Journal of
Risk and Financial Management

MDPI

Article

Impact of Diversity and Inclusion on Firm Performance: Moderating Role of Institutional Ownership

Rubel Saha, Md Nurul Kabir *, Syed Asif Hossain and Sheikh Mohammad Rabby

School of Business and Economics, North South University, Dhaka 1229, Bangladesh;
rubel.saha@northsouth.edu (R.S.); syed.hossain@northsouth.edu (S.A.H.); sheikh.rabby@northsouth.edu (S.M.R.)
* Correspondence: nurul.kabir@northsouth.edu

Abstract: We investigate the impact of diversity and inclusion (D&I) on firm performance for the period 2017–2021. While the existing literature examines the relationship between diversity and firm performance, little is known about the combined effects of D&I on firm performance. This study aims to utilize the most widely used data source, the Global Diversity and Inclusion (D&I) Index, provided by the LSEG workspace. Using 8089 firm-year observations from a sample of globally listed firms and an OLS regression model, we find that firms with a higher D&I score have better firm performance, as measured by Tobin's Q. Our moderating analysis shows that the impact of D&I on firm performance is more pronounced for firms with higher institutional ownership. We also split institutional ownership into domestic and foreign institutional ownership and show that the influence of D&I on firm performance differs between domestic and foreign institutional ownership. Our result is robust when we use an alternative proxy for firm performance and consider the findings without US firms in the sample. The overall findings indicate that considering a diverse and inclusive workforce is worthwhile for key stakeholders when making policy decisions.

Keywords: diversity; inclusion; Tobin's Q; institutional ownership

check for updates

Citation: Saha, Rubel, Md Nurul Kabir, Syed Asif Hossain, and Sheikh Mohammad Rabby. 2024. Impact of Diversity and Inclusion on Firm Performance: Moderating Role of Institutional Ownership. *Journal of Risk and Financial Management* 17: 344. https://doi.org/10.3390/jrfm17080344

Academic Editor: Khaled Hussainey

Received: 24 June 2024
Revised: 30 July 2024
Accepted: 30 July 2024
Published: 8 August 2024

Copyright: © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

1. Introduction

The importance of diversity and inclusion (D&I) in the corporate boardroom has exploded over the last decade, with organizations increasingly recognizing the value of fostering a heterogeneous workforce. Diversity incorporates race, gender, age, sexual orientation, ethnicity, and even the ability to think. Conversely, inclusion seeks to engage and value these diverse voices within an organizational framework. The integration of strategies on diversity and inclusion is instrumental for businesses in increasing innovation, improving decision-making processes, and enhancing employee satisfaction as well as firm performance. In such a globalized, multicultural working world, the strength of diversity in an organization is said to be its indispensable source of competitive advantage. This paper investigates the impact of D&I on firm performance using a global dataset.

The theoretical foundation of this study is supported by the resource-based view (RBV). This perspective suggests that unique resources and capabilities give organizations sustainable competitive advantages that are challenging for competitors to copy or replicate (Barney 1991). Diversity and inclusion are essential components of a company's resources and capabilities, since they contribute varied viewpoints, talents, and experiences to problem-solving and decision-making processes. Thus, with advanced decision-making abilities, a diverse and inclusive workforce is expected to make more well-informed decisions that positively influence firm performance. Businesses that acknowledge, embrace, manage, and promote diversity are capable of recruiting, employing, and retaining the most talented employees (Pitts 2009). Consequently, this has a substantial impact on the performance of the firm, including profits, competitive advantage, innovation, and problem-solving.

Previous research has predominantly concentrated on examining the impact of diversity on firm performance from the perspectives of boards of directors (Aggarwal et al. 2019; Ararat et al. 2015; Carter et al. 2003; Conyon and He 2017), top management teams (TMTs) (Boone and Hendriks 2009; Carpenter 2002), managers (Andrevski et al. 2014; Dwyer et al. 2003), and employees (Kunze et al. 2010; Li et al. 2011; Richard 2000). While numerous studies provide insights into the connection between different dimensions of diversity and firm performance, many of these studies are either focused on specific aspects of diversity (e.g., gender, age, race, culture, ethnicity, and education) or limited to specific countries (e.g., the US, the UK, Australia, India, China, Russia, and Turkey). Furthermore, the existing body of literature lacks consensus regarding the impact of workforce diversity on different indicators of firm performance. Several studies have indicated a positive effect (Ferrary and Déo 2023; Ozdemir 2020; Lee and Kim 2020; Ararat et al. 2015; Conyon and He 2017; Boone and Hendriks 2009; Andrevski et al. 2014; Li et al. 2011), while others have suggested a negative effect (Pandey et al. 2022; Talavera et al. 2018; Dwyer et al. 2003; Kunze et al. 2010), and a few studies have found no significant effect (Pandey et al. 2023; Chapple and Humphrey 2014; Carter et al. 2010) of workforce diversity on various measures of firm performance. Empirical evidence on the relationship between diversity and firm performance is mixed. Considering these backdrops, this study provides a comprehensive understanding of the relationship between D&I and firm performance by employing the D&I index in an international setting.

Furthermore, this study also investigates the moderating role of institutional investors in the relationship between D&I and firm performance. We posit that the impact of diversity and inclusion on firm performance is more pronounced in firms with a larger proportion of institutional ownership. Specifically, that institutional investors leverage their advanced managerial abilities, expertise, and voting privileges to exert influence on managers with the aim of enhancing corporate governance and aiding in business decision-making (Lin and Fu 2017; Shleifer and Vishny 1986). In addition, institutional investors commonly exert their influence on managers to prioritize corporate social responsibility (CSR) initiatives and foster greater engagement in CSR actions (Park et al. 2019). Since firms with a large proportion of institutional investors are likely to exhibit a strong commitment to social responsibility and transparent corporate governance practices, these firms actively promote diversity and inclusion in their workforce, thereby encouraging managers to pursue strategic decisions aimed at enhancing performance.

Considering this backdrop, this study aims to utilize the most widely used data source, the Global Diversity and Inclusion (D&I) Index by LSEG Workspace, which focuses on several important dimensions to evaluate workforce diversity (board gender diversity, cultural diversity among board members, women employees, and diversity processes and objectives) and inclusion (daycare services, flexible working hours, the HRC corporate index, and employees with disabilities). Using firm-level data from globally listed firms included in the D&I index covering the period 2017–2021, our findings suggest, given a standard set of controls, that a firm's diversity and inclusion have a significantly positive causal impact on its performance, as measured by Tobin's Q. Therefore, a firm with a greater proportion of a diverse and inclusive workforce is more likely to benefit from enhanced performance. Our results hold consistently across an alternative definition of firm performance, specifically, one measured by return on assets (ROA). Further, we demonstrate that our results are not influenced by the dominance of US companies in the dataset and remain robust to potential sources of endogeneity.

Having established a robust positive association between diversity and inclusion and firm performance, we provide additional insights by examining whether institutional investors moderate the relationship between diversity and inclusion and firm performance. Understanding these moderating effects can be beneficial for companies when developing a suitable strategy to improve their performance for a given level of workplace diversity and inclusion. We show that the impact of workforce diversity and inclusion on firm performance is more pronounced in firms with a higher percentage of institutional ownership.

We additionally reveal that foreign institutional owners are superior compared to domestic institutional owners in their ability to positively influence the relationship between D&I and firm performance.

This study contributes to the prior literature by focusing on multiple aspects. Firstly, this is one of the first papers to focus on the global analysis of diversity and inclusion on firm performance, as the previous studies were oriented towards analyzing firms' performance from the diversity perspective only (Pandey et al. 2022; Conyon and He 2017; Ararat et al. 2015). Secondly, almost all the previous literature was focused either on a specific country or a specific industry (Song et al. 2020; Ozdemir 2020; Li et al. 2011), leaving a void in considering the global perspective and all the dimensions of workplace diversity. Thirdly, previous research that evaluated the role of diversity on firm performance was solely focused on specific aspects of diversity (Pandey et al. 2022; Lee and Kim 2020; Fernando et al. 2020), leaving a gap in the area of other classes of workforce diversity. In this sense, we go one step further by considering all different aspects of workforce diversity to evaluate firm performance while giving these firms a global and holistic analysis. Finally, there is a gap in the literature about the particular circumstances and conditions under which the impact of diversity and inclusion on firm performance may differ (Aggarwal et al. 2019; Pandey et al. 2022; Song et al. 2020). This study sheds light on the moderating effect of institutional ownership on the association between D&I and corporate performance.

The remaining sections of the paper proceed as follows. Section 2 reviews the relevant literature and formulates the hypotheses. Section 3 outlines the sample, variables, and empirical model employed in the study. The empirical tests examining the association between D&I and firm performance are presented in Section 4, along with supplementary analysis and robustness tests that complement our initial findings. Finally, Section 5 concludes by providing a summary of our findings and suggesting relevant policy implications.

2. Literature Review and Hypothesis Development

2.1. Diversity and Inclusion and Firm Performance

In a globalized economy, workforce diversity and inclusion are increasingly recognized as essential elements that influence firm performance. As organizations seek to leverage the benefits of diverse talent and viewpoints, research on this subject has been substantially expanded. The association between D&I and company performance is rooted in a Resource-Based View (RBV). This perspective argues that unique resources and capabilities give firms sustainable competitive advantages that are challenging for competitors to imitate or copy (Barney 1991). Businesses should strategically align their resources and competencies in order to develop their unique sources of competitive advantage, which are essential for their survival and achievement. A diverse workforce can serve as a strategic resource that offers a competitive advantage by cultivating distinct abilities, viewpoints, and problem-solving methodologies (Richard 2000).

The prior literature demonstrates that workforce diversity has a positive impact on organizational performance through the enhancement of creativity, innovation, and problem-solving abilities (Carter et al. 2003; Robinson and Dechant 1997). With enhanced information-processing capabilities, diverse boards are expected to make more informed decisions that contribute to the improvement of firm performance (Adams et al. 2015; Tasheva and Hillman 2019). The presence of cultural diversity in the workforce enhances the development of cross-cultural understanding, thereby fostering improved employee relations and global partnerships (Carter et al. 2010). Research has empirically shown that when a growth or innovation strategy is adopted, racial diversity is favorably related to financial performance (Richard et al. 2003). In addition, organizations with significant diversity management practices have observed reduced levels of staff turnover, and diversity management practices interacted effectively when combined with an innovation strategy, resulting in increased productivity and enhanced market performance (Richard 2000).

Contrastingly, social-identity theorists argue that individuals are inclined to align themselves with individuals who possess similar social category memberships (Song et al.

2020). Furthermore, the similar attraction paradigm posits that individuals have a tendency to form and sustain connections with others who possess similar demographic traits (Song et al. 2020). The existence of heterogeneity within a group occasionally leads to conflicts and communication challenges, owing to the fact that individuals from different backgrounds may have difficulty comprehending one another's viewpoints and building trust (Richard et al. 2003). Research has shown that diverse boards can lead to heightened group conflicts (Miller and Del Carmen Triana 2009; Triana et al. 2014) and increased risk aversion (Farrell and Hersch 2005), subsequently hindering the competitiveness of firms (Sila et al. 2016). Considering these arguments, we propose the following hypothesis:

H1: *The Diversity and Inclusion (D&I) index is positively associated with firm performance.*

2.2. Diversity and Firm Performance

The concept of diversity is extensive and seemingly boundless, encompassing a wide range of factors such as gender, culture, age, ethnicity, demography, etc. Prior studies have primarily focused on investigating the influence of diversity on firms' financial performance, with a particular emphasis on the viewpoints of boards of directors (Ararat et al. 2015; Carter et al. 2003; Conyon and He 2017), top management teams (TMTs) (Boone and Hendriks 2009; Carpenter 2002), managers (Andrevski et al. 2014; Dwyer et al. 2003), and employees (Li et al. 2011; Richard 2000). While numerous studies provide insights into the connection between different dimensions of diversity and firm performance, many of these studies are either focused on specific aspects of diversity (e.g., gender, age, race, culture, ethnicity, and education) or limited to specific countries (e.g., the US, the UK, Australia, India, China, Russia, and Turkey).

As evident from the findings of prior works in the literature, there is a lack of consensus within the mainstream management and governance literature regarding the effects of workforce diversity on firm performance. Integration of a diverse workforce can present challenges such as biases, misunderstandings, and subgroup formations. However, if managed effectively, workforce diversity has the potential to enhance firm performance by incorporating multiple perspectives, improving decision-making quality, and increasing productivity (Kossek et al. 2006; Triana et al. 2010). Furthermore, the complex nature of interpersonal connections among employees from diverse backgrounds can serve as a cornerstone for efforts to obtain sustainable competitive advantages that would be arduous for competitors to replicate (Richard 2000; Barney and Wright 1998). Therefore, we anticipate that workforce diversity will have a positive impact on a firm's performance.

H1a: *Diversity is positively associated with firm performance.*

2.3. Inclusion and Firm Performance

Although a significant amount of research on diversity already exists, the topic of inclusion has received less attention from researchers. While diversity has traditionally focused mainly on the heterogeneity and demographic composition of groups, inclusion has predominantly focused on employee engagement and the incorporation of diversity into organizational systems and processes (Roberson 2006). Similarly, Mor-Barak and Cherin (1998) define inclusion as the extent to which individuals perceive themselves as being integral to essential organizational processes, including participation within the work group, access to information and resources, and the opportunity to exert influence on decision-making. Specifically, inclusion refers to the degree to which an organization recognizes and integrates the contributions, presence, and viewpoints of diverse groups into its operations. Ferdman et al. (2010) proposed that the shared experience of inclusion in a group can have a positive correlation with the group's performance. Their investigation considered different factors, including the idea that when individuals are recognized and appreciated inside the group, they are more likely to provide valuable ideas and resources. Furthermore, the practice of inclusion is expected to cultivate a more diverse array of

viewpoints, expertise, and ideas, as individuals are encouraged to confidently articulate their opinions and thoughts. Consequently, this interaction is anticipated to increase the likelihood of attaining superior levels of performance.

Similar to diversity, the range of inclusion is also expanded. While evaluating an inclusive workplace, the Global Diversity and Inclusion (D&I) Index by the LSEG workspace analyzes different aspects of inclusion, including the availability of daycare services, flexible working hours, assistance for employees with disabilities, management of HIV/AIDS in an organization, and the HRC corporate equality index. While there is a scarcity of research directly connecting the dimensions of inclusiveness to firm performance, a small number of studies do emphasize the favorable influence of these elements on an organization, which could potentially result in enhanced firm performance. Prior studies emphasize that flexible working hours, which are a fundamental aspect of an inclusive workplace, can enhance firm-level innovation and productivity, which in turn is connected to firm performance. For instance, according to Azeem and Kotey (2021), introducing flexible working hours and leave policies can boost innovation at the firm level by providing the necessary mental space for creating, sharing, and utilizing knowledge. Another crucial component of creating an inclusive workplace is the availability of onsite daycare services, which has been shown to be positively linked to the qualities that enhance corporate performance. Rathee and Rajain (2019) have shown that incorporating onsite daycare services eliminates a significant source of interruption for working parents and promotes a highly effective staff that is more productive, focused, and committed to the organization's long-term success.

Despite the positive effects, achieving an inclusive workplace is not without its obstacles. Challenges such as resistance to change, unconscious biases, and a lack of genuine commitment from leadership at all levels can hinder the efficacy of inclusion initiatives. Nonetheless, the successful execution of inclusive practices necessitates unwavering dedication and strategic planning. Firms that effectively leverage the entire potential of their diverse workforces through inclusive practices are highly likely to experience significant performance advantages. Therefore, this study proposes the following hypothesis for empirical testing:

H1b: *Inclusion is positively associated with firm performance.*

2.4. The Moderating Role of Institutional Ownership

Institutional investors, commonly known as financial organizations, are entities such as insurance providers, banks, and pension funds that engage in collective trading on behalf of individual investors, with the aim of maximizing returns based on the risk profile (Chung and Zhang 2010). According to them, a key aspect of institutional investors is their fiduciary obligation to actively oversee management. By performing this monitoring role, institutional owners contribute to the mitigation of the agency problem that exists between investors and managers, thereby improving the financial performance of the firms (Shleifer and Vishny 1986). Moreover, institutional investors carefully evaluate and select the most promising companies for their investment portfolio, and their substantial voting power has a significant influence on managerial decisions (Gillan and Starks 2003).

Specifically, institutional investors leverage their advanced managerial abilities, expertise, and voting privileges to exert influence on managers, with the aim of enhancing corporate governance and aiding in business decision-making (Lin and Fu 2017; Shleifer and Vishny 1986). In addition, institutional investors commonly exert their influence on managers to prioritize corporate social responsibility (CSR) initiatives and foster greater engagement in CSR actions (Park et al. 2019). Since firms with a large proportion of institutional investors are likely to exhibit a strong commitment to social responsibility and transparent corporate governance practices, these firms actively promote diversity and inclusion in their workforce, thereby encouraging managers to pursue strategic decisions aimed at enhancing performance. Hence, this study posits that the impact of diversity and

inclusion on firm performance is expected to be more pronounced in firms with a larger proportion of institutional ownership. Accordingly, we propose the following hypothesis:

H2: *The impact of diversity and inclusion on firm performance becomes more pronounced as the level of institutional ownership increases in firm's ownership structure.*

3. Methodology

3.1. Sample and Data

To examine the impact of diversity and inclusion on firm performance, we rely on one of the most widely used global data sources for diversity and inclusion, namely, the Global Diversity and Inclusion (D&I) Index from the LSEG workspace. We incorporate all firms included in this index. We collected data on control variables from the LSEG workspace. We utilized data from 2017 to 2021 for all globally listed firms included in the index, resulting in 8089 observed firm-years. However, the LSEG workspace database did not contain the information for all the listed global firms. This database exclusively comprises leading multinational corporations.

3.2. Dependent Variable

The study employs Tobin's Q as the metric for evaluating firm performance. Tobin's Q is calculated by summing the market value of equity (including preferred stock) and the book value of long-term debt, and then dividing this sum by the book value of total assets (Ozdemir 2020). Tobin's Q has been suggested as a more favorable performance metric compared to short-term, accounting-based measures like ROA and ROE due to its capacity to assess the value creation capabilities of organizations and its focus on long-term performance (Servaes and Tamayo 2013).

3.3. Independent Variables

The independent variables considered in this study encompass diversity and inclusion. The data pertaining to these variables were obtained from the Global Diversity and Inclusion (D&I) Index provided by the LSEG workspace. Within the diversity pillars, there are eight indicators, including women employees, board gender diversity, new women employees, women managers, board member cultural diversity, women executive employees, diversity objectives, and diversity process. Additionally, the inclusion pillar comprises five indicators: daycare services, flexible working hours, employees with disabilities, HIV/AIDS, and the HRC corporate equality index. In the LSEG workspace index, the weight of each indicator is measured and subsequently added to the total weight of its respective pillar. To ensure consistency, non-numeric values are initially converted to the appropriate numeric values using the binary number '1' if the indicator is present. If the numeric value is not a valid number (e.g., the value is N/A), the transparency count is increased. Next, the appropriate minimum and maximum values for each indicator within the industry group are determined. Finally, the raw scores are computed using the following formula:

$$raw\ score = (numeric\ value - min\ value)/(max\ value - min\ value)$$

The normalized score is then calculated by using the raw score for each indicator.

$$normalized\ score = raw\ score * (indicator\ weight/sum\ of\ weights)$$

The overall score for the company for each relevant pillar is determined by the sum of the normalized scores.

3.4. Moderator Variable

Institutional investors are large-scale financial entities, like insurance companies, banks, and pension funds, that hold a substantial number of shares in a company. Consistent with prior studies, this study defines institutional ownership as the percentage of shares held by

institutional investors in relation to the total number of shares available. Institutional ownership is calculated by dividing the total number of common shares held by institutional investors by the overall number of common shares available at the end of the year.

3.5. Control Variables

To evaluate the impact of diversity and inclusion on company performance, we control for additional variables that have been identified as important determinants in earlier research (Ozdemir 2020; Song et al. 2020). We control for firm-specific variables, including leverage capital structure (*Leverage* is total debt divided by total assets); firm size (*Size* is the natural logarithm of total assets); firm age (*Age* is sample year minus year of incorporation); cashflow (*Cashflow* is measured as cashflow from operations scaled by total assets); capital intensity (*PPENT* is net property, plant, and equipment divided by total assets); Altman Z score (*Altman Z score* is computed using five accounting ratios); and price volatility (*Price volatility* is quantified by calculating the moving standard deviation of the overall stock return over the previous year).

3.6. Empirical Model

To empirically investigate the direct impact of diversity and inclusion on firm performance, we developed the following model:

$$Tobin's\ Q_{i,t} = \alpha_0 + \beta_1 D\&I_{i,t} + \beta_2 Controls_{i,t} + INDUSTRY + YEAR + \varepsilon_{i,t} \quad (1)$$

where "i" represents industry and "t" represents year. The dependent variable Tobin's Q indicates the performance of firm i at year t. The independent variable is the D&I index. Control variables include the leverage, size, age, cashflow, PPENT, Altman Z score, and price volatility. Detailed explanations of all the variables are provided in Appendix A. In all regressions, we considered all the control variables and also controlled for industry and year fixed-effects.

4. Empirical Results

4.1. Descriptive Statistics

The descriptive statistics of the dependent, independent, and control variables are shown in Table 1. The mean Tobin's Q in the sample is 1.61, ranging from 0.11 to 9.81. The D&I Index has a range of 30 to 86.5 and the average D&I score in the sample is 53.51. We observe a substantial degree of dispersion in the level-of-diversity score, which varies from a minimum of 1 to a maximum of 82, with a mean value of 31.13 and a standard deviation of 13.78. Similarly, a significant degree of dispersion exists in the level-of-inclusion score, ranging from a minimum of 1 to a maximum of 100, and the mean inclusion score is 34.66, with a standard deviation of 18.92. The mean score of the explanatory variables suggests that the presence of inclusion in the organization has a stronger effect, compared to that of diversity. Regarding moderating variables, the mean score of institutional ownership is 40.40%, ranging from 0% to 100%. The average score of domestic ownership is 24.39%, which is greater than the average score of foreign ownership, which is 22.50%. These results suggest that the percentage of domestic institutional investors in firms' ownership structure is higher compared to the percentage of foreign institutional investors. Regarding control variables, the average Altman Z score of 4.32 suggests that firms in our sample are less prone to bankruptcy risk. On average, the firms in the sample have a low debt ratio, as the leverage is 21%. Descriptive statistics reveal that the average price-to-book ratio is 3.12%, cashflow is 0.09%, and price volatility is 25.17%.

4.2. Correlation Matrix

The pairwise correlation analysis is shown in Table 2. Our result shows that both diversity and inclusion are statistically significant and positively correlated with Tobin's Q, providing preliminary support for our first hypothesis. These associations provide the primary impetus for further investigating the impact of diversity and inclusion on firm performance. We observe a positive correlation between diversity and inclusion, indicating

that firms with diversity offer an inclusive workplace environment. The moderating variable institutional ownership is positively correlated with Tobin's Q, demonstrating support for our second hypothesis. Additionally, both domestic and foreign ownership have a positive and significant association with Tobin's Q. As for control variables, *Size*, *Cashflow*, and *Altman Z score* have statistically significant positive correlations with Tobin's Q, while *Leverage*, *Age*, *PPENT*, and *Price Volatility* have significant negative association with Tobin's Q. These significant correlations between Tobin's Q and other control variables indicate the importance of controlling these variables in our regression models. Furthermore, the reported findings suggest that the correlation coefficient for all explanatory factors is below 0.80, indicating that multicollinearity does not appear to be an issue in this study.

Table 1. Descriptive statistics.

Variable	Observation	Mean	Std. Dev.	Min	Max
Tobin's Q	8089	1.61	1.54	0.11	9.81
D&I	8089	53.51	8.23	30.00	86.50
Diversity	8089	31.13	13.78	1.00	82.00
Inclusion	8089	34.66	18.92	1.00	100.00
Leverage	8089	0.21	0.16	0.00	0.80
Size (Log of total asset)	8089	3.12	4.25	−5.52	24.66
Age	8089	2.89	1.05	0.00	5.35
Cashflow	8089	0.09	0.08	−0.68	0.37
PPENT	8089	0.31	0.24	0.00	0.96
Altman Z Score	8089	4.32	5.38	−13.00	56.50
Price Volatility (%)	8089	25.17	8.55	11.55	63.05
Institutional Ownership (%)	8089	40.40	30.16	0.00	104.02
Domestic Ownership (%)	8089	24.39	28.77	0.00	93.28
Foreign Ownership (%)	8089	22.50	18.87	0.20	94.37
ROA (%)	8083	5.66	8.28	−83.02	35.35

Notes: This table presents the summary statistics of all variables.

4.3. Regression Results

The baseline regression results showing the impact of diversity and inclusion on firm performance are presented in Table 3 while considering the industry and year fixed-effects in all models. Model 1 examines the impact of the D&I Index on Tobin's Q without controlling for any additional variables, while Model 2 includes all control variables to test H1. The coefficients of the D&I Index in Model 1 and Model 2 are 0.007 and 0.005, respectively, and both are statistically significant at the 1% level. In both models, the D&I Index is positively related to Tobin's Q, providing support for H1, which predicts that increasing workforce diversity and inclusion enhances firm performance. Next, Model 3 explores the impact of diversity on Tobin's Q without controlling for additional variables, while Model 4 includes all the control variables. The coefficients of diversity in Model 3 and Model 4 are 0.004 and 0.002, respectively, and both coefficients are statistically significant at the 1% level. These findings suggest that increasing diversity in the workforce enhances firm performance. Likewise, we investigate the impact of inclusion on Tobin's Q without controlling for additional variables (Model 5) and with control variables (Model 6). The coefficients of inclusion in Model 5 and Model 6 are 0.006 and 0.001, respectively, and both coefficients are statistically significant at the 1% level. These findings imply that increasing inclusion within the firm can positively influence firm performance. However, the empirical results suggest that inclusion has a greater impact on firm performance than does diversity. Overall, these empirical results provide strong support in favor of hypothesis 1, which posits that increasing diversity and inclusion can enhance firm performance. Additionally, our findings support the claims made by the Resource Based View (Barney 1991), which suggests that unique resources and capabilities give organizations sustainable competitive advantages. Diversity and inclusion are essential components of a company's resources and capabilities; with advanced decision-making abilities, companies can make more well-informed decisions that positively influence firm performance. The findings of the study are consistent with previous studies that have examined the impact of diversity on company performance (Ferrary and Déo 2023; Lee and Kim 2020; Aggarwal et al. 2019; Fernando et al. 2020).

Table 2. Pairwise correlations.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Tobin's Q	1.00														
(2) D&I	−0.02 *	1.00													
(3) Diversity	0.01	0.65 *	1.00												
(4) Inclusion	0.01	0.72 *	0.23 *	1.00											
(5) Leverage	−0.08 *	0.02 *	0.06 *	0.01	1.00										
(6) Size	0.65 *	0.04 *	0.06 *	0.05 *	−0.04 *	1.00									
(7) Age	−0.07 *	0.15 *	0.07 *	0.13 *	−0.09 *	−0.06 *	1.00								
(8) Cashflow	0.42 *	0.10 *	0.08 *	0.08 *	−0.06 *	0.28 *	−0.01	1.00							
(9) PPENT	−0.18 *	−0.01	−0.02 *	0.00	0.23 *	−0.16 *	0.01	0.09 *	1.00						
(10) Altman Z Score	0.67 *	−0.07 *	−0.04 *	−0.03 *	−0.32 *	0.40 *	−0.04 *	0.29 *	−0.23 *	1.00					
(11) Price Volatility	−0.05 *	−0.27 *	−0.21 *	−0.18 *	−0.09 *	−0.07 *	−0.16 *	−0.15 *	0.04 *	0.01	1.00				
(12) Institutional	0.15 *	−0.06 *	0.02	−0.01	0.21 *	0.18 *	−0.02	0.14 *	−0.11 *	0.11 *	−0.18 *	1.00			
(13) Domestic	0.22 *	−0.14 *	−0.12 *	0.02	0.24 *	0.21 *	−0.03	0.13 *	−0.06 *	0.14 *	−0.16 *	0.80 *	1.00		
(14) Foreign	0.03 *	0.06 *	0.20 *	−0.10 *	0.04 *	0.03 *	−0.07 *	0.05 *	−0.08 *	0.08 *	−0.09 *	0.38 *	−0.29 *	1.00	
(15) ROA	0.42 *	0.12 *	0.05 *	0.07 *	−0.10 *	0.25 *	0.04 *	0.63 *	−0.09 *	0.34 *	−0.24 *	0.09 *	0.09 *	0.06 *	1.00

Notes: This table reports the pairwise correlation matrix for all variables. * Indicates statistical significance of coefficient estimates at the 5% level.

Table 3. Baseline regression results.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable			**Tobin's Q**			
D&I	0.007 ***	0.005 ***				
	(4.169)	(3.562)				
Diversity			0.004 ***	0.002 ***		
			(5.667)	(2.875)		
Inclusion					0.006 ***	0.001 ***
					(12.316)	(3.093)
Leverage		−1.034 ***		−0.662 ***		−0.655 ***
		(−15.505)		(−13.561)		(−13.425)
Size		−0.146 ***		−0.200 ***		−0.200 ***
		(−55.620)		(−100.058)		(−100.097)
Age		0.009		0.040 ***		0.037 ***
		(0.683)		(3.715)		(3.431)
Cashflow		−3.747 ***		0.045		0.049
		(−26.438)		(0.597)		(0.646)
PPENT		0.315 ***		0.422 ***		0.420 ***
		(7.003)		(12.287)		(12.214)
Altman Z Score		−0.137 ***		−0.099 ***		−0.099 ***
		(−61.718)		(−78.205)		(−78.103)
Price Volatility		−0.002		−0.012 ***		−0.012 ***
		(−1.590)		(−14.015)		(−13.956)
Constant	−1.859 ***	−0.326 ***	−1.743 ***	−0.471 ***	−1.739 ***	−0.445 ***
	(−19.756)	(−3.376)	(−91.903)	(−8.523)	(−140.135)	(−8.320)
Observations	11,013	8089	11,013	8089	11,013	8089
R-squared	0.002	0.663	0.001	0.577	0.005	0.577
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes
Country Effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table provides our main OLS regressions results as to the impact of the D&I index on firm performance. The dependent variable is Tobin's Q. T-statistics are presented in parentheses. *** indicate statistical significance of coefficient estimates at the 1% level.

4.4. Moderating Role of Institutional Investors

In Table 4, we investigate the moderating role of institutional investors relative to the relationship between workforce D&I and firm performance. To examine this relationship, we divided our sample into two groups based on the median percentage of institutional investors. In Model 1, the coefficient of D&I on Tobin's Q is 0.005 at a 1% significance level, while in Model 4, the coefficient is 0.003 at a 10% significance level. Although the presence of institutional ownership positively moderates the relationship between D&I and Tobin's Q in both models, the impact is stronger in the cases of samples of above-average levels of institutional ownership. These findings are consistent with our prediction in H2, which proposes that the impact of workforce diversity and inclusion on firm performance is more pronounced in firms with a higher percentage of institutional ownership. Hence, our second hypothesis is accepted. In addition, we analyze the individual impacts of the diversity score and inclusion score on Tobin's Q by utilizing both above-average and below-average samples. In Model 2 and Model 3, employing an above-average sample, the coefficients of the diversity score and inclusion score on Tobin's Q are 0.002 and 0.001, respectively, at a 1% significance level, suggesting a positive and significant impact of both explanatory variables on Tobin's Q. On the contrary, in Model 5 and Model 6, utilizing a below-average sample, the coefficients of both the diversity score and inclusion score on Tobin's Q suggest an insignificant association among these variables. In summary, these empirical findings support our proposition that the impact of diversity and inclusion on firm performance is stronger when there is a higher proportion of institutional investors. Our findings are consistent with the prior literature (Elyasiani and Jia 2010) that suggests institutional investors who hold a substantial portion of shares are more inclined to improve the firm's performance compared to those with smaller shareholdings. This is because larger shareholders have greater incentives to closely monitor companies in order to achieve higher returns.

Table 4. Role of institutional investors.

	(1)	(2)	(3)	(4)	(5)	(6)
	High Institutional Ownership			Low Institutional Ownership		
Dependent Variable	Tobin's Q					
D&I	0.005 ***			0.003 *		
	(3.331)			(1.664)		
Diversity		0.002 ***			−0.000	
		(3.188)			(−0.110)	
Inclusion			0.001 ***			−0.000
			(2.777)			(−0.090)
Leverage	−1.170 ***	−0.710 ***	−0.702 ***	−0.510 ***	−0.549 ***	−0.550 ***
	(−14.444)	(−12.756)	(−12.636)	(−5.545)	(−6.873)	(−6.890)
Size	−0.133 ***	−0.192 ***	−0.192 ***	−0.236 ***	−0.217 ***	−0.217 ***
	(−43.826)	(−86.181)	(−86.141)	(−48.385)	(−54.158)	(−54.368)
Age	0.016	0.041 ***	0.039 ***	−0.024 *	−0.010	−0.010
	(1.008)	(3.227)	(3.068)	(−1.669)	(−0.751)	(−0.733)
Cashflow	−3.901 ***	0.108	0.114	−1.098 ***	−0.162	−0.163
	(−23.335)	(1.299)	(1.366)	(−5.005)	(−0.971)	(−0.977)
PPENT	0.440 ***	0.540 ***	0.537 ***	−0.218 ***	−0.224 ***	−0.224 ***
	(8.003)	(13.681)	(13.610)	(−3.685)	(−4.277)	(−4.270)
Altman Z Score	−0.131 ***	−0.095 ***	−0.095 ***	−0.169 ***	−0.166 ***	−0.166 ***
	(−51.944)	(−68.616)	(−68.587)	(−37.996)	(−48.450)	(−48.494)
Price Volatility	−0.004 **	−0.014 ***	−0.014 ***	0.001	−0.004 ***	−0.004 ***
	(−2.482)	(−13.411)	(−13.447)	(0.962)	(−2.963)	(−2.981)
Constant	−0.406 ***	−0.547 ***	−0.509 ***	−0.004	0.092	0.090
	(−3.408)	(−8.434)	(−8.099)	(−0.031)	(1.251)	(1.278)
Observations	4667	4070	4126	3422	4019	3963
R-squared	0.626	0.553	0.553	0.858	0.787	0.787
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes
Country Effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table reports estimates from regression results for analyzing the moderating impact of institutional ownership on the relationship between D&I and firm performance. High institutional ownership and low institutional ownership indicate the above- and below-median value of institutional ownership level. Columns 1–3 show results for firms with high institutional ownership and columns 4–6 show results for firms with less-than-median levels of institutional ownership. The dependent variable is Tobin's Q. T-statistics are in parentheses. Definitions of all variables are provided in Appendix A. Superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

4.5. Moderating Role of Domestic Investors

We subsequently conducted additional analyses to validate our primary findings. We further split the sample of institutional ownership into domestic ownership and foreign ownership and examined the moderating roles of both types of institutional investors relative to the relationship between diversity and inclusion and firm performance. As domestic and foreign institutional ownership may have different interests, the impacts of domestic and foreign ownership on firm performance may vary.

The role of domestic institutional investors in the relationship between D&I and firm performance is presented in Table 5. Model 1, Model 2, and Model 3 represent the coefficients of D&I, diversity score, and inclusion score, respectively, on Tobin's Q in the firms with an above-average percentage of domestic institutional investors. These results indicate that a higher percentage of domestic institutional investors in firms has a positive impact on the link between diversity and inclusion and firm performance. However, the coefficients of D&I, diversity score, and inclusion score on Tobin's Q in Model 4, Model 5, and Model 6, respectively, indicate the insignificant impact of all the predictor variables on Tobin's Q. This suggests that the smaller percentage of domestic institutional investors is unable to exert pressure on management to promote diversity and inclusion in the workforce, which in turn could enhance firm performance.

Table 5. Role of domestic institutional ownership.

	(1)	(2)	(3)	(4)	(5)	(6)
	High Domestic Ownership			Low Domestic Ownership		
Dependent Variable	Tobin's Q					
D&I	0.005 ***			−0.002		
	(3.426)			(−0.876)		
Diversity		0.002 ***			0.000	
		(2.632)			(0.465)	
Inclusion			0.001 ***			0.000
			(2.897)			(0.849)
Leverage	−1.046 ***	−0.681 ***	−0.675 ***	−0.898 ***	−0.609 ***	−0.601 ***
	(−13.359)	(−12.614)	(−12.526)	(−9.063)	(−7.436)	(−7.334)
Size	−0.148 ***	−0.199 ***	−0.199 ***	−0.119 ***	−0.153 ***	−0.153 ***
	(−50.097)	(−91.718)	(−91.718)	(−21.303)	(−34.032)	(−34.307)
Age	0.007	0.044 ***	0.041 ***	0.010	0.001	−0.001
	(0.439)	(3.619)	(3.340)	(0.594)	(0.036)	(−0.052)
Cashflow	−3.844 ***	0.117	0.119	−2.928 ***	−2.233 ***	−2.228 ***
	(−23.680)	(1.444)	(1.471)	(−11.797)	(−11.173)	(−11.229)
PPENT	0.332 ***	0.497 ***	0.496 ***	0.203 ***	−0.018	−0.023
	(6.314)	(13.030)	(13.002)	(3.017)	(−0.328)	(−0.423)
Altman Z Score	−0.135 ***	−0.096 ***	−0.096 ***	−0.151 ***	−0.153 ***	−0.153 ***
	(−54.365)	(−70.828)	(−70.713)	(−31.743)	(−42.863)	(−43.111)
Price Volatility	−0.003 **	−0.013 ***	−0.013 ***	0.006 ***	−0.000	−0.000
	(−2.088)	(−13.208)	(−13.086)	(3.260)	(−0.048)	(−0.009)
Constant	−0.338 ***	−0.534 ***	−0.507 ***	−0.196	−0.095	−0.093
	(−2.960)	(−8.581)	(−8.406)	(−1.454)	(−1.195)	(−1.219)
Observations	4378	4882	3982	3711	3207	4107
R-squared	0.650	0.565	0.565	0.766	0.768	0.768
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes
Country Effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table reports estimates from regression results for analyzing the moderating impact of domestic institutional ownership on the relationship between D&I and firm performance. High domestic institutional ownership and low domestic institutional ownership indicate above- and below-median value of institutional ownership level. Columns 1–3 show results for firms with high institutional ownership and columns 4–6 show results for firms with less than median levels of institutional ownership. The dependent variable is Tobin's Q. T-statistics are in parentheses. Definitions of all variables are provided in Appendix A. Superscripts *** and ** denote statistical significance at the 1% and 5% level, respectively.

4.6. Moderating Role of Foreign Investor

In Table 6, we investigate the moderating role of foreign institutional ownership on the relationship between D&I and Tobin's Q by utilizing both an above-average percentage sample and a below-average percentage sample of foreign institutional ownership. The coefficients of D&I on Tobin's Q in Model 1 and Model 4 are 0.007 and 0.005, respectively, at a 1% significance level, indicating a positive and significant impact of D&I on Tobin's Q in both models. The aforementioned findings imply that the presence of foreign institutional investors, regardless of their proportion, exerts a favorable impact on the relationship between D&I and firm performance. In Model 2, Model 3, Model 5, and Model 6, the coefficients of diversity score and inclusion score on Tobin's Q demonstrate a positive and statistically significant influence of all the predictor variables on firm performance. However, the influence of diversity score and inclusion score is slightly higher in firms with an above-average proportion of foreign institutional investors compared to those with a below-average proportion. Empirical findings indicate that a lower proportion of foreign institutional investors can have a more substantial impact on a firm's management, compared to having a lower proportion of domestic institutional investors, in terms of fostering diversity and inclusion in the workforce to improve firm performance. These findings are consistent with the argument of (Lin and Fu 2017).

Table 6. Role of foreign ownership.

	(1)	(2)	(3)	(4)	(5)	(6)
	High Foreign Ownership			Low Foreign Ownership		
Dependent Variable	Tobin's Q					
D&I	0.007 ***			−0.005 ***		
	(4.390)			(−2.682)		
Diversity		0.002 ***			−0.002 **	
		(3.761)			(−2.110)	
Inclusion			0.002 ***			−0.001 **
			(3.343)			(−2.327)
Leverage	−0.996 ***	−0.730 ***	−0.719 ***	−1.492 ***	−0.731 ***	−0.747 ***
	(−12.698)	(−13.243)	(−13.057)	(−13.582)	(−8.585)	(−8.762)
Size	−0.157 ***	−0.206 ***	−0.205 ***	−0.087 ***	−0.126 ***	−0.126 ***
	(−50.124)	(−91.227)	(−91.205)	(−20.424)	(−35.042)	(−34.937)
Age	0.002	0.031 **	0.029 **	0.007	0.021	0.024
	(0.104)	(2.472)	(2.276)	(0.383)	(1.317)	(1.505)
Cashflow	−3.543 ***	0.194 **	0.199 **	−3.006 ***	−2.738 ***	−2.747 ***
	(−22.141)	(2.379)	(2.438)	(−9.422)	(−12.225)	(−12.304)
PPENT	0.350 ***	0.489 ***	0.487 ***	−0.111	−0.010	−0.007
	(6.519)	(12.482)	(12.419)	(−1.490)	(−0.178)	(−0.126)
Altman Z Score	−0.129 ***	−0.094 ***	−0.094 ***	−0.266 ***	−0.176 ***	−0.177 ***
	(−53.692)	(−69.831)	(−69.814)	(−33.856)	(−39.432)	(−39.377)
Price Volatility	−0.002	−0.013 ***	−0.013 ***	−0.002	−0.005 ***	−0.005 ***
	(−1.560)	(−12.895)	(−13.035)	(−1.243)	(−2.953)	(−3.010)
Constant	−0.452 ***	−0.488 ***	−0.445 ***	0.698 ***	0.060	0.033
	(−3.940)	(−7.670)	(−7.216)	(4.583)	(0.684)	(0.389)
Observations	5045	3987	4181	3044	4102	3908
R-squared	0.655	0.574	0.574	0.752	0.688	0.688
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes
Country Effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table reports estimates from regression results for analyzing the moderating impact of foreign institutional ownership on the relationship between D&I and firm performance. High foreign institutional ownership and low foreign institutional ownership indicate the above- and below-median value of the institutional ownership level. Columns 1–3 show results for firms with high foreign institutional ownership and columns 4–6 show results for firms with less than median levels of foreign institutional ownership. The dependent variable is Tobin's Q. T-statistics are in parentheses. Definitions of all variables are provided in Appendix A. Superscripts *** and ** denote statistical significance at the 1% and 5% level, respectively.

4.7. Robustness Test

To provide robustness to the primary findings, in Table 7, we introduce an alternative proxy for firm performance in Panel A as well as test our baseline regression without the sample of US firms in Panel B. The alternative proxy for firm performance is the return on assets (ROA), which has been extensively used in the previous literature as an alternative measure of firm performance. While Tobin's Q measures the market-based performance of a firm, ROA is an accounting-based measure of firm performance (Pandey et al. 2022; Wang et al. 2024). The coefficients of D&I, diversity score, and inclusion score on ROA in Model 1, Model 2, and Model 3, respectively, demonstrate positive and significant association, indicating that our main results remain robust even when using an alternative measure of firm performance. Additionally, we examine the impact of workforce diversity and inclusion on Tobin's Q by employing a sample of global companies without US firms. Since, the findings of this study are significantly influenced by the presence of US firms, we examine the validity of our initial findings by using a sample of non-US firms. The findings from Model 4, Model 5, and Model 6 are consistent with our baseline regression results, providing evidence that enhancing diversity and inclusion within the workforce enhances the performance of non-US firms.

Table 7. Robustness test.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variable		**Panel A: ROA**			**Panel B: Tobin's Q**			**Panel C: Firm Fixed-Effect**	
D&I	0.025 ***			0.005 ***			0.005 ***		
	(2.915)			(3.689)			(3.543)		
Diversity		−0.027 ***			0.000			0.002 **	
		(−6.372)			(0.681)			(2.330)	
Inclusion			−0.010 ***			0.001 **			0.001 *
			(−3.284)			(2.523)			(1.850)
Leverage	−0.169	1.483 ***	1.350 ***	−0.264 ***	−0.126 **	−0.121 **	−0.265 ***	−0.164 **	−0.165 **
	(−0.372)	(4.182)	(3.811)	(−3.562)	(−2.203)	(−2.146)	(−2.644)	(−2.203)	(−2.212)
Size	0.030 *	−0.140 ***	−0.143 ***	−0.214 ***	−0.248 ***	−0.248 ***	−0.066 ***	−0.095 ***	−0.095 ***
	(1.666)	(−9.664)	(−9.872)	(−66.198)	(−100.537)	(−100.687)	(−24.995)	(−48.135)	(−48.121)
Age	0.316 ***	0.400 ***	0.399 ***	−0.017	0.011	0.007	−0.027	0.179 ***	0.198 ***
	(3.617)	(5.158)	(5.098)	(−1.371)	(1.077)	(0.666)	(−0.357)	(3.020)	(3.389)
Cashflow	60.903 ***	82.388 ***	82.268 ***	−2.422 ***	−1.014 ***	−1.020 ***	−1.329 ***	0.035	0.035
	(62.932)	(150.527)	(150.309)	(−16.876)	(−10.808)	(−10.883)	(−10.097)	(0.408)	(0.398)
PPENT	−3.208 ***	−3.329 ***	−3.293 ***	0.060	0.149 ***	0.147 ***	−0.232 *	0.358 ***	0.361 ***
	(−10.437)	(−13.354)	(−13.202)	(1.297)	(4.232)	(4.185)	(−1.806)	(3.686)	(3.712)
Altman Z Score	0.232 ***	0.165 ***	0.166 ***	−0.119 ***	−0.093 ***	−0.093 ***	−0.080 ***	−0.045 ***	−0.045 ***
	(15.344)	(17.981)	(18.101)	(−54.745)	(−70.246)	(−70.121)	(−26.815)	(−29.336)	(−29.336)
Price Volatility	−0.139 ***	−0.202 ***	−0.198 ***	0.001	−0.007 ***	−0.007 ***	0.004	0.006 ***	0.006 ***
	(−16.428)	(−31.459)	(−30.813)	(1.047)	(−8.273)	(−8.036)	(1.471)	(3.036)	(3.003)
Constant	1.014	3.017 ***	2.456 ***	−0.405 ***	−0.252 ***	−0.253 ***	−1.065 ***	−2.144 ***	−2.174 ***
	(1.539)	(7.517)	(6.318)	(−4.158)	(−4.599)	(−4.757)	(−4.021)	(−10.586)	(−10.763)
Observations	8089	8089	8089	6145	6145	6145	8089	8089	8089
R-squared	0.459	0.648	0.648	0.746	0.700	0.700	0.258	0.210	0.209
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed-Effects	No	No	No	No	No	No	Yes	Yes	Yes
Country Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Panel A of Table 7 presents results analyzing the effect of D&I on firm performance using ROA as a proxy of performance. Panel B of Table 7 provides the results of regression by analyzing the effect of D&I on firm performance, without US firms. Panel C of Table 7 presents the regression results using a firm fixed-effects model. The dependent variable is Tobin's Q. T-statistics are in parentheses. Definitions of all variables are provided in Appendix A. Superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

To address the possible endogeneity problem, we use a firm fixed-effect model. A firm fixed-effects model helps reduce endogeneity problems by controlling for unobserved heterogeneity that is constant over time within a firm. By controlling for unobserved heterogeneity, the firm fixed-effects model helps to reduce the risk of omitted variable bias, a common source of endogeneity. The results are presented in Panel C of Table 7. Models 7–9 of Table 7 show that diversity and inclusion have a positive and significant impact on firm performance. The results are consistent with our reported baseline regression results in Table 3.

5. Conclusions

Diversity and inclusion have been recognized as crucial factors that significantly influence firm performance. A resource-dependence view of the firm has been employed to elucidate why a diverse and inclusive workforce should result in improved performance, yet the results of the prior research are not conclusive. This study addresses the gap in the prior literature using a composite score of D&I in a global setting. By using firm-level data covering the period 2017–2021, we show that workforce diversity and inclusion have a significant positive impact on company performance, as measured by Tobin's Q. Therefore, the financial performance of firms improves as their workforce becomes more diverse and inclusive. These findings are consistent with the argument underlying the resource-dependence view, suggesting that diversity and inclusion are essential components of a company's resources and capabilities which positively influence firm performance. Our results hold consistently across an alternative definition of firm performance, namely, one measured by return on assets (ROA). Additionally, we demonstrate that our results are not influenced by the dominance of US companies in the dataset, and are robust to various sources of endogeneity.

Furthermore, this study supports the view that the association between workforce D&I and a firm's financial performance is more complex than a simple and direct relationship. Consequently, the study employs a contingency model to examine how institutional ownership moderates the relationship between D&I and firm performance. This study proposes that workforce D&I should matter most to the firm's financial performance when the percentage of institutional ownership in the firm's ownership structure is high. The study finds evidence to support this claim by demonstrating that the positive influence of diversity and inclusion on company performance strengthens as the percentage of institutional ownership increases. Additionally, we reveal that a small percentage of foreign institutional investors can exert a more substantial impact on a firm's management, aiming to promote diversity and inclusion in the workforce, in order to improve firm performance compared to a small proportion of domestic investors.

Considering the limited research available in the field of diversity and inclusion, the findings of this study offer valuable insights for policymakers, practitioners, researchers, managers, and investors. This study emphasizes the importance of diversity and inclusion in enhancing company performance. In a dynamic business environment that demands creative solutions to emerging challenges, the importance of a diverse and inclusive workforce, one possessing a range of skills, experiential knowledge, and cultural perspectives, is undeniable in efforts to enhance firm performance. Policymakers can set policies to make the corporate environment more diversified and inclusive. The firm's management can use the findings to consider a broad range of diversity and inclusiveness in setting firm policies to improve performance. Specifically, management can utilize these findings to formulate a firm's corporate governance policies and human resource practices. Addressing diversity and inclusion issues also enhances a company's reputation in the business world. This not only raises awareness among customers, but also sparks interest among investors, leading them to include these firms in their investment portfolios. Therefore, the study also offers valuable information for investors, allowing them to make more knowledgeable decisions when selecting equity investments. Furthermore, a crucial factor to take into account when including a company in a stock portfolio is the anticipated future cashflows generated

by the company, which are directly linked to its performance. Therefore, the connection between diversity and inclusion and the performance of a company, as well as the influence of institutional ownership in regulating this connection, may serve as indications.

There are several limitations in this study that could be addressed in future research. Firstly, this study employs Tobin's Q and ROA as metrics for assessing business success. However, future research could explore alternative proxies, such as return on equity (ROE) and cashflow, to evaluate firm performance. Secondly, this study exclusively utilizes secondary data for analysis, limiting the sample to publicly listed global companies. Hence, to improve the validity, we suggest including additional samples from non-listed firms in future studies. Thirdly, this study specifically utilizes global data to carry out the analysis. Consequently, the impact of cultural contexts within different continents and countries is disregarded. We suggest that future research can replicate our analysis from the perspectives of US, European, and Asian countries or according to different industries, which may reveal distinct patterns or peculiarities on the relationship between D&I and firm performance. Fourthly, the impact of institutional ownership could be affected by additional contextual factors that were not controlled for, such as the legislative framework, cultural inequality, or market dynamics. Lastly, there may be additional intervening factors, such as characteristics specific to the firm (firm size) and the industry (market competition), that influence the relationship between diversity and inclusion and firm performance. To thoroughly investigate the connection between D&I and company performance, future research should consider additional potential elements that may influence the relationship, such as the integration of a mediator variable.

Author Contributions: Conceptualization, R.S. and M.N.K.; Methodology, R.S. and S.A.H.; Software, M.N.K.; Validation, S.A.H. and S.M.R.; Formal Analysis, R.S.; Investigation, M.N.K.; Resources, M.N.K.; Data Curation, S.A.H. and S.M.R.; Writing—Original Draft Preparation, R.S.; Writing—Review and Editing, M.N.K. and R.S.; Vei isualization, S.A.H. and S.M.R.; Supervision, R.S. and M.N.K.; Project Administration, M.N.K. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no funding from North South University.

Data Availability Statement: Data available upon request.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A. Definition of Variables

Variable	Definition	Source
Dependent Variable		
Tobin's Q	(Fair Market value + Total Liabilities)/Total Assets	Author's Calculation
Independent Variable		
D&I	The D&I Score is a quarterly-calculated metric representing a company's performance in diversity, inclusion, people development, and controversies, based on 24 selected measures from the LSEG ESG database.	LSEG Workspace
Diversity	The Diversity Score is a metric that evaluates a company's performance in promoting cultural, gender, and policy-based diversity within its board, management, and overall workforce.	LSEG Workspace
Inclusion	The Inclusion Score evaluates a company's commitment to workplace equality, flexibility, support services, and programs for employees with disabilities or special needs.	LSEG Workspace

Variable	Definition	Source
Control Variable		
Leverage	The ratio of a firm's total debt to the book value of its assets	DataStream
Size	The natural logarithm of the book value of a firm's asset	DataStream
Age	One plus the listing age of a firm as measured by the number of years from its IPO as reported in DataStream	DataStream
Cashflow	The ratio of a firm's cashflow to operations to the book value of its assets	DataStream
PPENT	The ratio of firm's property, plant, and equipment to the book value of asset	DataStream
Altman Z Score	Z score = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E A = Working capital/Total assets; B = Retained assets/Total assets; C = Earnings before tax and interest/Total assets; D = Market value of equity/Total liabilities; E = Sales/Total assets	DataStream
Price Volatility	The rolling standard deviation of stock return for the year *t* plus the previous two years	DataStream
Institutional Ownership	% of shares held by institutions	Factset
Domestic Ownership	% of shares held by domestic institutions	Factset
Foreign Ownership	% of shares held by foreign institutions	Factset
ROA	The ratio of a firm's net profit to total assets	DataStream

References

Adams, Renée B., Jakob de Haan, Siri Terjesen, and Hans van Ees. 2015. Board Diversity: Moving the Field Forward. *Corporate Governance: An International Review* 23: 77–82. [CrossRef]

Aggarwal, Raj, Varun Jindal, and Rama Seth. 2019. Board diversity and firm performance: The role of business group affiliation. *International Business Review* 28: 101600. [CrossRef]

Andrevski, Goce, Orlando C. Richard, Jason D. Shaw, and Walter J. Ferrier. 2014. Racial Diversity and Firm Performance: The mediating role of competitive intensity. *Journal of Management* 40: 820–44. [CrossRef]

Ararat, Melsa, Mine Aksu, and Ayse Tansel Cetin. 2015. How Board Diversity Affects Firm Performance in Emerging Markets: Evidence on Channels in Controlled Firms. *Corporate Governance: An International Review* 23: 83–103. [CrossRef]

Azeem, Muhammad Masood, and Bernice Kotey. 2021. Innovation in SMEs: The role of flexible work arrangements and market competition. *The International Journal of Human Resource Management* 34: 92–127. [CrossRef]

Barney, Jay. 1991. Firm Resources and Sustained Competitive Advantage. *Journal of Management* 17: 99–120. [CrossRef]

Barney, Jay B., and Patrick M. Wright. 1998. On becoming a strategic partner: The role of human resources in gaining competitive advantage. *Human Resource Management* 37: 31–46. [CrossRef]

Boone, Christophe, and Walter Hendriks. 2009. Top Management Team Diversity and Firm Performance: Moderators of Functional-Background and Locus-of-Control Diversity. *Management Science* 55: 165–80. [CrossRef]

Carpenter, Mason A. 2002. The implications of strategy and social context for the relationship between top management team heterogeneity and firm performance. *Strategic Management Journal* 23: 275–84. [CrossRef]

Carter, David A., Betty J. Simkins, and W. Gary Simpson. 2003. Corporate Governance, Board Diversity, and Firm Value. *Financial Review* 38: 33–53. [CrossRef]

Carter, David A., Frank D'Souza, Betty J. Simkins, and W. Gary Simpson. 2010. The Gender and Ethnic Diversity of US Boards and Board Committees and Firm Financial Performance. *Corporate Governance: An International Review* 18: 396–414. [CrossRef]

Chapple, Larelle, and Jacquelyn E. Humphrey. 2014. Does board gender diversity have a financial impact? Evidence using stock portfolio performance. *Journal of Business Ethics* 122: 709–23. [CrossRef]

Chung, Kee H., and Hao Zhang. 2010. Corporate Governance and Institutional Ownership. *Journal of Financial and Quantitative Analysis* 46: 247–73. [CrossRef]

Conyon, Martin J., and Lerong He. 2017. Firm performance and boardroom gender diversity: A quantile regression approach. *Journal of Business Research* 79: 198–211. [CrossRef]

Dwyer, Sean, Orlando C. Richard, and Ken Chadwick. 2003. Gender diversity in management and firm performance: The influence of growth orientation and organizational culture. *Journal of Business Research* 56: 1009–19. [CrossRef]

Elyasiani, Elyas, and Jingyi Jia. 2010. Distribution of institutional ownership and corporate firm performance. *Journal of Banking & Finance* 34: 606–20. [CrossRef]

Farrell, Kathleen A., and Philip L. Hersch. 2005. Additions to corporate boards: The effect of gender. *Journal of Corporate Finance* 11: 85–106. [CrossRef]

Ferdman, Bernardo M., Avi Avigdor, Deborah Braun, Jennifer Konkin, and Daniel Kuzmycz. 2010. Collective experience of inclusion, diversity, and performance in work groups. *RAM. Revista de Administração Mackenzie* 11: 6–26. [CrossRef]

Fernando, Guy D., Shalini Sarin Jain, and Arindam Tripathy. 2020. This cloud has a silver lining: Gender diversity, managerial ability, and firm performance. *Journal of Business Research* 117: 484–96. [CrossRef]
Ferrary, Michel, and Stéphane Déo. 2023. Gender diversity and firm performance: When diversity at middle management and staff levels matter. *The International Journal of Human Resource Management* 34: 2797–831. [CrossRef]
Gillan, Stuart, and Laura T. Starks. 2003. Corporate governance, corporate ownership, and the role of institutional investors: A global perspective. *Journal of Applied Finance* 13: 4–22. [CrossRef]
Kossek, Ellen Ernst, Sharon A. Lobel, and Jennifer Brown. 2006. Human Resource Strategies to Manage Workforce Diversity: Examining 'The Business Case'. In *Handbook of Workplace Diversity*. Thousand Oaks: SAGE Publications, Ltd., pp. 54–75.
Kunze, Florian, Stephan A. Boehm, and Heike Bruch. 2010. Age diversity, age discrimination climate and performance consequences—A cross organizational study. *Journal of Organizational Behavior* 32: 264–90. [CrossRef]
Lee, Hun Whee, and Eunhee Kim. 2020. Workforce diversity and firm performance: Relational coordination as a mediator and structural empowerment and multisource feedback as moderators. *Human Resource Management* 59: 5–23. [CrossRef]
Li, Ji, Chris Wai Lung Chu, Kevin C. K. Lam, and Stacy Liao. 2011. Age diversity and firm performance in an emerging economy: Implications for cross-cultural human resource management. *Human Resource Management* 50: 247–70. [CrossRef]
Lin, Yongjia Rebecca, and Xiaoqing Maggie Fu. 2017. Does institutional ownership influence firm performance? Evidence from China. *International Review of Economics & Finance* 49: 17–57.
Miller, Toyah, and María Del Carmen Triana. 2009. Demographic Diversity in the Boardroom: Mediators of the Board Diversity–Firm Performance Relationship. *Journal of Management Studies* 46: 755–86. [CrossRef]
Mor-Barak, Michal E., and David A. Cherin. 1998. A Tool to Expand Organizational Understanding of Workforce Diversity. *Administration in Social Work* 22: 47–64. [CrossRef]
Ozdemir, Ozgur. 2020. Board diversity and firm performance in the U.S. tourism sector: The effect of institutional ownership. *International Journal of Hospitality Management* 91: 102693. [CrossRef]
Pandey, Nitesh, H. Kent Baker, Satish Kumar, Prashant Gupta, and Searat Ali. 2022. Board Diversity and Firm Performance: The Role of Contextual Variables. *British Journal of Management* 34: 1920–47. [CrossRef]
Pandey, Nitesh, Satish Kumar, Corinne Post, John W. Goodell, and Rebeca García-Ramos. 2023. Board gender diversity and firm performance: A complexity theory perspective. *Asia Pacific Journal of Management* 40: 1289–320. [CrossRef]
Park, Sungbeen, Sujin Song, and Seoki Lee. 2019. The influence of CEOs' equity-based compensation on restaurant firms' CSR initiatives. *International Journal of Contemporary Hospitality Management* 31: 3664–82. [CrossRef]
Pitts, David. 2009. Diversity management, job satisfaction, and performance: Evidence from US federal agencies. *Public Administration Review* 69: 328–38. [CrossRef]
Rathee, Rupa, and Pallavi Rajain. 2019. Talent Management of Employees in Private Banks. *LBS Journal of Management & Research* 17: 54. [CrossRef]
Richard, Orlando C. 2000. Racial Diversity, Business Strategy, and Firm Performance: A Resource-Based View. *Academy of Management Journal* 43: 164–77. [CrossRef]
Richard, Orlando, Amy McMillan, Ken Chadwick, and Sean Dwyer. 2003. Employing an Innovation Strategy in Racially Diverse Workforces. *Group & Organization Management* 28: 107–26. [CrossRef]
Roberson, Quinetta M. 2006. Disentangling the Meanings of Diversity and Inclusion in Organizations. *Group & Organization Management* 31: 212–36. [CrossRef]
Robinson, Gail, and Kathleen Dechant. 1997. Building a business case for diversity. *Academy of Management Perspectives* 11: 21–31. [CrossRef]
Servaes, Henri, and Ane Tamayo. 2013. The Impact of Corporate Social Responsibility on Firm Value: The Role of Customer Awareness. *Management Science* 59: 1045–61. [CrossRef]
Shleifer, Andrei, and Robert W. Vishny. 1986. Large Shareholders and Corporate Control. *Journal of Political Economy* 94: 461–88. [CrossRef]
Sila, Vathunyoo, Angelica Gonzalez, and Jens Hagendorff. 2016. Women on board: Does boardroom gender diversity affect firm risk? *Journal of Corporate Finance* 36: 26–53. [CrossRef]
Song, Hyoung Ju, Yu Na Yoon, and Kyung Ho Kang. 2020. The relationship between board diversity and firm performance in the lodging industry: The moderating role of internationalization. *International Journal of Hospitality Management* 86: 102461. [CrossRef]
Talavera, Oleksandr, Shuxing Yin, and Mao Zhang. 2018. Age diversity, directors' personal values, and bank performance. *International Review of Financial Analysis* 55: 60–79. [CrossRef]
Tasheva, Sabina, and Amy J. Hillman. 2019. Integrating Diversity at Different Levels: Multilevel Human Capital, Social Capital, and Demographic Diversity and Their Implications for Team Effectiveness. *Academy of Management Review* 44: 746–65. [CrossRef]
Triana, MaríA del Carmen, MaríA Fernanda GarcíA, and Adrienne Colella. 2010. Managing diversity: How organizational efforts to support diversity moderate the effects of perceived racial discrimination on affective commitment. *Personnel Psychology* 63: 817–43. [CrossRef]

Triana, María del Carmen, Toyah L. Miller, and Tiffany M. Trzebiatowski. 2014. The Double-Edged Nature of Board Gender Diversity: Diversity, Firm Performance, and the Power of Women Directors as Predictors of Strategic Change. *Organization Science* 25: 609–32. [CrossRef]

Wang, Kangyi, Jing Ma, Chunxiao Xue, and Jianing Zhang. 2024. Board Gender Diversity and Firm Performance: Recent Evidence from Japan. *Journal of Risk and Financial Management* 17: 20. [CrossRef]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.