récits institutionnels typiques orientés vers les affaires et les normes RSE, les discussions des utilisateurs sur les réseaux sociaux tendent à privilégier les dimensions sociales—telles que les droits des consommateurs et le bien-être des employés—plutôt que les enjeux environnementaux. Ces discussions se concentrent particulièrement sur les entreprises bien connues ou celles qui vendent directement des produits et services aux consommateurs. Le sentiment public à l'égard de ces entreprises est majoritairement négatif, avec une proportion croissante des commentaires négatifs chaque année.

En utilisant un modèle d'étude d'événement, nous constatons que les discussions sur Weibo affectent de manière significative les cours des actions. Les discussions positives ont un impact favorable, tandis que les discussions négatives exercent une influence défavorable, ce qui indique que les marchés financiers considèrent Weibo comme une source d'information complémentaire. Par ailleurs, la performance RSE des entreprises joue un rôle modérateur: les entreprises ayant de meilleures performances RSE font face à des attentes plus élevées et à un contrôle accru, mais

leur transparence plus grande leur offre une certaine protection, atténuant l'impact des discussions négatives. Cependant, cet effet tampon est insuffisant pour compenser complètement les effets négatifs du sentiment public exprimé sur Weibo.

Le second article prolonge l'analyse pour explorer si les discussions sur Weibo entraînent des changements à long terme dans les pratiques RSE des entreprises. Afin d'éviter le biais de sélection, nous élargissons l'échantillon pour inclure toutes les entreprises chinoises, et pas seulement celles cotées aux États-Unis. Nos résultats suggèrent que les discussions sur Weibo ont un impact négatif sur la performance ESG des entreprises chinoises. En regroupant les données par sentiment, nous observons que les discussions positives et négatives ont des effets similaires et défavorables sur les activités RSE, les tendances négatives ayant un impact plus marqué. Une catégorisation supplémentaire des discussions en thèmes sociaux et thèmes de gouvernance révèle que les effets négatifs observés sont principalement liés aux discussions sur la gouvernance. Tandis que les sujets de gouvernance reflètent un impact globalement négatif, les discussions liées aux aspects sociaux—qu'elles soient positives ou négatives—n'influencent pas significativement les pratiques RSE.

Dans le troisième article, nous analysons si le choix de la destination de cotation modère l'impact des discussions sur les réseaux sociaux initiées par les parties prenantes sur les entreprises. Nos résultats indiquent que les entreprises levant des fonds sur les marchés étrangers—particulièrement les marchés financiers plus développés—subissent une réduction des effets négatifs de la pression des parties prenantes. Cela contraste avec les études antérieures sur les multinationales (ex. Kostova et al., 2008), où la complexité institutionnelle (multiplicité de juridictions opérationnelles) favorise des stratégies RSE ambiguës pour préserver la flexibilité. Toutefois, notre échantillon—des entreprises interlistées dont l'activité principale reste ancrée dans leur pays d'origine—montre que l'hétérogénéité institutionnelle ciblée (ex. exigences réglementaires des places boursières étrangères) peut induire une alignement stratégique clair. Nous soutenons que les avantages d'accéder aux marchés financiers étrangers—tels qu'une transparence accrue et une meilleure gouvernance—l'emportent sur les coûts liés à l'adaptation institutionnelle, à condition que les pressions externes soient canalisées par des mécanismes formalisés (ex. normes ESG des investisseurs institutionnels).En outre, des réglementations plus

strictes et des attentes élevées renforcent la résilience des entreprises, leur permettant d'atténuer partiellement les impacts négatifs de la pression des parties prenantes, sans toutefois les neutraliser complètement.

Cette recherche apporte plusieurs contributions majeures: 1) Enrichissement de la théorie du signal. Nous proposons, pour la première fois dans la littérature, des arguments théoriques qui expliquent comment l'avènement des médias sociaux permet aux parties prenantes d'augmenter leurs capacités de collecter de l'information privée sur les entreprises et d'envoyer des signaux aux investisseurs. Notre nouveau cadre conceptuel pose l'hypothèse que les utilisateurs des médias sociaux (en plus des managers des entreprises) peuvent recourir à des signaux pour réduire l'asymétrie d'information. Nos résultats démontrent que les discussions ESG initiées par les parties prenantes sur des plateformes sociales comme Weibo, bien que potentiellement moins crédibles que les médias traditionnels, envoient des signaux au investisseurs et sont perçues par les marchés financiers comme des sources d'information complémentaires. Cela est illustré par l'influence immédiate de ces discussions sur les prix des actions. De plus, les entreprises plus transparentes en matière de RSE bénéficient d'une meilleure performance sur les marchés, offrant une protection partielle face aux crises médiatiques.

2) Avancement de la théorie des parties prenantes. Cette recherche souligne comment les parties prenantes secondaires marginalisées (par exemple, le grand public et les communautés) utilisent les réseaux sociaux pour exercer une influence significative sur les entreprises. Grâce aux réseaux sociaux, les parties prenantes secondaires accèdent rapidement à l'information, échangent des opinions, forment des alliances et contraignent les entreprises à répondre à leurs exigences, passant de simples acteurs passifs à des participants actifs dans les relations sociales des entreprises. Cependant, les discussions sur les médias sociaux, en fragmentant les perspectives des parties prenantes, peuvent aussi entraver la collaboration entre de telles parties et la cohérence de leurs revendications.

3) Extension empirique de la théorie de la légitimité. Les réseaux sociaux amplifient les voix des parties prenantes, créant un environnement externe plus complexe à gérer lorsque de telles voix divergent et posant des défis sans précédent aux activités RSE des entreprises. Face à cela, les

gestionnaires allouent souvent des ressources à des activités symboliques visant à atténuer les crises immédiates, au détriment d'efforts substantiels qui amélioreraient la durabilité à long terme.

4) Integration de l'hétérogénéité institutionnelle. En examinant les entreprises cotées à l'étranger, cette étude apporte un éclairage nouveau sur la manière dont les environnements institutionnels externes influencent les pratiques des entreprises. Contrairement à la vision traditionnelle—valable pour les multinationales confrontées à des logiques institutionnelles fragmentées (Marano et al., 2017)—selon laquelle des environnements institutionnels complexes sont nuisibles, nos résultats suggèrent que pour les entreprises inter-listées (cross-listées), une hétérogénéité institutionnelle structurée (ex. dualité entre régulation domestique et standards boursiers internationaux) peut renforcer la gouvernance et la résilience. Cette divergence s'explique par la nature simplifiée et quantifiable des pressions institutionnelles dans le cadre des cotations croisées sur plusieurs bourses étrangères (Karolyi, 2006), contrairement au paysage multidimensionnel des multinationales.

Nos travaux offrent plusieurs implications pratiques pour les gestionnaires d'entreprise: 1) Engagement proactif sur les réseaux sociaux: les réseaux sociaux sont devenus un champ de bataille incontournable pour l'opinion publique à l'ère numérique, nécessitant une attention particulière de la part des gestionnaires. Une partie des investisseurs ajuste clairement ses décisions en fonction des tendances qui émergent sur ces plateformes, ce qui provoque des chocs à court terme sur les cours des actions. Par ailleurs, les parties prenantes démontrent une capacité narrative et un enthousiasme qui défient les récits RSE centrés sur les entreprises. Les gestionnaires doivent non seulement répondre rapidement aux crises sur les réseaux sociaux pour stabiliser les cours des actions, mais aussi reconnaître la capacité croissante des parties prenantes secondaires à influencer le discours public et leur volonté de se faire entendre. Cela nécessite une réévaluation stratégique de la communication avec les parties prenantes.

2) Discussions liées à la gouvernance: bien que la plupart des tendances sur les réseaux sociaux soient éphémères et peu susceptibles d'affecter durablement la stabilité des entreprises, les discussions sur la gouvernance requièrent une attention particulière. Ces discussions, qui portent souvent sur la conformité, les comportements anticoncurrentiels et les rémunérations des

dirigeants, ont tendance à avoir des impacts négatifs plus durables sur les activités RSE en raison de leur nature technique et d'un public participant plus restreint et spécialisé. Nous recommandons de réallouer les ressources RSE vers des améliorations en matière de gouvernance afin de réduire la probabilité que ces discussions gagnent en traction, minimisant ainsi les perturbations causées par les réseaux sociaux sur les pratiques des entreprises.

3) Cotation sur les marchés développés: pour les entreprises cherchant à lever des fonds, nos résultats suggèrent que lever des capitaux sur des marchés plus développés reste un choix viable et bénéfique. Malgré les défis opérationnels et de divulgation posés par des systèmes financiers différents, les avantages liés à une transparence et une gouvernance accrue l'emportent sur les coûts. En outre, une supervision réglementaire renforcée et une plus grande transparence augmentent la résilience des entreprises face à la pression des parties prenantes, faisant de la cotation croisée sur les marchés développés une stratégie avantageuse.

Comme toute recherche, notre travail comporte certaines limitations:1) Emphase sur les entreprises chinoises: notre étude se concentre sur les entreprises chinoises, qui évoluent dans un environnement unique et complexe. Ces entreprises sont soumises à une surveillance stricte du gouvernement central, qui exerce un contrôle significatif sur les affaires et la société. Alors que la croissance macroéconomique de la Chine a ralenti après un essor rapide au début du 21ème siècle, le gouvernement a intensifié ses efforts pour guider la restructuration industrielle et réglementer les activités économiques privées. Les entreprises chinoises s'aventurant au-delà des frontières nationales font face à des tensions géopolitiques exacerbées, notamment entre la Chine et les États-Unis, ce qui accroît les incertitudes. Ces entreprises subissent une attention accrue, des sanctions gouvernementales (surtout de la part des États-Unis) et une pression médiatique amplifiée, créant des défis substantiels pour leurs opérations. Dans l'ensemble, les entreprises chinoises subissent une pression externe particulièrement élevée, à la fois au niveau national et international, dépassant celle que connaissent les entreprises d'autres régions. Les recherches futures pourraient bénéficier d'une extension de l'analyse à d'autres pays ou régions pour obtenir des perspectives comparatives plus riches.

2) Plateforme sociale chinoise:notre recherche se concentre sur une plateforme sociale chinoise, différente des plateformes globales anglophones comme Facebook, X ou Reddit. Ces plateformes

chinoises s'adressent principalement à un public national, reflétant des caractéristiques culturelles distinctes, comme une faible sensibilisation publique à la protection de l'environnement. En Chine, cette dernière est souvent perçue comme une responsabilité gouvernementale plutôt qu'individuelle, en raison du rôle historique de l'État dans la gestion économique et sociale. Cela limite l'observation des discussions sur les enjeux environnementaux, empêchant une analyse complète de l'influence de la dimension environnementale de RSE sur les pratiques des entreprises. Les études futures devraient explorer les plateformes dans divers contextes linguistiques et culturels pour mieux comprendre l'impact du discours public sur les performances des entreprises et les prix des actions.

3) Relations entreprises-parties prenantes: nous avons identifié l'autonomisation des parties prenantes dispersées dans ce nouveau « contexte participatif », sans approfondir comment les entreprises naviguent dans ce paysage relationnel transformé. Par exemple, il reste à explorer si les entreprises répondent aux crises publiques avec des communications opportunes et sincères, ou si elles subissent des préjudices dus à une prudence excessive. De plus, les entreprises favorisent-elles certains sujets à la mode tout en négligeant délibérément les critiques sévères, atteignant une forme de « green-washing stratégique » via des réponses sélectives? Les recherches futures pourraient examiner ces relations complexes pour fournir des implications pratiques et théoriques.

4) Manipulation des tendances: une question clé est de savoir si certains individus ou groupes peuvent dominer ou manipuler ces discussions de tendances. Malgré nos mesures de nettoyage des données pour éliminer les tendances manipulées, les progrès des modèles de langage et leur commercialisation généralisée posent de nouveaux défis. La capacité de générer un contenu apparemment authentique à grande échelle, y compris des campagnes artificielles, devient de plus en plus accessible et difficile à détecter. Ce phénomène pourrait renforcer les effets des chambres d'écho et aggraver les inégalités entre utilisateurs. Les recherches futures devraient explorer ces dynamiques pour comprendre leur impact sur l'opinion publique et le comportement des entreprises.

5) Scores ESG: Enfin, nous avons utilisé les scores ESG des piliers fournis par Bloomberg pour mesurer la performance RSE. Toutefois, les principales agences de notation RSE (ASSET4,

Bloomberg, KLD) emploient des méthodologies différentes, attribuant des pondérations variées aux sous-catégories, ce qui conduit à des divergences notables entre leurs scores. Les recherches futures pourraient bénéficier de l'intégration d'autres notations ESG pour enrichir la compréhension des facteurs externes influençant les pratiques de développement durable des entreprises.

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