EXPLORING THE IMPACT OF DIVERSITY, EQUITY, AND INCLUSION (DEI) ON FIRM MARKET PERFORMANCE

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CERTIFICATE OF ORIGINALITY

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Abstract

This thesis investigates the impact of Diversity, Equity, and Inclusion (DEI) announcements within various contexts, employing a combination of Citation Network Analysis (CNA), Structural Topic Modeling (STM), and empirical analysis to provide a comprehensive understanding of DEI's role in organizational performance and market reactions.

The first study utilizes a citation network analysis to explore DEI activities in the field of operations management at the workplace. By selecting relevant papers from Q1 publications using the Web of Science, and employing CitNetExplorer software, this study identifies six distinct clusters of DEI-related research. Through the application of STM, sub-topics within each cluster are further analyzed, revealing how these themes contribute to the broader DEI discourse. This research develops a conceptual framework that illustrates the interrelationships among the clusters, offering valuable insights into advancing DEI theory and guiding future research directions.

The second study examines the effect of DEI commitment announcements on the market performance of publicly traded manufacturing firms in the United States, employing signaling theory. Analyzing 233 DEI announcements from 161 firms over a decade (2013-2022), the study finds that DEI announcements generally lead to positive abnormal stock returns, particularly when announcements emphasize DEI topics strongly (signal strength) and focus on specific DEI aspects (signal specificity). These findings suggest that DEI is not only a moral imperative but also a strategic tool that can enhance investor confidence and firm value. The study provides managerial implications for firms looking to leverage DEI for improved market performance.

The third study shifts the focus to Taiwanese firms, exploring the impact of DEI announcements in a different cultural setting. Using data from the Wise News search engine, 197 DEI announcements were analyzed over four years (2020-2024). The study reveals that, unlike in the U.S., DEI announcements in Taiwan tend to negatively impact stock returns, especially when the signal strength is high. This suggests that cultural differences significantly influence how DEI

commitments are perceived by investors. Further analysis using Upper Echelon Theory indicates that younger and more educated top management teams can positively moderate the market's reaction to DEI announcements. These findings highlight the importance of tailoring DEI strategies to fit local cultural norms and offer insights for investors, managers, and policymakers on enhancing DEI implementation.

Overall, this thesis provides a comparative analysis of DEI performance between the U.S. and Taiwan, examining how different DEI announcement strategies affect market performance, return on assets, sales growth, and other financial metrics. It concludes with recommendations for stakeholders and policymakers on optimizing DEI commitments and outlines avenues for future research to further explore the global impact of DEI announcements.

Keywords: Diversity, equity, inclusion, DEI, Event study, Signaling theory, Upper echelons theory, firm market performance.

Publications arising from the thesis

Li, F., Lo, C. K., Tang, C. S., & Zhou, P. (2024). Will Diversity, Equity, and Inclusion Commitment Improve Manufacturing Firms' Market Performance? A Signaling Theory Perspective on DEI Announcements. Production and Operations Management, 10591478241265479.

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Table of Contents

Chapter 1: Introduction

Recent cultural shifts in the United States have significantly elevated the prominence of diversity, equity, and inclusion (DEI) within corporate agendas. This dissertation topic was selected in response to the candidate's observation that DEI had become a pivotal issue in both academia and industry—sparking curiosity about how businesses integrate DEI principles into strategic decisions and how stakeholders react to such commitments. Moreover, the candidate sought to explore why DEI practices are vital for achieving multiple United Nations Sustainable Development Goals (SDGs), particularly SDG 5 (Gender Equality), SDG 8 (Decent Work and Economic Growth), and SDG 10 (Reduced Inequalities). Understanding how DEI advances these goals is crucial not only for ethical and social responsibility but also for enhancing business performance. Stakeholders, including investors, consumers, and employees, actively support DEI announcements as they align with broader societal values and ethical standards (Camilleri, 2021). A robust commitment to DEI—encompassing comprehensive policies and practices to promote diversity, ensure equity, and foster inclusion—has been shown to attract top talent and retain customers (Lyman et al., 2022). Moreover, diverse workforces are linked to enhanced innovation capabilities and better financial outcomes, as they bring varied perspectives that drive creativity and problem-solving (Bogers et al., 2010; Cunningham, 2011). Inclusive work environments further contribute to organizational success by fostering collaboration and increasing employee engagement, thereby boosting overall productivity and performance. By addressing these DEI-related challenges, the dissertation aims to provide both theoretical and practical insights that encourage companies to implement more inclusive strategies, thereby supporting sustainable growth and contributing to pressing societal needs.

Regarding to the concept of DEI, *Diversity* includes all the various dimensions of human identity, such as race, ethnicity, gender, sexual orientation, religion, physical abilities, socioeconomic background, and more. These characteristics shape our beliefs, values, and perceptions, which in turn influence our behaviors and interactions. Some aspects of diversity, like race or gender, are beyond an individual's control and significantly impact how they are perceived and treated. Others, such as religion or socioeconomic status, can change over time (Morukian, M., 2022).

Equity focuses on fairness and creating equal opportunities by addressing the inherent advantages or disadvantages that individuals might face due to their identity. It involves providing necessary resources and support to ensure everyone has a fair chance to succeed, similar to adjusting starting points in a race to account for differing track lengths. Equity acknowledges that certain groups have historically had unearned advantages and aims to level the playing field by intentionally offering growth, training, and career advancement opportunities to those who may have been overlooked (Morukian, M., 2022).

Inclusion is about creating an environment where all individuals feel valued, respected, and able to contribute fully. It ensures that everyone, regardless of their differences, has equal access to opportunities and can participate meaningfully in organizational life. Inclusion balances the need for belonging with the recognition of individuality, encouraging diverse ideas and valuing each person's unique contributions. This practice promotes a sense of belonging while also celebrating the distinct characteristics that each individual brings to the table (Morukian, M., 2022). Table 1 shows the keywords of DEI from the literature.

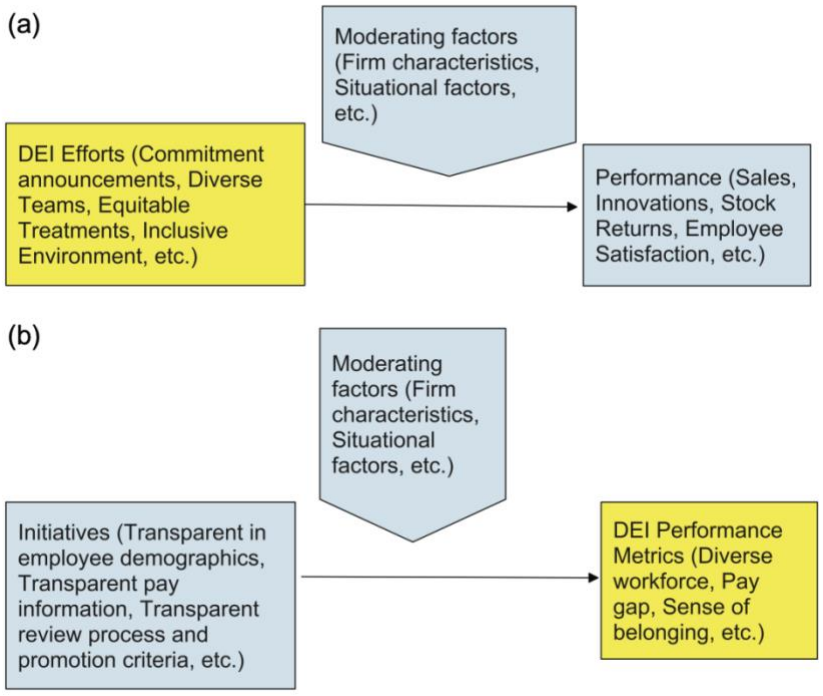
Table 1 DEI keywords

	Diversity	**Equity**	**Inclusion**
Keywords & References	*corporate diversity, board diversity, gender diversity, and female* (Bear, Rahman, & Post, 2010; Dadanlar & Abebe, 2020; Olsen, Parsons, Martins, & Ivanaj, 2016); *race, ethnicity, age, sex, sex orientation, sex identity, religion, disability* (Kang, Cheng, & Gray, 2007; Shore et al., 2009); *Black lives matter* (Leopold & Bell, 2017); *LGBTQ, lesbian, gay, bisexual, transsexual, and queer* (McFadden, 2015).	*fair, fairness, equal, equity, justice, and impartiality* (Bendick, Egan, & Lanier, 2010)	*respect, belonging* (Randel, Dean, Ehrhart, Chung, & Shore, 2016)

There is a DEI conceptual framework derive from the study of Tang's (2024), he views DEI announcements as inputs and DEI metrics as outputs, emphasizing that organizational efforts towards DEI can lead to measurable and impactful outcomes. The insights derive from this conceptual framework can be the notable gaps in the operations management (OM) literature, particularly regarding the systematic evaluation of DEI's impact on stock market performance. While existing studies have predominantly focused on the direct benefits of DEI on decision-making processes and employee welfare, less is known about how firms' public commitments to DEI influence investor perceptions and market behavior. This research aims to address this gap by reviewing DEI related studies over 10 years and examining the implications of DEI announcements for firm performance from different geographic background and social norms.

Our study expands on Tang's framework by specifically analyzing how the stock market reacts to these DEI commitments, using signaling theory to examine how DEI announcements serve as signals to investors and stakeholders. Additionally, we apply upper echelons theory to explore how the characteristics of top executives influence these DEI signals. By linking Tang's input-output model of DEI to market responses, our study demonstrates that DEI efforts are not only about internal organizational culture but also about how these efforts are perceived externally by investors, thus impacting the firm's market value and reputation. This approach highlights the strategic importance of DEI announcements as both a driver of internal change and a tool for external market positioning. Diagram 1 shows the conceptual framework from Tang (2024)'s research, (a) DEI efforts as inputs; (b) DEI metrics as outputs.

Diagram 1 Conceptual framework from Tang (2024)



Chapter 2 provides a comprehensive review of DEI activities within operations management using Citation Network Analysis (CNA) and Structural Topic Modeling (STM). This analysis identifies six major research clusters, revealing how themes such as gender diversity, leadership, and inclusivity intersect and shape organizational dynamics. The findings contribute to a deeper understanding of the complexity of DEI influences various aspects of organizational performance, offering a conceptual framework for future research.

Chapter 3 applies the signaling theory to investigate the impact of DEI commitment announcements on the market performance of U.S. manufacturing firms. By examining 233 announcements from 161 firms over a decade, the study finds that DEI announcements generally lead to positive abnormal stock returns, especially when these announcements are characterized by strong signal strength and specificity. This suggests that DEI commitments can enhance investor confidence and firm value, positioning DEI as a strategic business decision rather than merely an ethical obligation.

In Chapter 4, the focus shifts to the Taiwanese market, exploring how DEI announcements influence stock performance in a different cultural context. Unlike the positive market reactions observed in the U.S., DEI announcements in Taiwan tend to negatively impact stock returns,

particularly when they strongly emphasize DEI. This contrast highlights the significant role of cultural differences in shaping investor responses to DEI announcements. The chapter further examines how demographic characteristics of top management teams, such as age and education, influence these outcomes. The findings emphasize the importance of aligning DEI strategies with local cultural norms and suggest that younger and more educated leadership can positively affect market reactions to DEI commitments.

Chapter 5 presents a comparative analysis of DEI market performance between the U.S. and Taiwan, exploring the mechanisms through which DEI commitments influence market reactions under different cultural and political contexts. By incorporating insights from signaling theory and upper echelon theory, we examine how variations in investor perceptions shape the impact of DEI initiatives across regions. To enhance our understanding, we conducted regressions on DEI-related topics identified through Structural Topic Modeling (STM), allowing us to pinpoint which specific DEI themes generate the most significant market responses. Based on these findings, we provide strategic implications for firms on crafting effective DEI announcements, emphasizing the importance of aligning DEI messaging with cultural and political expectations to maximize positive market reception.

Chapter 6 provides a summary of the previous findings and outlines potential areas for future research. The conclusion highlights how Structural Topic Modeling (STM) and Citation Network Analysis (CNA) reveal the interconnected nature of DEI themes such as gender diversity, leadership, and inclusivity, emphasizing the importance of a holistic approach to enhancing organizational dynamics. The analysis of U.S. firms shows that DEI commitment announcements can positively influence market performance, suggesting that investors view strong DEI signals as strategic advantages. In contrast, Taiwanese firms experience negative market reactions to DEI announcements, underscoring the importance of cultural context in shaping DEI perceptions. Future research expands this analysis to different cultural and geographical contexts, explore various industry sectors, and examine the role of top management demographics. Additionally, adopting mixed-method approaches and studying the long-term impacts of DEI announcements will provide deeper insights into how DEI can foster inclusive and equitable environments globally.

This thesis addresses two primary research questions. The first question is: How does the extent of a firm's DEI commitment affect its stock market performance in the U.S.? This question is explored and answered in Chapter 3. The second question focuses on Taiwan: How does the extent of a Taiwan-listed firm's DEI commitment impact its market performance across various sectors? This question is examined and answered in Chapter 4. The objectives of this thesis are to provide critical insights into the complex role of DEI in organizational success and to highlight the importance of context-sensitive approaches to DEI implementation. The research demonstrates the interconnectedness of DEI themes across different settings, offering both theoretical and practical contributions to the ongoing discourse on diversity and inclusion within the global business landscape.

Chapter 2: Citation Networks Analyze in Diversity, Equity, and Inclusion Research: A Structural Topic Modeling (STM) Approach

2.1. Introduction

With the growing prominence of the seventeen Sustainable Development Goals (SDGs) proposed by the United Nations (UN), the focus on the social aspects of sustainable operations has intensified. In particular, the commitment to DEI has emerged as a critical priority for manufacturers, aiming to meet compliance requirements, attract top talent, boost innovation, and improve financial performance. Specifically, "Diversity" refers to the presence of a wide range of different people in various settings, including differences in race, ethnicity, nationality, gender identity, sexual orientation, disability, and other factors. "Equity" involves providing equal opportunities through a tailored approach that addresses unequal resource distribution and mistreatment among employees. "Inclusion" ensures that marginalized individuals genuinely feel they belong, are welcomed, and are included.

DEI is vital not only at the firm level but also in sports, as demonstrated by announcements planned for the 2024 Paris Olympics. The Games will promote gender equality by ensuring nearly equal participation of male and female athletes, reflecting a commitment to gender diversity and fairness in sports (Turconi et al., 2022) The introduction of more mixed-gender events, such as mixed relays, will further promote gender equality by showcasing collaboration and competition across genders. Additionally, the integration of the Paralympics with the Olympics, using the same venues and facilities, underscores a commitment to inclusivity, ensuring all athletes receive equal conditions and opportunities (Misener & Darcy, 2014; Turconi et al., 2022). Moreover, the Paris Olympics advocates for cultural diversity, LGBTQ+ rights, and anti-racism, supporting announcements that promote acceptance and understanding across different identities and backgrounds, thereby advancing social justice in sports and contributing to a more inclusive global community.

While the diverse and broad demographic composition of populations, work environments, and organizations presents challenges for employers, most research in operations management has

traditionally focused on the diversity aspect within the workplace. This limited scope neglects the interconnected nature of diversity, equity, and inclusion, which together significantly influence employment policies. Research indicates that DEI offers numerous advantages, including enhancing employee productivity and performance (Bol, de Vaan, & van de Rijt, 2022; Srivastava, Das, & Pattanayak, 2018), fostering creativity and innovation (Gimenez-Fernandez, Sandulli, & Bogers, 2020; Protogerou, Caloghirou, & Vonortas, 2017; Talke, Salomo, & Rost, 2010), expanding a company's talent pool (Ostergaard, Timmermans, & Kristinsson, 2011), and reducing employee turnover while increasing profitability and market share (Protogerou et al., 2017). To achieve such benefits, firms must shift their strategic focus from "diversity" alone to a comprehensive DEI framework. Therefore, conducting systematic literature network analysis on DEI activities in operations management is essential to provide valuable insights and recommendations for future research.

This study aims to conduct a systematic literature review by integrating citation network analysis (CNA) and structural topic modeling (STM) to explore how firms' DEI efforts impact organizational decision-making, financial and operational performance, and social perspectives, including those in sports. The use of CNA will enable the identification of key research clusters and their interconnections, providing a comprehensive view of the academic discourse surrounding DEI. Simultaneously, STM will be employed to uncover specific sub-topics and thematic trends within these clusters, offering deeper insights into the nuances of DEI-related research. This innovative combination of methodologies allows for a more granular understanding of how DEI announcements influence various aspects of organizational performance and social impact. By examining the interplay between diverse themes, the study contributes theoretically to the field by highlighting the interconnectedness of DEI topics and offering a robust framework for future research. This approach not only advances theoretical understanding but also provides practical implications for firms seeking to enhance their DEI strategies effectively, thereby supporting sustainable growth and fostering inclusive environments. The summary of each paper's title, cluster, publication, year, focus, paper type, finding, theory, theory application, future research, related topics and relevance reason are showed in Chapter 2 Appendix.

2.2 Methodology

2.2.1 Study Design

To review the diverse concepts and their interactions in DEI within the operational management literature, this study adopts a systematic literature review, citation network analysis, and structural topic modeling to understand how firms' DEI efforts influence organizational decision-making, financial and operational performance, sports and social perspectives.

Systematic Literature Review (SLR): The systematic literature review helps to interpret current trends, identify gaps in the scientific literature, and explore emerging topics (Lagorio, Pinto, & Golini, 2016). SLR serves as a reliable tool for finding relevant articles by using targeted keywords on specific research topics. This study utilizes the comprehensive citation data from the Web of Science, which provides access to multiple databases and scientific resources. Keywords like DEI/EDI, diversity, equity, and inclusion, along with their synonyms and related phrases, are used to cover all aspects of diversity, equity, and inclusion.

Citation Network Analysis (CNA): Citation Network Analysis is an innovative methodology for analyzing knowledge evolution and building knowledge structures (Colicchia & Strozzi, 2012). Traditional review articles often rely on subjective clustering methods, which may lack the objectivity found in CNA. By mapping the citation relationships between publications, CNA illustrates how knowledge spreads and connects across research domains, highlighting the flow and impact of ideas from one document to another (Calero-Medina & Noyons, 2008; Hummon & Dereian, 1989). Tools like CitNetExplorer and R will be used to process data from the Web of Science, ensuring a robust and comprehensive CNA.

Structural Topic Modeling (STM): To deepen the understanding of DEI's role in operational management, this study incorporates Structural Topic Modeling (STM), an advanced text-mining technique that uncovers latent semantic topics within large text corpora. STM is particularly useful in identifying clusters and sub-topics within DEI research, revealing nuanced insights into how different DEI aspects are framed and discussed across various contexts (Wang et al., 2022). For example, applying STM can uncover specific themes such as general DEI terms, support for underrepresented groups, or commitment to diversifying the workforce, as observed in studies examining corporate diversity statements (Wang et al., 2022). This approach allows for the

identification of prevailing topics and their associations with organizational outcomes, providing a comprehensive view of DEI's impact on the operational landscape.

By integrating SLR, CNA, and STM, this study aims to construct a detailed and nuanced understanding of DEI within operational management, laying the groundwork for future research and strategic implementation.

2.2.2 Data Collection

To fully cover all aspects of DEI-related papers, keyword selection is critical. Through brief literature reviewing some most cited papers on each aspect of diversity, equity, and inclusion in operation management, the frequently used keywords by other authors are summarized as:

Table 1. DEI keywords

Keywords (References)
Board diversity (Bear et al., 2010),
Gender diversity, *female* (Bear et al., 2010; Dadanlar & Abebe, 2020; Olsen et al., 2016; Shore et al., 2009; Tan, 2019),
Corporate diversity (Bear et al., 2010; Dadanlar & Abebe, 2020),
Race, ethnicity, age (Kang et al., 2007; Shore et al., 2009; Tan, 2019),
Sex (Kang et al., 2007; Shore et al., 2009),
Black Lives Matter (Leopold & Bell, 2017),
Fair, *fairness, justice, equality*, *equal, equity* (Colquitt et al., 2006; Van Gramberg, 2006),
Impartiality, *impartial* (Van Gramberg, 2006),
Respect, *belonging*, *welcomed* (Gustafsson et al., 2018; Randel et al., 2016),
LGBTQ, *lesbian, gay, bisexual, transsexual, and queer* (McFadden, 2015; Tan, 2019),
Sexual orientation, sexual identity, *gender identity*, *religion, and disability* (Croteau et al., 2008; Shore et al., 2009).

In case the keywords might link to unexpected numbers of irrelevant scholars, this study excluded papers that are not closely tightened to workplace DEI, such as equal allocation, distribution and

location problems, equality air traffic management, and humanitarian and disaster management for equal treatment. Therefore, the final search string is:

(TS=(divers* OR equity OR inclusion OR DEI) AND TS=("corporate diversity" OR "board diversity" OR "gender diversity" OR female OR woman OR women OR race OR age OR ethnicity OR sex OR gender OR "sex orientation" OR "sex identity" OR religion OR disability OR "African American" OR "Black lives matters" OR BLM OR LGBT* OR lesbian OR gay OR bisexual OR transgender OR queer offair OR fairness OR equal OR justice OR impartiality OR respect OR belonging)) NOT TS=(allocation OR distribution OR "air traffic management" OR humanitarian OR "disaster management" OR "location problem" OR routing) and Management or Operations Research Management Science (Web of Science Categories) and Early Access (Exclude – Document Types) and MANAGEMENT SCIENCE or OPERATIONS RESEARCH or RESEARCH POLICY or JOURNAL OF OPERATIONS MANAGEMENT or PRODUCTION AND OPERATIONS MANAGEMENT or JOURNAL OF MANAGEMENT INFORMATION SYSTEMS or JOURNAL OF BUSINESS LOGISTICS or INTERNATIONAL JOURNAL OF PRODUCTION ECONOMICS or EUROPEAN JOURNAL OF OPERATIONAL RESEARCH or INTERNATIONAL JOURNAL OF PRODUCTION RESEARCH or MATHEMATICS OF OPERATIONS RESEARCH or SPORT MANAGEMENT REVIEW or INFORMS JOURNAL ON COMPUTING or JOURNAL OF OPTIMIZATION THEORY AND APPLICATIONS or ANNALS OF OPERATIONS RESEARCH or INTERNATIONAL TRANSACTIONS IN OPERATIONAL RESEARCH or MANAGEMENT DECISION or QUALITY AND RELIABILITY ENGINEERING INTERNATIONAL or OPTIMIZATION or JOURNAL OF MANAGERIAL PSYCHOLOGY (Publication Titles)

To ensure the literature review closely aligns with DEI topics, the search process involves using specific keywords describing diversity, equity, and inclusion, referred to as TS (Topic of the Papers). The use of quotation marks around keywords ensures that the search engine retrieves articles where both words appear together, rather than separately, thereby avoiding irrelevant domains.

The next step involves creating union sets for papers from each aspect using "OR" between terms, and then intersecting these sets using "AND." This approach narrows the results to papers that specifically address multiple aspects of DEI. The search is further refined by setting the target year range from January 1, 2013, to November 23, 2023, and by limiting the categories to operations research, management science, and management. To focus on the most relevant and influential papers, the sample size is controlled to Q1 (most influential) operations management journals and selected the journals that are related closely to OM domain. This provides a robust and reliable sample for a systematic review, focusing on long-term periods, relevant domains, and influential papers where other scholars have yet to delve deeply into DEI topics.

During the Citation Network Analysis (CNA) procedure, the minimum cluster size is set to four or more papers, ensuring a reasonable cluster size. A critical step involves testing the resolution parameter in CitNetExplorer, which determines the level of detail in cluster identification. The higher the resolution parameter value, the larger the number of clusters obtained (Van Eck & Waltman, 2014). Various trials are conducted to adjust the resolution parameter until a balanced number of clusters is achieved, with each cluster clearly differentiated by research domain. Subsequently, the software R is employed to examine sub-topics within each cluster using Structural Topic Modeling (STM), providing a detailed analysis of the data. Table 2 illustrates the data collection steps.

This methodical approach ensures a thorough and precise investigation of DEI topics in operational management, contributing to a deeper understanding and laying the groundwork for future research.

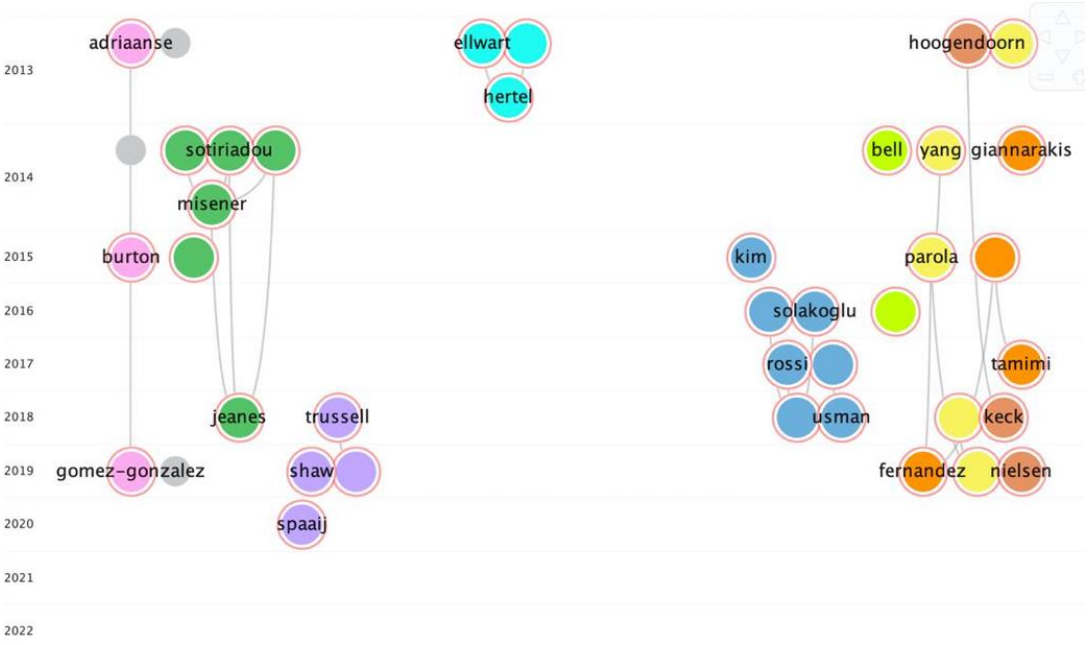
Table 2 Data Collection Steps

Steps Description	**Amount**
Web of Science keywords search	325
Screening DEI related papers	126
Citation network analysis	67 publications in 6 clusters
STM sub-topics	18 sub-topics

2.3 Clusters from CNA results and analysis

Through different trials with the resolution parameters from CitNetExplorer, and by browsing the article titles and abstracts, 6 main clusters have been built with “0.4” resolution parameters and a minimum of 4 cluster sizes. As the topic is still new and underdeveloped, the software provided the result with 67 (53.2%) papers from 126 cited and linked. Specifically, there are six clusters defined within the targeting papers, the largest domain covered 21 papers that are mainly about “Diversity and Corporate Governance: Exploring the Impact of Gender, ESG, and Board Dynamics on Firm Performance”, the second large cluster included 18 articles and termed as “Inclusivity and Diversity in Sports: Addressing Disability, Volunteerism, and LGBTQ+ Participation”, there are 12 papers in the cluster three named “The Role of Gender Diversity in Innovation: Insights from Teams, Firms, and Industries”, the fourth cluster contained 7 papers and classified as “Gender Dynamics in Sports: Leadership, Performance, and Professional Roles”, the fifth cluster “The Impact of Age Diversity on Team Dynamics and Stereotype Threats in the Workplace” includes 5 papers, and finally cluster six mainly about “Demographic Dissimilarity and Racial Hierarchies: Exploring Deep-Level Effects on Workplace Dynamics” are total 4 papers. Besides, 59 papers could not include in any cluster groups and were considered as the “scattered articles” cluster. The figure below presents the details of a bar graph from each cluster. Diagram 1 shows the result of CNA with each cluster in different colors and their citation analysis.

Diagram 1 CNA Reuslts



Note: blue is cluster 1 Diversity and Corporate Governance: Exploring the Impact of Gender, ESG, and Board Dynamics on Firm Performance; green is cluster 2 Inclusivity and Diversity in Sports: Addressing Disability, Volunteerism, and LGBTQ+ Participation; purple is cluster 3 The Role of Gender Diversity in Innovation: Insights from Teams, Firms, and Industries; orange is cluster 4 Gender Dynamics in Sports: Leadership, Performance, and Professional Roles; yellow is cluster 5 The Impact of Age Diversity on Team Dynamics and Stereotype Threats in the Workplace and brown is cluster 6 Demographic Dissimilarity and Racial Hierarchies: Exploring Deep-Level Effects on Workplace Dynamics.

2.4 Sub-topics from STM results and analysis

STM complements CNA by enabling researchers to perform a detailed thematic exploration of clusters identified within citation networks. Initially, CNA identifies clusters of related research papers based on citation patterns, effectively highlighting structural linkages among scholarly articles. However, CNA alone primarily captures structural relationships without explicitly analyzing the nuanced thematic differences or underlying sub-topics within each identified cluster. STM addresses this gap by further investigating the textual content of each cluster through probabilistic modeling. Specifically, STM assigns latent topics to individual words within the document corpus by estimating probabilities of topic assignments and word distributions associated with these topics, thereby extracting more refined thematic dimensions or sub-topics from each cluster (Blei, Ng, and Jordan, 2003).

The probabilistic assignment in STM can be formally expressed as:

$$P(w|z = k) = \beta_{k,w}$$

In this formula, $P(w|z = k)$ denotes the probability of observing a specific word www given its assignment to topic k. The parameter $\beta_{k,w}$ represents the topic-specific word distribution, indicating how strongly each word www characterizes or is associated with the latent topic k (Blei, Ng, and Jordan, 2003). By estimating these parameters, STM systematically identifies important keywords and phrases characterizing distinct sub-topics within each CNA-identified group. Consequently, when integrated with CNA, STM facilitates a richer, multi-dimensional analysis of scholarly literature, significantly enhancing SLR by uncovering subtle thematic variations and clarifying the intellectual structure embedded within citation networks.

Table 3 below shows the numbers of clusters and the number of papers and sub-topics.

Table 3 Numbers of clusters, papers and sub-topics

Cluster Names	Numbers of Papers	Sub-topic Names	Numbers of Sub-topics
(1) Diversity and Corporate Governance: Exploring the Impact of Gender, ESG, and Board Dynamics on Firm Performance	**21**	Gender Diversity and Performance in Corporate Boards	**4**
		CSR and ESG Disclosure Impact on Firm Performance	
		Female Leadership and Compensation in Corporate Governance	
		Impact of Women on Board Interlocks and Banking Strategies	
(2) Inclusivity and Diversity in Sports: Addressing Disability, Volunteerism, and LGBTQ+ Participation	**18**	Inclusive Practices in Sports Clubs	**4**
		Volunteer Engagement and Disability Inclusion in Sports	
		Diversity and Inclusion in Sports with an Emphasis on LGBTQ+ Community	
		Disability Participation and Activity Patterns in Sports	
(3) The Role of Gender Diversity in Innovation: Insights from Teams, Firms, and Industries	**12**	The Impact of Diversity and Gender on Innovation in Firms	**3**
		Gender Dynamics in Occupational Fields and High-Tech Industries	
		Team Composition and Female Inventiveness in Business Contexts	
(4) Gender Dynamics in Sports: Leadership, Performance, and Professional Roles	**7**	Dynamics of Team Performance, Leadership Behavior, and Psychological Safety in Sports	**2**
		Gender Representation, Organizational Structures, and Media Portrayals in Sports Leadership	
	5	Multilevel Dynamics of Team Diversity and Interaction	**2**

(5) The Impact of Age Diversity on Team Dynamics and Stereotype Threats in the Workplace		Age-Related Stereotypes and Their Impact on Workplace Dynamics	
(6) Demographic Dissimilarity and Racial Hierarchies: Exploring Deep-Level Effects on Workplace Dynamics.	**4**	The Impact of Deep-Level Diversity on Organizational Dynamics Racial Dynamics and Age Discrimination in the Workplace	**2**

2.4.1 Cluster 1 Diversity and Corporate Governance: Exploring the Impact of Gender, ESG, and Board Dynamics on Firm Performance

This cluster examines the role of diversity in corporate governance, particularly how gender representation, environmental, social, and governance (ESG) initiatives, and board dynamics influence firm performance. Research highlights that gender diversity in leadership positions enhances decision-making, innovation, and corporate social responsibility (CSR) efforts. Additionally, ESG disclosures and sustainability commitments contribute to positive market perceptions and long-term financial stability. The studies further explore how female leadership impacts executive compensation, corporate governance, and financial conservatism, particularly in industries where risk management is critical. These findings emphasize the need for inclusive leadership structures and transparent ESG practices to drive sustainable corporate success.

2.4.1.1 Sub-Topic 1: Gender Diversity and Performance in Corporate Boards

The impact of gender diversity on corporate boards has gained significant academic and business attention as organizations recognize its strategic value. Research consistently finds that diverse boards contribute positively to firm performance, particularly in financial outcomes, decision-making quality, and corporate social responsibility (CSR) initiatives. For example, in high-tech industries, educational diversity within boards has been linked to increased R&D investment, with gender diversity further amplifying this effect (Midavaine et al., 2016). This suggests that gender-diverse boards introduce a broader range of perspectives and expertise, fostering more innovative and well-rounded strategic decisions.

Moreover, gender-diverse boards tend to perform better in environmental and CSR-related initiatives. Companies with a strong presence of female directors are often more proactive in addressing sustainability issues, including emissions management and eco-innovation (Kuzey et al., 2022). This trend is particularly evident in sectors such as transportation and logistics, where diverse leadership is linked to enhanced sustainability efforts and improved public perception. The presence of women in key decision-making roles encourages companies to adopt more inclusive and responsible business practices, aligning corporate strategies with long-term sustainability goals (Kuzey et al., 2022).

In emerging markets such as India, gender diversity on corporate boards has also been associated with enhanced firm value and profitability. Studies indicate that companies with more women on their boards are better equipped to understand and respond to diverse stakeholder needs, thus improving corporate reputation and investor confidence (Srivastava et al., 2018). However, the effectiveness of gender diversity is contingent on more than just representation—it also depends on the roles women hold within the boardroom. Firms that integrate female directors into key strategic positions, rather than treating diversity as a symbolic gesture, see the most significant performance benefits (Midavaine et al., 2016).

2.4.1.2 Sub-Topic 2: CSR and ESG Disclosure Impact on Firm Performance

The relationship between corporate social responsibility (CSR), environmental, social, and governance (ESG) disclosures, and firm performance has become increasingly relevant. Companies with strong ESG practices not only improve their public image but also enhance market performance by aligning with investor expectations for sustainability and corporate transparency. Studies show that firms actively reducing greenhouse gas (GHG) emissions through sustainable logistics and operations receive higher ESG disclosure scores, leading to increased investor confidence and improved financial performance (Govindan et al., 2021).

In industries such as logistics and transportation—where environmental impact is a critical concern—implementing CSR strategies tailored to sector-specific challenges is essential. Research

has found that companies with dedicated sustainability committees and widely diffused ownership structures tend to exhibit superior ESG performance (Govindan et al., 2021; Kuzey et al., 2022). Similarly, industries with high environmental footprints, such as automotive and apparel, face growing pressure to disclose CSR activities transparently. Companies that engage in proactive disclosure can mitigate reputational risks while also driving eco-friendly innovations, such as resource optimization and emissions reduction (Govindan et al., 2021; Kuzey et al., 2022).

By integrating ESG considerations into their corporate strategies, firms not only fulfill regulatory and societal expectations but also gain competitive advantages. Transparent CSR and ESG reporting reduce market uncertainty, attract socially responsible investors, and enhance long-term profitability. In sectors where sustainability is increasingly scrutinized, these practices are not optional but fundamental to maintaining operational resilience and business credibility (Tamimi & Sebastianelli, 2017).

2.4.1.3 Sub-Topic 3: Female Leadership and Compensation in Corporate Governance

Research on female leadership and compensation structures underscores the influence of gender diversity on corporate decision-making. Usman et al. (2018) found that gender-diverse compensation committees in Chinese firms led to more effective corporate governance, particularly in structuring CEO pay. The presence of female directors was associated with stronger alignment between executive compensation and firm performance, highlighting their role in improving financial prudence and accountability (Usman et al., 2018).

Beyond compensation, female leadership has been linked to enhanced corporate social responsibility (CSR) performance. Companies with a higher representation of female executives tend to exhibit stronger ethical governance and better engagement in socially responsible business practices (Jouber, 2022). This aligns with findings from Adams and Ferreira (2009), which suggest that firms with a critical mass of female leaders perform better in CSR-related domains. By incorporating diverse leadership perspectives, companies improve stakeholder relations, enhance legitimacy, and create more sustainable long-term business strategies (Jouber, 2022; Usman et al., 2018).

Thus, integrating women into leadership roles is not merely a matter of representation but a strategic advantage. Their presence strengthens governance mechanisms, improves decision-making processes, and fosters responsible corporate leadership that aligns with both financial and ethical considerations.

2.4.1.4 Sub-Topic 4: Impact of Women on Board Interlocks and Banking Strategies

The influence of women on corporate boards extends beyond internal governance to inter-board relationships and financial strategies. Studies indicate that gender diversity in boardrooms contributes to improved financial conservatism and earnings management, particularly in the banking sector (Hernández-Lara & Gonzales-Bustos, 2019).

In banking, firms with gender-diverse boards are more likely to adopt transparent financial reporting practices and prioritize risk management. Research suggests that these boards exercise greater caution in financial decision-making, reducing the likelihood of financial distress (Garcia-Sanchez, 2017). Additionally, women directors often play key roles in strengthening financial disclosure, reinforcing corporate accountability, and promoting conservative lending policies (Barka & Dardour, 2015).

Board interlocks—where directors serve on multiple boards—also play a crucial role in knowledge diffusion. Female directors engaged in interlocking board positions help transfer best governance practices across firms, fostering collaboration and driving strategic innovation (Hernández-Lara & Gonzales-Bustos, 2019). Their ability to bridge different organizations enhances corporate governance, promotes diversity-driven decision-making, and contributes to industry-wide improvements in financial performance and risk management (Barka & Dardour, 2015; Menicucci & Paolucci, 2023).

2.4.1.5 Future Research of Cluster 1

Future research should further investigate the mechanisms through which gender diversity influences firm performance, particularly in diverse cultural and industrial contexts. While prior studies have established the benefits of gender-diverse boards, there is a need to explore how these advantages manifest across different business environments. For instance, in high-tech and finance sectors—where innovation, strategic risk-taking, and rapid adaptability are critical—future studies could examine whether and how gender diversity fosters more effective decision-making and risk management (Midavaine et al., 2016; Cambrea et al., 2020; Usman et al., 2018). This would provide insights into whether gender diversity has a universal impact or if its effectiveness is context-dependent.

Additionally, long-term studies should assess the sustained impact of gender-diverse leadership on corporate social responsibility (CSR) and environmental, social, and governance (ESG) initiatives. While existing research links gender diversity to improved ethical governance and environmental sustainability, further exploration is needed to determine whether these effects are stable over time and across different regulatory environments (Usman et al., 2018; Adams & Ferreira, 2009; Jouber, 2022). This could include analyzing how external factors—such as legal frameworks, shareholder activism, and industry-specific sustainability goals—moderate the relationship between gender diversity and CSR/ESG effectiveness.

Moreover, future research should expand beyond gender to incorporate intersectionality in leadership studies. Factors such as race, ethnicity, socioeconomic background, and cultural experiences may interact with gender to influence corporate governance, leadership effectiveness, and organizational culture (Huang & Kisgen, 2013; Adams & Ferreira, 2009). Investigating how these identity factors shape leadership decisions could provide a more nuanced understanding of diversity's impact on firm outcomes.

Furthermore, cross-national comparative studies could help identify best practices for leveraging gender diversity in corporate governance. Given that gender equality policies and social norms vary significantly across countries, future research should examine how these external influences affect the relationship between board diversity and firm performance (Midavaine et al., 2016; Cambrea et al., 2020). For instance, a comparative analysis between firms in regions with

progressive gender policies (such as Scandinavian countries) and those with emerging diversity initiatives (such as parts of Asia) could offer valuable insights into the conditions necessary for maximizing the benefits of gender diversity.

Finally, an emerging area of research could explore how gender diversity at the board level affects digital transformation and technology adoption within firms. As industries increasingly prioritize artificial intelligence (AI), big data, and automation, understanding whether gender-diverse leadership teams are more receptive to technological innovation could provide a new perspective on the broader economic impact of diversity in governance structures.

By addressing these areas, future research can deepen our understanding of gender diversity's role in corporate success, guiding policymakers and business leaders in fostering inclusive, effective, and adaptive governance structures that contribute to long-term value creation.

2.4.2 Cluster 2 Inclusivity and Diversity in Sports: Addressing Disability, Volunteerism, and LGBTQ+ Participation

This section examines how sports organizations integrate diversity and inclusivity, particularly for people with disabilities, volunteers, and the LGBTQ+ community. It highlights the structural and cultural factors influencing participation, as well as strategies to foster a more inclusive sports environment.

2.4.2.1 Sub-Topic 1: Inclusive Practices in Sports Clubs

This topic delves into how sports clubs integrate inclusivity and accessibility for people with disabilities through their policies and practices. It examines the organizational capacity, provision of services, and the role of clubs in catering to twins, young individuals, and the mainstream population.

The examination of inclusive practices in sports clubs reveals a growing emphasis on integrating people with disabilities into sports through tailored policies and practices. Misener and Darcy (2014) highlight that sports clubs are moving beyond traditional models, focusing on inclusive

organizational perspectives that prioritize accessibility and equal participation. This shift is particularly evident in larger multisport clubs, which demonstrate a higher capacity to include people with disabilities due to their diverse offerings and resources (Wicker & Breuer, 2014; Misener & Darcy, 2014). Additionally, the study of community sports clubs in Germany identifies strategic planning as a crucial element in enhancing the organizational capacity to cater to individuals with disabilities, thus promoting a more inclusive sporting environment (Wicker & Breuer, 2014; Misener & Darcy, 2014).

Furthermore, research into the provision for young people with disabilities in community sports clubs indicates that inclusivity is not merely about offering programs but ensuring that these programs are accessible and meet the needs of all participants. For instance, the study found that people with disabilities often prefer structured, organized activities, which provide a sense of belonging and regular engagement within the club setting (King Pung & Taylor, 2014; Misener & Darcy, 2014; Sherry et al., 2015). These findings underscore the importance of competent support and targeted promotion to improve participation rates among people with disabilities, highlighting the need for ongoing adjustments and support in the design of inclusive sports programs (Sherry et al., 2015; Misener & Darcy, 2014).

These studies collectively suggest that sports clubs must adopt a holistic approach to inclusivity, one that incorporates both organizational capacity and the specific needs of people with disabilities, thereby fostering an inclusive and supportive environment for all participants.

2.4.2.2 Sub-Topic 2: Volunteer Engagement and Disability Inclusion in Sports

This topic investigates the role of volunteer engagement in fostering inclusive sports environments for people with disabilities. It examines the strategic involvement of volunteers in community development initiatives, particularly their impact on social inclusion.

Research highlights that volunteers are crucial in making sports more accessible for people with disabilities, not only in terms of numbers but also through their preparedness and adaptability (Misener & Darcy, 2014; Sherry et al., 2015; Spaaij et al., 2020). Sherry et al. (2015) emphasize

the need for structured support systems to enhance volunteers' effectiveness in facilitating inclusive sports programs.

Moreover, diversity among volunteers further enriches the inclusive sports experience. Maxwell et al. (2015) found that Muslim female life-savers contribute significantly to community cohesion by serving as role models, reducing cultural barriers, and fostering greater participation among underrepresented groups. This highlights the importance of recruiting volunteers from diverse backgrounds to strengthen inclusivity efforts in sports organizations (Maxwell et al., 2015; Sherry et al., 2015; Spaaij et al., 2020).

By creating well-structured training programs and ensuring a diverse volunteer base, sports organizations can enhance the effectiveness of their disability-inclusive initiatives, leading to more widespread participation and engagement.

2.4.2.3 Sub-Topic 3: Diversity and Inclusion in Sports with an Emphasis on LGBTQ+ Community

This topic investigates how sports organizations manage diversity and inclusion, focusing particularly on the LGBTQ+ community. It explores efforts to address homophobia and institutional barriers while examining how endorsements and stigma influence participation.

The inclusion of LGBTQ+ individuals in sports remains a challenge due to persistent discrimination, exclusion, and heteronormative attitudes (Denison et al., 2021). Research indicates that LGBTQ+ athletes, particularly gay males and transgender individuals, face significant obstacles in sports environments, often discouraging participation. Institutional resistance to policy implementation further exacerbates these challenges, with policies frequently serving as symbolic gestures rather than actionable commitments (Storr, 2021; Shaw & Cunningham, 2021; Storr et al., 2022).

Efforts to promote LGBTQ+ inclusion in sports require tangible policy implementations. Storr et al. (2022) highlight the demand for stronger institutional support in Australian cricket, where

grassroots communities have expressed the need for robust inclusion policies. Creating safe spaces, implementing comprehensive diversity policies, and engaging in public advocacy—such as hosting Pride games—are essential steps toward fostering inclusivity in sports organizations (Storr et al., 2022).

Despite increased awareness, a significant gap remains between policy intent and practical implementation. To bridge this divide, sports organizations must move beyond compliance, ensuring that LGBTQ+ inclusion policies translate into concrete changes at all levels of engagement (Storr et al., 2022; Denison et al., 2021; Shaw & Cunningham, 2021).

2.4.2.4 Sub-Topic 4: Disability Participation and Activity Patterns in Sports

This topic examines participation trends among people with disabilities in sports, analyzing how factors such as age, group dynamics, and accessibility influence engagement. It explores logistical barriers, satisfaction levels, and potential facilitators that impact participation.

Darcy et al. (2023) highlight the significance of community-based approaches in fostering inclusive sports environments, particularly in beach-related activities. Accessibility to facilities, cleanliness, and adequate infrastructure were identified as key factors influencing participation (Darcy et al., 2023). Similarly, Wicker and Breuer (2014) found that larger sports organizations are better equipped to provide structured disability-inclusive programs due to their resources and strategic planning (Misener & Darcy, 2014).

Moreover, King Pung and Taylor (2014) emphasize that disabled individuals often encounter unique constraints, such as extended travel times and a lack of structured sports opportunities. To mitigate these challenges, sports organizations must improve the quality of facilities, transportation access, and promotional outreach, ensuring that disability-inclusive programs are effectively tailored to participants' needs (Misener & Darcy, 2014).

These findings highlight the need for multi-faceted strategies that address both physical and structural barriers, ensuring that sports participation is equally accessible to individuals with disabilities across different age groups and community settings.

2.4.2.5 Future Research of Cluster 2

Future research should explore the long-term effects of inclusive sports policies on organizational culture and athlete participation rates. Misener and Darcy (2014) suggest that examining how policies evolve within sports organizations could provide valuable insights into the sustainability of inclusion initiatives. Additionally, further studies should investigate the specific barriers faced by different demographic groups to develop more targeted intervention strategies (Misener & Darcy, 2014).

The role of volunteers in driving sports inclusivity requires further exploration. Sherry et al. (2015) highlight the importance of volunteer engagement in integrating marginalized communities into sports programs. Future research should examine how volunteers can be better trained and managed to enhance their effectiveness in fostering inclusive environments. Moreover, Maxwell et al. (2015) emphasize the impact of cultural and religious diversity among volunteers, demonstrating how diverse representation can strengthen the inclusivity of sports programs.

Additionally, there is a need for intersectional research that considers how race, gender, disability, and cultural background collectively shape participation in sports. Understanding these dynamics will be crucial for designing effective diversity, equity, and inclusion (DEI) policies that address the full spectrum of inclusivity in sports organizations (Midavaine et al., 2016; Cambrea et al., 2020).

2.4.3 Cluster 3 The Role of Gender Diversity in Innovation: Insights from Teams, Firms, and Industries

This section explores the impact of gender diversity on innovation at various levels, including firms, occupational fields, and team dynamics. It highlights how diverse perspectives enhance

creativity, decision-making, and firm performance while also addressing structural barriers in high-tech industries and leadership roles.

2.4.3.1 Sub-Topic 1: The Impact of Diversity and Gender on Innovation in Firms

This topic examines how gender diversity influences innovation within firms, particularly regarding decision-making, corporate strategies, and overall business performance. Gender-diverse teams have been shown to contribute positively to innovation by fostering diverse perspectives, improving problem-solving, and increasing creativity in corporate environments. Research consistently suggests that firms with higher gender diversity demonstrate better adaptability and are more likely to develop breakthrough innovations (Midavaine et al., 2016).

Studies have found that diversity in leadership, particularly in industries where innovation is crucial, enhances corporate decision-making by introducing a range of cognitive perspectives (Miller & Triana, 2009). Organizations with diverse leadership structures tend to invest more in R&D and are better positioned to capitalize on emerging market trends. In high-tech industries, for instance, gender-diverse boards and executive teams have been linked to a higher likelihood of introducing new products and improving business strategies through diversified knowledge bases (Xie et al., 2020).

Furthermore, gender diversity fosters a culture of inclusion that supports creativity and nonconformity, both of which are essential for driving innovation (Amini et al., 2017). By incorporating diverse voices in leadership, firms can challenge conventional thinking and improve the effectiveness of their strategic initiatives, making them more resilient in competitive environments.

2.4.3.2 Sub-Topic 2: Gender Dynamics in Occupational Fields and High-Tech Industries

This section explores gender disparities in high-tech industries, focusing on employment trends, wage gaps, and occupational segregation. Despite increasing efforts to promote gender equality, women remain underrepresented in leadership roles within technology sectors. Research by

Echeverri-Carroll et al. (2018) highlights that although women in high-tech industries have experienced wage growth, their presence in high-skilled positions remains significantly lower than that of their male counterparts.

Structural barriers such as implicit biases, lack of mentorship opportunities, and limited access to senior roles contribute to this imbalance (Miller & Triana, 2009). Women often face additional challenges in securing leadership positions due to traditional perceptions of leadership as male-dominated, further restricting their influence in corporate decision-making (Xie et al., 2020).

Moreover, gender disparities in high-tech industries are not solely driven by hiring biases but also by systemic factors such as workplace culture, limited career progression pathways, and unequal access to networking opportunities. Addressing these challenges requires organizations to implement targeted initiatives, including leadership development programs, sponsorship for female employees, and institutional policies that promote gender inclusivity at all organizational levels (Miller & Triana, 2009; Echeverri-Carroll et al., 2018).

2.4.3.3 Sub-Topic 3: Team Composition and Female Inventiveness in Business Contexts

Team composition plays a critical role in shaping innovation outcomes, with gender-diverse teams consistently demonstrating higher levels of creativity and problem-solving capabilities. Research suggests that the presence of women in business teams leads to improved information sharing, more balanced decision-making, and greater overall efficiency in strategic execution (Amini et al., 2017).

Amini et al. (2017) found that teams with gender diversity are more likely to challenge prevailing assumptions and introduce novel ideas, which is particularly valuable in dynamic business environments where innovation drives competitive advantage. The study also emphasizes that women in leadership positions enhance collaborative efforts and help build inclusive work cultures, which in turn contribute to more effective decision-making and improved firm performance.

Furthermore, research by Xie et al. (2020) shows that gender-diverse R&D teams have a higher propensity for product innovation, as diverse perspectives lead to broader problem-solving approaches. By leveraging the strengths of diverse teams, organizations can increase their adaptability, enhance customer engagement, and optimize business outcomes. These findings reinforce the importance of fostering gender diversity at all levels of business operations to maximize innovative potential.

2.4.3.4 Future Research of Cluster 3

Future research should further investigate the long-term impact of gender diversity on corporate innovation and strategic decision-making. A key area of interest is how gender diversity within senior leadership influences firm resilience, adaptability, and long-term growth. Understanding the mechanisms through which diverse leadership teams drive organizational change can provide valuable insights into optimizing business strategies (Amini et al., 2017; Xie et al., 2020).

Additionally, research should explore the interplay between gender diversity and industry-specific challenges, particularly in technology-intensive sectors. Investigating how diverse leadership affects investment decisions, risk management, and innovation output can help organizations tailor their diversity initiatives to maximize business impact (Miller & Triana, 2009; Xie et al., 2020).

Another promising avenue for future research is the role of intersectionality in leadership diversity. Studies could examine how gender interacts with other demographic factors, such as ethnicity and socioeconomic background, to shape decision-making processes and corporate governance outcomes (Huang & Kisgen, 2013; Adams & Ferreira, 2009). Such research would contribute to a more holistic understanding of diversity's influence on business performance and help develop more inclusive leadership models.

By addressing these gaps, future studies can offer deeper insights into how gender diversity drives innovation, enhances corporate governance, and strengthens firms' long-term strategic positioning in competitive markets (Midavaine et al., 2016; Cambrea et al., 2020).

2.4.4 Cluster 4 Gender Dynamics in Sports: Leadership, Performance, and Professional Roles

This cluster highlights the influence of coaching behaviors, psychological safety, and structural barriers on gender dynamics in sports. It emphasizes that leadership styles, team cohesion, and media portrayals significantly impact female representation and performance in sports. Addressing these challenges requires systemic changes beyond numerical representation, ensuring inclusive policies and equitable leadership opportunities.

2.4.4.1 Dynamics of Team Performance, Leadership Behavior, and Psychological Safety in Sports

This topic explores how coaching behaviors, particularly incivility, influence the performance dynamics of sports teams, with a special focus on female athletes and leadership roles. It delves into the relationships among coaching styles, team cohesion, psychological safety, and team innovation. Key variables, such as team size, interaction duration, and specific team case studies, are examined to better understand these impacts. The findings underscore psychological safety as a crucial mediator between coaching incivility and overall team performance, revealing that when team members lack psychological safety—meaning they do not feel secure enough to voice ideas or take interpersonal risks—the team's creativity, cohesion, and performance are negatively affected. Furthermore, research suggests the gender of coaches also plays a role, with female leadership potentially offering a different dynamic regarding psychological safety compared to male leadership in environments of incivility, particularly within competitive contexts like collegiate athletics (Smittick et al., 2019). Collectively, this sub-topic highlights the profound influence of leadership behaviors and psychological factors on the effectiveness and success of sports teams.

2.4.4.2 Gender Representation, Organizational Structures, and Media Portrayals in Sports Leadership

This topic examines gender dynamics in leadership within sports organizations, including representation on organizational boards, directorship positions, and the barriers women encounter in sports governance. It analyzes how entrenched gender biases, masculine hegemony, and

organizational resistance affect the roles and status of female leaders. Emphasis is placed on the cultural, structural, and operational factors influencing women's advancement to leadership positions, demonstrating that simply increasing numerical representation is insufficient without systemic and attitudinal transformations (Adriaanse & Schofield, 2013; Burton, 2015; Sagas & Cunningham, 2005). Furthermore, the discussion extends to how women athletes and leaders are portrayed in media, highlighting how stereotypical representations reinforce perceptions that limit women's professional visibility and credibility in sports. This media portrayal not only perpetuates traditional gender stereotypes but also contributes to ongoing cycles of underrepresentation and inequality in sports leadership roles. Studies illustrate that media spaces often highlight gender characteristics over professional accomplishments, adversely impacting women's career trajectories and opportunities within professional sports leagues and governing bodies (LaVoi & Dutove, 2012; Taylor et al., 2015; Sartore & Cunningham, 2007).

2.4.4.3 Future Research of Cluster 4

Future research on gender dynamics in sports organizations should explore several key areas to deepen understanding and promote inclusivity. Firstly, there is a need to investigate how different organizational cultures and structures impact gender representation on boards and in leadership roles. Adriaanse and Schofield (2013) highlight the importance of understanding the underlying gender regimes that shape governance dynamics, suggesting that examining these regimes in various contexts can provide insights into effective strategies for promoting gender equality. Additionally, future studies should focus on the specific barriers women face in gaining leadership positions within sports organizations, as highlighted in research on underrepresentation in coaching and executive roles (Fitzgerald et al., 2016). Finally, understanding the role of media and societal perceptions in shaping the opportunities and challenges for women in sports governance and leadership positions is crucial. Exploring these dimensions can inform policies and interventions aimed at creating more equitable and inclusive sports environments (Adriaanse & Schofield, 2013).

2.4.5 Cluster 5 The Impact of Age Diversity on Team Dynamics and Stereotype Threats in the Workplace

Age diversity plays a crucial role in shaping workplace dynamics, influencing team collaboration, decision-making, and overall performance. While diverse age groups can enhance innovation and knowledge-sharing, age-related stereotypes and metastereotypes can create psychological barriers, affecting employees' confidence and engagement. This cluster examines the multilevel effects of age diversity in teams, the impact of stereotype threats on workplace relationships, and the organizational strategies necessary to foster an inclusive environment that leverages the strengths of an age-diverse workforce.

2.4.5.1 Sub-Topic 1: Multilevel Dynamics of Team Diversity and Interaction

This topic explores how age diversity affects team interactions at multiple levels, shaping behavior, decision-making, and collaboration. It examines key factors such as forgiveness, meeting exchanges, and counteractive behaviors, which influence team cohesion and performance. Multilevel analysis reveals how strategic approaches and interpersonal relations contribute to overall team effectiveness, highlighting the complexities of age-diverse workplaces.

Schulte et al. (2014) found that higher age diversity in teams correlates with reduced counteractive behaviors, such as complaining or resistance to change, suggesting that diverse perspectives facilitate problem-solving and improve team cohesion. The study also emphasizes the role of forgiveness in mitigating interpersonal conflicts, particularly among older employees, who may play a stabilizing role in workplace dynamics (Schulte et al., 2014).

Additionally, knowledge exchange is a critical factor in diverse teams. Lehmann-Willenbrock and Kauffeld (2010) demonstrated that teams with members of varying ages and experiences engage in more effective knowledge-sharing practices, leading to enhanced problem-solving and adaptability. This suggests that organizations should implement strategies to manage team diversity effectively, ensuring that generational differences serve as strengths rather than sources of friction (Schulte et al., 2014).

2.4.5.2 Sub-Topic 2: Age-Related Stereotypes and Their Impact on Workplace Dynamics

This topic examines the influence of age-related stereotypes and metastereotypes on workplace interactions, particularly focusing on older employees. It explores how negative perceptions contribute to stereotype threats, impacting performance, job satisfaction, and workplace relationships. The discussion also considers how older employees attempt to counteract these stereotypes through their behaviors and work efforts.

Age-based metastereotypes—assumptions about how younger employees perceive older workers—can create significant stress and performance challenges. Oliveira and Cabral-Cardoso (2017) found that stereotype threats often lead to decreased engagement and productivity among older workers, as they may feel the need to disprove negative assumptions about their abilities. This anxiety can undermine their confidence and overall job satisfaction, ultimately affecting team cohesion and performance (Oliveira & Cabral-Cardoso, 2017).

Moreover, the visibility of older workers in organizations influences the prevalence and impact of these stereotypes. Hertel et al. (2013) suggest that when older workers are underrepresented, they become more conscious of their age as a distinguishing factor, increasing the likelihood of stereotype activation. This can lead to heightened intergenerational tensions, as older employees may feel marginalized or undervalued. In contrast, organizations that actively promote positive beliefs about age diversity and foster an inclusive environment help mitigate stereotype threats, improving workplace integration and collaboration (Hertel et al., 2013; Oliveira & Cabral-Cardoso, 2017).

2.4.5.3 Future Research of Cluster 5

Future research on age diversity in the workplace should examine the specific conditions under which stereotype threats emerge and how they vary across industries and cultural contexts. Oliveira and Cabral-Cardoso (2017) emphasize the need to investigate how organizational structures influence age-based stereotypes and whether certain workplace environments exacerbate or alleviate their effects.

Additionally, the role of diversity beliefs in moderating stereotype threats warrants further exploration. Hertel et al. (2013) suggest that employees' perceptions of diversity within their organizations significantly shape their experiences with age-related stereotypes. Future studies could examine how leadership strategies, corporate policies, and diversity training programs help foster inclusive workplaces and reduce workplace discrimination (Hertel et al., 2013; Oliveira & Cabral-Cardoso, 2017).

Another key research direction is investigating the long-term effects of intergenerational collaboration on organizational performance. Schulte et al. (2013) propose that companies should develop structured frameworks for managing age diversity, ensuring that knowledge transfer between older and younger employees is optimized. Understanding how to integrate generational strengths effectively will be crucial for organizations aiming to leverage workforce diversity for innovation and competitiveness (Schulte et al., 2013).

2.4.6 Cluster 6 Demographic Dissimilarity and Racial Hierarchies: Exploring Deep-Level Effects on Workplace Dynamics

This cluster examines how demographic dissimilarity and racial hierarchies influence workplace dynamics, focusing on deep-level diversity factors such as values, attitudes, and identities. It explores how these factors shape team interactions, leadership relationships, and organizational hierarchies. The research highlights that demographic differences, particularly in terms of race and age, can exacerbate stereotype threats and workplace inequalities, affecting employee engagement and career progression. By analyzing leader-member exchange (LMX) quality, racial identity, and perceptions of discrimination, this cluster provides insights into how organizations can mitigate the adverse effects of demographic dissimilarity and foster a more inclusive work environment.

2.4.6.1 Sub-Topic 1: The Impact of Deep-Level Diversity on Organizational Dynamics

This sub-topic investigates how deep-level diversity—encompassing differences in attitudes, values, and demographic backgrounds—affects organizational hierarchies and team dynamics. It explores how these differences influence status within teams, interpersonal communication, and

leadership-member relationships. Researchers such as Brodbeck and Chattopadhyay have analyzed how these attributes shape organizational interactions, particularly regarding tenure, perceived differences, and confirmation biases.

Studies indicate that deep-level diversity significantly impacts leader-member exchange (LMX) quality, with demographic dissimilarity often leading to lower-quality interactions. Lianidou et al. (2022) found that when employees perceive their leader as demographically different—particularly in attitudes and values—the perceived relational distance can hinder trust and communication. This effect is particularly pronounced when the leader belongs to a higher-status demographic, such as being male or from a majority racial group. The research highlights that deep-level dissimilarity can create barriers to effective collaboration, as employees may feel excluded from key decision-making processes, ultimately reducing team cohesion and overall performance (Lianidou et al., 2022).

Additionally, status—both demographic and positional—plays a crucial role in moderating these effects. Employees who feel valued and respected despite their demographic differences experience fewer negative consequences of deep-level dissimilarity. Organizations that actively promote inclusive leadership and foster an environment of mutual respect can mitigate the negative impact of perceived differences. This underscores the importance of implementing inclusive management strategies that recognize and address deep-level diversity challenges to enhance workplace integration and productivity (Lianidou et al., 2022).

2.4.6.2 Sub-Topic 2: Racial Dynamics and Age Discrimination in the Workplace

This sub-topic explores how racial identity and age-related biases intersect in workplace settings, influencing job hierarchies, career advancement, and perceptions of fairness. It examines the role of racial stereotypes, job discrimination, and structural barriers that shape employee experiences. Specifically, the research analyzes how black workers and older employees navigate these challenges while adapting to changing workplace expectations.

One key finding is that age-based meta-stereotypes—beliefs about how others perceive older workers—can exacerbate stereotype threats, affecting job performance and career confidence. Yeung et al. (2021) found that when older employees perceive negative stereotypes about their capabilities, they experience heightened anxiety about their reputation within the organization, reducing their willingness to take risks or seek promotions. These stereotypes also reinforce the notion that younger employees are more adaptable, creating an implicit hierarchy that favors younger workers in leadership and decision-making roles (Yeung et al., 2021).

Similarly, racial stereotyping contributes to disparities in workplace treatment and opportunities. Bell (2014) highlights that racial ideologies shape organizational norms, often reinforcing racial hierarchies that disadvantage employees from underrepresented backgrounds. The study suggests that black employees, in particular, face systemic challenges related to both racial and age-related discrimination, limiting their career mobility and increasing their vulnerability to job insecurity. Furthermore, Gonzalez (2016) emphasizes the role of value congruence—the alignment between personal values and organizational culture—in mitigating these negative effects. Employees who perceive their workplace as inclusive and aligned with their values report lower levels of stereotype threat and greater job satisfaction, underscoring the need for organizations to prioritize diversity and inclusion initiatives (Gonzalez, 2016).

By addressing both racial and age-based discrimination, organizations can create more equitable work environments. This requires targeted interventions, such as unconscious bias training, mentorship programs for underrepresented employees, and policies that promote multigenerational collaboration. Through such initiatives, companies can reduce the adverse effects of demographic disparities and enhance workplace inclusivity.

2.4.6.3 Future Research of Cluster 6

Future research should further explore how demographic dissimilarity and racial hierarchies shape workplace interactions, with an emphasis on longitudinal studies to track changes over time. One critical area of inquiry is the causal relationship between age discrimination and stereotype threats.

Yeung et al. (2021) call for multi-method research approaches, incorporating self-report data with behavioral assessments to capture a more accurate picture of age-related workplace biases.

Additionally, research on demographic dissimilarity and value congruence should investigate how employees' sense of belonging is influenced by workplace diversity policies. Gonzalez (2016) suggests that further studies assess how demographic identity salience—such as race or age becoming a defining feature in workplace interactions—affects employee retention and turnover. Longitudinal designs could help determine whether demographic diversity fosters greater long-term inclusion or whether it amplifies divisions within organizations.

Another pressing area for research is the role of status in shaping LMX interactions over time. Lianidou et al. (2022) argue that leadership relationships evolve as employees navigate perceptions of demographic similarity or difference. Examining how these perceptions shift throughout an employee's tenure could provide insights into how organizations can cultivate stronger, more inclusive leader-member exchanges across demographic divides.

Lastly, Bell (2014) highlights the emerging challenges of multiracial workplace hierarchies. As workplaces become more globally diverse, new racial and ethnic classifications may emerge, altering existing power dynamics. Future research should analyze how these evolving structures influence employee experiences and workplace policies, ensuring that organizations remain adaptive to changing demographic realities.

By pursuing these research directions, scholars can contribute to a deeper understanding of workplace diversity and inform strategies to create more inclusive and equitable organizational environments.

2.5 Conclusion and Discussion

Our analysis of the CNA (Citation Network Analysis) and STM (Structural Topic Modeling) results reveals that there are notable overlaps and correlations among the identified clusters, indicating interconnected themes and shared focuses across different areas of study. These clusters, which examine aspects such as gender diversity, leadership roles, inclusivity, and demographic

diversity, show how various dimensions of diversity intersect and influence organizational performance and dynamics. The overlap among clusters highlights common themes such as the role of gender in leadership, the impact of diversity on team innovation and performance, and the importance of inclusivity across different settings, including corporate, sports, and workplace environments. These correlations underscore the multifaceted nature of diversity and its pervasive influence across different domains, suggesting that a comprehensive understanding of these interrelations is crucial for enhancing organizational effectiveness and fostering inclusive cultures. Table 4 shows the DEI related keywords each clusters shared.

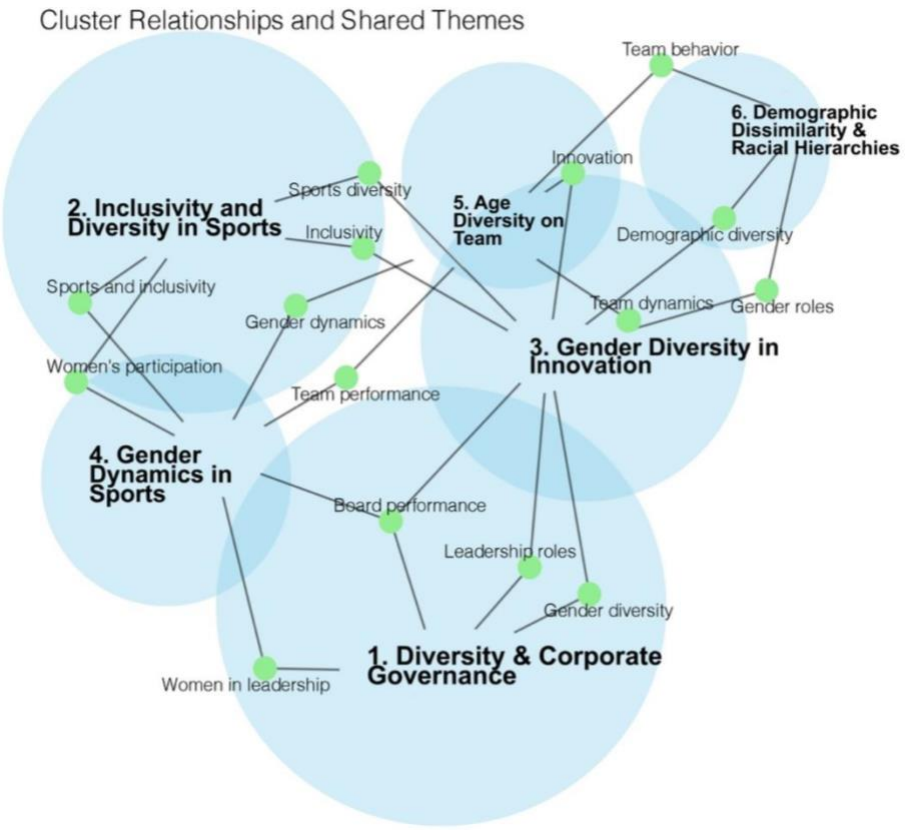
Table 4 Clusters Correlations

Clusters	Shared Keywords	Descriptions
1 & 3	Gender diversity, board, firm, women, director, perform	Both clusters focus on gender diversity's impact on firm performance and leadership roles.
1 & 4	Women, board, perform, director, gender	Emphasize the role of women in leadership and board performance in both corporate and sports contexts.
2 & 3	Divers, inclus, organiz, sport	Focus on inclusivity and diversity within organizations, particularly in sports and workplace settings.
2 & 4	Sport, women, inclus, organis	Both highlight sports and inclusivity, with a focus on women's participation and organizational dynamics.
3 & 5	Gender, team, divers, innov	Discuss team dynamics and the role of gender diversity in fostering innovation and team effectiveness.
3 & 6	Demograph, status, gender, firm	Explore demographic diversity and gender roles within firms and the impact on team status and performance.
4 & 5	Team, gender, perform, women	Examine how gender dynamics within teams affect performance, particularly in sports and professional settings.
5 & 6	Demograph, age, behavior, team	Highlight the influence of demographic and age diversity on team behavior and performance.

We also conduct a diagram showing the correlations of each cluster by R programming. The correlation network visualization can be created using the Fruchterman-Reingold algorithm, which simulates physics-inspired forces to position nodes (variables) effectively. Specifically, attraction

and repulsion between nodes depend on their distances, ddd, as described by the formulas $F_a(d) = \frac{d^2}{k}$ (attraction) and $F_r(d) = \frac{d^2}{k}$ (repulsion). Here, the constant k controls the ideal spacing between nodes, reflecting correlation strength. The R package (such as igraph) iteratively adjusts node positions by minimizing these net forces, ultimately producing a clear and balanced visualization that highlights clusters of correlated variables and their interactions within the network. Diagram 2 shows how clusters can be correlated.

Diagram 2



The interactions among these clusters reflect a broad and interconnected exploration of diversit''s impact on organizational dynamics and performance. Clusters 1 and 3 both delve into how gender diversity influences firm performance and leadership roles. This connection is underscored by the frequent use of terms such as “gender” “board” and “firm” highlighting the critical role that diverse leadership plays in driving organizational success. Similarly, Clusters 1 and 4 examine the role of

women in leadership and board performance, indicating that gender dynamics are influential across both corporate and sports settings. This intersection demonstrates how gender diversity is not only pivotal in enhancing decision-making processes but also in breaking down traditional barriers, fostering a more inclusive environment.

Inclusivity and diversity are central themes in Clusters 2 and 3, focusing on how various organizations, especially those in sports and workplaces, integrate diverse groups. This shared concern emphasizes the importance of inclusivity as a driving force for innovation and unity within teams. The intersection of Clusters 2 and 4 further emphasizes inclusivity, particularly women's participation in sports, highlighting how inclusivity extends beyond traditional corporate settings into all aspects of organizational life. Additionally, Clusters 3 and 5 show that gender diversity enhances team dynamics and innovation, suggesting that diverse teams are crucial for fostering creativity and improving performance. The exploration of demographic diversity and gender roles within firms, as seen in Clusters 3 and 6, stresses the significant impact that diversity has on team status and overall firm performance, reinforcing the notion that diverse teams contribute to more effective and innovative outcomes. Lastly, the interplay between Clusters 4 and 5 and Clusters 5 and 6 underscores how gender and demographic diversity can shape team behavior and performance, underscoring the necessity of diverse teams for achieving higher levels of effectiveness.

The interactions among the research clusters in this study reveal the complex and interconnected impact of diversity on organizational dynamics and performance. By utilizing Citation Network Analysis (CNA) and Structural Topic Modeling (STM), the study highlights the importance of DEI across different sectors. These findings demonstrate that DEI is a critical factor in enhancing decision-making, leadership effectiveness, and overall organizational success. The integration of these diverse themes underscores the multifaceted nature of diversity, suggesting that a comprehensive understanding of these interrelations is essential for fostering inclusive cultures and improving organizational effectiveness.

Chapter 3: Will Diversity, Equity, and Inclusion Commitment Improve Manufacturing Firms' Market Performance? A Signaling Theory Perspective on DEI Announcements

Based on the review of DEI CNA from Chapter 2, it appears that DEI announcements can potentially enhance a firm's performance (cluster 1). To explore this further, an empirical analysis was conducted to examine the impact of DEI commitment announcements on the market performance of U.S. firms. This study aims to provide a deeper understanding of how public declarations of commitment to DEI principles influence investor perceptions and subsequently affect stock prices, offering insights into the strategic value of DEI in driving market success.

3.1. Introduction

Recent cultural shifts in the United States (US) have brought the principles of diversity, equity, and inclusion (DEI) to the forefront. Firms' DEI announcements are actively supported by a range of stakeholders, including investors, consumers, and employees (Camilleri, 2021A company that demonstrates a robust commitment to DEI—by implementing policies and practices designed to promote diversity, equity, and inclusion—is more likely to draw exceptional talent and a wide range of customers (e.g., Lyman et al., 2022). Moreover, maintaining a varied workforce not only sparks innovation but also contributes to stronger financial outcomes (e.g., Bogers et al., 2010; Cunningham, 2011). An inclusive work environment also encourages collaboration and engagement, boosting productivity and performance. While the extant literature focuses on the benefits of DEI and its impacts on decision-making and employee welfare, not much is known about the impact of a firm's professed commitment to DEI on its stock market performance. Our article addresses this research gap.

Conceptually, commitment to DEI can improve a firm's financial performance through stronger leadership, diverse innovation, an enhanced brand image, deeper connections with customers and employees, and higher sales, which can, in turn, attract investment. This observation led us to

formulate our research question: How does the extent of a firm's DEI commitment affect its (stock) market performance?

Our empirical investigation of this relationship between firms' DEI-commitment announcements and their market performance. Understanding this relationship is crucial for several reasons. First, announcing a commitment to DEI signals a firm's underlying values and strategic priorities to investors and other stakeholders, providing insights into the company's ethos and future direction (see, e.g., Lourenço et al., 2012). Second, an analysis of the stock market's reaction offers valuable information on how such announcements are perceived and valued; a positive market reaction suggests investors have confidence in the firm's prospects. Third, by understanding these effects, firms can refine their decision-making processes and design communication strategies that more effectively and transparently convey their DEI commitment to stakeholders and the market (Hawn & Ioannou, 2016).

We assess this relationship by leveraging signaling theory and examine the moderating effects of the announcement's signal strength and signal specificity. When an announcement emphasizes DEI over non-DEI topics (signal strength), the positive impact on stock prices tends to be amplified, suggesting that investors respond more favorably to companies that prioritize their commitment to DEI announcements. Generally speaking, announcements that focus on specific rather than broad DEI topics (signal specificity) further amplify the impact; companies that articulate a targeted DEI commitment see improved market performance as this sets clear expectations and allows investors greater confidence in the firm's DEI strategies.

We operationalize our study by collecting financial performance and stock price data for 161 publicly listed manufacturing firms (SIC codes 2000 to 3999) concerning 233 DEI-commitment announcements over a 10-year period (January 1, 2013 to December 31, 2022). Employing signaling theory, we view these DEI announcements as "commitment signals" that are received

by the public, including investors. In Section 4.3, we employ structural topic modeling (STM) to develop measures of signal strength and specificity for each firm's DEI announcements.[1]

Our statistical analyses reveal that DEI-commitment announcements lead to positive abnormal stock returns during the announcement period (from day −1 to 0 and from day −1 to 5), the magnitude of which is influenced by signal strength and signal specificity. These findings have important implications for managers and decision makers. By strategically emphasizing DEI in their announcements, firms can foster a positive work environment *and* enhance their financial standing in the market.

The remainder of this article is organized as follows. In Section 3.2, we review the relevant literature on signaling theory and DEI announcements. Our research framework and hypothesis development are set out in Section 3.3, and in Section 3.4, we describe our methodology, including our data collection, event studies, and regression analysis. We present our results in Section 3.5. Section 3.6 is robustness test, as well as the conclusion and discussion in Section 3.7, where we include the study's implications for operations management (OM), its limitations, and suggestions for future research.

3.2. Literature review

We begin our review of DEI-related studies by first interpreting a firm's DEI announcements as its commitment to DEI, viewed through the lens of signaling theory and impression management. We use the event study method to examine the impact of these DEI announcements on market reactions. We briefly review these four research streams and refer the reader to Appendix D for a more extensive discussion of the relevant literature.

There is a growing body of DEI-related research that focuses on the gender pay gap (e.g., Hoisl & Mariani, 2017). Son et al. (2023) provide a comprehensive review of twenty-one articles in the OM literature that examine gender bias, including on the topic of unpaid care work for women

[1] We thank an anonymous senior editor for introducing us to structural topic modeling, which enabled us to develop proper measures of signal strength and specificity.

during the COVID-19 pandemic (e.g., Cui et al., 2022). There is also an emerging literature on the benefits of increasing the representation of women at different corporate levels (e.g., Kuzey et al., 2022).

Beyond studies on gender bias, Murphy and Roy (2021) find that there is little OM research that considers race and sexual orientation. Regarding the latter, Coffman et al. (2016) find empirical evidence of bias against LGBTQ+ candidates in hiring decisions, and in their empirical study, Mejia and Parker (2021) show that drivers participating on a ridesharing platform are more likely to cancel rides requested by non-Caucasian and LGBTQ+ riders.

While the above literature focuses on specific aspects of DEI (such as discrimination on the basis of race, gender, or sexual orientation), the concept is broad, and its definition is evolving. Tang (2024) proposes a conceptual framework that treats DEI announcements as inputs and DEI metrics as outputs. Our study focuses on announcements related to the general concept of DEI, and it complements the above literature by examining the stock market reaction to a firm's announcement of its commitment to various DEI announcements through the lens of signaling theory and impression management. We now turn to the literature in these areas.

Signaling theory is a theory of communication that addresses the impact of information asymmetry (e.g., Spence, 1973). A DEI announcement can be understood as a firm's signal to the market about its commitment to social issues that could generate a reaction (e.g., Flammer, 2013). Existing studies typically consider DEI announcements broadly, as part of a firm's corporate social responsibility strategy (e.g., Orlitzky et al., 2003), or narrowly, as an issue of diversity (e.g., Miller & Triana, 2009). We contribute to this stream of research by examining market reactions to DEI announcements.

Corporate announcements may also be used for impression management; that is, DEI announcements may be overstated to create a favorable impression. For example, recent management research examines impression offsetting, a technique that involves announcing a focal event contemporaneously with positive but unrelated information (e.g., Gamache et al., 2019). We mitigate the potential bias resulting from impression offsetting by excluding

announcements that involve potentially confounding events affecting investor sentiment. This approach is common in studies using the event study method (e.g., Lo et al., 2018), which is widely used in the OM literature to examine the causal effects of various events on markets (e.g., Jacobs and Singhal, 2020); in our case, we use the methodology to explore the market's reaction to DEI announcements.

3.3. Hypothesis development

We now establish our three hypotheses concerning the market's reaction to a firm's DEI commitment as expressed in its DEI announcements (Figure 1). Our first hypothesis (H1) is motivated and supported by various research findings that reflect three perspectives: marketing, human resources, and leadership.

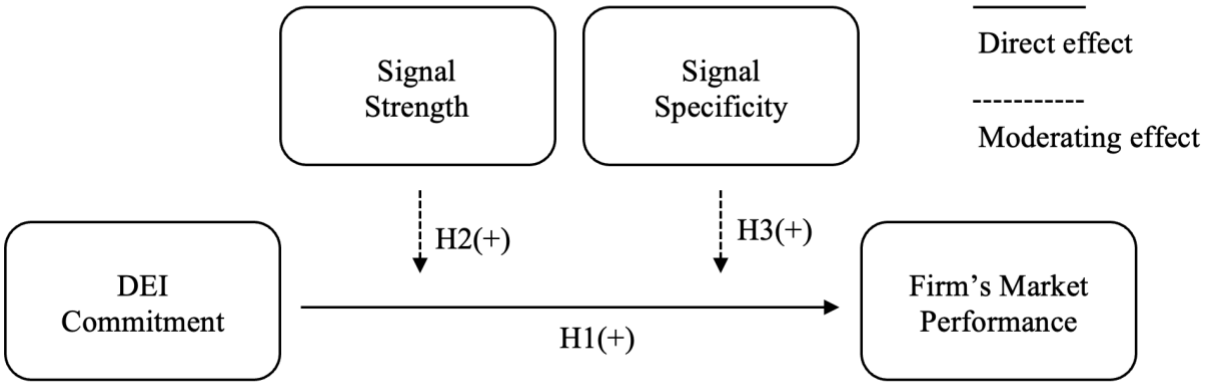


Figure 1. DEI commitment impact on the market: Three hypotheses

From a marketing perspective, diversity and inclusion announcements can enhance performance by expanding the firm's consumer base and reinforcing brand loyalty. For instance, having a diverse workforce can improve customer perceptions and increase sales revenue (e.g., Herring, 2009). Diversity in innovation teams can enhance their problem-solving and creativity (e.g., Jones et al., 2021). This can be instrumental in developing marketing strategies that effectively address the needs and preferences of a diverse consumer base, potentially exposing overlooked market opportunities and allowing firms to tailor their products and messaging effectively. Diversity management can also boost customer experience, employee productivity, and overall market

performance (Makudza et al., 2020). By incorporating diverse voices and perspectives, firms can create marketing campaigns that are emotionally resonant for a broader audience. DEI efforts can enrich consumer research methodologies, enabling scholars and marketers to explore and understand the complex dimensions of consumer diversity (Arsel et al., 2022). This enhanced understanding can guide brands in developing marketing strategies that more accurately reflect and respect the diverse realities of their consumer base. Ultimately, companies with a strong DEI focus are better positioned to enter and succeed in international markets (Rašković, 2022).

From a human resource perspective, DEI commitments align with ethical standards and enhance market performance by attracting diverse talent. DEI-focused strategies create an inclusive work environment, broadening the talent pool and making the firm more appealing to potential employees (Singh & Points, 2004). A diverse talent pool can help firms create an environment that tolerates risks and failures, which are essential for innovation (Jones et al., 2021). Employees in an equitable work environment feel empowered to experiment without fear of unfair judgment or repercussions if an idea does not pan out. DEI-focused strategies can help firms address diversity challenges, improving firm performance and stakeholder engagement (Singh & Point, 2004). Studies show that gender and racial diversity drive innovation and influence market performance (e.g., Dai et al., 2018). An inclusive climate maximizes workforce potential, fostering engagement and satisfaction and leading to superior outcomes (Shore et al., 2011). These practices signal a firm's DEI commitment, attracting top talent and showcasing a forward-thinking, innovative culture.

With respect to leadership, the commitment to DEI expressed by a firm's leaders can significantly shape market expectations and signal the organization's dedication to an inclusive culture. Inclusive and equitable leadership practices enhance employee satisfaction and retention, improving overall performance and reducing conflicts (Nishii, 2013). Çavuş (2020) notes that such leadership practices lead to a positive work environment, which is crucial for sustained marketing efforts and quality. Glass and Cook (2017) observe that women-led organizations often implement progressive policies, indicating a positive shift in organizational behavior. These inclusive practices signal the firm's strategic DEI valuation, aligning with its corporate social responsibility and enhancing its reputation (e.g., Hur et al., 2014).

Thus, being committed to DEI positively affects a firm's market performance by strengthening its market presence, enhancing brand loyalty, fostering an innovative workforce, and promoting a positive organizational climate. These outcomes collectively support the view that commitment to DEI can generate a strategic advantage in today's diverse market landscape. Therefore, we propose the following hypothesis:

H1: A firm's DEI commitment, communicated through announcements, has a positive impact on its market performance.

Next, DEI announcements are an important way for organizations to express their commitment. These may cover various topics that are concerned with different aspects of DEI. In this study, the proportion of DEI topics in these announcements signals the *strength* of this commitment and influences market performance. Signal theory suggests that strong, frequent signals enhance stakeholder trust, improve an organization's reputation, and increase its appeal as an employer or investment choice (e.g., Connelly et al., 2011; Park & Mezias, 2005). A commitment to social responsibility, including DEI, correlates with improved stock performance (Edmans, 2011). Strong DEI signals can amplify this effect, enhancing a firm's reputation and appealing to socially conscious stakeholders (Connelly et al., 2011). Essentially, the proportion of DEI topics in corporate announcements can strengthen a firm's DEI signal. A stronger DEI signal improves the firm's reputation, attracts socially conscious stakeholders, and differentiates the firm from its competitors, thereby improving market performance. This is supported by the signaling theory and research linking social responsibility to positive market outcomes. Therefore, we propose the following hypothesis:

H2: A strong DEI-commitment signal, measured by the proportion of DEI topics incorporated in an announcement, amplifies the impact of that DEI announcement on a firm's market performance.

Signal *specificity,* or information precision, allows informed decisions (Connelly et al., 2011). In contrast, vague signals may contain insufficient information, reducing their effectiveness (Bergh et al., 2014). Studies show that specific signals lead to greater trust and positive attitudes and that

detailed claims can positively influence perceptions (Atkinson & Rosenthal, 2014; Verwaeren et al., 2017). The specificity of a DEI signal reflects a genuine commitment to DEI values and distinguishes the firm from others with respect to the particular issue addressed (e.g., the appointment of LGBTQ community members to the board). An announcement that concentrates on a specific DEI topic can be more impactful than those addressing numerous DEI themes; a targeted message often sends a stronger signal about a company's DEI priorities.

In summary, the specificity of a DEI signal, as indicated by the most prominent DEI topics as a proportion of all DEI topics addressed in a corporate announcement, can reinforce its impact on performance. By articulating specific DEI commitments at a higher degree, firms can signal their dedication to DEI principles, enhancing their attractiveness to stakeholders, expanding their market reach, differentiating the firm from competitors, and improving their market performance (Bradley et al., 2023). Therefore, we propose the following hypothesis:

H3: A higher degree of specificity of a DEI signal, indicated by the proportion of the most dominant DEI topic(s) among all DEI topics in an announcement, amplifies the impact of DEI announcements on a firm's market performance.

3.4. Data and methodology

We now describe our data collection and measures of a DEI announcement's signal strength and specificity so as to test our hypotheses developed above. Our approach is based on the STM method and the event study methodology. We present our results in Section 5.

3.4.1 Data collection

Our sample consists of US-listed manufacturing firms (SIC codes 2000 to 3999), selected because of the availability of relevant, comprehensive financial and DEI data. We focus on the manufacturing sector because of its significance to the US economy and the historical challenges it has faced in attracting and retaining a diverse workforce (Bureau of Labor Statistics, 2020; Catalyst, 2021); we discuss the various limitations of our study in Section 6.

We first identify 3,642 US-listed manufacturing firms and then employ Factiva expert and keyword searches for news and announcements related to their DEI commitments. We use keywords representing various definitions of DEI as developed in the literature; a list of the DEI keywords used is provided in Table 1,[2] and we provide two examples of DEI commitments (made by Applied Materials and Baxter) in Appendix B.

Table 1. DEI keywords

Keywords (References)
Board diversity (Bear et al., 2010),
Gender diversity, *female* (Bear et al., 2010; Dadanlar & Abebe, 2020; Olsen et al., 2016; Shore et al., 2009; Tan, 2019),
Corporate diversity (Bear et al., 2010; Dadanlar & Abebe, 2020),
Race, *ethnicity*, *age* (Kang et al., 2007; Shore et al., 2009; Tan, 2019),
Sex (Kang et al., 2007; Shore et al., 2009),
Black Lives Matter (Leopold & Bell, 2017),
Fair, *fairness*, *justice*, *equality*, *equal*, *equity* (Colquitt et al., 2006; Van Gramberg, 2006),
Impartiality, *impartial* (Van Gramberg, 2006),
Respect, *belonging*, *welcomed* (Gustafsson et al., 2018; Randel et al., 2016),
LGBTQ, *lesbian*, *gay*, *bisexual*, *transsexual*, *and queer* (McFadden, 2015; Tan, 2019),
Sexual orientation, *sexual identity*, *gender identity*, *religion*, *and disability* (Croteau et al., 2008; Shore et al., 2009).

We adopt a conventional 10-year event study window (e.g., Jacobs & Singhal 2014) from January 1, 2013, to December 31, 2022. Our search yields 830 announcements made by 250 firms. We document the date, time, context, and source of each announcement and collect the firms' relevant financial data from the Compustat database.

We conduct a sample cleaning process to exclude unsuitable announcements based on the following rules. We first read the 830 announcements and find that some are reported multiple times by different sources. We remove 108 duplicates and retain the earliest version in our sample. Following previous studies (e.g., Jacobs & Singhal, 2014; Lo et al., 2018), we use a 200-day

[2] These keywords are commonly used in the research literature and public media, but there may be other keywords that are not included in this list.

estimation window (from Day −210 to Day −11) to compute the expected returns for each company We close our estimation window on Day −11 to enhance the accuracy of our results (Jacobs & Singhal, 2014; Lo et al., 2018). Consequently, we remove 277 announcements (by 89 firms) that are within another event's 200-day estimation window. Following Jacobs et al. (2010), we omit announcements by firms that had been trading on the stock exchange for fewer than 40 days; this results in the removal of 53 announcements by 47 firms. We also remove 76 announcements (from 74 firms) that are less relevant to DEI, that is, announcements for which more than 50% of the content concerns non-DEI topics.[3]

We also identify potential confounding events for the period from Day −10 to Day 0 using Factiva. These events include legal actions, mergers, dividend declarations, changes in executive leadership, unanticipated earnings reports, product recalls, and acquisitions. We avoid potentially biased results by excluding 64 announcements from 58 firms for which there are confounding events in the period (Jacobs & Singhal, 2014; Lo et al., 2018). Table 2 summarizes our final sample, which contains 233 announcements (by 161 firms). Table 3 presents the sample firms' descriptive statistics

Table 2. Number of events and firms in the sample

Announcements	**No. of Announcements**
From Factiva Expert and Keyword Search	830
Without duplication issues	722
Not in another announcement's 200-day estimation window	445
With a minimum of 40 days of trading data	392
With more than 50% DEI-related topics	316
Without confounding events	252
With sales data for calculating revenue growth	233
Announcements for Testing H1 to H3	**233**
Firms	**No. of Firms**
US-listed manufacturing firms	3,642
With DEI commitment	312
After eliminating unsuitable announcements	161
Firms for testing H1 to H3	**161**

[3] DEI and non-DEI topics are classified using the STM method described in Section 4.3 and Appendix A.

Table 3. Descriptive statistics for sample firms in the 233 announcements

	Total Assets (USD 000,000)	Sales (USD 000,000)	Net Income (USD 000,000)	Number of Employees (000)	ROA	Total Liabilities (USD 000,000)	Stockholder Equity (USD 000,000)
Mean	50,695	32,739	3,628	56.16	0.06	33,470	17,209
Median	16,575	11,362	847	24.00	0.06	9,509	4,730
Std. error	90,402	53,100	7,697	69.60	0.09	59,498	35,496
Max.	558,933	279,487	55,256	375.24	0.63	338,798	223,616
Min.	124	23	−11,873	0.07	−0.30	20	−18,075

3.4.2 Event study

Event study method is adopted to test H1 and identify abnormal returns associated with a given DEI announcement. The date of announcement is the Day 0. We employ the two-day event period to account for potential information leakage (Lo et al., 2018).[4] Fama–French–Momentum four-factor model was adopted (Fama & French, 1993; Carhart, 1997) to estimate:

$$R_{it} = \alpha_i + R_{ft} + \beta_{i1}\left[R_{mt} - R_{ft}\right] + \beta_{i2}SMB_t + \beta_{i3}HML_t + \beta_{i4}MOM_t + \varepsilon_{it}, \quad (1)$$

R_{it} represents the return on stock *i* on day *t*; α_i signifies the intercept of the relationship for stock *i*; R_{ft} is the risk-free return, R_{mt} is the market return, SMB_t is the small minus big portfolio returns by market capitalization, HML_t indicates the high minus low portfolio returns by book-to-market ratio; and MOM_t is the portfolio returns of winners minus those of losers in terms of average performance on day *t*. The slopes of the relationship for stock *i* relative to the market index return minus the risk-free return, *SMB*, *HML*, and *MOM* are denoted by β_{i1}, β_{i2}, β_{i3}, and β_{i4}, respectively. Finally, ε_{it} is the disturbance term for stock *i* on day *t*. The model in Equation (1) posits a linear relationship between a stock's return and four factors: company size, price-to-book ratio, market risk, and momentum factor.

[4] If an announcement was made after 4 pm, we set the following trading day as Day 0.

Using ordinary least squares (OLS) regression over the 200-day estimation period, we estimate the parameters $\hat{\alpha}_i$, $\hat{\beta}_{i1}$, $\hat{\beta}_{i2}$, $\hat{\beta}_{i3}$, $\hat{\beta}_{i4}$ and the variance of ε_{it} (i.e., $\hat{S}_{\varepsilon_i}^2$) associated with the Fama–French–Momentum four-factor model. The abnormal returns, AR_{it}, for firm *i* on day *t* are defined as the difference between the actual and expected returns, expressed as follows:

$$AR_{it} = R_{it} - \left(\hat{\alpha}_i + R_{ft} + \hat{\beta}_{i1}\left[R_{mt} - R_{ft}\right] + \hat{\beta}_{i2}SMB_t + \hat{\beta}_{i3}HML_t + \hat{\beta}_{i4}MOM_t\right), \quad (2)$$

We evaluate whether abnormal returns are linked to different DEI announcements and significantly differ from zero by employing the Wilcoxon signed-rank test to analyze the statistical significance of median abnormal returns. Moreover, we use the binomial sign test to check if the proportion of negative abnormal returns during the event period is significantly more than 50%.

Considering Equation (2) and the N firms that issued DEI announcements, the average abnormal returns across all N firms $\underline{AR_t}$ on day *t* is expressed as follows:

$$\underline{AR_t} = \sum_{i=1}^{N} \frac{AR_{it}}{N}. \quad (3)$$

We calculate the standardized abnormal return by dividing each AR_{it} by its estimated standard deviation of ε_{it} (i.e., $\hat{S}_{\varepsilon_i}$). This facilitates the testing of the statistical significance, TS_t, of mean abnormal returns, as depicted in Equation (3). Assuming the null hypothesis, abnormal returns are considered independent across events, exhibiting a mean of 0 and a variance of $\hat{S}_{\varepsilon_i}^2$. In line with the central limit theorem, the aggregate of the *N* standardized abnormal returns approaches a normal distribution, characterized by an average of 0 and a variance of *N*. As a result, the test statistic for a single-day period, TS_t, for day *t* is as follows:

$$TS_t = \sum_{i=1}^{N} \frac{\frac{AR_{it}}{\hat{S}_{\varepsilon_i}}}{\sqrt{N}}, \quad (4)$$

Using the average abnormal returns ($\underline{AR_t}$) on day *t* provided in Equation (3), we can determine the cumulative abnormal returns (CAR) in the interval (t_1, t_2) as follows:

$$CAR(t_1, t_2) = \sum_{t=t_1}^{t_2} \underline{AR_t}, \quad (5)$$

The test statistic for a multi-day period, TS_e, is derived using an approach analogous to that employed for a single day.

$$TS_e = \sum_{i=0}^{N} \frac{\left(\sum_{t=t_1}^{t_2} \underline{A}t\right) / \sqrt{\sum_{t=t_1}^{t_2} \hat{s}_{\varepsilon_i}^2}}{\sqrt{N}}, \quad (6)$$

3.4.3 Structural topic modeling and measurement of signal strength and specificity

We measure the signal *strength* and *specificity* of a firm's DEI announcement using the STM approach outlined in Wang et al. (2023). In short, STM is a relatively recent technique in machine learning and natural language processing, aimed at identifying and organizing "latent topics" based on the semantic content of a text.. In this context, we use STM to identify and categorize ten topics from our dataset of 722 non-duplicated DEI announcements, as explained in Section 4.1 above; additional detail on the STM approach is available in Appendix A.

We identify the following ten topics using STM: (1) Diversity in corporate leadership (corporate diversity and inclusion announcements), (2) Women's support and development programs, (3) Corporate governance and shareholder voting, (4) Corporate communication and meetings, (5) Racial justice and corporate responsibility, (6) Forward-looking statements in financial reporting, (7) Workplace diversity and inclusion, (8) LGBTQ inclusivity in corporate policies, (9) Corporate finance and credit ratings, and (10) Corporate sustainability and ESG reporting.

***Signal strength*.** Out of 10 topics, topics (1), (2), (5), (7), (8), and (10) are classified as DEI-related; the remainder are classified as non-DEI topics. We determine the signal strength of an announcement by measuring its relative emphasis on the six DEI-related topics. Specifically, we define the signal strength of a DEI announcement as follows:

$$\text{Signal Strength} = \sum_{i=1}^{n} DEI_i, \quad (7)$$

where DEI_i is the proportion of DEI-related topic *I* embedded in an announcement (relative to all m = 10 topics), and n = 6 is the total number of DEI-related topics. Following the STM approach (e.g., Blei et al. 2003, Roberts et al. 2016), the proportion of an announcement that focuses on a

DEI-related topic is determined by the number of words associated with that topic normalized by the total number of words associated with all (DEI-related and non-DEI-related) topics identified.[5]

Signal specificity. Analogously, we measure signal specificity by computing the ratio of the dominant DEI topic(s) relative to the total DEI content (captured by the n = 6 DEI-related topics). Specifically, we define the signal specificity of a DEI announcement as follows:

$$\text{Signal specificity} = \frac{max(DEI_1, DEI_2, \ldots, DEI_n)}{\sum_{i=1}^{n} DEI_i}, \quad (8)$$

where $max(DEI_1, DEI_2, \ldots, DEI_n)$ is the proportion of the most dominant DEI-related topic(s), and $\sum_{i=1}^{n} \quad DEI_i$ is the total proportion of those n = 6 DEI-related topics in an announcement.

3.4.4 Regression model

We test H2 and H3 using OLS regression, in line with Jacobs and Singhal (2014), to examine whether signal strength and specificity amplify or attenuate the effect of DEI announcements.

$$CAR_i = \beta_1 SignalStrength_i + \beta_2 SignalSpecificity_i + \gamma X_i + \alpha_i + \delta_t + \varepsilon_i, \quad (9)$$

where CAR_i represents the CAR of firm i from Day −1 to 0, as defined in Equation (5); $SignalStrength_i$ and $SignalSpecificity_i$ are defined in Equations (7) and (8), respectively. We capture heterogeneity by incorporating the industry-fixed effect, α_i, and year-fixed effect (δ_t); ε_i represents the error term. We also incorporate a vector of control variables, X_i, to account for firm- and event-related characteristics, including firm size, profitability, leverage, growth, first event, and announcement source.[6]

[5] Specific words associated with a topic are determined through a complex statistical process employed in STM, based on the probabilities of words associated with each topic appearing, the distribution of topics within the document (i.e., announcement) and across the entire corpus (i.e., all announcements), and document-level covariates (i.e., year) that might influence topic prevalence (e.g., Blei et al., 2003, Roberts et al., 2016).

[6] Unless otherwise specified, these factors are measured for the most recent fiscal year ending prior to the announcement date (Lo et al., 2018).

Control variables. We include several control variables to account for factors that might affect a firm's capacity and inclination to invest in DEI announcements. The following control variables capture various dimensions of a firm's operational and financial status. *Total assets* (natural logarithmic transformed total assets) indicate firm size, which affects a firm's resources for making DEI investments (Wiersema & Bird, 1993). *Operating ROA* reflects the firm's profitability and financial health, which are critical for supporting DEI announcements (Nekhili & Gatfaoui, 2013). The *debt-to-assets* ratio is included to assess the influence of a firm's leverage on its financial capacity to pursue DEI objectives (Verwijmeren & Derwall, 2010). *Sales growth*, based on revenue increases, indicates the firm's growth trajectory, its potential allocation of resources to DEI practices, and the pressure to diversify its workforce, as discussed in Nishii (2013). We also include a binary indicator, *first event*, that captures whether an announcement is a firm's initial DEI commitment; this is shown to have a different impact on investor perceptions than subsequent announcements (Lo et al., 2018). The variable *announcement source* distinguishes between firm-issued announcements and those released through third parties, addressing the varying levels of trust and audience receptivity. These controls help isolate the effects of DEI announcements from other operational influences on firm outcomes.

Table 4 sets out the statistics of signal strength, signal specificity, and all control variables.

Table 4. Mean, standard deviation, and correlation of variables

	Mean	**SD**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1. Total assets$_{log}$	9.56	1.72							
2. Operating ROA	0.13	0.09	0.21***						
3. Debt to assets	0.65	0.22	0.1	0.13**					
4. Sales growth	0.09	0.26	−0.09	0.07	−0.19***				
5. First event	0.61	0.49	−0.42***	−0.15**	−0.13**	−0.01			
6. Announcement source	0.03	0.18	−0.09	−0.08	−0.11*	−0.01	0.15**		
7. Signal strength	0.88	0.20	0.19***	0.09	−0.01	−0.04	−0.14**	−0.27***	
8. Signal specificity	0.77	0.21	−0.16**	−0.08	−0.1	−0.03	0.03	0.15**	−0.04

Note: n = 233, *p < 0.10; **p < 0.05; ***p < 0.01

3.5. Statistical results

By using the test statistic for a single day, TS_t, and a multi-day period, TS_e, established in Equations (4) and (6), we test H1 using the standard t-test and other nonparametric tests. We test H2 and H3 by considering Equation (9). We present our main results in this section. We also conduct various robustness checks, including (1) propensity score matching, (2) market- and mean-adjusted event study models, (3) analysis based on the first DEI announcement made by each firm,[7] and (4) a regression with random effects, instead of the industry fixed effect (α_i) and year fixed effect (δ_t) stated in Equation (9). We present the details of these robustness tests and the corresponding results in Appendix C. Overall, our results for these are consistent with those presented for the main model.

3.5.1 Testing H1: Impact of DEI commitment in announcements

We test H1 by examining whether a firm's DEI commitment (expressed in its announcements) has a positive impact on its market performance. We begin by examining the influence of DEI announcements on abnormal returns for each day, from Day −1 to Day 1. We then examine CARs over a two-day (Day −1 to 0), seven-day (Day −1 to 5) and twelve-day (Day −1 to 10) period. Table 5 sets out the event study outcomes for our t-test, Wilcoxon signed-rank test, and binomial sign test of H1.

For Day 0 (the event day), Table 5 shows that the mean (median) abnormal return is 0.46% (0.29%), which is significantly greater than zero ($p < 0.01$ for both mean and median). Furthermore, 56.35% of abnormal returns are positive and significantly exceed 50% ($p < 0.05$). The mean (median) abnormal return on Day −1 is 0.16% (0.08%), which is not significantly greater than zero. Although 54.37% of abnormal returns are positive, they are not significantly above 50%. The mean (median) abnormal return on Day 1 is −0.14% (−0.06%) and is not significantly greater than zero, with 47.62% of abnormal returns being positive but not significantly below 50%.

[7] We notice that some firms made multiple DEI announcements. Of all DEI announcements made by a firm, the first is likely to generate a stronger market reaction than the others. Thus, the robustness test is intended to examine this effect as well as other effects examined in the main study.

Table 5. Abnormal returns associated with DEI-commitment announcements

	Day −1	Day 0	Day 1	Days −1 to 0	Days −1 to 5	Days −1 to 10
Mean abnormal returns %	0.16	0.46	−0.14	0.62	1.07	0.81
t-statistic	1.33	3.55***	−0.99	3.57***	2.37**	1.51
Median abnormal returns %	0.08	0.29	−0.06	0.17	0.47	0.09
Wilcoxon signed-rank Z-statistic	1.16	3.00***	−1.17	2.69***	1.86*	0.17
% abnormal returns (positive)	54.37	56.35	47.62	56.35	55.95	51.19
Binomial sign test Z-statistic	1.08	1.98**	−0.57	1.85*	1.72*	0.19

Note: n = 233, *p < 0.10; **p < 0.05; ***p < 0.01 (all tests are two-tailed).

Evaluating the cumulative effect from Day −1 to Day 0 yields the following results. The mean (median) abnormal return is 0.62% (0.17%) and significantly greater than zero (both at $p < 0.01$). Additionally, 56.35% of abnormal returns are positive and significantly greater than 50% ($p < 0.10$). The cumulative mean (median) abnormal return for the period from Day −1 to Day 5 is 1.07% (0.47%), significantly greater than zero ($p < 0.05$ for mean and $P < 0.10$ for median). A total of 55.95% of abnormal returns are positive and significantly exceed 50% ($p < 0.10$). The mean (median) abnormal return from Day −1 to Day 10 is 0.81% (0.09%) and not significantly greater than zero, with 51.19% of abnormal returns being positive but not significantly exceeding 50%. Overall, the results in Table 5 show that the stock market exhibits a positive reaction to DEI-commitment announcements, supporting H1.

3.5.2 Testing H2 and H3: Effects of signal strength and specificity of DEI announcements

We test H2 and H3 by running the simple regression model defined in Equation (9), for which the dependent variable is the CAR from Day −1 to Day 0, and the independent variables are the two measures of DEI announcements (i.e., signal strength in Equation (7) and specificity in Equation (8)), as well as the various control variables (defined in Section 4.4). Table 6 displays the outcomes of our regression analysis testing H2 and H3.

Table 6. Regression Results for the Event Period Days −1 to 0

	Control Model		Signal Strength only Model		Signal Specificity only Model		Full Model	
Independent Variables	**Estimate**	**Std. Error**	**Estimate**	**Std. Error**	**Estimate**	**Std. Error**	**Estimate**	**Std. Error**
Total assets$_{log}$	−0.0002	0.0015	−0.0006	0.0014	0.0002	0.0015	−0.0002	0.0014
Operating ROA	−0.0437	0.0235*	−0.0447	0.0229*	−0.0415	0.0233*	−0.0425	0.0227*
Debt to assets	0.0124	0.0121	0.0157	0.0118	0.0126	0.0120	0.016	0.0117
Sales growth	0.0081	0.0089	0.0076	0.0086	0.0069	0.0088	0.0064	0.0086
First event	0.0038	0.0044	0.0034	0.0043	0.0046	0.0044	0.0042	0.0043
Announcement source	0.0041	0.0118	0.0138	0.0119	0.0013	0.0118	0.0111	0.0119
Signal strength		-	0.0343	0.0109***		-	0.0345	0.0108***
Signal specificity		-		-	0.0187	0.0098*	0.0189	0.0095**
n		233		233		233		233
R-Squared		3.65%		9.12%		5.76%		11.28%
Incremental R-Squared		-		5.47%		2.11%		7.63%
F-statistic		1.89*		2.35**		2.03*		2.59***

Note: *p < 0.10; **p < 0.05; ***p < 0.01. The dependent variable is the CAR from Day −1 to 0. Total assets are natural logarithm transformed to mitigate skewness. Industry and year-fixed effects are included.

The full model presented in Table 6 shows that the estimated coefficient of *signal strength* is 0.0345, which is significantly positive ($p < 0.01$). Based on the definition of signal strength stated in Equation (7), this suggests that the positive impact of a firm's DEI-commitment announcements is more pronounced for firms emphasizing DEI over non-DEI topics, as explained in Section 4.3. Hence, H2 is supported.

Next, the full model presented in Table 6 shows that the estimated coefficient of *signal specificity* is 0.0189, which is significantly positive ($p < 0.05$). Based on the definition of signal specificity given in Equation (8), this result indicates that the positive effects of a firm's DEI-commitment

announcements are amplified for firms whose announcements pertain to a more specific DEI topic. Hence, H3 is supported.

Overall, our regression models exhibit high levels of significance, with F-values of 1.89 and 2.59 for the control-factor model and full model, respectively. The R-squared (incremental R-squared) amounts to 11.28% (7.63%), indicating a good fit for our model. The largest variance inflation factor in our full model is 1.31, indicating that multicollinearity is not an issue. In conclusion, the signaling effects of DEI commitments are strengthened when an announcement features a higher proportion of DEI topics (H2) that are more specific in their DEI content (H3).

3.6 Robustness Tests

In Appendix C, we describe the alternative analysis methods and present the results of various robustness tests including: (1) propensity score matching (PSM), (2) market- and mean-adjusted event study models, (3) the regression model based on the first DEI announcement made by the firm over the 2013–2022 time window, and (4) the regression model with a random effects model. Overall, we find that the structural results obtained from our main model continue to hold.

3.6.1. PSM

PSM is a statistical technique used in various fields, including finance, economics, information systems, strategic management, and marketing research (Warren & Sorescu, 2017). The method involves matching *treated observations* with *untreated observations* to identify a "statistical twin" (Guo & Fraser, 2014; Rosenbaum & Rubin, 1983). This technique has been widely used and has been shown to be effective in addressing selection bias issues and mitigating potential issues due to confounding variables (Rosenbaum & Rubin, 1983; Warren & Sorescu, 2017).

To conduct PSM in our context, we first calculate the probability (i.e., propensity score) of a firm making DEI announcement(s) for each listed manufacturing firm in the United States. We then match a *sample firm* (making a DEI commitment announcement) to a *control firm* (without making a DEI commitment announcement) with the "closest propensity score" within the same industry (two-digit SIC code). In our context, the propensity score is the estimated probability generated based on the following model:

$$DEI\ initiatives_{i,t} = F\left(X_{i,t-1\&t-2}, Industry_j\right) \quad \text{(C1)}$$

In the model (C1), *F(.)* is the probit function, and $DEI\ initiatives_{i,t}$ indicate if a firm has DEI announcements in year *t*. Here, $X_{i,t-1\&t-2}$ is the average of 1- and 2-year lagged levels of a series of matching covariates. The matching covariates are the firm-level-related control variables discussed in our main regression model as stated in (7) (Section 4.3), including firm size, profitability, leverage, and growth. $Industry_j$ is a set of 39 industry dummies.

To validate our selection of matching variables, we test the estimated coefficients of the probit model, and all the factors are found to be significant. This indicates that these factors significantly affect the likelihood of a firm making a DEI announcement.

In equation (C1), we use a 2-year average of values to reduce the impact of outliers during the estimation process (Pagell et al., 2019). For example, we use the 2-year average ROA (i.e., $\left(ROA_{i,t-1} + ROA_{i,t-2}\right)/2$). To further ensure the quality of our matching, we set the caliper to 0.2. We also conducted paired t-tests on all the matching variables used in the probit model and found no significant differences between the sample and control firms on these variables. Therefore, we can conclude that our sample and control firms have very similar statistics. After PSM, we obtained 172 *sample-control* pairs of firms.

Table C1. Abnormal Returns of DEI Commitment Announcements (Treatment Effect Based on PSM)

We then calculate the abnormal return for our "matched" control firms using the **Fama-French-Momentum 4 Factor Model,** as we did for our sample firms in Section 4.2. We calculate the **treatment effect** based on the following equation:

$$Treatment\ effect_{it} = ARsample_{it} - ARcontrol_{it} \quad \text{(C2)}$$

where $Treatment\ effect_{it}$ is the treatment effect of the DEI commitment announcement on date *t* on firm *i*'s stock price, $ARsample_{it}$ is the sample firm i's abnormal return on date *t*, and

	Day -1	Day 0	Day 1	Days -1 to 0	Days -1 to 5	Days -1 to 10
Mean abnormal returns %	0.16	0.80	-0.13	0.97	0.31	-0.54
t-statistic	0.70	3.10***	-0.51	3.15***	0.54	-0.67
Median abnormal returns %	0.12	0.65	-0.32	0.25	0.26	-0.45
Wilcoxon signed-rank Z-statistic	0.79	3.34***	-1.89*	2.48**	0.66	-0.65
% abnormal returns positive	53.01	60.24	40.36	56.63	55.42	46.39
Binomial sign test Z-statistic	0.63	2.21**	-2.46**	1.26	1.10	-0.95

Note: n = 172, *p < 0.10; **p < 0.05; ***p < 0.01 (all tests are two-tailed).

$ARcontrol_{it}$ is the sample firm *i*'s corresponding "matched" control firm abnormal return on date *t*. The cumulative abnormal returns (CARs) are calculated following the same logic as in (5) in Section 3.4.2. We then employ the **t-test**, **Wilcoxon signed-rank test**, and **binomial sign test** as in the main analysis (Section 5). Table C1 states the results.

On Day 0, Table C1 shows the mean and median abnormal returns to be 0.80% and 0.65%, respectively, both significantly greater than zero ($p < 0.01$). Additionally, 60.24% of the abnormal returns are positive, significantly exceeding 50% ($p < 0.05$). When evaluating the cumulative effect from Day -1 to Day 0, the mean and median abnormal returns are 0.97% and 0.25%, respectively, both significantly above zero ($p < 0.01$ for mean, $p < 0.05$ for median). However, 56.35% of the abnormal returns are positive, which is not significantly higher than 50%. On Day 1, the median abnormal return drops to -0.32%, marginally significantly below zero ($p < 0.10$), and only 40.36% of the abnormal returns are positive, significantly below 50%. This suggests a potential for market valuation to rebound. However, the marginal effect is minimal compared to the Day 1 abnormal return. Overall, these findings do not falsify our main findings for H1, and they are consistent with the results of our main model.

Finally, we test the moderating effects using equation (9) from the main analysis. The dependent variable is CAR from Day -1 to Day 0 based on the treatment effect as defined in (C2). Table C2

presents the results. Signal strength and specificity are both positively significant. Therefore, these results do not invalidate our main findings for H2 and H3. More important, they are consistent with our main model's results.

Table C2. Regression Results for the Event Period Days -1 to 0 (PSM Model)

	Control Model		**Full Model**	
Independent Variables	**Estimate**	**Std. Error**	**Estimate**	**Std. Error**
Total assets$_{log}$	-0.0014	0.0021	-0.0013	0.0021
Operating ROA	-0.0416	0.0341	-0.0384	0.0336
Debt to assets	0.0025	0.0180	0.0056	0.0177
Sales growth	-0.0076	0.0128	-0.0104	0.0126
First event	-0.0008	0.0064	-0.0002	0.0063
Announcement source	0.0116	0.0170	0.0169	0.0174
Signal strength	-		0.0345	0.0334**
Signal specificity	-		0.0189	0.0280*
n	172		172	
R-Squared	2.25%		6.92%	
Incremental R-Squared	-		4.67%	
F-statistic	2.66*		2.89**	

Note: The dependent variable is the firm's cumulative abnormal return during the Day -1 to 0 period. Total assets are natural logarithms transformed to mitigate skewness. Industry and year fixed effects are included. *p < 0.10; **p < 0.05; ***p < 0.01.

3.6.2. Market- and Mean-adjusted Model

In addition to the Fama-French-Momentum 4 Factor Model, we employ the Market- and Mean-adjusted models as alternative event study models to test our hypotheses and ensure the results' validity and reliability. The market-adjusted model *compares* stock returns to a market index, such as the S&P 500, and isolates the excess return attributable to the event of interest (MacKinlay, 1997). In a similar spirit, the mean-adjusted model calculates abnormal returns by comparing the actual stock return during the event window to the stock's historical average return. This model helps control firm-specific characteristics and idiosyncratic risks. At the same time, the mean-adjusted model can provide additional assurance that neither chance nor factors unrelated to the event of interest drive the findings (Brown & Warner, 1985, MacKinlay, 1997).

We use these two models to examine the impact of a firm's DEI announcement on market reaction. Tables C3 and C4 present the results of the market- and mean-adjusted models, respectively. As shown, the abnormal returns on Day 0 and Days -1 to 0 are all significantly positive, and these coefficients can be interpreted in the same way as in Section 5. To avoid repetition, we omit the details. Overall, the results in Tables C3 and C4 do not falsify our main findings for H1, and they are consistent with our main model.

Table C3. Abnormal Returns of DEI Commitment Announcements *(Market-adjusted Model)*

	Day -1	**Day 0**	**Day 1**	**Days -1 to 0**	**Days -1 to 5**	**Days -1 to 10**
Mean abnormal returns %	0.31	0.46	-0.02	0.77	1.01	0.82
t-statistic	2.25**	3.59***	-0.12	4.23***	2.36**	1.47
Median abnormal returns %	0.16	0.30	-0.002	0.42	0.50	0.10
Wilcoxon signed-rank Z-statistic	2.02**	3.73***	-0.03	3.66***	1.87*	0.16
% abnormal returns positive	56.19	56.51	49.21	58.73	53.67	52.21

Binomial sign test Z-statistic	2.00**	2.45**	0.06	3.14***	1.81*	0.21

Note: n = 233, *p < 0.10; **p < 0.05; ***p < 0.01 (all tests are two-tailed).

Table C4. Abnormal Returns of DEI Commitment Announcements *(Mean-adjusted Model)*

	Day -1	**Day 0**	**Day 1**	**Days -1 to 0**	**Days -1 to 5**	**Days -1 to 10**
Mean abnormal returns %	0.26	0.44	-0.04	0.70	0.99	1.02
t-statistic	1.96*	3.43***	-0.33	3.98***	2.23**	1.32
Median abnormal returns %	0.13	0.25	0.02	0.22	0.51	0.21
Wilcoxon signed-rank Z-statistic	1.53	3.65***	0.16	3.05***	1.90*	0.15
% abnormal returns positive	53.05	58.20	50.16	54.98	51.77	54.62
Binomial sign test Z-statistic	0.97	2.80***	0.17	1.77*	1.86*	0.22

Note: n = 233, *p < 0.10; **p < 0.05; ***p < 0.01 (all tests are two-tailed).

Table C5 presents the regression results based on the market- and mean-adjusted models. The variables of signal strength and specificity are both positively significant. Therefore, these results do not invalidate our main findings for H2 and H3, and they are consistent with our main model as shown in Table 6 in Section 5.

Table C5. Regression Results for the Event Period Days -1 to 0 *(Market- and Mean-adjusted Model)*

	Control Model		**Market-adj Model**		**Mean-adj Model**	
Independent Variables	**Estimate**	**Std. Error**	**Estimate**	**Std. Error**	**Estimate**	**Std. Error**
Total assets$_{log}$	-0.0002	0.0015	-0.0002	0.0016	-0.0012	0.0016
Operating ROA	-0.0437	0.0235*	-0.0202	0.0262	-0.0295	0.0252
Debt to assets	0.0124	0.0121	0.0078	0.0136	0.0102	0.0131

Independent Variables	Control Model		Market-adj Model		Mean-adj Model	
	Estimate	Std. Error	Estimate	Std. Error	Estimate	Std. Error
Sales growth	0.0081	0.0089	0.0085	0.0099	0.0057	0.0095
First event	0.0038	0.0044	0.0041	0.0049	0.0025	0.0048
Announcement source	0.0041	0.0118	0.0231	0.0137*	0.0203	0.0132
Signal strength	-		0.0384	0.0125***	0.0374	0.0120***
Signal specificity	-		0.0090	0.0110**	0.0132	0.0106**
n	233		233		233	
R-Squared	3.65%		7.78%		8.96%	
Incremental R-Squared	-		4.13%		5.31%	
F-statistic	1.89*		1.72**		2.01**	

Note: The dependent variable is the firm's cumulative abnormal return during the period from Day -1 to 0. Total assets are natural logarithms transformed to mitigate skewness. Industry and year fixed effects are included. *p < 0.10; **p < 0.05; ***p < 0.01.

3.6.3. First Event Model

In our sample, we notice that some firms made multiple DEI announcements. Among all DEI announcements made by a firm, the first announcement is likely to generate a stronger market reaction. To examine this effect, we exclude multiple announcements and only include firms' "first event." In doing so, we end up with 161 DEI (first) announcements made by 161 firms. Table C6 presents the results of this event study based on only the first event, and Table C7 shows the results of the corresponding regression.

According to Table C6, the structural results based on **t-test**, **Wilcoxon signed-rank test**, and **binomial sign test** remain the same as in the main model. Specifically, the abnormal returns on Day 0 and Days -1 to 0 are all significantly positive. Hence, we do not falsify our main findings for H1, and the findings are consistent with our main model. Additionally, by comparing the results

against Table 5 associated with our main model, Table C6 reveals that the first announcement generates higher mean abnormal returns from Day -1 to Day 0, Day 5, and Day 10. Unlike in the main model, where the mean abnormal returns are not significant for the mean abnormal returns from Day -1 to 10, the first announcement has a long-lasting effect: the cumulative mean abnormal return from Day -1 to 10 is positively significant at $p < 0.01$.

Table C6. Abnormal Returns of DEI Commitment Announcements (First Event Model)

	Day -1	**Day 0**	**Day 1**	**Days -1 to 0**	**Days -1 to 5**	**Days -1 to 10**
Mean abnormal returns %	0.23	0.57	-0.33	0.80	1.17	1.08
t-statistic	1.28	3.02***	-1.59	3.05***	2.27**	1.60
Median abnormal returns %	0.11	0.31	-0.06	0.14	0.70	-0.01
Wilcoxon signed-rank Z-statistic	0.99	2.49**	-1.43	2.45**	1.56	-0.32
% abnormal returns positive	55.41	54.77	45.86	54.78	59.24	50.32
Binomial sign test Z-statistic	0.98	1.14	0.81	0.98	2.12**	0.00

Note: n = 161, *p < 0.10; **p < 0.05; ***p < 0.01 (all tests are two-tailed).

Finally, we test the moderating effects using the regression model in (9) from the main analysis. As before, the dependent variable is CAR from Day -1 to Day 0. As Table C7 shows, the signal strength and specificity are both positively significant. Therefore, these results do not invalidate our main findings for H2 and H3, and they are consistent with the results of our main model.

Table C7. Regression Results for the Event Period Days -1 to 0 (First Event Model)

	Control Model		**Full Model**	
Independent Variables	**Estimate**	**Std. Error**	**Estimate**	**Std. Error**
Total assets$_{log}$	0.0002	0.0024	0.0005	0.0022
Operating ROA	0.0551	0.0397	-0.0404	0.0381
Debt to assets	0.0137	0.0188	0.0023	0.0185

Sales growth	0.0145	0.0174	-0.0028	0.0168
Announcement source	0.0102	0.0187	0.0220	0.0192
Signal strength			0.0616	0.0208***
Signal specificity			0.0432	0.0193**
n	161		161	
R-Squared	4.42%		16.26%	
Incremental R-Squared	-		11.84%	
F-statistic	0.85		2.50**	

Note: The dependent variable is the firm's cumulative abnormal return during the period from Day -1 to 0. Total assets are natural logarithms transformed to mitigate skewness. Industry and year fixed effects are included. *p < 0.10; **p < 0.05; ***p < 0.01.

3.6.4 Regression Model with a Random Effects Model

In addition to the fixed effects model presented in our main analysis, we also consider the following random effects model. Specifically, we use the regression model in (9) from the main analysis. As before, the dependent variable is CAR from Day -1 to Day 0. As Table C8 shows, the signal strength and specificity are both positively significant. Therefore, these results do not invalidate our main findings for H2 and H3, and they are consistent with the results of our main model.

Table C8. Regression Results for the Event Period Days -1 to 0 (Random Effects Model)

	Control Model		**Full Model**	
Independent Variables	**Estimate**	**Std. Error**	**Estimate**	**Std. Error**
Intercept	0.0059	0.0129	-0.0297	0.0167*
Total assets$_{log}$	-0.0002	0.0011	-0.0002	0.0011
Operating ROA	-0.0222	0.0186	-0.0236	0.0182
Debt to assets	0.0032	0.0081	0.0061	0.0079
Sales growth	0.0066	0.0068	0.0083	0.0067
First event	0.0024	0.0038	0.0034	0.0038

Announcement source	-0.0060	0.0094	-0.0015	0.0096
Signal strength			0.0248	0.0090***
Signal specificity			0.0157	0.0082*
n	233		233	
R-Squared	1.47		6.30	
Incremental R-Squared	-		4.83	
Chi-squared	3.38		15.06*	
Note: The dependent variable is the firm's cumulative abnormal return during the period from Day -1 to 0. Total assets are natural logarithms transformed to mitigate skewness. Industry and year factors are included but omitted from the table to save space. *p < 0.10; **p < 0.05; ***p < 0.01.				

3.6.5 Presidency Model

These results from Table C9 suggest that, within the observed data, different U.S. presidential administrations (Obama, Trump, Biden) do not significantly alter short-term market reactions to DEI announcements, as none of those presidency indicators is statistically significant. However, signal strength is both positive and highly significant, indicating that clear, forceful DEI communications can yield favorable short-run market responses—even across changing political climates.

Table C9 Regression Results for the Event Period Days -1 to 0 (Presidency Model)

	Control Model		**Full Model**	
Independent Variables	**Estimate**	**Std. Error**	**Estimate**	**Std. Error**
Total assets$_{log}$	-0.0002	0.0011	-0.00006	0.00145
Operating ROA	-0.0222	0.0186	-0.03592	0.02341
Debt to assets	0.0032	0.0081	0.01417	0.01190
Sales growth	0.0066	0.0068	0.00476	0.00871
First event	0.0024	0.0038	0.00592	0.00455
Announcement source	-0.0060	0.0094	0.01028	0.01193
Signal strength			0.03714	0.01107***

Signal specificity		0.01857	0.00954
Obama		-0.00776	0.00665
Trump		-0.00033	0.00468
n	233	233	
R-Squared	1.47	0.12	
Note: The dependent variable is the firm's cumulative abnormal return during the period from Day -1 to 0. Total assets are natural logarithms transformed to mitigate skewness. Industry and year factors are included but omitted from the table to save space. *p < 0.10; **p < 0.05; ***p < 0.01.			

3.7. Conclusion and discussion

We use the event study methodology and signaling theory to investigate the impact of DEI-commitment announcements on the market performance of US-listed manufacturing firms. Our findings indicate that a firm's DEI-commitment announcements are positively associated with its abnormal stock returns, which suggests that the public perceives these announcements as value-enhancing signals. Using the STM method, we classified each announcement according to ten topics (six DEI-related topics and four non-DEI-related topics) and established measures of the signal strength and signal specificity of each announcement based on their relative emphasis on DEI announcements and specific DEI topics. Using a regression model, we found that the signaling effect is amplified when an announcement has a higher signal strength and/or greater signal specificity.

3.7.1 Theoretical contribution

Drawing on signaling theory, we have developed new measures of DEI signal strength and specificity by leveraging STM. While we find empirical evidence that the market reacts positively to DEI-commitment announcements, the same approach can be used to measure announcements in other contexts, for example, concerning carbon neutrality goals or investments in artificial intelligence. Our approach can complement previous studies (Zhao, Li, & Flynn, 2013; Ni, Flynn, & Jacobs, 2014) that often use the announcement date for signal measurement (as in our H1). Our new measurements of signal strength and specificity could be used in future research to replicate the results of these studies.

Our research contributes to the expanding literature on the correlation between corporate DEI announcements and performance. To our knowledge, ours is the first study to establish a connection between DEI announcements and stock market reactions. By demonstrating the positive influence of DEI announcements on stock market returns, we offer empirical backing for the notion that DEI is not merely a moral obligation but also a strategic business decision. The favorable market reaction to such announcements could be attributed to investors' conviction that DEI announcements yield multiple benefits, such as fostering innovation, enhancing decision-making, boosting employee engagement, and cultivating a positive brand image (Herring, 2009; Hunt et al., 2015; Nishii, 2013; Renjen, 2019). These benefits can, in turn, drive a firm's long-term growth (Brammer et al., 2007).

While the literature recognizes that DEI announcements contribute to a firm's long-term growth (Brammer et al., 2007), the perception that a firm's DEI commitments may be merely symbolic gestures or window dressing is prevalent, leading to skepticism about their short-term effectiveness (Dobbin & Kalev, 2016; Onyeador et al., 2021). These announcements can backfire if firms fail to fulfill their underlying commitments. Specifically, the stronger and more focused the DEI commitment signal, the higher the expectations of the public, and the greater the disappointment if these are not met. This highlights the importance of developing genuine rather than symbolic DEI commitments.

3.7.2 Practical implications

Our study has several practical implications for firms and policymakers. First, our results regarding signal strength and specificity indicate that a more focused DEI signal is more effective. Firms should focus on communicating clear and specific DEI announcements. Second, as Table 6 indicates, less profitable firms (i.e., firms with negative moderating effects on ROA) reap greater benefits from DEI commitments. These firms should thus prioritize DEI announcements as the market tends to reward firms that are doing the right thing. Third, our results do not show a difference in effect between the first and subsequent DEI announcements, suggesting a sustained impact of these signals; for instance, in our sample, 93.5% of firms with multiple announcements exhibit either positive or increasing trends in abnormal returns.

Policymakers can also leverage our findings to support regulations and guidelines for increased transparency and disclosure of DEI announcements. By prompting firms to articulate their DEI commitments more effectively, regulators can encourage investors to make more informed decision-making, thereby fostering a more inclusive and diverse corporate environment.

3.7.3 Limitations and future research

While our study offers several valuable insights, it also has several limitations that suggest areas for future exploration. First, our sample is restricted to US-listed manufacturing firms, potentially limiting the applicability of the findings. Future studies could broaden their scope to include firms from diverse sectors (e.g., service sectors) and different geographical regions (such as European countries). Second, our research primarily concentrates on the short-term stock market response to DEI-commitment announcements. Future studies could explore the long-term performance implications of these announcements and other contextual factors, such as firm reputation, geographic location, and public policy and regulation. As DEI announcements influence the composition of an organization's workforce, their impact on firms' operational capabilities, innovation performance, labor turnover, and productivity present an intriguing area for future study.

Chapter 4: Signaling DEI in Taiwan: Market Reactions and the Moderating Effects of Board Characteristics

To build on the future research directions outlined in Chapter 2 and 3, this chapter extends DEI research into different geographic regions characterized by distinct cultural backgrounds and social norms. Additionally, the inclusion of top management team (TMT) demographics allows for an examination of how these demographic variations might influence the signaling effects of DEI announcements. This approach aims to provide a more comprehensive understanding of the role that cultural context and leadership characteristics play in shaping the impact of DEI commitments on organizational outcomes.

4.1 Introduction

Recent cultural shifts in the United States have propelled the principles of diversity, equity, and inclusion (DEI) into prominence. This trend has had a significant influence internationally, such as E.U., and U.K. stock exchanges' regulatory compliance to listing firms on DEI issues. In the U.S., firms' DEI announcements are supported by a diverse range of stakeholders, including investors, consumers, and employees (Camilleri, 2021). Organizations that make DEI a top priority—by establishing strategies to broaden diversity, secure fairness, and nurture inclusiveness—tend to attract elite talent and a wide-ranging customer base (e.g., Lyman et al., 2022). Additionally, such a varied workforce is instrumental in sparking innovation and enhancing financial outcomes (e.g., Bogers et al., 2010; Cunningham, 2011; Li et al., 2024).

Moreover, an inclusive work environment encourages collaboration and engagement, boosting productivity and performance. Although existing literature focuses on the benefits of DEI and its impacts on decision-making and employee welfare, there is a literature gap regarding the impact of a firm's DEI commitment on its stock market performance, especially in Asian regions. Our article seeks to address this gap.

However, such influences have started in the Asian stock markets. Among them, Taiwan is the leading market to embrace DEI concepts, where DEI announcements have begun to gain traction.

In Taiwan, which is relatively progressive with laws permitting same-sex marriage—making it one of the first places in the Asia-Pacific region to do so—there is a unique opportunity to study DEI announcements. Taiwan's openness and legal framework for LGBTQ+ rights creates more social acceptance and positions it more closely with American DEI practices than mainland China and Hong Kong (Zhou & Hu, 2019). However, there are also negative sentiments in Taiwan regarding LGBTQ+ rights, particularly during the push to legalize same-sex marriage (Au, A., 2022). This controversial context presents an opportunity to explore the effects of DEI announcements on Taiwanese firms' stock market performance, a topic that remains underexplored in the current literature.

Compared with DEI in the U.S., two important contextual differences arise. First, Taiwan's population is predominantly Han Chinese, leading to a relatively homogenous society. This contrasts with the U.S.'s diverse demographic landscape, which has long necessitated robust DEI frameworks. Second, Taiwan's formal adoption of DEI practices is more recent, in contrast to the U.S.'s decades of experience implementing such announcements. This shorter history means that DEI concepts are still gaining traction within Taiwanese institutions and society. Furthermore, signaling theory suggests that the demographic characteristics of signal senders significantly vary receivers' interpretation of messages (Levine et al., 2011). Thus, how Taiwanese investors interpret DEI announcements may depend considerably on the demographics of firms' board members and top management teams.

The U.S. DEI study from Chapter 3 evidenced empirically that in the listed manufacturers from the U.S., DEI commitment improves firm's market performance, and the strength and specificity of the commitment signal will amplify the effect of DEI commitment on its market performance (Li et al., 2024). We tend to expand DEI research to different geographic regions and industry sectors, which leads us to our research question: How does the extent of a Taiwan-listed firm's DEI commitment affect its market performance in all sectors?

We operationalize our study by collecting financial performance and stock price data for 80 publicly listed Taiwanese firms from all sectors, concerning 107 DEI-commitment announcements over a 4-year period (January 1, 2020 to February 6, 2024). In contrast to the positive impact of

DEI commitment observed in U.S. manufacturers, our results reveal that DEI commitment announcements by Taiwanese firms negatively impact their market performance during the announcement period (from day 0 to 2). To compare the signaling effects of DEI commitments between Taiwan and the U.S., we leverage signaling theory to examine the moderating effects of an announcement's signal strength and specificity (as if Chapter 3). Contrary to U.S. findings, when announcements emphasize DEI over non-DEI topics (signal strength), the negative impact on stock prices is amplified among Taiwanese listed firms, suggesting that investors respond less favorably to companies prioritizing DEI announcements. Furthermore, announcements focusing on specific rather than broad DEI topics (signal specificity) do not show significant effects; companies articulating a targeted DEI commitment experience decreased market performance, reflecting differences in how Eastern cultures accept and agree with DEI policies compared to Western cultures.

To further examine potential cultural differences, we adopt Upper Echelon Theory to explore how the demographics of Taiwanese firms' board members and top management teams (TMTs) affect DEI announcements and how investors perceive the DEI commitments under different leadership compositions. We find evidence that younger (i.e., lower than average age) TMTs or those with higher educational levels positively influence market performance when initiating DEI. These findings have important implications for investors, managers, and decision makers. By strategically emphasizing DEI in their announcements, firms can foster a positive work environment and enhance their financial standing in the market.

Our research makes a theoretical contribution by integrating signaling theory and upper echelon theory, highlighting that the demographic characteristics of signal senders—such as age and education—significantly shape receivers' interpretations of DEI-related corporate announcements, particularly within culturally distinctive contexts.

The remainder of this article is organized as follows. In Section 4.2, we review the relevant literature on signaling and upper echelon theory. Our research framework and hypothesis development are set out in Section 4.3, and in Section 4.4, we describe our methodology, including our data collection, event studies, and regression analysis. We present our results in Section 4.5

and our conclusion and discussion in Section 4.6, where we include the study's implications for operations management, its limitations, and suggestions for future research.

4.2 Literature review

Our review of DEI-related research interprets firms' DEI announcements as commitments to diversity, equity, and inclusion, using signaling theory and upper echelon theory. We apply the event study method to evaluate how these announcements impact market reactions. The expanding DEI literature significantly focuses on issues like the gender pay gap (e.g., Hoisl & Mariani, 2017), and Son et al. (2023) review operations management articles exploring gender bias, including the effects of unpaid care work on women during the COVID-19 pandemic (e.g., Cui et al., 2022). Research also highlights the benefits of increasing women's representation at various corporate levels (e.g., Kuzey et al., 2022). While much research centers on gender bias, Murphy and Roy (2021) note a lack of O.M. studies on race and sexual orientation. Coffman et al. (2016) find evidence of bias against LGBTQ+ candidates in hiring, and Mejia and Parker (2021) show that ridesharing drivers are more likely to cancel rides for non-Caucasian and LGBTQ+ passengers.

Although existing literature addresses specific DEI aspects such as race, gender, and sexual orientation discrimination, DEI as a concept is broad and evolving.

Signaling theory, which explores the effects of information asymmetry (e.g., Spence, 1973), frames DEI announcements as signals to the market reflecting a firm's commitment to social issues, potentially eliciting market reactions (e.g., Flammer, 2013). Central to signaling theory is the concept of information asymmetry between signal sender and receiver; senders (firms) have private information regarding their actual commitment, while receivers (investors, stakeholders) must interpret signals based on limited knowledge and observable cues (Levine et al., 2011). Sender demographics and characteristics significantly influence receiver interpretation, shaping how corporate messages are received and understood (Levine et al., 2011). Thus, the demographic composition of the firm's leadership, as the primary sender of DEI signals, can affect the credibility and interpretation of DEI commitments, potentially influencing investor perceptions and market reactions.

Previous studies have examined DEI announcements as part of broader corporate social responsibility strategies (e.g., Orlitzky et al., 2003) or as specific diversity issues (e.g., Miller & Triana, 2009). Our research adds to this literature by exploring market responses to DEI announcements, explicitly focusing on how the demographics of the senders (i.e., firm leadership) alter receiver perceptions.

Upper echelon theory, introduced by Hambrick and Mason (1984), further supports the importance of sender demographics, suggesting that the characteristics of top management teams (TMTs) influence organizational outcomes. Diversity within TMTs and boards can enhance decision-making by introducing various perspectives and cognitive frameworks, improving problem-solving and innovation (Marcel et al., 2010). Demographic diversity, such as gender and age, has been linked to improved corporate social performance, bringing diverse values and ethics into governance (Boulouta, 2013; Glass & Cook, 2017; Midavaine et al., 2016; Jouber, H., 2022). However, diversity faultlines can lead to subgroup conflicts and reduce team cohesion, negatively affecting strategic discussions (van Knippenberg et al., 2011; Bezrukova et al., 2009; Midavaine et al., 2016). For example, a tech company formed a team with younger tech-savvy employees and older experienced staff, leading to age-based subgroups. These subgroups disagreed on the product's direction, causing delays and a failure to deliver a cohesive strategy. Similarly, a marketing firm created a multicultural team for a global campaign, but cultural faultlines emerged. Western team members preferred bold messaging, while Eastern members wanted conservative themes, resulting in a disjointed campaign that failed to connect with the global audience. These cases show how diversity faultlines can disrupt collaboration and hinder success.

Cultural norms and power dynamics also moderate the impact of diversity. In cultures that favor traditional hierarchies, such as many Eastern societies, diversity announcements may face stronger resistance, impacting market perceptions (Ali et al., 2022; Ali et al., 2023). Additionally, powerful CEOs can limit the effectiveness of diverse boards by dominating decisions (Boyd et al., 2011; Ali et al., 2023). Thus, while Upper Echelon Theory highlights the potential benefits of diversity, it also emphasizes the necessity of supportive organizational cultures and leadership styles that value diverse input for achieving positive outcomes.

Combining signaling theory's sender-receiver information asymmetry with upper echelon theory, we propose that the demographic characteristics of the signal sender (i.e., firm leadership) shape how DEI signals are interpreted by receivers (i.e., investors). This integrated approach provides a more comprehensive understanding of the conditions under which DEI announcements are positively or negatively received in different cultural contexts.

4.3 Hypothesis development

We now establish our four hypotheses concerning the market's reaction to a firm's DEI commitment as expressed in its DEI announcements (Figure 1).

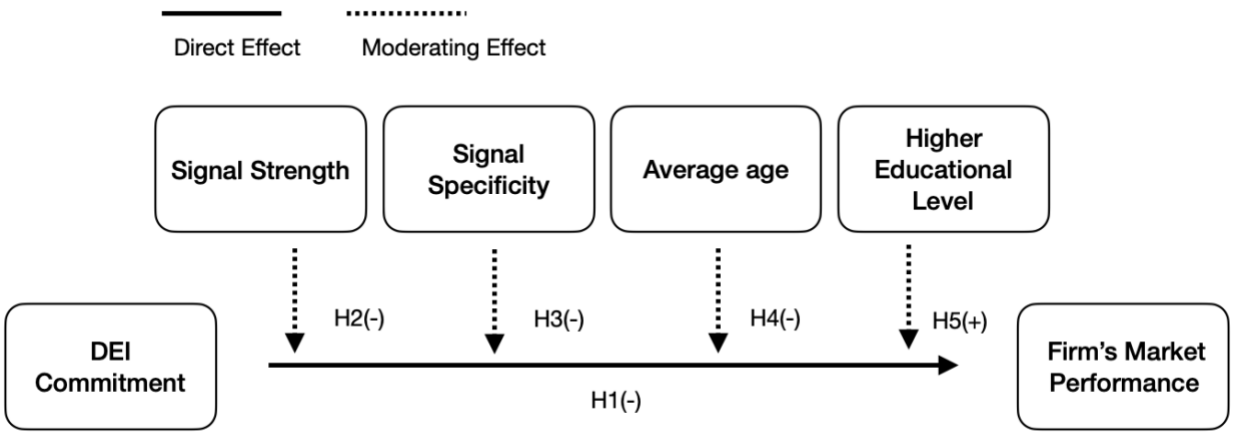


Figure 1. DEI commitment impact on the market: Three hypotheses

We posits that DEI commitments announced publicly by Taiwanese firms negatively impact their market performance. To understand this phenomenon, it is crucial to consider the unique cultural and institutional context of Eastern societies, which generally exhibit lower acceptance and greater skepticism toward DEI announcements compared to Western cultures (Scarborough, J., 1998). According to upper echelon theory, executives' backgrounds, values, and cultural orientations critically influence organizational strategies and outcomes (Jouber, H., 2022). Since board members and senior executives in Taiwanese firms predominantly reflect Asian cultural values

emphasizing harmony, conformity, hierarchical stability, and collective well-being, they are inclined toward cautious, incremental approaches to DEI implementation rather than aggressive or publicly prominent campaigns (Yang, L., & Wang, D., 2014; Pyles, M. K., et al., 2016).

Investors in Taiwanese capital markets, deeply influenced by similar cultural values, may perceive explicit, publicly communicated DEI commitments negatively for several reasons. First, announcements that clearly highlight DEI announcements —particularly in areas that challenge traditional values, such as LGBTQ rights—could trigger controversy or societal backlash. For example, Taiwan's legalization of same-sex marriage drew resistance from conservative groups that viewed these progressive policies as threats to traditional Confucian family structures and social stability (Au, 2022). Consequently, investors may perceive publicly emphasized DEI commitments as sources of risk and uncertainty rather than strategic advantages, leading to immediate negative market reactions.

Second, public DEI announcements might be interpreted by investors as superficial attempts at "greenwashing," where companies engage in symbolic gestures aimed at enhancing corporate image without delivering substantial organizational change (Baker, A. C. et al., 2022). Such perceptions can undermine investor trust and generate skepticism regarding the authenticity and sustainability of these initiatives, further contributing to a negative assessment of firms' strategic direction. Additionally, from a financial perspective, investors might be concerned that prioritizing DEI announcements diverts essential resources away from core business functions, negatively influencing profitability and increasing operational risks (Ferraro, C. et al., 2023). Given these considerations, investors' confidence in firms' ability to maintain financial stability and achieve consistent business results could decline, thus negatively affecting market valuation.

Lastly, although DEI announcements have proven beneficial in Western markets by enhancing brand loyalty, innovation, and consumer engagement (Herring, 2009; Khalafallah, O., & Weldesylasie, S., 2023), these benefits are not necessarily universally transferable or equally appreciated in Taiwan's cultural context. Asian consumers and investors may respond less favorably to overt DEI positioning due to entrenched societal norms emphasizing conformity, hierarchy, and traditional practices (Pyles, M. K., et al., 2016). This cultural mismatch means

Taiwanese investors are more conservative and less optimistic about the tangible long-term financial benefits of DEI announcements, particularly when such announcements are positioned as central marketing or communication strategies.

Taken together, these arguments suggest that in the Taiwanese context, explicit public announcements of DEI commitments could inadvertently signal increased risks, misplaced priorities, and potential cultural conflicts, thereby negatively influencing market perception and ultimately harming market performance.

Thus, we propose:

Hypothesis 1: *DEI commitments by Taiwanese firms, when communicated through public announcements, have a negative impact on their market performance.*

DEI announcements play a critical role in signaling an organization's commitment to diversity, equity, and inclusion. The strength and specificity of these commitments can be quantified by examining the proportion and depth of DEI-related topics within corporate announcements, significantly influencing market performance (Li et al., 2024). Signaling theory suggests that strong and consistent DEI communications can foster stakeholder trust, enhance corporate reputation, and increase the firm's attractiveness as an employer and investment choice (Connelly et al., 2011; Park & Mezias, 2005). Furthermore, robust commitments to social responsibility, including DEI, have often been positively associated with improved stock performance due to their resonance with socially conscious stakeholders (Edmans, 2011; Connelly et al., 2011).

However, the effects of DEI signaling strength might differ markedly in the Taiwanese context, primarily due to cultural and institutional differences. Implementing comprehensive DEI announcements requires substantial resources, including funding for training programs, organizational policy reforms, and adoption of diverse hiring practices (Ferraro et al., 2023). These measures can be resource-intensive and demand ongoing management attention to effectively integrate into daily operations. Moreover, the inherently conservative cultural values prevalent in Eastern societies can lead to skepticism and cautious reception of explicit DEI announcements

(Scarborough, J., 1998; Au, 2022). Specifically, Taiwanese investors, characterized by a strong preference for financial stability and risk aversion, might view overly prominent DEI announcements as risky or distracting from core financial priorities, thus negatively impacting their perceptions and reactions in the capital market.

In Taiwan, overly strong DEI signals communicated via explicit corporate announcements could heighten investor suspicion, particularly if perceived as superficial commitments or "greenwashing" attempts lacking genuine organizational transformation (Baker et al., 2022). Furthermore, DEI strategies that appear copied directly from Western contexts without adequate consideration of Asia's cultural and market uniqueness may intensify stakeholder skepticism or accusations of tokenism, undermining corporate credibility and market performance. To avoid these negative outcomes, firms in Taiwan may find greater market acceptance by adopting more subtle or moderate signaling strategies. Rather than completely avoiding DEI communication, companies should integrate DEI elements thoughtfully within broader organizational communications, reducing the likelihood of negative perceptions. This balanced and culturally informed approach helps mitigate risks and facilitates smoother acceptance and internalization of DEI practices. As Taiwanese stakeholders become more familiar with DEI's potential long-term benefits, firms can gradually strengthen DEI communication signals. Therefore, carefully moderating DEI signal strength appears essential to reducing potential negative market impacts.

Hypothesis 2*: A strong DEI commitment signal, measured by the proportion of DEI topics incorporated in a corporate announcement, negatively moderates the impact of that DEI announcement on a firm's market performance in Taiwan*.

Signal specificity, defined as information precision, enables stakeholders to make informed decisions (Connelly et al., 2011). Previous studies indicate that detailed and specific signals generally enhance trust and lead to positive stakeholder attitudes, as clearly articulated commitments reduce uncertainty and ambiguity (Atkinson & Rosenthal, 2014; Verwaeren et al., 2017). However, while signal specificity effectively conveys a firm's genuine commitment to DEI in many contexts, the cultural environment in Taiwan might yield different outcomes. Eastern cultures, including Taiwanese society, tend to adopt a more conservative approach toward

diversity, equity, and inclusion announcements. Such conservatism stems from cultural values emphasizing harmony, social stability, collective welfare, and clearly-defined hierarchical structures. These values often translate into cautious and incremental implementation of DEI practices, which stakeholders view as potentially disruptive or overly challenging to existing social orders (Pyles et al., 2016).

Additionally, the collectivist orientation prevalent in Taiwanese society highly values group cohesion and harmony. Openly acknowledging and explicitly highlighting diversity and differences within the group—particularly through overly detailed or specific DEI announcements—might conflict with these cultural norms. In corporate settings, such specificity can inadvertently signal confrontational or overly assertive positions, leading investors and other stakeholders to perceive these announcements as risky, destabilizing, or culturally inappropriate. Consequently, highly specific DEI communications in Taiwan risk triggering skepticism, backlash, or negative reactions among investors, adversely impacting firms' market performance. Therefore, we propose:

Hypothesis 3*: A higher degree of specificity of a DEI signal, indicated by the proportion of the most dominant DEI topic(s) among all DEI topics in a corporate announcement, negatively moderates the impact of DEI announcements on a firm's market performance.*

To improve the overall impact of DEI commitments, strategically appointing younger board members might positively influence market performance. According to Upper Echelon Theory, demographic characteristics and experiences of top executives, such as their age, significantly influence strategic choices and organizational outcomes (Dagsson & Larsson, 2011). Generally, younger board members are more receptive to innovation, new ideas, and diverse perspectives, making them naturally inclined to endorse and effectively implement DEI strategies. They tend to have greater openness to change, higher risk tolerance, and greater familiarity with contemporary social issues, leading them to perceive DEI announcements not merely as compliance-driven requirements but as integral to organizational strategy and long-term competitive advantage (Berger et al., 2014).

Moreover, signaling theory emphasizes that the demographic characteristics of signal senders significantly shape how receivers interpret communicated messages (Levine et al., 2011). Applying this concept, the demographics of the board members—as primary signal senders—critically influence investor perceptions regarding the authenticity and effectiveness of DEI announcements. Investors tend to perceive DEI commitments skeptically if the board lacks demographic diversity or openness to innovation, undermining stakeholder confidence in these announcements (Wood, 2023). Boards dominated by older members (typically aged over 60) may be perceived as less receptive to new strategies, reinforcing investor skepticism and negatively impacting firms' market performance due to diminished DEI credibility (Nakano & Nguyen, 2011). Additionally, such homogeneous and senior boards can create disconnects between board perspectives and a diverse workforce or consumer base, further weakening stakeholder trust in DEI efforts (Dagsson & Larsson, 2011).

Conversely, younger board members tend to interact more effectively with diverse stakeholders, enhancing DEI announcements' authenticity and genuine execution (Ali et al., 2014). Their capability to credibly communicate DEI strategies mitigates concerns over tokenism or superficiality. Therefore, younger signal senders—board members with demographics characterized by youth and openness—can positively alter investor interpretations of DEI messages, increasing stakeholder trust. By increasing younger representation within boards, firms can better align with contemporary stakeholder expectations, enhance investor confidence, and leverage DEI announcements as authentic drivers of sustainable growth. Consequently, this approach can positively impact firms' market performance by reassuring investors of the company's genuine commitment and strategic orientation toward DEI. Therefore, we propose:

Hypothesis 4*: The younger the age of board members, the more positive the impact of DEI commitments on a firm's market performance.*

According to Upper Echelon Theory, the educational background of top executives significantly shapes their strategic decisions and subsequently influences organizational outcomes (Carmen Diaz-Fernandez et al., 2014; Liu, T., 2022). Executives with higher levels of education, such as graduate, MBA, or doctoral degrees, generally possess greater exposure to diverse ideas and

innovative strategic frameworks, making them more receptive to and supportive of DEI announcements (Carmen Diaz-Fernandez et al., 2014). Their educational experiences provide them with deeper insights into the value of diversity, equity, and inclusion, increasing their confidence and strategic commitment toward these socially responsible practices (Liu, T., 2022).

Integrating this perspective with signaling theory, the demographic characteristics of corporate leaders—the senders of DEI signals—play a significant role in shaping how receivers interpret the communicated messages (Levine et al., 2011). Specifically, the educational credentials of the signal sender can enhance the perceived authenticity, credibility, and strategic intent of DEI commitments among investors. Investors typically interpret DEI announcements more positively when communicated by leaders who possess strong educational backgrounds, perceiving such signals as reflective of informed, strategic decision-making rather than symbolic or superficial gestures (Higgins & Gulati, 2006). Conversely, DEI signals originating from less educated leadership may be viewed with greater skepticism, as investors might question the depth of understanding or genuine intent behind such announcements.

Integrating signaling theory with upper echelon theory underscores that sender demographics, particularly education, can significantly moderate investors' responses to corporate signals. Highly educated board members are perceived as better equipped to integrate DEI into broader corporate strategies effectively, reassuring investors that DEI commitments represent informed, strategic decisions aimed at enhancing long-term firm performance and sustainability (Higgins & Gulati, 2006). Thus, firms that strategically appoint more highly educated leaders are likely to enhance investor trust and positively influence market reactions to their DEI announcements. Consequently, the presence of board members with advanced educational credentials can bolster investor confidence, improve market perceptions, and ultimately positively affect a firm's market performance following DEI announcements. Therefore, we propose:

Hypothesis 5*: The higher educated board members (holding graduate, MBA, or doctoral degrees), the more positive the impact of DEI commitments on firm's market performance.*

4.4 Data and methodology

We now describe our data collection and measures of a DEI announcement's signal strength and specificity, so as to test our hypotheses developed above. Our approach is based on the STM method and the event study methodology.

4.4.1 Data collection

Our sample includes manufacturing companies listed on the Taiwan stock exchange from all sectors, chosen due to the availability of detailed financial and DEI data. Initially, we identify 4,635 firms listed in Taiwan, then use WisersOne and keyword searches to find news and announcements related to their DEI commitments. As DEI originated primarily in the United States, where the majority of academic literature and foundational studies on the subject have been conducted. Taiwan has subsequently adopted DEI policies, largely influenced by the American framework, to align itself with global standards and international practices. Therefore, in this study, both English terminology and their corresponding authentic Chinese translations were utilized to ensure conceptual consistency and accuracy in capturing DEI-related content. The keywords are based on various definitions of DEI established in the literature showed in Table 1.

Table 1. DEI keywords

Keywords (References)
Board diversity (Bear et al., 2010),
Gender diversity, *female* (Bear et al., 2010; Dadanlar & Abebe, 2020; Olsen et al., 2016; Shore et al., 2009; Tan, 2019), 多元, 多样, 包容, 共融, 性别平等
Corporate diversity (Bear et al., 2010; Dadanlar & Abebe, 2020),
Race, *ethnicity*, *age* (Kang et al., 2007; Shore et al., 2009; Tan, 2019), 黑种人, 非裔美国人
Sex (Kang et al., 2007; Shore et al., 2009),
Black Lives Matter (Leopold & Bell, 2017),
Fair, *fairness*, *justice*, *equality*, *equal*, *equity* (Colquitt et al., 2006; Van Gramberg, 2006), 公平
Impartiality, *impartial* (Van Gramberg, 2006),
Respect, *belonging*, *welcomed* (Gustafsson et al., 2018; Randel et al., 2016),
LGBTQ, *lesbian*, *gay*, *bisexual*, *transsexual*, *and queer* (McFadden, 2015; Tan, 2019), 同性恋, 双性恋, 变性人
Sexual orientation, *sexual identity*, *gender identity*, *religion*, *and disability* (Croteau et al., 2008; Shore et al., 2009). 性取向, 残疾

We use a 4-year event study window spanning from January 1, 2020, to February 6, 2024. Our search identifies 430 announcements made by 160 firms. For each announcement, we document the date, time, context, and source, and gather relevant financial data from the Compustat database.

To refine our sample, we exclude announcements that do not meet specific criteria in the following. After reviewing all 430 announcements and referencing prior studies (e.g., Jacobs & Singhal, 2014; Lo et al., 2018), we use a 200-day estimation window (from Day −210 to Day −11) to calculate expected returns for each firm. We end the estimation window on Day −11 to improve the accuracy of our results (Jacobs & Singhal, 2014; Lo et al., 2018). This leads to the removal of 50 announcements that fall within another event's 200-day estimation window. Additionally, following Jacobs et al. (2010), we exclude announcements from firms that have been trading for less than 40 days, eliminating 87 announcements. To identify potential confounding events, we examine the period from Day −10 to Day 10 using WisersOne. These events include legal actions, mergers, dividend announcements, executive leadership changes, unexpected earnings reports, product recalls, and acquisitions. To avoid biased results, we exclude 186 announcements associated with confounding events during this period (Jacobs & Singhal, 2014; Lo et al., 2018).

Table 2 details our final sample, which includes 107 announcements. Table 3 provides descriptive statistics for the sample firms.

Table 2. Number of events in the sample

Announcements	**No. of Announcements**
From WisersOne Keyword Search	430
Not in another announcement's 200-day estimation window	380
Without confounding events	194
With sales data for calculating revenue growth	107
Announcements for Testing H1 to H4	**107**

Table 3. Descriptive statistics for sample firms in the 107 announcements

	Total Assets (TWD Million)	**ROA (TWD Million)**	**Sales (TWD Million)**	**Debt-to-assets (TWD Million)**	**Stockholder Equity (TWD Million)**	**Labor intensity (TWD Million)**	**R&D (TWD Million)**
Mean	274378.210	0.113	234230.731	0.125	122223.134	0.672	6275.125
Std. error	63497.851	0.001	76722.631	0.119	30593.085	0.021	2126.752

							124734.75
Max.	3908878.39	0.573	5994173.880	0.655	2168286.550	1.000	5
Min.	2183.417	-0.029	149.935	0.000	414.900	0.061	−0.000

Note: Exchange rate 1 USD = 32.58 TWD

4.4.2 Event study methodology

We use the event study methodology to test H1 and identify abnormal returns associated with specific DEI announcements. To estimate the expected returns, we employ a Market Adjusted Model, which considers only the market return as the benchmark. The model is specified as follows:

$$R_{it} = \alpha_i + \beta_i\left[R_{mt} - R_{ft}\right] + \varepsilon_{it}, \qquad (1)$$

where R_{it} means the return on stock *i* on day *t*; α_i signifies the intercept of the relationship for stock *i*; R_{ft} is the risk-free return, R_{mt} is the market return. In this Market Adjusted Model, the expected return of a stock is modeled as a function of the market return adjusted by the risk-free rate. The parameter $\beta_i$captures the relationship between the stock's return and the excess market return, indicating how the stock moves in relation to the market. The model posits a linear relationship between a stock's return and the overall market risk.

Using ordinary least squares (OLS) regression over the 200-day estimation period, we estimate the parameters,α_i and β_i as well as the variance of ε_{it} (i.e., $\hat{S}_{\varepsilon_i}^2$) associated with the Market Adjusted Model. The abnormal returns, AR_{it}, for firm *i* on day *t* are defined as the difference between the actual and expected returns, expressed as follows:

$$AR_{it} = R_{it} - [\alpha_i + \beta_i\left(R_{mt} - R_{ft}\right)], \qquad (2)$$

We assess whether abnormal returns are related to various DEI announcements and if they significantly differ from zero using the Wilcoxon signed-rank test to evaluate the statistical significance of median abnormal returns. Additionally, we utilize the binomial sign test to

determine whether the percentage of negative abnormal returns during the event period is significantly higher than 50%.

Considering Equation (2) and the N firms that issued DEI announcements, the average abnormal returns across all N firms $\underline{AR_t}$ on day *t* is expressed as follows:

$$\underline{AR_t} = \sum_{i=1}^{N} \frac{AR_{it}}{N}. \quad (3)$$

We calculate the standardized abnormal return by dividing each AR_{it} by its estimated standard deviation of ε_{it} (i.e., $\hat{S}_{\varepsilon_i}$). This facilitates the testing of the statistical significance, TS_t, of mean abnormal returns, as depicted in Equation (3). Assuming the null hypothesis, abnormal returns are considered independent across events, exhibiting a mean of 0 and a variance of $\hat{S}_{\varepsilon_i}^2$. In line with the central limit theorem, the aggregate of the *N* standardized abnormal returns approaches a normal distribution, characterized by an average of 0 and a variance of *N*. As a result, the test statistic for a single-day period, TS_t, for day *t* is as follows:

$$TS_t = \sum_{i=1}^{N} \frac{\frac{AR_{it}}{\hat{S}_{\varepsilon_i}}}{\sqrt{N}}, \quad (4)$$

Using the average abnormal returns ($\underline{AR_t}$) on day *t* provided in Equation (3), we can determine the cumulative abnormal returns (CAR) in the interval (t_1, t_2) as follows:

$$CAR(t_1, t_2) = \sum_{t=t_1}^{t_2} \underline{AR_t}, \quad (5)$$

The test statistic for a multi-day period, TS_e, is derived using an approach analogous to that employed for a single day.

$$TS_e = \sum_{i=0}^{N} \frac{\left(\sum_{t=t_1}^{t_2} \underline{A_t}\right) / \sqrt{\sum_{t=t_1}^{t_2} \hat{S}_{\varepsilon_i}^2}}{\sqrt{N}}, \quad (6)$$

4.4.3 Structural topic modeling and measurement of signal strength and specificity

We measure the signal strength and specificity of a firm's DEI announcement using the STM approach outlined in Wang et al. (2023). STM is a relatively recent technique in machine learning and natural language processing, aimed at identifying and organizing "latent topics" based on the semantic content of a text. In this context, we use STM to identify and categorize ten topics from our dataset of 107 DEI announcements to conduct the STM approach.

We identify the following ten topics using STM: (1) Cable Television and Communications Competitiveness, (2) DEI Practices in Sustainable Development and Urban Commerce, (3) Environmental Protection and Inclusive Policies in Manufacturing, (4) Inclusive Development in Urban Transportation and Government Cooperation, (5) Media and Information Technology, (6) Media and Information Technology, (7) Inclusive Measures in Activities for Women and Children, (8) Semiconductors and International Cooperation, (9) Diversity Initiatives in Communications and Water Resource Management, and (10) Inclusive Strategies in Occupational Safety and Leadership.

***Signal strength*.** Out of 10 topics, topics (2), (3), (4), (6), (7), (9) and (10) are classified as DEI-related; the remainder are classified as non-DEI topics. We determine the signal strength of an announcement by measuring its relative emphasis on the seven DEI-related topics. Specifically, we define the signal strength of a DEI announcement as follows:

$$\text{Signal Strength} = \sum_{i=1}^{n} DEI_i, \qquad (7)$$

where DEI_i is the proportion of DEI-related topic i embedded in an announcement (relative to all m = 10 topics), and n = 7 is the total number of DEI-related topics. Following the STM approach (e.g., Blei et al. 2003, Roberts et al. 2016), the proportion of an announcement that focuses on a DEI-related topic is determined by the number of words associated with that topic normalized by the total number of words associated with all (DEI-related and non-DEI-related) topics identified.[8]

***Signal specificity*.** Analogously, we measure signal specificity by computing the ratio of the dominant DEI topic(s) relative to the total DEI content (captured by the n = 7 DEI-related topics). Specifically, we define the signal specificity of a DEI announcement as follows:

[8] Specific words associated with a topic are determined through a complex statistical process employed in STM, based on the probabilities of words associated with each topic appearing, the distribution of topics within the document (i.e., announcement) and across the entire corpus (i.e., all announcements), and document-level covariates (i.e., year) that might influence topic prevalence (e.g., Blei et al., 2003, Roberts et al., 2016).

$$\text{Signal specificity} = \frac{max(DEI_1, DEI_2, \ldots, DEI_n)}{\sum_{i=1}^{n} DEI_i}, \quad (8)$$

where $max(DEI_1, DEI_2, \ldots, DEI_n)$ is the proportion of the most dominant DEI-related topic(s), and $\sum_{i=1}^{n} DEI_i$ is the total proportion of those n = 7 DEI-related topics in an announcement.

4.4.4 Regression model

We test H2 to H4 using OLS regression, in line with Jacobs and Singhal (2014), to examine whether signal strength, specificity and TMT's demographics amplify or attenuate the effect of DEI announcements.

$$CAR_i = \beta_1 SignalStrength_i + \beta_2 SignalSpecificity_i + +\gamma X_i + \alpha_i + \delta_t + \varepsilon_i, \quad (9)$$

where CAR_i represents the CAR of firm i from Day −1 to 0, as defined in Equation (5); $SignalStrength_i$ and $SignalSpecificity_i$ are defined in Equations (7) and (8), respectively. We capture heterogeneity by incorporating the industry-fixed effect, α_i, and year-fixed effect (δ_t); ε_i represents the error term. We also incorporate a vector of control variables, X_i, to account for firm- and event-related characteristics, including firm size, return on assets (ROA), research and development (R&D), sales growth, board size, Male director's percentage, the average age, international educational background, higher educational levels, first event, and announcement source.[9]

Control variables. We include several control variables to account for factors that might affect a firm's capacity and inclination to invest in DEI announcements. Total assets (natural logarithmic transformed total assets) indicate firm size, which affects a firm's resources for making DEI investments (Wiersema & Bird, 1993). ROA reflects the firm's profitability and financial health, which are critical for supporting DEI announcements (Nekhili & Gatfaoui, 2013). Sales growth, based on revenue increases, indicates the firm's growth trajectory, its potential allocation of

[9] Unless otherwise specified, these factors are measured for the most recent fiscal year ending prior to the announcement date (Lo et al., 2018).

resources to DEI practices, and the pressure to diversify its workforce, as discussed in Nishii (2013). R&D is a crucial indicator of firm performance (Belderbos, R. et al., 2004). In addition, we covered TMT's demographic background indicators to deeply understand how Taiwan firm's leaders might perceived DEI announcements. Board size imply the decision-making dynamics (Ruigrok, W. et al., 2006). Male director's percentage indicates the diversity of the leaders (Reddy, S., & Jadhav, A. M., 2019). The average age of directors reflects the risk tolerance and innovation (Cumming, D., & Leung, T. Y., 2021). International educational background of directors can be more open to new ideas, according to Clark, K. D. & Maggitti, P. G. (2012) such educational background may affect their decision making. Higher educational levels of directors also proved to make better decisions (Clark, K. D. & Maggitti, P. G., 2012). We also include a binary indicator, first event, that captures whether an announcement is a firm's initial DEI commitment; this is shown to have a different impact on investor perceptions than subsequent announcements (Lo et al., 2018). These controls help isolate the effects of DEI announcements from other operational influences on firm outcomes.

4.5 Statistical results

By using the test statistic for a single day, TS_t, and a multi-day period, TS_e, established in Equations (4) and (6), we test H1 using the standard t-test and other nonparametric tests. We test H2 to H5 by considering Equation (9). We present our main results in this section.

4.5.1 Testing H1: Impact of DEI commitment in announcements

We test H1 by examining whether a firm's DEI commitment (expressed in its announcements) positively impacts its market performance. We begin by examining the influence of DEI announcements on abnormal returns for each day, from Day −2 to Day 2. We then examine CARs over Day 0 to 2), seven-day (Day −1 to 5) and twelve-day (Day −1 to 10) periods. Table 4 sets out the event study outcomes for our t-test, Wilcoxon signed-rank test, and binomial sign test of H1.

Table 4. Abnormal returns associated with DEI-commitment announcements

	Mean abnormal returns %	t-statistic
Day -2	-0.000	0.107

Day -1	-0.000	-0.404
Day 0	-0.004	-2.826***
Day 1	-0.000	-1.219
Day 2	-0.006	-0.056
Day -2 to 2	-0.007	-2.454**
Day -1 to 2	-0.007	-3.086***
Day 0 to 2	-0.007	-3.486***
Day 1 to 2	-0.003	-1.597
Day -2 to 1	-0.005	-1.907*
Day -1 to 1	-0.006	-2.903***
Day 0 to 1	-0.006	-3.204***
Day -2 to 0	-0.004	-1.624
Day -1 to 0	-0.004	-2.490**
Day -2 to -1	-0.001	-0.354

Note: n = 233, *p < 0.10; **p < 0.05; ***p < 0.01 (all tests are two-tailed).

The results of the event study indicate that DEI commitments by Taiwanese firms, when communicated through public announcements, have a negative impact on their market performance, supporting H1. The mean abnormal returns and corresponding t-statistics over various event windows provide evidence of this negative impact.

The abnormal return on Day 0, the announcement day, is -0.004% ($p < 0.01$), indicating a significant negative market reaction to DEI announcements, possibly due to perceived costs or distractions. Negative abnormal returns are observed before the announcement, with Day -1 to 0 showing -0.004% ($p < 0.05$) and Day -2 to 2 showing a cumulative abnormal return (CAR) of -0.007% ($p < 0.05$), suggesting information leakage and sustained negative sentiment. This adverse reaction continues post-announcement, as seen in windows from Day 0 to 2 (-0.007%, $p < 0.01$), Day -1 to 2 (-0.007%, $p < 0.01$), and Day -1 to 1 (-0.006%, $p < 0.01$). The consistent pattern of significant negative returns across various windows indicates that investors view DEI commitments as having potentially negative financial implications.

4.5.2 Testing H2 to H5: Effects of signal strength and specificity and Demographics characteristic

We test H2 by running the simple regression model defined in Equation (9), for which the dependent variable is the CAR from Day 0 to Day 2, and the independent variables are the two measures of DEI announcements (i.e., signal strength in Equation (7) and specificity in Equation (8)), variables of directors demographic background, as well as the various control variables. Table 5 displays the outcomes of our regression analysis testing H2 to H5.

Table 5. Regression Results for the Event Period Days 0 to 2

	Control Model		**Full Model**	
Independent Variables	**Estimate**	**Std. Error**	**Estimate**	**Std. Error**
Total assets$_{log}$	-0.190	0.000	-0.353	0.000
ROA	0.219	0.043	0.286	0.040**
R&D	0.107	0.000	0.205	0.000
First event	0.074	0.008	0.016	0.007
Sales growth	-0.091	0.015	-0.148	0.015
Siganl strenth (H2)	-	-	-0.247	0.010*
Siganal specifity (H3)	-	-	0.013	-0.097
Board size	-0.088	0.000	-0.047	0.000
Male director proportion	-0.075	0.038	-0.162	0.036
Average age (H4)	-	-	-0.259	0.000**
International educational background	0.040	0.007	-0.244	0.009
Higher educational level (H5)	-	-	0.404	0.009**
n	107		107	
R-Squared	18.4%		34.1%	
F-statistic	0.91		1.68**	

Note: *p < 0.10; **p < 0.05; ***p < 0.01. The dependent variable is the CAR from Day 0 to 2. Total assets are natural logarithm transformed to mitigate skewness. Industry and year-fixed effects are included.

The results provide support for H2, indicating that a strong DEI-commitment signal, as measured by the proportion of DEI topics incorporated in an announcement, actually increases the negative

impact of DEI announcements on a firm's market performance in Taiwan. This is reflected in the negative estimate for signal strength (-0.247) with a significant standard error ($p < 0.1$), suggesting that emphasizing a strong DEI commitment in announcements may amplify negative market reactions. This finding implies that, contrary to alleviating investor concerns, focusing heavily on the strength of DEI signals might be perceived as potentially costly or misaligned with investor priorities in Taiwan. Therefore, it may be more effective for Taiwanese firms to avoid focusing on the strength of DEI commitments in their announcements to mitigate adverse market reactions. However, signal specificity does not show significance (estimate = 0.013, $p > 0.1$), indicating that the precision with which DEI topics are detailed in announcements does not significantly impact market performance. H3 doesn't supported. This could suggest that investors are more concerned with the breadth of DEI commitments rather than the specific details, valuing a broader indication of commitment over specific actions.

Additionally, the results support H4, as the average age of board members negatively moderates the impact of DEI commitments on firm performance, evidenced by a significant negative estimate for the average age of directors (-0.259, $p < 0.01$). This suggests that senior board members may be perceived as less adaptive or less supportive of DEI announcements, thereby amplifying the negative market reaction. Conversely, H5 is supported by the positive moderation effect of highly educated board members, with a significant positive estimate (0.404, $p < 0.05$). This indicates that boards with members holding higher educational qualifications can positively influence the market's perception of DEI announcements, potentially due to their perceived ability to implement complex strategic announcements effectively.

4.6 Conclusion and Discussion

The study provides compelling evidence that DEI commitments, when announced publicly by Taiwanese firms, generally have a negative impact on market performance, supporting H1. This negative market reaction is significant, as indicated by the abnormal returns on and around the announcement day, suggesting that investors may perceive these announcements as potentially costly or misaligned with their expectations, possibly viewing them as distractions from core business objectives. Additionally, H2 indicates that signal strength negatively moderates the impact of DEI announcements on a firm's market performance in Taiwan. This suggests that

emphasizing a strong DEI commitment, as reflected in the broad inclusion of DEI topics, can actually amplify negative market reactions. Therefore, it is advisable for Taiwanese firms to avoid focusing heavily on the strength of their DEI signals in announcements. Contrary to expectations, H3 was not supported by the data, indicating that signal specificity does not significantly moderate the impact of DEI announcements on market performance. This finding implies that investors in Taiwan are less concerned with the precision and detail of DEI announcements and are more influenced by the overall presence or absence of DEI communication. Additionally, the study finds support for H4, showing that older board members negatively moderate the impact of DEI commitments, likely due to perceptions of them being less adaptive or supportive of such announcements. In contrast, H5 is supported, indicating that boards with higher educational qualifications positively influence market perceptions of DEI announcements, potentially due to their perceived capability to effectively implement complex strategic initiatives.

4.6.1 Theoretical Contribution

This research extends the literature on DEI by highlighting the importance of how DEI commitments are communicated to the Asian market, especially in culturally distinctive contexts such as Taiwan. Through a cross-cultural examination of DEI signals, this study enriches our understanding of stakeholder responses to DEI commitments across diverse cultural settings. By investigating the roles of signal strength, board age, and educational level, we emphasize how stakeholder perceptions regarding the authenticity of DEI communication can differ significantly based on cultural contexts.

Moreover, this research contributes theoretically by integrating signaling theory and upper echelon theory, particularly highlighting that the demographic characteristics of signal senders, such as their age and educational background, significantly shape how receivers interpret communicated DEI messages (Levine et al., 2011). By incorporating sender demographics explicitly into signaling theory, this study deepens our understanding of why investors may interpret similar DEI announcements differently depending on who delivers the message. Younger and highly educated board members may enhance stakeholders' perceived authenticity and sincerity of DEI commitments, particularly in culturally nuanced environments like Taiwan.

This cross-cultural examination thus offers new insights, paving pathways for future research by suggesting that the effectiveness of other corporate communications and management initiatives might also depend significantly on the alignment between announcements content, sender demographics, and receiver expectations. In other words, stakeholders interpret signals through a demographic lens, considering who is communicating alongside the communicated message itself, influencing their reactions and assessments of organizational intentions and commitments.

4.6.2 Practical Implications

For practitioners, this study underscores the importance of carefully managing how DEI commitments are communicated. Firms should deliver broad, balanced DEI messages that clearly reflect genuine commitment without overly stressing specifics, thus avoiding investor skepticism. Firms should also recognize that the demographic composition of their leadership significantly influences how DEI signals are interpreted by stakeholders. Specifically, sending DEI signals from younger or highly educated leaders can enhance perceived authenticity, making communications more convincing and trustworthy. Rather than overly emphasizing detailed DEI announcements that may appear superficial or insincere, companies should align their DEI efforts closely with local policies and key social issues relevant to stakeholders.

In addition, firms are advised to ensure that DEI signals are not communicated solely through corporate announcements but rather integrated throughout the broader corporate dialogue with investors and other stakeholders. Effective and ongoing stakeholder engagement helps firms win trust and build stronger relationships, reducing investor skepticism. Companies should particularly avoid overly stressing DEI in a manner that may trigger perceptions of tokenism or resource misallocation. Sending DEI messages through younger and more highly educated leaders can strengthen stakeholder trust and confidence in these announcements, as investors perceive these leaders as more authentically committed to DEI.

Furthermore, our findings have practical implications beyond individual firms, extending to non-governmental organizations (NGOs), stock exchanges, and government agencies. NGOs can

leverage these insights to encourage firms to avoid superficial DEI practices and adopt genuine strategies that resonate with investors and local communities. Stock exchanges might consider incorporating DEI metrics into their listing requirements, promoting genuine rather than symbolic DEI efforts and enhancing market-wide accountability. Finally, government agencies could design regulatory frameworks that incentivize businesses to align DEI announcements with authentic, culturally relevant, and strategically meaningful practices, further ensuring that DEI efforts are sincere and positively impactful.

4.6.3 Limitations and Future Research

While the study provides valuable insights, it has limitations that suggest avenues for future research. The focus on Taiwanese firms may limit the generalizability of the findings to other cultural contexts. Future research could explore similar dynamics in different geographical or cultural settings to compare how DEI commitments are received globally. Additionally, the study's reliance on quantitative measures may overlook qualitative aspects of DEI communication. Future studies could use mixed-method approaches to gain deeper insights into investor perceptions and the qualitative nuances of DEI announcements. Further research could also investigate the long-term impacts of DEI commitments on firm performance beyond the immediate market reactions observed in this study.

Chapter 5: Comparison of DEI commitment from U.S. and Taiwan

This chapter compares the findings from Chapters 3 and 4 to examine DEI mechanisms and implications in different cultural contexts. By analyzing how DEI operates under varying sociopolitical and market conditions, we gain insights into how core principles remain consistent while practical execution and stakeholder reactions can differ significantly across regions.

5.1 Event study and Regression Results From U.S. and Taiwan

Table 6 showed the abnormal returns comparation of U.S. and Taiwan. The event study results reveal contrasting market reactions to DEI commitments between the U.S. and Taiwan, highlighting significant cultural and market differences. In the U.S., DEI announcements are positively received, with a significant abnormal return of 3.55% on the announcement day and a cumulative abnormal return of 3.57% from Day -1 to Day 0, indicating strong investor support. This suggests that U.S. investors view DEI announcements as enhancing a firm's reputation and aligning with societal expectations. Conversely, in Taiwan, DEI announcements led to a significant negative market reaction, with an abnormal return of -2.862% on the announcement day and a cumulative abnormal return of -2.49% from Day -1 to Day 0, reflecting investor skepticism and concerns about the costs or risks associated with DEI commitments. These findings underscore the importance of tailoring DEI communication strategies to align with local cultural and market contexts, suggesting a need for a more cautious approach in Taiwan to mitigate negative investor reactions.

Table 6. Abnormal returns comparation of U.S. and Taiwan

	Day-1	**Day0**	**Day1**	**Day-1 to 0**
The U.S.	1.33	3.55***	-0.99	3.57***
China (Taiwan)	-0.404	-2.862***	-1.219	-2.49**

Note: The statistical result of U.S. is from Chapter 3, *p < 0.10; **p < 0.05; ***p < 0.01.

Table 7 Regression analysis comparing

	U.S.		China (Taiwan)	
	Estimate	Std. Error	Estimate	Std. Error
Total Assets	-0.0002	0.0015	-0.353	0.000
Operating ROA	-0.0437	0.0235*	0.286	0.040**
First Event	0.0038	0.0044	0.016	0.007
Sales Growth	0.0081	0.0089	-0.148	0.015
Siganl Strenth	0.035	0.011***	-0.247	0.010*
Siganal Specifity	0.019	0.010**	0.013	-0.097
N		233		107

Note: The statistical result of U.S. is from Chapter 3, *p < 0.10; **p < 0.05; ***p < 0.01.

The regression analysis comparing (Table 7) DEI commitments between the U.S. and Taiwan reveals distinct differences in how various factors influence market performance in each country. In the U.S., signal strength positively impacts market performance, with a significant estimate of 0.035 ($p < 0.01$), suggesting that strong DEI signals enhance investor confidence. However, in Taiwan, signal strength negatively impacts market performance, with an estimate of -0.247 ($p < 0.1$), indicating that strong DEI signals may be viewed negatively by investors. Regarding signal specificity, it positively influences U.S. firms (estimate = 0.019, $p < 0.05$), meaning detailed DEI communications resonate well with investors, while in Taiwan, specificity is not significant (estimate = 0.013), showing that precise DEI details do not substantially affect market perceptions. The operating ROA also shows contrasting effects, negatively impacting U.S. firms (-0.0437, $p < 0.05$) but positively influencing Taiwanese firms (0.286, $p < 0.01$), suggesting different investor expectations regarding profitability. Additionally, while sales growth positively affects market performance in the U.S. (0.0081), it negatively affects Taiwanese firms (-0.148, $p < 0.01$).

5.2 The Mechanism of DEI Announcements Effect Market Performance

In the context of DEI policy implementation in the U.S., DEI announcements serve as critical signals that influence stakeholders' perceptions by communicating a firm's commitment to social responsibility and governance practices. Markets react significantly to DEI announcements because stakeholders interpret these announcements as indicators of a firm's long-term strategic vision, social responsibility, and managerial capability. Specifically, stakeholders—including

investors, consumers, and employees—perceive investments in DEI-related initiatives as reflective of the company's efforts to align with broader societal values and to enhance organizational resilience. For instance, corporate announcements focusing on women's support and development programs, racial justice and corporate responsibility, and particularly workplace diversity and inclusion initiatives signal to stakeholders that the firm is proactively addressing crucial social issues that enhance corporate legitimacy and mitigate potential reputational risks.

From an investor's perspective, dedicating financial resources to DEI topics helps firms attract a broader range of talented employees, facilitating higher creativity, problem-solving capacity, and innovation. Diverse talent pools provide firms with varied perspectives and cognitive frameworks, boosting organizational innovation capabilities and adaptability (Bogers et al., 2010; Cunningham, 2011). Additionally, DEI initiatives create a more inclusive workplace environment, which enhances employee satisfaction, collaboration, and engagement, thereby increasing productivity, operational efficiency, and overall performance. Effective DEI commitments reduce employee turnover, improve team cohesion, and foster innovation-driven cultures, leading investors to positively interpret such signals as reflections of strategic foresight and sustainable competitive advantage (Li et al., 2024).

Moreover, signaling theory further suggests that the effectiveness of DEI communications depends significantly on reducing information asymmetry between the company (signal sender) and its stakeholders (signal receivers). Strong, clear, and authentic DEI signals reduce investors' uncertainty about a firm's true intentions and capabilities, enhancing stakeholders' confidence and trust (Connelly et al., 2011). Transparent DEI commitments enable investors and other stakeholders to differentiate genuinely committed firms from those merely engaging in symbolic actions. Investors typically perceive firms with credible DEI commitments as better able to manage social and reputational risks, thereby positioning themselves favorably for long-term financial stability and growth.

In Taiwan, DEI-related announcements frequently encounter less favorable market responses than in the United States, reflecting key differences in signal sender (firm leadership) and receiver (local investors) demographics. Given Taiwan's predominantly Han Chinese and relatively

homogeneous cultural environment, stakeholders strongly emphasize social harmony, financial stability, and traditional hierarchies, often placing initiatives related to inclusivity, community well-being, or environmental concerns outside their standard risk calculations. As a result, when firms publicly commit to DEI—especially measures perceived as heavily influenced by Western social values—investors may question whether these commitments align with local business norms, interpret them as disruptive to near-term financial priorities, or label them as superficial attempts to follow foreign (particularly U.S.) trends.

From signaling theory's perspective, the credibility of these DEI messages depends greatly on who delivers them. In Taiwan, seniors, traditionally oriented leaders might be seen as less authentically invested in progressive initiatives. Consequently, investors often perceive these announcements as symbolic gestures rather than genuine, strategically relevant actions, contributing to skepticism and potential negative market responses. Moreover, many Taiwanese investors are risk-averse, favoring immediate financial returns over non-financial objectives. Highly specific DEI goals, such as explicitly detailed measures for women and children or rigorous environmental commitments, may then appear overly ambitious or misaligned with core business models, thus amplifying doubts about resource misallocation.

By contrast, younger or more highly educated boards often project stronger legitimacy for DEI initiatives. Their demographic characteristics—whether it be advanced degrees or global exposure—help reduce perceived gaps between progressive social agendas and traditional Taiwanese business expectations. Investors are more likely to view these leaders as having authentic motivations and a better grasp of how DEI policies integrate into strategic, long-term value creation. As a result, negative market reactions are mitigated because stakeholders trust that the firm’s DEI measures are carefully considered, culturally attuned, and not merely superficial adoption of Americanized or external frameworks.

In summary, DEI announcements in the U.S. context convey far more than just ethical positioning; they function as strategic signals that can improve stakeholder trust, attract top talent, and reduce reputational risk. By transparently demonstrating their commitment to social responsibility and governance, firms differentiate themselves from mere symbolic gestures, reinforcing perceptions

of long-term sustainability and corporate resilience. As such, well-executed DEI policies and clear communications play an increasingly pivotal role in shaping market confidence and a firm's competitive advantage in the United States.

In contrast, Taiwan's cultural and demographic realities often yield different market responses to DEI initiatives, largely due to the importance of sender background and local stakeholder expectations. Especially when leadership demographics tend to be older and more traditionally oriented, investors may question the authenticity of DEI commitments, perceiving them as superficial or out of alignment with immediate financial priorities. However, younger, more highly educated board members who communicate DEI measures in ways that reflect local norms can more effectively temper investor skepticism, demonstrating a sincere strategic intent behind DEI policies. This approach ultimately minimizes negative market feedback in Taiwan, where conventional business priorities and a more homogenous cultural environment may otherwise amplify doubts regarding externally influenced or progressive-oriented practices.

5.3 Comparative Analysis of DEI-Topics Using STM-Based Regression

To gain deeper insights into which specific aspects of DEI announcements elicit positive or negative market reactions in Taiwan compared to the United States—and thus help local companies strategically communicate DEI announcements —we conducted additional comparative analyses using linear regression. Specifically, we incorporated DEI-related topics derived from STM (described in Table A2 from the Appendix A) into our regression models. The regression models employed are specified as follows:

Regression model from U.S. DEI-topics:

$$CAR_i = \beta_1 Topic1_i + \beta_2 Topic2_i + \beta_3 Topic5_i + \beta_4 Topic7_i + \beta_5 Topic8_i + \beta_6 Topic10_i + \gamma X_i + \alpha_i + \delta_t + \varepsilon_i, \quad (10)$$

where CAR_i represents the CAR of firm i from Day −1 to 0, as defined in Equation (5). We capture heterogeneity by incorporating the industry-fixed effect, α_i, and year-fixed effect δ_t; $\varepsilon_i$represents

the error term. We also incorporate a vector of control variables, X_i, to account for firm- and event-related characteristics, including firm size, profitability, leverage, growth, first event, and announcement source, which are the same control variables from Chapter 3's regression.

Regression model from Taiwan DEI-topics:

$$CAR_i = \beta_1 Topic2_i + \beta_2 Topic3_i + \beta_3 Topic4_i + \beta_4 Topic6_i + \beta_5 Topic7_i + \beta_6 Topic9_i + \beta_7 Topic10_i + \gamma X_i + \alpha_i + \delta_t + \varepsilon_i, \quad (11)$$

where CAR_i represents the CAR of firm i from Day 0 to 2, as defined in Equation (5). Heterogeneity issue is solved by incorporating the industry-fixed effect, α_i, and year-fixed effect δ_t; $\varepsilon_i$represents the error term. X_i is the vector of control variables, to account for firm- and event-related characteristics, including firm size, return on assets (ROA), research and development (R&D), sales growth, board size, Male director's percentage, the average age, international educational background, higher educational levels, first event, and announcement source, which are the same control variables from Chapter 4's regression. Table 8 and 9 shows the regression results of U.S. and Taiwan.

Table 8 STM-Based Regression from U.S.

	U.S.	
	Estimate	Std. Error
Total Assets	-0.000	0.002
Operating ROA	-0.045	0.023
Debt to Assets	0.014	0.012*
Sales Growth	0.008	0.009
First Event	0.003	0.004
Announcement Source	0.014	0.013
Topic 1	0.037	0.012***
Topic 2	0.035	0.014**
Topic 5	0.026	0.015*

Topic 7	0.029	0.014**
Topic 8	0.037	0.012***
Topic 10	0.033	0.013**
N	233	

Note: *p < 0.10; **p < 0.05; ***p < 0.01. The dependent variable is the CAR from Day -1 to 0. Total assets are natural logarithm transformed to mitigate skewness. Industry and year-fixed effects are included.

Table 9 STM-Based Regression from Taiwan

	Taiwan	
	Estimate	Std. Error
Total Assets	-0.00	0.000*
Operating ROA	0.093	0.049*
R&D	0.000	0.000
First Event	0.002	0.009
Sales Growth	-0.042	0.019**
Board Size	0.000	0.000
Male director's percentage	-0.035	0.049
Average Age	-0.001	0.001**
International Educational Background	-0.016	0.01
Higher Educational Levels	0.031	0.01***
Topic 2	-0.026	0.018
Topic 3	-0.023	0.016
Topic 4	-0.012	-0.015
Topic 6	-0.021	-0.017
Topic 7	-0.051	0.016***

Topic 9	-0.024	0.043
Topic 10	-0.029	0.018
N	105	

Note: *p < 0.10; **p < 0.05; ***p < 0.01. The dependent variable is the CAR from Day 0 to 2. Total assets are natural logarithm transformed to mitigate skewness. Industry and year-fixed effects are included.

5.4 Implications of DEI announcements from U.S. and Taiwan

Our regression analyses indicate that most DEI-related topics in U.S. corporate announcements have a significantly positive impact on market reactions, with Topic 1: Diversity in Corporate Leadership and Topic 8: LGBTQ Inclusivity in Corporate Policies standing out as particularly influential. In practice, when communicating Topic 1, firms should clearly outline their goals and progress regarding female and minority representation in management and board positions, underscoring concrete achievements such as newly promoted executives or external hires from underrepresented backgrounds. To further bolster credibility, companies can set and disclose interim quantitative targets—e.g., committing to increase the number of diverse senior leaders within a specific timeframe—and provide updates on these metrics regularly rather than relying on broad statements of intent.

Meanwhile, for Topic 8, referencing authoritative third-party evaluations—such as the Human Rights Campaign (HRC) Corporate Equality Index (CEI) score—can convey both transparency and accountability. Firms should elaborate on how they have improved policies and benefits to enhance LGBTQ inclusivity, including details about diversity training programs, employee resource groups (ERGs), and equitable healthcare or leave provisions. Where relevant, specifying philanthropic partnerships or community initiatives—along with measurable impacts—further emphasizes the organization's long-term dedication to supporting LGBTQ causes. By consistently showcasing tangible progress, robust data, and recognized benchmarks for both leadership diversity and LGBTQ inclusivity, U.S. companies can reinforce stakeholder trust, differentiate themselves from superficial "greenwashing," and manifest a genuine, strategic commitment to DEI.

In Taiwan, announcements centered on inclusive measures for women and children (Topic 7) can prompt negative market reactions if perceived as superficial or culturally misaligned. To minimize these adverse responses, companies should adapt their DEI communications to local preferences by emphasizing genuine, strategic relevance rather than purely symbolic gestures. As upper echelon theory suggests, having younger, more highly educated leaders announce these policies can lend credibility, reassuring investors that initiatives are grounded in practical business concerns rather than imposed foreign ideals.

Rather than focusing on extensive DEI rhetoric, organizations should highlight tangible, firm-level practices and metrics that address Taiwanese stakeholders' expectations. For example, if the announcement references child-friendly employee benefits—such as on-site childcare support, extended parental leave, or flexible working schedules—the communication should include specific data on internal adoption rates, employee satisfaction scores, or retention improvements. By presenting transparent indicators (e.g., the number of female employees promoted after returning from maternity leave, feedback from employee resource groups) and demonstrating alignment with local labor regulations and family-oriented cultural values, firms establish that these measures genuinely address workplace inclusivity rather than merely paying lip service.

Furthermore, aligning such measures with local policy frameworks and critical social issues can reduce market skepticism. For instance, referencing compliance with relevant Taiwanese labor guidelines and describing how the firm has engaged with employee associations or government-recognized professional bodies to refine childcare support can showcase a culturally attuned and credible approach. In doing so, companies create the impression that these inclusive measures serve not only to bolster social goodwill but also contribute to sustainable business performance—whether through increased workforce stability, higher productivity, or enhanced employer branding.

In sum, DEI announcements focusing on women's and children's inclusivity in Taiwan should showcase practical execution supported by meaningful data, avoid overemphasis on broad, foreign-influenced ideals, and signal authenticity through well-regarded leadership demographics.

This strategy reinforces stakeholder trust by illustrating a genuine, locally relevant commitment rather than a transient or superficial adoption of DEI principles.

Chapter 6: Conclusion and Future Research

6.1 Conclusion

The CNA review from chapter 2 utilizes STM to uncover the interconnections among various themes related to diversity, equity, and inclusion (DEI). The analysis reveals that key areas such as gender diversity, leadership roles, inclusivity, and demographic diversity are not isolated but rather intersect and influence each other. The overlapping clusters highlight common themes, including the impact of gender diversity on leadership, how diversity enhances team innovation and performance, and the importance of inclusivity across different environments such as corporate settings, sports, and workplaces. Theoretical contributions from this chapter emphasize the need to understand DEI as a multifaceted concept, suggesting that a holistic approach to diversity is essential for improving organizational dynamics and fostering inclusive cultures.

Focusing on U.S. firms, chapter 3 employs signaling theory to develop measures of DEI signal strength and specificity using STM. The findings show that DEI-commitment announcements positively influence market reactions, suggesting that DEI is perceived as a strategic advantage by investors. The study advances the literature by linking DEI announcements to positive stock market responses, thereby framing DEI not only as an ethical responsibility but as a business strategy that can drive long-term growth. Theoretical contributions include the introduction of new metrics for assessing DEI signals, which could be applied to other strategic areas such as sustainability. By providing empirical evidence that strong DEI signals attract investor confidence, the study underscores the importance of genuine DEI commitments over symbolic gestures.

Chapter 4 investigates the impact of DEI announcements on Taiwanese firms' market performance, revealing a generally negative market reaction to such announcements. The study finds that strong DEI signals can amplify negative reactions, suggesting cultural and contextual differences in how DEI is perceived compared to the U.S. Theoretical contributions highlight the role of cultural context in shaping the impact of DEI announcements, emphasizing the need for region-specific strategies. Practical implications suggest that firms should carefully craft their DEI messages to align with local cultural expectations and investor sentiments. By examining the role of demographic characteristics of board members, such as age and education, the study also suggests

that these factors can influence how DEI announcements are received, further enriching the understanding of how leadership traits affect organizational outcomes.

These chapters collectively contribute to a nuanced understanding of DEI's impact across different cultural and organizational contexts. They suggest that while DEI can enhance market performance, the success of such announcements depends significantly on how they are communicated and the demographic characteristics of the firm's leadership. This interconnected approach to DEI research underscores the importance of considering both cultural factors and leadership dynamics when implementing and communicating DEI announcements.

6.2 Future research

Although this study offers valuable insights, it has limitations that point to several directions for future research. The emphasis on Taiwanese firms may restrict the applicability of the findings to other cultural contexts. Future studies could broaden the analysis to include various geographical regions and cultural settings, such as European countries or other Asian nations, in order to compare how DEI commitments are perceived globally. Additionally, examining DEI announcements in diverse sectors—including services and technology—would provide a more comprehensive view of DEI's impact across different industries. Researchers could also continue to compare DEI practices between Taiwan and the U.S. to explore how cultural and regulatory differences shape the implementation of DEI strategies, offering practical insights for global companies seeking to foster inclusive and equitable environments.

Moreover, there is a need to reflect on how DEI's relevance to business practice may change over time. For instance, although the Biden administration once placed strong emphasis on DEI issues in the U.S., a shift in the political environment—such as a Donald Trump presidency in 2025—could see reduced federal support for DEI, prompting many companies to relax or even discontinue formal DEI measures. Researchers should also consider subdividing companies into three distinct groups for comparison—those that have consistently upheld DEI initiatives, those that ceased DEI efforts in response to new Trump administration mandates, and those that never adopted DEI at all. By conducting robustness checks on the distribution and timing of announcements across these

groups, future research can more accurately gauge whether investor sentiment remains constant, declines, or shifts under diminishing governmental support for DEI. This approach would clarify whether halting DEI triggers measurable drops in market reactions and whether consistently DEI-oriented firms still retain reputational or financial advantages despite adverse policy climates. It would likewise illuminate whether organizations without any DEI history might begin adopting subtler approaches, avoiding formal announcements, yet still reaping benefits from gradual inclusivity measures.

Additionally, while this study primarily relies on quantitative measures, scholars could adopt mixed-method approaches—such as interviews, case studies, and content analysis—to capture the qualitative dimensions of DEI communication. This would reveal the nuances of how managerial teams craft DEI announcements and how investors interpret them under varying political and economic conditions. Likewise, examining the long-term impacts of DEI announcements on firm reputation, employee engagement, and operational capabilities would complement the short-term market reaction focus, thereby providing a more holistic understanding of DEI's strategic contributions.

Lastly, one strength of this dissertation is the use of citation network analysis, which highlights what has and has not been explored in DEI research. By mapping how prior DEI studies are interconnected, the dissertation offers a guidepost for future investigators to identify underexplored themes and emerging trends—an area previously overlooked by most DEI-focused works that tend to examine individual topics or case studies in isolation. Researchers can use this citation map to delve deeper into the theoretical foundations of DEI, pinpointing novel perspectives outside of the U.S.-centric framework or exploring how companies might continue or adapt their DEI efforts in a policy environment that downplays them. Such advances would further enrich our collective understanding of DEI's multifaceted nature, ensuring that both academic insights and practical guidance remain relevant even as government and corporate priorities shift.

Appendix for Chapter 2

Appendix A. Table of paper information

Title	Cluster	Publication	Year	Focus	Paper Type	Findings	Theory	Theory application	Future Research	Related Topics	Relevance Reasoning
Board Diversity and R&D Investment	1	Management Decision	2016	Investigates the effect of board diversity on firms' R&D investment.	Empirical	Education and gender diversity positively influence R&D investment, while tenure diversity negatively affects it. Gender diversity enhances the positive effect of educational diversity.	Upper Echelons Theory	Upper echelons theory explains how diverse cognitive perspectives from education and gender can enhance decision-making and innovation.	Further research on different dimensions of diversity and their interactions affecting innovation.	Topic 1	Examines how diversity in education and gender can enhance firm innovation.
Board Capital and Exploration	1	Management Decision	2015	Examines how board capital diversity influences explorative innovation.	Empirical	Board capital diversity shows an inverted U-shaped relationship with explorative innovation. CEO ownership positively moderates this relationship.	Resource Dependence Theory	Resource dependence theory emphasizes how diverse boards access varied resources and perspectives, optimizing explorative innovation activities.	Explore other moderating factors like board ownership and further validate findings in different contexts.	Topic 1,4	Provides evidence that diverse boards are more inclined towards strategic exploration, underlining the significance of diversity in fostering long-term strategic initiatives.

Board Gender Diversity, CSR Strategy, and Eco-friendly Initiatives	1	International Journal of Production Economics	2022	Analyzes the impact of gender diversity on CSR strategies and eco-friendly initiatives.	Empirical	Gender diversity on boards positively impacts CSR strategies and eco-friendly initiatives.	Upper echelons theory; Feminist theory; Resource dependence theory	Upper echelons theory explains how diverse leadership enhances strategic CSR decisions; feminist theory emphasizes the importance of gender equality; resource dependence theory shows how gender-diverse boards better utilize resources for CSR.	Investigate long-term effects of gender diversity on various CSR outcomes.	Topic 1,2	Links gender diversity to CSR performance and eco-friendly strategies.
Drivers and Value-Relevance of CSR Performance in the Logistics Sector	1	International Journal of Production Economics	2021	Explores the drivers and value-relevance of CSR performance in logistics.	Empirical	Identifies key drivers of CSR performance and its impact on firm value in the logistics sector.	Agency theory; Stakeholder theory	Agency theory explains how CSR performance can reduce agency conflicts and improve firm value; stakeholder theory shows how CSR activities meet stakeholder expectations, enhancing firm reputation.	Further exploration of CSR performance impacts across different industries.	Topic 2	Analyzes CSR performance's influence on company value, relevant to ESG disclosures.

Female directors and corporate cash holdings:	1	Management Decision	2019	Impact of gender diversity on corporate cash holdings by examining different roles of female board directors.	Empirical	Women in monitoring roles (independent directors and female chairs) lead to decreased cash reserves, while companies managed by female CEOs have larger cash holdings.	Agency theory and psychological theory	Agency theory explains how female directors in monitoring roles reduce agency costs leading to lower cash reserves; psychological theory highlights the behavioral aspects influencing cash holdings by female CEOs.	Examine impact of female directors in different institutional contexts, unlisted firms, SMEs, effects of financial crises, and post-gender quota law period.	Topic 1, Topic 3	Shows how different roles of female directors influence cash management, aiding understanding of gender diversity's impact on corporate governance and financial decisions.
Gender Diversity in Compensation	1	Management Decision	2018	Investigates the impact of gender diversity on compensation structures.	Empirical	Gender diversity within corporate boards leads to more equitable compensation structures and affects overall leadership dynamics.	Managerial power theory; Agency theory; Critical mass theory	Managerial power theory explains how diverse boards reduce power concentration, leading to equitable compensation; agency theory highlights alignment of interests; critical mass theory shows the need for sufficient gender diversity to impact outcomes.	Explore the long-term impacts of gender-diverse boards on compensation structures, including the effects on employee satisfaction and firm performance.	Topic 1, Topic 3	Demonstrates how gender diversity in leadership roles influences compensation practices and leadership dynamics, contributing to the broader discussion on equitable pay and gender equality in corporate governance.

Does board diversity reduce the likelihood of financial distress in the presence of a powerful Chinese CEO?	1	Management Decision	2023	Investigates the impact of board diversity on financial distress likelihood, considering the moderating role of CEO power.	Empirical	Board diversity positively impacts financial distress likelihood. CEO power positively moderates this relationship, making diverse boards more effective in reducing financial distress.	Agency theory, resource dependence theory, upper echelons theory, managerial discretion theory	Agency theory explains how diverse boards reduce agency conflicts, leading to lower financial distress; resource dependence theory highlights the role of diverse boards in accessing resources; upper echelons theory links top management characteristics to outcomes; managerial discretion theory shows how CEO power moderates board effectiveness.	Examine the impact of board diversity in different industries and contexts, consider other contextual variables besides CEO power.	Topic 1, Topic 4	Highlights the role of diverse boards in reducing financial distress, especially under powerful CEOs, enhancing the understanding of gender diversity's effect on corporate governance and financial outcomes.

Financial, Governance, and Environmental Determinants	1	Management Decision	2014	Investigates the impact of financial, governance, and environmental factors on firm performance.	Empirical	Environmental, social, and governance (ESG) disclosures positively impact firm performance, with significant roles played by financial and governance factors.	Legitimacy theory	Legitimacy theory explains how ESG disclosures enhance firm legitimacy, leading to improved performance.	Further research could explore the individual impact of each ESG component and how they interact with different governance structures in various cultural and regulatory environments.	Topic 2	Provides insights into how ESG disclosures and governance practices affect firm performance, emphasizing the importance of transparency and responsible corporate behavior in enhancing company value and stakeholder trust.
The role of firm characteristics on the relationship between gender diversity and firm performance	1	Management Decision	2016	Effect of gender diversity on firm performance considering firm-specific factors in an emerging market.	Empirical	Gender diversity impacts firm performance, especially in firms with local markets, financial sector, and block ownership.	Agency Theory	Agency theory explains how gender diversity improves monitoring and reduces agency costs, leading to better firm performance.	Explore the threshold effect of female directors and stability in their positions, and extend the study to different contexts.	Topic 1	Discusses how gender diversity influences board performance and firm outcomes, including various moderating factors.

Investigating the relationship between director's profile, board interlocks and corporate social responsibility	1	Management Decision	2014	Analyzes how directors' profiles and board interlocks affect CSR practices in companies	Empirical	Director's background and nationality diversity are significant for high CSR scores; board interlocks show inconsistent results.	Agency theory; stakeholder theory	Agency theory explains how diverse boards enhance monitoring and reduce agency costs; stakeholder theory shows how diverse profiles meet broader stakeholder expectations, enhancing CSR.	Examine the long-term impact of gender-diverse boards in different cultural and regulatory contexts, and the effects on various firm outcomes.	Topic 2	Explores the link between board composition, interlocks, and CSR, emphasizing the importance of diverse director profiles.
Performance effects of top management team demographic faultlines	1	Management Decision	2014	Investigates the impact of demographic faultlines in top management teams on performance	Empirical	TMT gender diversity is beneficial to pre-integration performance, but hinders post-integration performance.			Examine the long-term impact of gender-diverse boards in different cultural and regulatory contexts, and the effects on various firm outcomes.	Topic 1	Shows the nuanced impact of gender diversity on boards, contributing to the understanding of how diversity influences firm performance in emerging markets.

The impact of interlocking directorships on firm performance	1	Management Decision	2019	Investigate the effects of interlocking directorates on innovation, considering business and social ties.	Empirical	The typology of interlocks influences innovation, with positive effects from independent and extra-industry directors, and negative effects from intra-industry and women interlocking directors.	Management control theory; Resource dependence theory, social capital theory	Management control theory explains the conflicts in interlocks affecting innovation; resource dependence theory highlights how interlocks provide access to critical resources; social capital theory shows the role of social networks in influencing innovation.	Further analysis on the holistic view of interlocks, including nationality and independence, and their impacts on innovation.	Topic 1,4	Highlights the complex effects of interlocking directorates on innovation, emphasizing the importance of director typology.
Ranking firms based on their financial and diversity performance	1	International Transactions in Operational Research	2022	Examines the ranking of firms based on their financial performance and diversity metrics.	Empirical	Mixed findings on the impact of diversity on financial performance; some firms perform well while others do not.			Develop a comprehensive ranking system that includes more diversity metrics.	Topic 1	Analyzes the correlation between gender diversity and financial performance, providing insights into firm strategies and outcomes.

Gender diversity, financial expertise and its effects on accounting quality	1	Management Decision	2016	Analyze whether gender diversity on board and financial expertise on audit committee affect accounting conservatism in the banking sector.	Empirical	The monitoring role of female and financial experts positively affects accounting conservatism and earnings quality in banks. The effects are stronger in environments with higher regulatory and investor protection.	Resource dependence theory	Resource dependence theory explains how diverse boards and financial experts provide critical resources and perspectives, enhancing accounting quality and conservatism.	Examine the combined effect of various board characteristics on accounting quality in different regulatory environments.	Topic 1, 4	Highlights the importance of gender diversity and financial expertise in enhancing the quality of financial reporting and corporate governance in the banking sector.
The Influence of Italian Board Characteristics on ESG Dimensions	1	Management	2023	Explores how board diversity affects ESG performance in the Italian banking sector.	Empirical	Board size, independence, and the presence of a CSR/sustainability committee positively affect ESG performance. Gender diversity has a non-linear effect, requiring a critical mass for significant impact.	Resource dependence theory, critical mass theory	Resource dependence theory explains how diverse boards provide necessary resources and perspectives; critical mass theory emphasizes the need for sufficient gender diversity to affect outcomes.	Study the impact of other board diversity features and expand to different sectors and countries.	Topic 1, 2	Emphasizes the importance of diverse and independent boards in enhancing ESG performance, with specific insights into the banking sector.

Women on Boards in India: A Need or Tokenism?	1	Management Decision	2018	Examines the significance of gender diversity on corporate boards in India post Companies Act, 2013.	Empirical	Gender diversity explains a 5.5% change in COE and a 45% impact on ROA. Female directors on boards lower COE and increase ROA through committee involvement.	Critical mass theory, social identity theory, legitimacy theory	Critical mass theory emphasizes the need for a significant number of women to impact board dynamics; social identity theory explains how gender diversity enhances group dynamics; legitimacy theory highlights the increased legitimacy through diverse boards.	Examine non-financial metrics and social/behavioral impacts of female directors on boards in India.	Topic 1	Highlights the economic and performance impact of mandatory gender diversity, aiding in regulatory and policy formulation.

Women Leaders and Corporate Social Performance	1	Management Decision	2022	Investigates the impact of women leaders on corporate social performance (CSP).	Empirical	Women leaders positively influence CSP, particularly in firms with a high level of stakeholder engagement.	Upper echelons theory, critical mass theory, resource dependence theory, agency theory	Upper echelons theory explains how women leaders' experiences and values shape corporate social strategies; critical mass theory underscores the importance of having enough women leaders to make an impact; resource dependence theory highlights the role of diverse boards in securing critical resources; agency theory explains how women leaders reduce agency costs and improve CSP by aligning management with stakeholder interests.	Explore long-term impacts of women leaders on CSP across various industries and cultural contexts.	Topic 2, 3	Demonstrates how women leaders enhance CSP, emphasizing the role of gender diversity in promoting social responsibility.

Transparency Among S&P 500 Companies: The Role of Gender Diversity	1	Management Decision	2017	Analyzes the role of gender diversity in enhancing transparency and disclosure practices among S&P 500 companies.	Empirical	Gender-diverse boards are associated with higher transparency and better disclosure practices.	Stakeholder theory, legitimacy theory	Stakeholder theory suggests that diverse boards better address the needs and concerns of various stakeholders, thereby enhancing transparency; legitimacy theory indicates that gender-diverse boards enhance corporate legitimacy.	Investigate the impact of gender diversity on transparency in different regulatory environments and over time.	Topic 1, 2	Emphasizes the importance of gender diversity in promoting transparency and accountability in corporate governance.
Women in the Boardroom and Corporate Decisions of Italian Listed Companies: Does the "Critical Mass" Matter?	1	Management Decision	2019	Investigates the relationship between women in the board of directors, firm performance, corporate decisions, and the risk of the firm, debt level, and R&D in Italian companies.	Empirical	Female representation on boards positively impacts R&D investments, reduces firm risk, and complements debt. Achieving critical mass shifts from tokenism to significant influence on decisions.	Critical mass theory	Critical mass theory emphasizes that a certain number of women (critical mass) in the boardroom enhances their influence on corporate decisions.	Explore the long-term impact of critical mass on non-financial metrics and behavioral aspects of female directors in various cultural settings.	Topic 1	Highlights the importance of achieving critical mass for women on boards to significantly impact corporate decisions and firm performance.

The Impacts of Top Management Team Characteristics on CSR and Financial Performance	2	Management Decision	2014	Examines how top management team (TMT) characteristics affect CSR and financial performance.	Empirical	TMT diversity, including gender, positively impacts CSR activities and financial performance.	Upper echelons theory, similarity-attraction paradigm, self-categorization theory	Upper echelons theory explains how TMT characteristics affect strategic choices and organizational outcomes; similarity-attraction paradigm and self-categorization theory explain how demographic similarities and differences impact group dynamics and decision-making.	Further research on the combined effect of various TMT characteristics on CSR and financial outcomes in diverse industries.	Topic 2, 3	Shows the critical role of TMT diversity in enhancing both CSR and financial performance, supporting diverse leadership initiatives.
Women in the Boardroom and Corporate Social Performance: Negotiating the Double Bind	2	Management Decision	2017	Explores the impact of female directors on corporate social performance (CSP) in different organizational contexts.	Empirical	Representation of women on boards enhances CSP under certain conditions like voluntary initiative membership and positive financial performance.	Role congruity theory	Role congruity theory explains how societal expectations create a double bind for women, influencing their impact on CSP based on organizational context.	Investigate additional firm-level variables and contextual factors that influence the relationship between women directors and CSP.	Topic 2	Highlights how contextual factors can amplify or diminish the positive impact of women directors on CSP, providing insights for improving board diversity and corporate governance.

Disability Inclusion in Beach Precincts: A Community Development Approach Through a Social Relational Model of Disability	2	Sport Management Review	2023	Examines disability inclusion in beach precincts using a community development approach through a social relational model of disability.	Empirical	Identifies key strategies and challenges in promoting inclusive beach precincts for people with disabilities.	Social Relational Model	Highlights the importance of community development in creating inclusive environments for people with disabilities.	Explore the long-term impact of inclusive beach precincts on the social and physical well-being of people with disabilities.	Topic 1, 4	Provides insights into the practical application of inclusivity in recreational spaces, informing policy and practice in community development.
Examining Discursive Practices of Diversity and Inclusion in New Zealand Rugby	2	Sport Management Review	2022	Examines how decision makers interpret diversity and inclusion within New Zealand Rugby using discourse analysis.	Empirical	Discursive practices can be both supportive and restrictive to the development of diversity and inclusion in New Zealand Rugby.	Critical theory	Reveals how language and power dynamics shape the understanding and implementation of diversity and inclusion initiatives.	Investigate discursive practices in other national sport organizations and their impact on diversity and inclusion.	Topic 2, 3	Highlights the complexities of implementing diversity and inclusion initiatives in sports organizations, offering guidance for similar efforts in other contexts.
Examining the Participation Patterns of an Ageing Population with Disabilities in Australia	2	Sport Management Review	2014	Investigates the participation patterns of ageing individuals with disabilities in sports activities in Australia.	Empirical	Age, disability type, and group dynamics significantly influence participation patterns; highlights barriers and facilitators to sports participation for ageing individuals with disabilities.	Leisure constraint theory	Leisure constraint theory explains how intrapersonal, interpersonal, and structural constraints interact to influence participation in leisure activities among ageing individuals with disabilities.	Study the long-term effects of sports participation on the health and well-being of ageing individuals with disabilities across different sports and settings.	Topic 4	Offers a comprehensive understanding of the factors influencing sports participation among ageing individuals with disabilities, guiding interventions to enhance their inclusion and activity levels.

Experiences of Trans Persons in Physical Activity and Sport: A Qualitative Meta-Synthesis	2	Sport Management Review	2019	Synthesizes qualitative studies on the experiences of trans persons in physical activity and sport.	Review	Trans persons face significant barriers in physical activity and sports, including discrimination and lack of inclusive facilities.			Investigate specific strategies to reduce barriers for trans individuals in different types of physical activities and sports.	Topic 3, 4	Provides comprehensive insights into the barriers faced by trans individuals in sports, informing policies and practices to enhance inclusivity.
Exploring the Organizational Capacity and Organizational Problems of Disability Sport Clubs in Germany Using Matched Pairs Analysis	2	Sport Management Review	2014	Analyzes the organizational capacity and problems faced by disability sport clubs in Germany.	Empirical	Disability sport clubs face significant organizational problems related to funding, staffing, and inclusivity.	Conceptual Model of Organizational Capacity	Conceptual Model of Organizational Capacity highlights the multidimensional aspects of organizational capacity and how they impact the functioning and problem-solving abilities of disability sport clubs.	Explore long-term solutions to the organizational problems faced by disability sport clubs, including sustainable funding models.	Topic 1, 4	Offers a detailed analysis of the challenges faced by disability sport clubs, guiding improvements in organizational capacity and resource management
LGBTQ Parents' Experiences of Community Youth Sport: Change Your Forms, Change Your (Hetero) Norms	2	Sport Management Review	2018	Examines the experiences of LGBTQ parents in community youth sport, focusing on heteronormative practices.	Empirical	LGBTQ parents experience challenges due to heteronormative practices in youth sports, which affect their participation and acceptance.	Feminist Theory, Social Justice Framework	Feminist Theory and Social Justice Framework highlight how heteronormative practices in youth sports create barriers for LGBTQ parents and emphasize the need for inclusive policies.	Develop and test interventions aimed at creating more inclusive environments in community youth sports for LGBTQ families.	Topic 3	Highlights the experiences of LGBTQ parents in youth sports, emphasizing the need for systemic changes to foster inclusivity and acceptance.

Managing Disability Sport: From Athletes with Disabilities to Inclusive Organisational Perspectives	2	Sport Management Review	2014	Examines management issues related to disability sport, including constraints to participation, policy implementation, and organizational challenges.	Empirical	Disability sport faces multiple challenges, including inadequate policies, negative attitudes, and lack of resources; inclusive organizational practices can mitigate these issues.	Social Model of Disability, Human Rights Framework	Emphasizes the importance of inclusive policies and practices in managing disability sport.	Investigate long-term impacts of inclusive practices in disability sport on participant well-being and organizational success.	Topic 1, 4	Highlights the need for inclusive organizational practices in disability sport, offering insights for policy makers and sports managers.
Managing Sport for Social Change: The State of Play	2	Sport Management Review	2015	Explores the role of sport in promoting social change, including health, social inclusion, and community development.	Review	Sport can be an effective tool for social change, addressing issues such as economic development, social inclusion, and health; however, effective management practices are crucial.			Explore innovative management practices in sport-for-development programs across diverse contexts.	Topic 1, 2	Provides a comprehensive overview of how sport can drive social change, informing the design and management of sport-for-development initiatives.
Managing Sport Volunteers with a Disability: Human Resource Management Implications	2	Sport Management Review	2019	Analyzes the management of sport volunteers with disabilities, focusing on human resource management implications.	Empirical	Inclusion of volunteers with disabilities in sports requires targeted HRM practices to address their specific needs and enhance their contributions.	Human Resource Management Theory	Guides the development of inclusive HRM practices that support volunteers with disabilities in sports organizations.	Examine the effectiveness of specific HRM interventions in enhancing the inclusion and performance of volunteers with disabilities.	Topic 2	Emphasizes the importance of tailored HRM practices in supporting volunteers with disabilities, guiding sports organizations in their inclusion efforts.

Reviewing Evidence of LGBTQ Discrimination and Exclusion in Sport	2	Sport Management Review	2021	Reviews evidence of discrimination and exclusion of LGBTQ individuals in sports.	Review	LGBTQ individuals face significant discrimination and exclusion in sports, with ongoing homophobia and lack of inclusive policies.			Explore interventions to reduce discrimination and enhance inclusivity for LGBTQ individuals in sports.	Topic 3	Provides a comprehensive overview of the challenges faced by LGBTQ individuals in sports, highlighting the need for more inclusive practices.
Support for LGBT Diversity and Inclusion in Sport: A Mixed Methods Study of Australian Cricket	2	Sport Management Review	2022	Examines the support for LGBT diversity and inclusion in Australian cricket.	Empirical	There is perceived lack of institutional support for LGBT diversity in cricket, with noticeable grassroots support but insufficient leadership endorsement.	Avery's Theory of Support for Diversity	Avery's Theory of Support for Diversity is used to assess the levels of endorsement and activism for LGBT inclusion in cricket.	Investigate strategies to enhance institutional support and leadership commitment for LGBT diversity in sports.	Topic 3	Highlights the importance of leadership endorsement and institutional support for effective LGBT inclusion in sports.
The Chaos of Inclusion: Examining Anti-Homophobia Policy Development in New Zealand Sport	2	Sport Management Review	2019	Analyzes the development and implementation of anti-homophobia policies in New Zealand sport.	Empirical	Anti-homophobia policies in New Zealand sport are often inconsistent and lack comprehensive implementation, leading to varied levels of effectiveness.	Social Identity Theory, Critical Theory, Post-structuralism	These theories are used to understand the complexities of organizational motives, priorities, and approaches to homophobia, offering suggestions for policy development.	Examine the effectiveness of comprehensive anti-homophobia policies and identify best practices for implementation.	Topic 3	Offers insights into the complexities of policy development and implementation for addressing homophobia in sports.

The Development of Female Muslim Life-savers	2	Sport Management Review	2015	Examines the effectiveness of community development approaches in achieving disability inclusion at beaches.	Empirical	Community development approaches effectively enhance beach accessibility and inclusivity for people with disabilities.			Investigate broader integration strategies for diverse volunteers in community sports.	Topic 2	Provides insights into volunteer engagement and diversity in sports, emphasizing the need for inclusive practices.
The Poor Cousin of Inclusion: Australian Sporting Organisations and LGBT Diversity and Inclusion	2	Sport Management Review	2021	Analyzes LGBT diversity and inclusion within Australian sports organizations, focusing on the gap between policy and practice.	Empirical	Shows disparity between inclusive policies and their practical implementation.			Calls for more active and genuine inclusion efforts.	Topic 3	Addresses the need for better management and genuine inclusion of LGBT+ individuals in sports.
The Rainbow Connection: A Scoping Review and Introduction of a Scholarly Exchange on LGBTQ+ Experiences in Sport Management	2	Sport Management Review	2021	Review and synthesis of research on LGBTQ+ experiences in sport management, aiming to outline historical developments, current challenges, and areas for future research.	Review	The paper identifies persistent issues like homophobia and lack of inclusion in sports despite growing recognition and organizational efforts. It emphasizes the need for genuine inclusivity in sport management practices.			Calls for deeper examination into how sports organizations can genuinely implement inclusive practices and support for LGBTQ+ individuals.	Topic 2, 3	This paper is crucial for understanding how sports can move beyond superficial diversity efforts to achieve real inclusion, influencing policies and practices within sport management.

The Use of Public Sports Facilities by the Disabled in England	2	Sport Management Review	2014	Examines the usage patterns and satisfaction levels of disabled individuals at public sports facilities in England.	Empirical	Disabled individuals represent a small proportion of sports participants but are vital for social inclusion. Key activities include swimming and using fitness equipment. Barriers include physical access and cleanliness issues.			Research should explore the specific needs and barriers faced by disabled individuals at sports centers, focusing on improving accessibility and service quality to enhance their participation.	Topic 4	The study provides insight into the barriers and facilitators affecting the participation of disabled individuals in public sports facilities, emphasizing the role of service quality and accessibility.
We Want More Diversity But…: Resisting Diversity in Recreational Sports Clubs	2	Sport Management Review	2020	Analyzes the resistance to diversity initiatives within recreational sports clubs despite stated commitments to inclusivity.	Empirical	Identifies discursive practices used by club leaders to superficially support but effectively resist substantive diversity initiatives.	Foucauldian Discourse Analysis	Examines how power dynamics and discourse maintain the status quo despite formal diversity policies.	Explore deeper integration of diversity practices beyond superficial commitments.	Topic 2, 3	Highlights the gap between policy and practice, underscoring the need for genuine inclusivity in sports.
Yes, We Are Inclusive: Examining Provision for Young People with Disabilities in Community Sport Clubs	3	Sport Management Review	2018	Investigates the inclusivity of sports clubs for young people with disabilities.	Empirical	Finds that clubs often claim inclusivity but fail to adequately support or integrate young people with disabilities in practice.	Concept of policy enactment and Inclusive Education	Focuses on the mismatch between inclusivity claims and actual practices in sports clubs.	Research on effective methods for real integration of young people with disabilities in sports.	Topic 1, 4	Discusses the necessity for better infrastructure and genuine inclusivity in youth sports practices.

Does Gender Diversity Promote Nonconformity?	3	Management Science	2024	Effects of gender diversity on conformity in groups	Empirical	Found little evidence that gender composition affects conformity; individual ability plays a greater role in reducing conformity.	Group Cohesion Theory	Investigates how group cohesion influenced by gender homogeneity might affect normative social influence.	Further study on the dynamics of gender composition in different organizational or cultural settings.	Topic 1, 3	Important for understanding the nuances of group dynamics in corporate and social decision-making environments
Gender Composition and Group Confidence Judgment	3	Management Science	2024	Influence of gender composition on group confidence	Empirical	Groups with gender diversity show higher collective confidence in their judgments, even if not always more	Social impact theory	Applied to assess how social influences and group dynamics affect confidence and decision-making in mixed-gender groups.	Study the impact of varying levels of diversity on group confidence and decision accuracy.	Topic 1, 2, 3	Highlights the psychological dynamics within diverse groups, affecting confidence and potentially, decision outcomes.
Gender Diversity in Firm Ownership	3	Research Policy	2023	Explores the direct and indirect effects of gender diversity in firm ownership on innovation	Empirical	Firms with greater gender diversity in ownership invest more in R&D and rely more on external capital, leading to higher overall innovativeness and both technological and non-technological innovation.	Upper Echelon Theory	Explores how gender diversity at the ownership level influences strategic decisions and innovation capabilities, emphasizing the strategic role of diverse leadership.	Examine the long-term impacts of gender-diverse ownership on firm resilience and adaptability in different economic conditions.	Topic 1, 2	Demonstrates the strategic importance of gender diversity in fostering innovation and driving firm performance, especially in emerging economies

Gender Diversity in R&D Teams and Innovation Efficiency	3	Research Policy	2020	Impact of gender diversity in R&D teams on innovation efficiency	Empirical	Gender diversity enhances innovation efficiency by providing informational and social benefits, especially in complex tasks or competitive markets.	Value-in-Diversity Theory	Demonstrates how diverse perspectives in gender-mixed teams enhance problem-solving and innovation processes.	Explore gender diversity's impact under varying market conditions and task complexities.	Topic 1, 2, 3	Aligns with initiatives to enhance innovation through diverse teams, supporting inclusive practices in high-tech sectors.
Gender Diversity in Senior Management and Strategic Change	3	Research Policy	2019	Role of gender diversity in senior management on strategic change	Empirical	Gender diversity at the senior management level influences strategic change, fostering a more inclusive and broad-spectrum approach to corporate strategy.	Upper Echelons Theory	Suggests that diverse upper echelons lead to more comprehensive strategic thinking and decision-making	Further investigation into long-term impacts of gender diversity on strategic outcomes and firm adaptability.	Topic 2	Important for understanding how gender dynamics affect strategic decisions in tech industries and corporate environments.
Gender Diversity in the Management Field	3	Research Policy	2019	Impact of gender diversity on research outcomes in management	Empirical	Gender diversity does not significantly affect citation impacts; however, it influences research focus, with women engaging more in social areas and men in technical areas.			Explore the long-term impacts of gender diversity on research productivity and content in management fields.	Topic 1, 2, 3	The study provides insights into how gender diversity shapes research directions within management, though not affecting impact metrics.

Gendered Knowledge in Fields and Academic Careers	3	Research Policy	2022	Impact of gender diversity on academic fields and careers	Empirical	Gender diversity influences research focus, specialization, and academic outcomes.			Further research could investigate the long-term career impacts of gendered academic specialization.	Topic 2	Highlights the importance of gender considerations in academic career planning and development.
R&D Manpower and Technological Performance: The Impact of Demographic and Task-Related Diversity	3	Research Policy	2013	Relationship between R&D team composition and technological performance	Empirical	Both demographic and task-related diversity within R&D teams influence technological performance, with significant interactions between these dimensions.	Social Identity Theory	Examines how demographic diversity can create social categories within teams, potentially impacting communication and cohesion negatively, and contrasts this with how task-related diversity can contribute positively to technological performance by bringing varied perspectives and knowledge.	Further exploration of how different types of diversity interact and influence team dynamics and outcomes across various industries and cultural contexts.	Topic 1, Topic 3	Supports the need for well-managed diversity within teams to enhance innovation outcomes, providing practical implications for forming effective R&D teams in technology-driven sectors.

The Impact of Gender Diversity on the Performance of Business Teams	3	Management Science	2024	Impact of gender diversity on team performance in a business context	Empirical	Teams with an equal gender mix perform better in terms of sales and profits than male-dominated teams. No support for suggested mechanisms such as complementarities, learning, monitoring, or conflict.			Explores how gender composition influences group dynamics, including coordination, conflict, and mutual monitoring, potentially altering team performance.	Topic 1, Topic 3	Demonstrates the practical implications of gender diversity on team efficiency and success in a controlled experimental setup, reflecting real-world organizational settings.
Unintended consequences on gender diversity of high-tech growth and labor market polarization	3	Research Policy	2018	Impact of high-tech growth on gender diversity in labor market.	Empirical	High-tech growth in Austin, unlike Silicon Valley, has not significantly increased gender diversity in high-skill occupations.			Explore other regions beyond Silicon Valley and Austin.	Topic 2	Relevant as it provides insights into regional variations in gender diversity within high-tech sectors.

When do teams generate valuable inventions?	4	Production and Operations Management	2022	Examines the impact of team composition on invention outcomes, focusing on expertise similarity, network cohesion, and gender diversity.	Empirical	Expertise similarity, network cohesion, and mixed-gender teams negatively affect invention outcomes on average. However, these factors can improve team coordination, leading to better invention outcomes when inventions require high integrality.			Investigate other contexts where team composition factors might affect outcomes.	Topic 1	Understanding how team composition factors like gender diversity influence innovation processes and outcomes in team-based work environments

Women are an Advantage in Supply Chain Collaboration and Efficiency	4	Production and Operations Management	2021	Investigates how gender pairings differ in collaborative behavior by supply chain agents and the impact on supply chain efficiency.	Empirical	The study finds that women in supply chain roles lead to more collaborative behavior, with all-women teams being the most efficient. Female agents promote more collaborative supply chain interactions compared to their male counterparts.	Gender Role Theory	Gender Role Theory is applied to explain the behavior differences based on expected gender roles in collaborative supply chain scenarios. Women are seen as more collaborative and cooperative, leading to higher efficiency in supply chain operations.	Future research should explore field studies with supply chain professionals, different revenue and cost parameters, other types of buyer-supplier relationships, and larger team sizes to see how gender compositions affect collaboration and supply chain efficiency. It should also study how hierarchical relationships interact with gender pairings to enhance a firm's competitive advantage	Topic 1	The paper provides insights into how gender roles influence supply chain efficiency, suggesting practical applications in hiring and team composition to leverage the collaborative strengths of female agents, aligning with the topic of gender impact on innovation.

Analysing Gender Dynamics in Sport Governance: A New Regimes-Based Approach	4	Sport Management Review	2013	Explores gender dynamics in sport governance, focusing on women's roles in organizational structures and leadership.	Empirical	Identifies three gender regimes: masculine hegemony, masculine hegemony in transition, and gender mainstreaming in process, highlighting the complexity and variation of gender dynamics in sport governance.	Governance and Gender Theory	Utilizes governance and gender theory to analyze how gender dynamics manifest in sports governance, emphasizing the need to recognize gendered structures to promote equality and transformation.	Further exploration of gender dynamics across different levels of sport governance.	Topic 2	Provides insights into how gender roles and dynamics impact decision-making and leadership within sports organizations. It suggests that understanding these dynamics is crucial for fostering inclusive environments and advancing gender equality in sports governance.
Breaking the Glass Monitor: Examining the Underrepresentation of Women in Esports Environments	4	Sport Management Review	2021	Investigates the underrepresentation of women in esports, exploring barriers such as toxic masculinity and career obstacles.	Qualitative	Identifies key barriers for women in esports, including hostile environments and gender bias, limiting their participation and advancement.			Applies gender role theory to understand how societal norms and expectations about gender roles contribute to the underrepresentation and challenges faced by women in esports. The study highlights how these roles affect women's participation and experiences in the industry.	Topic 3	This study underscores the need for structural and cultural changes to create a more inclusive environment in esports, highlighting the impact of gender roles on career opportunities and industry dynamics.

Does performance justify the underrepresentation of women coaches? Evidence from professional women's soccer	4	Sport Management Review	2019	Analyzes the impact of coach gender on team performance in women's soccer leagues.	Empirical	Gender of coach is not a significant determinant of team performance; initial experience does not alter this result.	Social Categorization Theory	Uses social categorization theory to explore how gender dynamics between coaches and players may affect team performance, suggesting no significant performance impact due to gender diversity.	Investigate further into other factors influencing underrepresentation of women coaches beyond performance metrics.	Topic 2	Highlights that gender diversity does not negatively affect performance in women's sports, challenging stereotypes that justify the underrepresentation of women in coaching positions. This suggests that structural and cultural biases, rather than performance, contribute to gender disparities.
National Football League Head Coach Race: Performance, Retention, and Dismissal	4	Sport Management Review	2020	Analyzes racial disparities in NFL coaching performance, retention, and dismissal.	Empirical	Minority coaches are dismissed more quickly despite similar performance to white coaches.			Explore interventions to reduce racial biases in coaching retention and promotion. Investigate the role of team performance metrics in justifying dismissal decisions across different races.	Topic 2	Highlights racial disparities in leadership within sports organizations, paralleling issues in gender dynamics, and emphasizing the need for equitable practices and policies in sports leadership roles.

The "I" in Team: Coach Incivility, Coach Gender, and Team Performance in Women's Basketball Teams	4	Sport Management Review	2019	Investigates how coach incivility and coach gender affect team cohesion, psychological safety, and performance in women's basketball teams.	Empirical	Coach incivility negatively impacts team cohesion, psychological safety, and team performance. Psychological safety mediates the relationship between incivility and performance. Coach gender moderates the relationship between incivility and psychological safety.	Incivility theory	The study uses incivility theory to explore how uncivil behaviors from leaders can harm team dynamics, leading to lower cohesion and psychological safety, which subsequently impacts team performance. It highlights the importance of civility in leadership for maintaining team effectiveness.	Explore longitudinal impacts of incivility on team performance and dynamics over time and investigate how various leader characteristics might moderate the effects of incivility on team outcomes.	Topic 1	Provides insights into how negative leader behaviors, such as incivility, can detrimentally impact team dynamics and performance, highlighting the need for policies promoting civility and psychological safety in sports teams.
Underrepresentation of Women in Sport Leadership: A Review of Research	5	Sport Management Review	2015	Examines why women are underrepresented in leadership positions in sports.	Review	Institutional practices of gender in sport reinforce male dominance; stereotyping and discrimination hinder women’s leadership roles.			Explore stakeholder influence on gender norms in sports, how gender equity can enhance organizational effectiveness, and intersectionality with race, class, and disability.	Topic 2, Topic 3	The review highlights the systemic nature of gender bias in sports leadership, emphasizing the need for structural changes to improve women's representation and opportunities

Women's Professional Sport Leagues: A Systematic Review and Future Directions for Research	5	Sport Management Review	2023	Systematically reviews the state of women's professional sport leagues	Review	Women's leagues face financial instability, media underrepresentation, and limited opportunities compared to men's leagues.			Future research could focus on the economic and social impact of successful women's sports leagues, and how media representation can influence public perception and support. Investigate strategies for financial stability and growth in women's leagues.	Topic 3	Emphasizes the disparities in opportunities and representation between men's and women's sports leagues, highlighting the need for strategic interventions to promote equality and sustainability in women's professional sports.
Age, Forgiveness, and Meeting Behavior: A Multilevel Study	5	Journal of Managerial Psychology	2014	Examines the relationship between age, forgiveness, and counteractive behavior in team meetings	Empirical	Age diversity and forgiveness impact team meeting behaviors, with forgiveness mitigating negative effects.	Input-process-output model	Analyzes how age and forgiveness can be buffers in team meetings, influencing meeting dynamics and productivity.	nvestigate further into how forgiveness can enhance positive team outcomes.	Topic 1	Highlights the importance of understanding age and forgiveness in team settings to improve meeting outcomes.
Facilitating Age Diversity in Organizations	5	Journal of Managerial Psychology	2013	Reviews the impact of age diversity on organizational dynamics and how to manage perceptions and interactions.	Review	Age diversity can lead to both benefits and challenges; managing perceptions and interactions is crucial for maximizing positive outcomes.			Examine longitudinal impacts of age diversity management strategies on organizational performance and employee satisfaction.	Topic 2	Provides insights into how managing age diversity perceptions and interactions can enhance organizational effectiveness and employee satisfaction.

Managing Knowledge Exchange and Identification in Age Diverse Teams	5	Journal of Managerial Psychology	2014	Investigates how age diversity affects knowledge exchange and team identification.	Empirical	Age diversity negatively impacts knowledge exchange and identification unless moderated by positive diversity beliefs.	Categorization-Elaboration Model	Explores the role of age diversity in team knowledge exchange, highlighting how diversity beliefs can moderate its effects on team cohesion and identification.	Further research on the role of diversity beliefs in other types of diversity, such as gender and cultural diversity.	Topic 1	Emphasizes the importance of diversity beliefs in moderating the impact of age diversity on team dynamics and performance.
Older Workers' Representation and Age-Based Stereotype Threats in the Workplace	6	Journal of Managerial Psychology	2017	Examines the representation of older workers and stereotype threats in the workplace.	Empirical	Older workers face stereotype threats impacting their work performance and representation in the workplace.	Social Identity Theory; Self-Categorization Theory	These theories explain how older workers identify with certain age groups and how stereotype threats affect their work identity and performance.	Suggests further exploration of interventions to reduce stereotype threats and improve representation of older workers.	Topic 2	Highlights the importance of understanding age-based stereotypes to improve workplace dynamics and representation for older employees.
Younger Workers' Metastereotypes and Their Impact on Workplace Dynamics	6	Journal of Managerial Psychology	2015	Investigates the impact of metastereotypes held by younger workers on workplace dynamics.	Empirical	Younger workers' awareness of metastereotypes influences their interactions and can lead to negative workplace dynamics.	Affective Events Theory	This theory is used to understand how younger workers' emotional reactions to perceived stereotypes influence their workplace behavior and interactions.	Calls for research into strategies to mitigate negative effects of metastereotypes and improve intergenerational workplace interactions.	Topic 2	Provides insights into how younger workers' perceptions of stereotypes affect their behavior and the overall workplace environment.

"Diversity," Immigration, and Trade in U.S. Cities	6	Journal of Managerial Psychology	2014	Examines the impact of diversity on economic factors like immigration and trade in U.S. cities.	Empirical	Diversity positively impacts economic growth by enhancing innovation and trade in cities..	Social Contract Theory	Explores how diversity, through social capital, fosters economic advantages and increased innovation within urban settings.	Investigate how diversity influences specific economic sectors within cities and its role in shaping international trade dynamics.	Topic 1, 2	Highlights the economic benefits of diversity, emphasizing its role in fostering innovation and trade, thus providing a basis for policies aimed at enhancing urban economic development through increased diversity.
Deep-Level Dissimilarity and Leader–Member Exchange (LMX) Quality: The Role of Status	6	Journal of Managerial Psychology	2022	Explores the moderating effects of status on the relationship between deep-level dissimilarity and LMX quality.	Empirical	Deep-level dissimilarity negatively affects LMX quality, moderated by the demographic and positional status of the LMX partner.	Similarity-Attraction Theory	Uses similarity-attraction theory to explain how perceived dissimilarities in attitudes and perspectives affect leader-member relationships, with status moderating these effects.	Examine how various organizational contexts influence the interaction between deep-level dissimilarity and LMX quality, and the potential mitigating effects of diversity training programs.	Topic 1	Provides insights into how perceived dissimilarities impact leader-member relations, emphasizing the importance of considering demographic and positional status in managing diversity within organizations.

Demographic Dissimilarity, Value Congruence, and Workplace Attachment		Journal of Managerial Psychology	2016	Explores the interaction between demographic differences and value congruence on attachment.	Empirical	Value congruence moderates the effects of demographic dissimilarity on organizational commitment and turnover intentions.	Optimal Distinctiveness Theory	Suggests that individuals balance their need for belonging and uniqueness, influenced by demographic characteristics and value alignment.	Further research on demographic diversity and its interactions with other organizational variables to enhance workplace attachment and inclusion.	Topic 1, 2	Offers a nuanced view on how demographic differences and perceived value alignment interact to affect organizational attachment, emphasizing diversity management strategies.
Perceived Age Discrimination in the Workplace		Journal of Managerial Psychology	2021	Analyzes the effects of perceived age discrimination on job satisfaction and organizational commitment.	Empirical	Perceived age discrimination negatively impacts job satisfaction and organizational commitment, particularly among older workers.	Job Demands–Resources (JD-R) Model	Applies the JD-R model to understand how perceived age discrimination increases job demands and reduces resources, leading to decreased job satisfaction and commitment among older employees.	Investigate strategies for mitigating age discrimination in the workplace, examining interventions that enhance job resources and reduce perceived age-related threats to improve satisfaction and commitment across age groups.	Topic 2	Provides insights into the challenges faced by older workers due to age discrimination, emphasizing the need for organizational strategies to address these issues and enhance employee well-being and productivity.

Appendix for Chapter 3

Appendix A. Structural Topic Modeling

Appendix A describes the way we employ the structural topic modeling (STM) approach (as outlined in Wang et al., (2023)) to identify and structure "latent topics" based on the semantic content of a string of text. Unlike other traditional topic modeling approaches (e.g., latent Dirichlet allocation and correlated topic model) that focus only on the text itself, STM also considers the underlying connection between theme prevalence and specific document attributes such as time. In our context, we include the announcement year as the document attribute when conducting the STM because DEI topics may vary with time.

Preprocessing. Before applying the STM to develop our measures, we conduct preprocessing based on the characteristics of the text used in announcements. This enables the STM model to recognize these texts better. These preprocessing steps include removing URLs and social media usernames (e.g., https, @, etc.), replacing "&" with "and," removing document numbers at the end of each document, removing nonstandard characters and numbers (e.g., punctuations), converting text to lowercase, and removing stop words (e.g., a/an, the, etc.). We also perform word stemming to convert different word forms into a single "**stem**." For example, "inclusion," "inclusive," and "inclusivity" are transformed to the stem "inclus" to capture these words. The stem does not need to be an actual word; rather, it must represent different forms of words with the same meaning.

STM approach: Coherence and exclusivity. Following the approaches explained in Wang et al. (2023) and Roberts et al. (2014), we execute models with topic ranges from 2 to 15 based on the preprocessed text and document attribute (i.e., year) by evaluating topic quality through a combination of semantic coherence and exclusivity of words to topics. Semantic coherence is a measure indicating how frequently the most probable words within a topic appear together (Mimno et al., 2011). The formula for calculating the **semantic coherence** of a topic *C* is:

$$C = \sum_{i=2}^{M} \sum_{j=1}^{i-1} log \frac{D(v_i, v_j) + 1}{D(v_j)}, \quad \text{(A1)}$$

where M denotes the number of top words (most probable words) for the topic. Here, v_i and v_j are the words in the set of top M words for the topic. $D(v_i, v_j)$ is the number of times both v_i and v_j appear in a document. $D(v_j)$ is the number of times v_j appears in a document.

As Newman et al. (2010) noted, this approach assumes words frequently co-occurring within a document share stronger semantic links, rendering the associated topic more coherent and comprehensible. However, relying solely on coherence can be misleading, especially because achieving higher coherence with fewer topics containing common words is a straightforward process (Roberts et al., 2014). Therefore, we also incorporate **exclusivity** of words to topics, measured via the FREX metric developed by Bischof and Airoldi (2012) and Airoldi and Bischoff (2016). This metric FREX intends to equilibrate word frequency and exclusivity within topics and strives to pinpoint words that are both prevalent in a particular topic and distinct to it, thereby boosting interpretability. The FREX metric is the "weighted harmonic mean" of a word's rank by exclusivity and frequency, and it is calculated as follows:

$$FREX_{k,v} = \left(\frac{\omega}{ECDF\left(\frac{\beta_{k,v}}{\sum_{j=1}^{K} \beta_{j,v}}\right)} + \frac{1-\omega}{ECDF(\beta_{k,v})} \right)^{-1}, \quad \text{(A2)}$$

where $FREX_{k,v}$ represents the FREX score for word v in topic k, with ECDF standing for the empirical cumulative distribution function and ω, a parameter weighting exclusivity between 0 and 1, set to 0.7 as per Roberts et al. (2014) to emphasize exclusivity. $\beta_{k,v}$ indicates the frequency (or centrality) of word v within topic k.

We consider the measures of coherence and exclusivity in (A1) and (A2), respectively, and apply them to analyze our DEI announcements. We present the average semantic coherence and exclusivity of the STM models across the topic ranges from 2 to 15 in Table A1. Additionally, we include in the table the residual values, which denote the variance between observed and predicted values within the model. Lower residual values imply a stronger fit of the model to the data. For detailed calculation methods, please refer to Taddy (2012).

Table A1. The Average Semantic Coherence, Exclusivity, and Residual Values of the STM Models

No. of Topics (K)	Semantic Coherence	Exclusivity	Residual
2	-19.36	7.20	3.86
3	-21.12	8.10	3.43
4	-25.48	8.38	3.02
5	-24.25	8.52	2.76
6	-25.08	8.74	2.65
7	-25.81	8.77	2.53
8	-28.78	8.95	2.41
9	-31.17	9.06	2.37
10	**-30.36**	**9.13**	**2.27**
11	-35.08	9.19	2.23
12	-35.26	9.24	2.14
13	-36.21	9.25	2.13
14	-37.68	9.28	2.13
15	-44.83	9.32	2.07

(K = 1 is Trite Because it Does Not Serve Our Purpose if All DEI Announcements Have Only One Topic)

As Table A1 shows, semantic coherence decreases from K = 2 to K = 9, then increases slightly (less negative) at K = 10, and then drops significantly for higher (more negative) values of K. At K = 10, the semantic coherence value of -30.36 is less negative compared to models with more topics (K = 11 to K = 15). This suggests that topics at K = 10 are more coherent and meaningful. As the value of K increases, the exclusivity scores also rise. This implies that with a larger number of topics considered, the topics become more distinct. However, the residual of 2.27 at K = 10 is among the lower levels in the table, indicating a good fit for the data. Although residuals improve marginally beyond K = 10, the improvement is minimal. Based on these observations, we select the model K = 10 topics for our final model, balancing topic coherence, distinctiveness, and data fit.

Topic and prevalence. Following the topic modeling process, we estimate the proportion of each of those K = 10 *topics* as explained above and its overall *prevalence* across the entire document corpus. For details of the computational process, please refer to Blei et al. (2003) and Roberts et al. (2016). We use the proportions of each topic to calculate the **signal strength** and **specificity** for each announcement. Table A2 presents the overall topic prevalence values. All analyses for structural topic modeling are conducted using R version 4.3.1 and the R package 'stm' (Roberts et al., 2019).

After these calculations, we examine the most significant words within each category, leading to the creation of K = 10 descriptive labels, as Table A2 shows. These labels are crafted using a key principle: they should encapsulate words that are both highly frequent and emblematic of their respective groups. Additionally, announcements containing topics with the highest probability (top 10%) are consulted during this labeling process. Figure B1 shows the word clouds for the 10 topics.

Table A2. Structural Topic Modeling Results for the Announcements

Topic	Topic Label	Representative Words (Based on Different "Stems")	Prevalence	DEI
1	Diversity in corporate leadership (Corporate diversity and inclusion initiatives)	compani, women, said, divers, gender, execut, black, coke, nvidia, exxon, cent, gender, men, pariti	12.17%	Y
2	Women's support and development programs	women, will, support, divers, program, develop, award, nfi, micron, kay, amelia, mari, itron, award	10.47%	Y
3	Corporate governance and shareholder voting	vote, meet, proxi, board, annual, director, compani, proxi, nomine, vote, stockhold, notic, instruct, propos	5.01%	N
4	Corporate communication and meetings	will, year, meet, compani, question, now, busi, thank, question, weve, nissan, transcript, now, turn	6.58%	N
5	Racial justice and corporate responsibility	said, black, compani, appl, justic, million, year, blackown, appl, justic, lawmak, racism, sunpow, marriag	8.91%	Y
6	Forward-looking Statements in financial reporting	product, statement, includ, forwardlook, report, market, oper, filer, forwardlook, cloud, registr, condit, uncertainti, netapp	6.99%	N
7	Workplace diversity and inclusion	employe, divers, inclus, work, communiti, can, help, cisco, iandd, vera, logitech, olay, pandg, stem	14.03%	Y

8	LGBTQ inclusivity in corporate policies	compani, equal, inclus, corpor, lgbtq, work, right, cei, hrc, lgbtq, viasat, index, gei, score	14.35%	Y
9	Corporate finance and credit ratings	rate, compani, inc, director, board, presid, credit, moodi, kopper, credit, ingersol, canon, rand, rate	6.49%	N
10	Corporate sustainability and ESG reporting	sustain, report, esg, compani, global, year, commit, esg, emiss, carbon, sustain, filtrat, energi, recycl	14.99%	Y

Word cloud. By considering the represented words (based on different stems) associated with each K = 10 topic label shown in Table A2, we create a word cloud for each topic in Figure A1 to highlight the underlying emphasis of the topic.

Figure A1 shows that, for topic label 1 (Diversity in corporate leadership), "women" and "compani" are two major stems that form topic 1. By considering these stems along with their strong prevalence as shown in Table A2, we classify topic 1 as a DEI-related topic. Next, let us consider topic label 3 (Corporate governance and shareholder voting), which is based on "meet," "vote," and "proxi"—stems that are less relevant to DEI. Combining this observation with the fact that topic 3 has a weak prevalence as shown in Table A2, we classify topic 3 as a non-DEI-related topic.

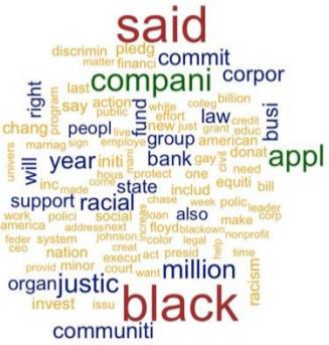
Figure A1. Word cloud associated with each topic label.

Topic 1: Diversity in corporate leadership

Topic 2: Women's support and development programs

Topic 3: Corporate governance and shareholder voting

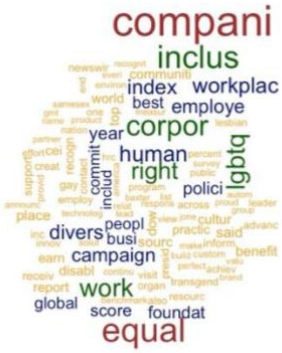
Topic 4: Corporate communication and meetings



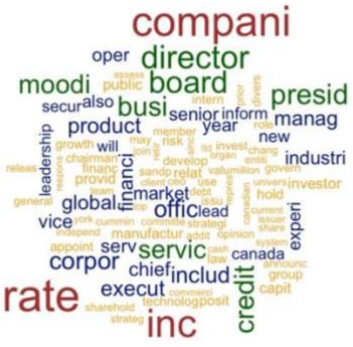
Topic 5: Racial justice and corporate responsibility

Topic 6: Forward-looking statements in financial reporting

Topic 7: Workplace diversity and inclusion



Topic 8: LGBTQ inclusivity in corporate policies



Topic 9: Corporate finance and credit ratings

Topic 10: Corporate sustainability and ESG reporting

Appendix B. Examples of DEI Announcements

Appendix B provides some examples of original DEI announcements obtained from Factiva through expert and keyword searches.

Example 1. Applied Materials DEI announcement

The following example illustrates a DEI commitment made by Applied Materials (Nasdaq: AMAT) on January 3, 2022. The announcement predominantly features 77.86% of Topic 7 (Workplace diversity and inclusion), followed by 12.28% of Topic 10 (Corporate sustainability and ESG reporting), 6.28% of Topic 5 (Racial justice and corporate responsibility), 1.37% of Topic 2 (women's support and development programs), 0.76% of Topic 8 (LGBTQ inclusivity in corporate policies), and 0.62% of Topic 1 (Diversity in corporate leadership), with other non-DEI topics comprising less than 1%. Thus, its signal strength is 99.17% (= 77.86% + 12.28% + 6.28% + 1.37% + 0.76% + 0.62%), and its signal specificity is 78.51% (= 77.86%/99.17%). Below, we present the announcement in its original format and language, as obtained from Factiva.

Example 2. Baxter International DEI Announcement

The following example showcases a DEI commitment made by Baxter International (NYSE: BAX) on November 9, 2017, at 10:45 AM. The announcement predominantly features 99.21% of Topic 8 (LGBTQ inclusivity in corporate policies), 0.30% of Topic 1 (Diversity in corporate leadership), 0.12% of Topic 7 (Workplace diversity and inclusion), 0.11% of Topic 5 (Racial justice and corporate responsibility), 0.09% of Topic 10 (Corporate sustainability and ESG reporting), and 0.04% of Topic 2 (Women's support and development programs), with other non-DEI topics accounting for less than 1%. Thus, its signal strength is 99.85% (= 99.21% + 0.30% + 0.12% + 0.11% + 0.09% + 0.04%), and its signal specificity is 99.35% (= 99.21%/99.85%). Below, we present the announcement in its original format and language, as obtained from Factiva.

Appendix D. Literature review of DEI-related studies

To conceptualize DEI, Tang (2024) proposed a conceptual framework that treats DEI announcements [10] (e.g., DEI announcements in our context) as inputs and DEI metrics as outputs. This framework aims to generate research questions that could potentially lead to a positive societal impact for all stakeholders. Despite the increasing number of DEI announcements, there is a lack of empirical research examining these announcements' impact on corporations.

Although research on the *general concept* of DEI is limited, there is a growing body of work under the DEI umbrella focusing on gender inequality, gender bias, advocacy for gender equality, discrimination against non-Caucasian and LGBTQ+ communities. We summarize this stream of literature in the following table (in the order of appearance) and provide additional information about each paper.

Author (year)	**Journal (Issue, Vol)**	**Topic**	**Summary of Main Findings**
Hoisl and Mariani (2017)	Management Sci (63, 3)	Gender pay gap	Female inventors earned 14% less than their male counterparts in the industrial research sector.
Newton and Simutin (2015)	Management Sci (61, 10)	Gender pay gap	Female officers earned $64,200 less than their male counterparts in publicly traded U.S. firms.
Son et al. (2023)	Journal of Operations Management (in print)	Gender bias	Existence of gender biases of different client-consultant gender pairings.
Ain Tommar et al. (2022)	Management Sci (68, 8)	Gender bias	Existence of unpaid care work for female hedge fund managers associated with school closures during the COVID-19 pandemic

[10] DEI initiatives address social issues involving multiple stakeholders, including governments, private and public sectors, employees, and the public.

Cui et al. (2022)		MSOM (24, 2)		Gender bias		Existence of unpaid care work for female academics during the COVID-19 pandemic
Wowak et al. (2021)		MSOM (23, 4)		Advocacy for female leadership		Firms with more female directors recall defective products earlier, creating more societal benefits.
Tang et al. (2021)		POM (30, 10)		Advocacy for female friendly systems		Ride-hailing platforms can improve gender safety and profits by combining a traditional pooling system that matches riders with drivers without considering gender and a female-only system.
Kuzey et al. (2022)		IJPE (247, C)		Advocacy for female board representation		Female directors positively influence eco-friendly practices of firms.
Kumar and Paraskevas (2018)		Journal of Supply Chain Management (54, 4)		Advocacy for female leadership		Female leaders in firms can generate positive influences on environmental strategy.
Niederle et al. (2013)		Management Sci (59, 1)		Advocacy for gender quota		Gender quota policies could increase female participation in firms.
Ma et al. (2021)		POM (30, 5)		Advocacy for female networks		Females leaders can improve supply chain collaboration and that all-women supply chain pairings are most efficient.
Murphy and Roy (2021)		ORMS Today (48, 3)		LGBTQ+ research gap in OM		OM research focusing on LGBTQ+ issues remains scant.
Andrevski et al. (2014)		Journal of Management (40, 3)		Advocacy for racial diveristy		Racial diversity can improve firm performance by stimulating internal competition. via firms' capacity to compete intensively

Shan et al. (2017)		Strategic Management Journal (38, 9)		Advocacy for "sexual equality"		Firms that treat LGBTQ+ employees, consumers, and investors well experience higher stock returns.
Coffman et al. (2016)		Management Sci (63, 10)		Sexual orientation discrimination		Existence of anti-gay sentiment in the workplace especially when making hiring decisions.
Cui et al. (2019)		Management Sci (66, 3)		Racial discrimination		Existence of racial discrimination in online marketplaces such as Airbnb.
Mejia and Parker (2021)		Management Sci (67, 1)		Racial and sexual orientation discrimination		Existence of racial and sexual orientation discrimination of riders on ride-hailing platforms.

Hoisl and Mariani (2017) investigated the gender pay gap in the industrial research sector. Their analysis of survey data from 22,557 inventors across 23 countries between 2009 and 2011 revealed that women represented only 4.2% of all inventors and earned 14% less than their male counterparts. Similarly, Newton and Simutin (2015) examined officers' compensation data from 2,548 publicly traded U.S. firms between 1996 and 2011. They found that female officers earned $64,200 less per year than their male counterparts after controlling for various factors. Additionally, they discovered that CEOs tended to pay officers of the opposite gender less than those of their own gender, with this effect being more pronounced among older male CEOs.

Besides the gender pay gap, provided a summary of 21 OM research articles on gender bias, some of which we highlight here. Some articles explored how gender disparities in care work at home can affect gender-based performance differences. For example, Ain Tommar et al. (2022) examined data on hedge fund managers before and after the shock associated with school closures during the COVID-19 pandemic. They found that female managers' (especially mothers with young children) ability to generate abnormal returns was reduced by 9% in the shock month, suggesting unpaid care work's underlying cost. Using a difference-in-differences approach to analyze 41,858 research preprints in 18 disciplines (within social science) produced by 76,832 authors across 25 countries over a span of two years, Cui et al. (2022)

found that, in the 10 weeks after the lockdown in the United States, female academics' productivity dropped by 13.2% relative to that of male academics. This result implies that university administrators should consider the gender disparity of unpaid care work.

Other recent studies have examined gender-based decision-making. For example, analyzed 4,271 product recalls from 2002 to 2013 across 92 Food and Drug Administration (FDA) regulated publicly traded firms using various regression models. They found that firms with more female directors recall defective products earlier, likely creating more societal benefits.

Besides empirical studies, Tang et al. (2021) presented a mathematical model to examine financial implications and societal benefits (specifically female rider/driver safety) for a ride-hailing platform. This platform combines a traditional pooling system that matches riders with drivers without considering gender and a female-only system. They identified the conditions under which this "combined system" can result in a win-win outcome for safety-conscious female users (riders and drivers) and the platform.

In addition to research focusing on gender bias or gender inequality, there is an emerging research stream advocating for female representation's value at different corporate levels. Kuzey et al. (2022) found that female directors positively influence eco-friendly practices, especially in eco-innovation. Kumar and Paraskevas (2018) demonstrated that female representation in top management teams positively influences environmental strategy. Niederle et al. (2013) suggested that implementing gender quota policies could increase female competitors' participation and reduce the policies' potential costs. Ma et al. (2021) conducted an experimental study showing that women have an advantage in supply chain collaboration and that all-women supply chain pairings were the most efficient.

While research on gender bias has gained momentum, research on racial and LGBTQ+ issues in OM remains sparse (Murphy and Roy, 2021). Some studies examined the challenges faced by various minority groups. For example, Andrevski et al. (2014) found empirical evidence that racial diversity can improve firm performance via firms' capacity to compete intensively (i.e., to introduce new competitive actions frequently). In terms of sexual diversity in the workplace, Shan et al. (2017) found empirical evidence that firms with a higher degree of corporate "sexual equality" (i.e., those that treat LGBTQ+ employees, consumers, and investors well) experience higher stock returns and greater market valuation. Coffman et al. (2016) conducted a series of online behavioral experiments using a "veiled" methodology that precluded inferences about an individual but provided population estimates. They unearthed a strong

anti-gay sentiment in the workplace: 67% of respondents were more likely to disapprove of an openly gay manager, and 71% were more likely to say it should be legal to discriminate against the LGBTQ+ population when making hiring decisions.

Cui et al. (2019) examined racial discrimination in online marketplaces. After conducting field experiments among 1,801 hosts on Airbnb and using fictitious guest accounts to generate accommodation requests, they found that requests from guests with African American-sounding names were 19.2% points less likely to be accepted than those from white-sounding names. However, this racial bias could be mitigated when a positive review was posted on a guest's page. Similarly, Mejia and Parker (2021) conducted a field experiment on a major ridesharing platform using fictitious rider names and profile pictures. They examined drivers' behavior patterns in accepting and canceling rides. While bias at the ride request stage was not present, they found that after acceptance, non-Caucasian and LGBTQ+ riders were subject to a significantly higher cancellation rate than Caucasian and non-LGBTQ+ riders.

Unlike the literature in this stream that focuses on specific aspects of DEI (such as discrimination against females, non-Caucasians, or LGBTQ+ members), our paper complements this research stream by examining the stock market reaction to a firm when it announces its commitment to various DEI announcements through the lens of signaling theory.

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