Foreignness of CEOs and Innovation: A Mediation Effect of Inclusiveness

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This study investigates the impact of the foreignness of CEOs on innovation and inclusion initiatives in publicly-held Japanese companies from 2000 to 2019. Drawing on the upper echelons theory, this study proposes that the unique perspectives and experiences associated with foreign-born leadership (the asset of foreignness) enhance a company's innovative capabilities and inclusion practices. Moreover, these leaders' intrinsic drive to mitigate the biases and skepticism connected with their foreign origin (liability of foreignness and country of origin effect) further intensifies these effects. We find that these benefits are more pronounced in companies of which CEOs experience heightened levels of foreignness and stronger biases based on their country of origin. Our findings confirm that the foreignness of CEOs improves a firm's innovation and inclusivity.

"We dedicate ourselves to building a just, decent, and inclusive company. We must be empathetic to the experience of underrepresented groups and act to make NVIDIA a place of opportunities. We do this because it is right and just, and we believe it will help make NVIDIA better."

— Jensen Huang, CEO of NVIDIA

1. Introduction

It is obvious that innovation plays an important role in the firm growth (Aghion, 1990). Current studies have pointed out that one of the key drivers of firm innovation is the CEO characteristics, including overconfidence (Galasso and Simcoe, 2011; Hirshleifer et al., 2012), individualism (Gao et al., 2023), past invention experience (Islam and Zein, 2020) and hobby (Sunder et al., 2017). An unexplored area of the CEO's characteristics on innovation is the early-life experience. Early-life experience affects various aspects of the CEO's decision-making (Bias and Ljungqvist, 2023; Malmendier and Nagel, 2011; Malmendier et al., 2011). Various studies in this strand of literature have discussed the overconfidence of CEOs.[1] However, the risk preference, including overconfidence, is not the only factor that the early-life exp(Williams, 2023)erience can cause. For example, it is important experiences to meet unfamiliar cultures can influence the CEO's tolerance for accepting different kinds of thoughts in the company, which enable them to accept more innovation in the company (Lakshman et al., 2021; Li et al., 2023; Qian, 2013; Waal and Born, 2020).

An early-life experience, especially one that comes from nationality, can affect the risk-taking behavior of the CEOs via another path: by creating an innovation-friendly corporate culture. Innovation is born in companies with cultures that accept different types of views. Therefore, it is possible for foreign-born CEOs to make innovative companies by adopting inclusiveness in the corporate culture. Furthermore, ealy-life experience can affect the firm's diversity and inclusion policy. Al-Shammari et al.

[1] It is well argued that overconfidence of CEOs results in over-investment(Malmendier and Tate, 2005; Pikulina et al., 2017), high leverage (Ho et al., 2016), and few cash holding (Aktas et al., 2019; Chen et al., 2020).

(2019) shows that a CEO's early-life experience with diversity affects the firm's diversity policy. Furthermore, foreign-born executives are categorized or perceived as outgroup members within the local context of the firm (Bertrand et al., 2021; Hernandez and Kulchina, 2020).

Drawing from these premises, we argue that companies led by foreign CEOs are likely to experience greater innovations and implementation of inclusion initiatives. Foreign CEOs bring unique perspectives and experiences that stem from their diverse backgrounds. In addition, they are motivated to overcome the challenges associated with the liability of foreignness and the country of origin (COO) effect. The liability of foreignness refers to the disadvantages that arise from being foreign, which are either not experienced by locals or are experienced by them to a lesser extent (Bertrand et al., 2021; Mata and Alves, 2018; Zaheer, 1995). The COO effect refers to biases related to a nationality (Martin and Eroglu, 1993; Tavoletti et al., 2022).

An anecdotal evidence of NVIDIA supports our hypotheses. NVIDIA's GPUs have played a crucial role in the current progress of these technologies, including ChatGPT, which was introduced on November 30, 2022, and marked a significant milestone in the company's rapid ascent in the stock market. As a result, NVIDIA became the most valuable company on June 18th, 2024, surpassing Microsoft and Apple, an accomplishment. NVIDIA is recognized as a pioneering company, and much of its innovation can be attributed to the visionary leadership of its founder, Jensen Huang. Huang's leadership style, shaped by his formative experiences, is considered a significant contributor to NVIDIA's pioneering success.[2] Having been born in Taiwan, subsequently relocating to Thailand and the United States, Huang encountered the challenges of foreignness and minority status during his formative years. These experiences likely compelled him to become an inclusive leader dedicated to nurturing a company culture that values and respects diverse viewpoints.[3]

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[2] The diversity and inclusion initiatives undertaken by NVIDIA are accessible via their homepage at https://www.nvidia.com/en-us/about-nvidia/careers/diversity-and-inclusion/. Additionally, relevant news articles from Pressfarm, such as "What Makes Jensen Huang a Visionary Leader in Tech?" (https://press.farm/what-makes-jensen-huang-visionary-leader-in-tech), may also provide valuable information.

[3] Jen-Hsun Huang was born in Taiwan and later relocated to Thailand at the age of five. Subsequently, when he was nine years old, he and his brother moved to the United

We test our hypotheses utilizing the data from Japanese listed companies. The Japanese setting fits to explore our hypothesis. Japan has historically been regarded as a highly collectivist society at the national level (Nakane, 1970), characterized by a strong emphasis on maintaining harmony within the in-group and a tendency to conform to group norms, even at the expense of individual interests for the greater good. This is exemplified by the insider-dominated boards of Japanese corporations, which rarely appoint external CEOs and directors, resulting in a homogenous composition at the firm level.

Furthermore, Japan's aging society and contracting labor force prompted the government to relax permanent residency conditions for highly skilled foreigners.[4] Meanwhile, surveys of foreign workers reveal concerns about workplace discrimination, underscoring that mere numerical diversity does not equal improved productivity, emphasizing the importance of inclusion.[5] Hence, the Japanese context provides an opportunity to explore the potential transformative effects of foreign CEOs on the innovation and inclusivity of companies in Japan.

We construct the dataset of corporate executives of all Japanese listed companies between 2000 and 2019. Following Tavoletti et al. (2022) on nationality bias, we measure the foreignness of foreign-born CEOs based on the economic status of their country of origin. Specifically, we use the gap of GDP between origin and local country and the Human Development Index (HDI) to quantify this foreignness. The GDP takes higher value as the original country's GDP is lower, and HDR takes the positive and higher value for low HDI foreign-born CEOs, and both takes zero for Japan-born CEOs. The rationale is that the liability of foreignness faced by these leaders may serve as a

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States to live with an uncle in Washington. At the age of ten, Huang and his brother resided in the boys' dormitory at Oneida Baptist Institute while attending Oneida Elementary school in Oneida. In 1984, Huang received his undergraduate degree in electrical engineering from Oregon State University.

[4] The following link provides information on Japan's decision to relax residency requirements for foreign entrepreneurs: <https://asia.nikkei.com/Spotlight/Japan-immigration/Japan-to-loosen-residency-rules-for-foreign-entrepreneurs>.

[5] According to the Basic Survey Report on Foreign Residents issued by the Ministry of Justice, a significant proportion of foreign workers, approximately 35%, have encountered discrimination in their workplaces. The report, which can be accessed via the following link: <https://www.moj.go.jp/isa/content/001402047.pdf>, provides valuable insights into this issue.

catalyst, motivating them to foster innovation and inclusiveness within their organizations.

Our analysis starts with a difference-in-differences estimation, wherein the dependent variable is innovation outputs, specifically the quantity of patents at the time of application and the cumulative number of citations. We employ Poisson regression, with firm and year fixed effects, as our dependent variables exhibit rightly skewed and an abundance of zero values in the majority of observations (Chen and Roth, 2024; Cohn et al., 2022). We find evidence that the presence of a foreign CEO influences innovation. Furthermore, economic disparities and the Human Development Index (HDI) of a foreign CEO's home country are significant factors shaping a firm's innovativeness. This suggests that a higher degree of foreignness in a CEO positively impacts innovation outputs.

We also overcome the concern that our staggered setting brings biased estimates (Callaway and Sant'Anna, 2021; De Chaisemartin and d'Haultfoeuille, 2020; Sun and Abraham, 2021). To mitigate such concern, we employ the stacked regression model as recommended by Baker et al. (2022). The results are noteworthy. Our analysis does not reveal a discernible difference prior to the hiring of foreign CEOs that would support the notion of a parallel trend. However, we do observe a shift in innovation following their appointment, which suggests that foreign CEOs exert a positive influence on a company's innovativeness.

Next, we tackle the possibility of endogeneity comes from a situation where an omitted variable bias affect both CEO appointment and innovation, by employing three additional tests. Initially, we conduct a difference-in-differences regression with a matched sample. Specifically, for each firm that appoints a foreign CEO, we assign a firm with a domestic CEO with the closest propensity score from the same industry and year.[6] Furthermore, we conduct entropy balancing to address the concerns coming from the sample selection bias between the firms led by foreign-born and domestic CEOs.

Lastly, we estimate an instrumental variable (IV) equations using estimating generalized method of moments (GMM). The findings from these approaches align

[6] We use logistic regression for estimating the propensity scores.

with the baseline results and effectively address the issue of endogeneity.

Our subsequent investigation concentrates on examining the relationship between the degree of foreignness of the CEO and the implementation of inclusion initiatives. We utilize comprehensive data on inclusion initiatives to identify the elements that contribute to the creation of inclusive work environments and their influence on innovation. Our analysis demonstrates a positive association between the foreignness of CEOs and the likelihood of companies disclosing their foundational policies on LGBT rights, implementing initiatives focused on this issue, hiring individuals with disabilities, establishing special subsidiaries for this purpose, creating childcare facility and diversity departments, and implementing programs such as flexible work schedule, In-house Venture (a program encouraging employees to develop and pitch new business ideas within the company) and In-house Free Agent (initiatives allowing employees to pitch themselves for positions in other departments within the same company). Additionally, foreign CEOs are more likely to ensure transparency in employee evaluation criteria, performance assessments, and conduct employee satisfaction surveys.

Our study suggests that inclusion initiatives play a pivotal role in enhancing the innovation outcomes for foreign CEOs. Our results corroborate this hypothesis, demonstrating that the implementation of inclusion initiatives has a favorable effect on innovation. Furthermore, we examine the moderating effect of local expertise, utilizing the completion of a Japanese university education as a proxy. Our research uncovers that foreign CEOs with prior experience in the local context significantly contribute to innovation.

The organization of this paper is as follows: Section 2 reviews the relevant literature. Section 3 develops the hypothesis. Section 4 presents the sample selection and descriptive statistical data. Finally, Section 5 outlines the empirical results, and Section 6 concludes the study.

2. Literature Review

This study significantly contributes to four distinct streams of literature. Firstly, our study highlights the crucial role that CEOs play in driving innovation(Galasso and

Simcoe, 2011; Hirshleifer et al., 2012; Islam and Zein, 2020; Makri and Scandura, 2010; Sunder et al., 2017). Gao et al. (2023) show that US CEOs who were born in frontier counties with a higher level of individualistic culture tend to exhibit higher levels of innovative input and output. Moreover, CEOs with a short career horizon are generally more risk-averse, which is associated with less R&D investment and, consequently, breakthrough innovations (Cho and Kim, 2017). The present research contributes to the field of innovation by highlighting that the liabilities of foreignness faced by CEOs function as a driving force for them to promote innovation and delineate the pathways through which an inclusive work environment exhibits a positive correlation with innovative pursuits.

Secondly, extensive research has examined the costs and benefits of diversity. On the benefits side, individuals from diverse backgrounds are likely to enhance decision-making by introducing a wider range of knowledge, information, and resources compared to homogeneous groups, as well as reducing individual biases and promoting mutual monitoring (Du et al., 2017; Estélyi and Nisar, 2016; Horwitz and Horwitz, 2007; Page, 2008; Wiersema and Bantel, 1992). However, diversity can also introduce challenges and costs. As pointed out by Lau and Murnighan (1998), groups can fragment along demographic lines, leading to reluctance in information sharing and communication breakdowns (Hahn and Lasfer, 2016; Masulis et al., 2012; Milliken and Martins, 1996).

Indeed, the literature on the effects of board diversity, such as gender, nationality, and culture, on firm performance often shows mixed results. Regarding the benefits, gender diversity in the boardroom has been positively linked to firm value (Campbell and Mínguez-Vera, 2008; Carter et al., 2003). Oxelheim and Randøy (2003) demonstrated that firms in Norway or Sweden show superior performance after appointing Anglo-American directors, attributing this to the introduction of the Anglo-American governance model. Similarly, foreign directors have been shown to reduce earnings management due to their fewer local connections and, thus more effective monitoring (Du et al., 2017). Moreover, Delis et al. (2017) found that genetic diversity, capturing the profound differences in cultural, institutional, social, physiological, and other traits, enhances firm value.

Conversely, Chapple and Humphrey (2014) investigated the long-term performance

of portfolios consisting of firms with female directors versus those with only male directors and found no evidence that female directors contribute to superior long-term performance. Furthermore, consistent with the idea that cultural diversity increases communication costs (Anderson et al., 2011) and decreases the levels of intragroup trust (Bjørnskov, 2008), Frijns et al. (2016) showed that cultural diversity on boards negatively affects Tobin's Q and ROA. Additionally, Hahn and Lasfer (2016) and Masulis et al. (2012) found that infrequent board meeting attendance by foreign directors due to higher information acquisition costs is detrimental to firm value. Our study contributes to this body of literature by highlighting the critical role of inclusion in unlocking the potential of diversity through mitigating communication costs, fostering an inclusive work environment, and integrating diverse ideas.

Thirdly, it is important to recognize that merely promoting diversity does not necessarily lead to improved organizational performance. Both practitioners and academics have recently shifted their focus towards the concept of inclusion, rather than diversity, in the workplace (Brahma et al., 2023; Chen and Tang, 2018; Chung et al., 2020; Cook and Glass, 2015; Mor Barak, 2015; Nishii, 2013). However, there is limited understanding of the factors that influence the implementation of inclusion initiatives and their impact on firm innovation. This study contributes to the existing literature by using a comprehensive dataset on inclusion initiatives and providing robust evidence that the degree of foreignness of CEOs is positively associated with the implementation of inclusion initiatives and innovations.

Lastly, but not least, there is an increasing body of literature that investigates the foreignness of CEOs or firms, with the majority of the studies emphasizing the liabilities of being an outsider, while only a few have explored the advantages of foreignness (Dahl and Sorenson, 2012; Mata and Alves, 2018; Mata and Freitas, 2012; Nishii, 2013). We emphasize the advantages of having foreign-born CEOs by presenting evidence that these individuals are driven to promote innovation and inclusivity within their organizations as a result of the challenges posed by their foreignness.

3. Hypothesis development

The upper echelons theory posits that the background, values, and experiences of executives or top management, including CEOs and directors, significantly influence the strategic directions and outcomes of organizations(Hambrick and Mason, 1984). Indeed, prior research has endorsed this notion, demonstrating that the personal characteristics of CEOs, such as their experience, values, and risk preferences, have a substantial impact on investment, payout, fundraising decisions, ESG, and firm performance (Ahern et al., 2015; Al-Shammari et al., 2019; Bernile et al., 2017; Nguyen et al., 2024; Page, 2018). Employing this theoretical framework, we assert that foreign-born CEOs demonstrate a favorable relationship with innovation and inclusion initiatives because of the advantages gained from their foreign background (i.e., foreign origin functioning as an enabler) and the drive to overcome disadvantages and biases associated with their foreign birth (i.e., foreign origin serving as a motivator). The following subsections will explain these concepts in greater detail.

3.1 Foreign origin as an enabler

Having foreign-born leaders is an asset for firms that drives innovations in different ways. First, foreign born CEOs drive innovations within their organizations through their foreign experiences or non-local experiences. They possess a diverse array of experiences and are exposed to different environments and different ways of doing business. Such orientations of foreign-born executives provide organizations access to different or "outside the box" ideas for innovation. The international business literature has long acknowledged the impact of distinct environmental contexts on organizational operations and interactions, with each country having its own unique cultural, economic, geographic, political and legal influences (Cao and Alon, 2021; Castellani et al., 2022; Ghemawat, 2001). Consequently, foreign-born leaders are well-versed in navigating the cross-national variations between their home country and firm's host country. They have developed values and accumulated knowledge and experiences in these countries that can contribute significantly to the knowledge production and innovation activities of their firms (Choudhury and Kim, 2019). For instance, Indra Nooyi, the former CEO of PepsiCo and who was born in India, exemplifies how foreign-born leaders can drive innovations. She had sparked innovations at PepsiCo by redesigning existing product

lines and introducing a more health-oriented product line. In one of her interviews, she credited her upbringing in India as "I am a product of my childhood and upbringing, I am who I am because of the solid foundation that I had and I'm grateful for the Indian values…"[7]

Second, foreign born leaders can enhance firm innovations through their social capital which spans both in their home country and host country of their firm (Hernandez and Kulchina, 2020). Social capital consists of resources that are embedded in social connections or networks of social relationships (Nahapiet and Ghoshal, 1998), serving as an important channel for knowledge exchange and playing a key role in facilitating collaborations and risk-taking that are conducive to creativity and innovations (Camps and Marques, 2014). Indeed, foreign born leaders possess a wealth of social capital accumulated through their personal and professional engagements with various stakeholders in both foreign and local communities. This access enables firms to obtain resources, identify novel business opportunities, and integrate solutions beyond their organizational boundaries.

Third, in addition to their unique and diverse pool of knowledge, experiences and social capital, foreign born leaders are more likely to possess the ability to leverage the diversity within the leadership team and the firm in general, i.e., be more inclusive. Their experiences of living overseas and cross-cultural interactions afford them to learn how to navigate in social worlds, communicate effectively, and be mindful of the differences among all members and uniqueness of each member, thereby inspiring others to contribute (Lu et al., 2022; Olsen et al., 2022). Moreover, not only that foreign born leaders have an increased tendency to consider ideas from other individuals and contexts, they also possess the ability to compare, contrast and associate different ideas due to their cross-cultural experiences (Jang, 2017; Lu et al., 2022). Such ability plays an important role in stimulating innovations within firms (Sinfield et al., 2014). Innovation requires new perspectives and people who can bridge boundaries, synthesize relevant information from different domains, and combine them into a whole new domain, characteristics exemplified by foreign born leaders with cross-cultural

[7] See *India Times* "I am a living example of the wonderful American Dream: Indra Nooyi" (https://timesofindia.indiatimes.com/life-style/books/interviews/i-am-a-living-example-of-the-wonderful-american-dream-indra-nooyi/articleshow/87663872.cms)

experiences (Jang, 2017). In addition, as foreign environments such as the host country of the firm trigger self-discerning process and reflection (Adam et al., 2018), foreign born leaders are more inclined to challenge existing organizational and industry assumptions and practices, making them more attuned to new ideas and opportunities for enhancing work environments .

3.2 Foreign origin as a motivator

Being born overseas and being different from local people, foreign born executives are categorized or perceived as outgroup members within the local context of the firm (Bertrand et al., 2021; Hernandez and Kulchina, 2020). Moreover, as the majority of the members within the firm are likely to be locals or natives, foreign-born leaders are further perceived to come from a minority group background, which further exacerbates their out-group status (Olsen et al., 2022). As a result, foreign born leaders are subject to negative biases and outcomes that local leaders either do not experience or encounter to a lesser extent. This phenomenon is referred to as the liability of foreignness in the international business literature, which has been widely conceptualized and investigated at the organizational level (Zaheer, 1995) and recently examined at the individual level (Bertrand et al., 2021; Mata and Alves, 2018). For instance, Mata and Alves (2018) show that firms founded by foreign born entrepreneurs are less likely to survive than those founded by natives. Thams and Rickley (2023) provide additional empirical evidence indicating that foreign born CEOs are more susceptible to penalties when firm performance is low and thus are more likely to be dismissed than their native-born counterparts.

Moreover, the minority and out-group status of foreign CEOs is exacerbated by the country of origin (COO) effect, which refers to the nationality biases one has about a particular nationality (Martin and Eroglu, 1993). Several studies have demonstrated that brands and organizations from countries perceived as out-group, low quality, or low status are often evaluated unfavorably (Zhu and Jack, 2017). While the literature on the COO effect is well-established and extensive in the international business field, Tavoletti et al. (2022) was the first study to investigate the COO effect in the context of evaluating individuals rather than products or organizations. Their findings revealed

that peer evaluations are significantly influenced by the prestige and economic development level of the team members' countries, resulting in lower performance evaluations for those from less developed countries.

Accordingly, we argue that the liability of foreignness and country of origin effect confronting foreign CEOs serves as a catalyst or motivation for them to foster innovation and inclusiveness within their organizations. Due to their minority and out-group status, foreign CEOs are more prone to having encountered prejudices, discrimination and biases prior to assuming their leadership role. For example, Park and Westphal (2013) reveal that journalists tend to attribute a company's poor performance to poor leadership when the CEO is a minority, and they hold minority CEOs responsible for the low performance of the company. Drawing from such negative minority experiences, foreign born leaders are motivated to challenge the status quo and value innovations. They have a greater tendency to introduce more changes that facilitate innovation and enhance performance (Olsen et al., 2022). In fact, there is evidence that firms led by foreign CEOs are more likely to engage in corporate social responsibility initiatives and thus benefit from high levels of corporate social performance (Bertrand et al., 2021). Additionally, firms with minority directors tend to benefit from stronger corporate governance and improved product development (Cook and Glass, 2015). Based on these arguments, we hypothesize:

Hypothesis 1a: CEOs' degree of foreignness will be positively associated with innovations.

Hypothesis 1b: CEOs' degree of foreignness will be positively associated with the implementation of inclusion initiatives.

4. Empirical Strategy

4.1 Specification

We test the hypotheses by estimating the following:

$$Y_{it} = \alpha + \beta_1 Foreignness_{it-1} + X'_{it-1}\gamma + \boldsymbol{i} + \boldsymbol{t} + \epsilon_{it} \quad (1)$$

where the dependent variable, Y, represents the innovation for testing Hypothesis

1a and inclusion initiatives for testing Hypothesis 1b for firm i in year t. Our variable of interest is $Foreignness_{it-1}$ that represents the degree of the difference between the local country (Japan) and the foreign CEO's home country. In either case, we expect a positive value for the estimated coefficient of $Foreignness_{it-1}$, formally, the null hypothesis can be expressed as $H_0: \beta_1 = 0$.

We use three measurements. The first one is the indicator variable for foreign-born CEOs. In this case, we can regard the equation (1) as the difference-in-difference setting. We also use two measurements of foreignness, which we will explain in section 4.3.

As the innovation of the company can be influenced by various factors, we control firm-level characteristics by adding a set of control variables, $\boldsymbol{X}$. Moreover, we also control firm-level unobservable factors by adding firm-level fixed effects, a vector of $\boldsymbol{i}$. There could be dynamics in innovation intensity over the period; hence, we also add year-level fixed effect, a vector of $\boldsymbol{t}$.

Our setting is difference-in-difference with a fixed-effect approach, which enables us to eliminate endogeneity issues. We estimate the model in various ways, including maximum likelihood estimates under the Poisson distribution if the dependent variable is right-skewed and GMM of the system equations.

As the timing of appointing the foreign-born CEOs differs by firm, indicating the well-known staggered setting, we also conduct a fixed-effect staggered difference-in-difference. Furthermore, we conduct entropy balancing to address the concerns coming from the sample selection bias between the firms led by foreign-born and domestic CEOs (Liu et al., 2025). Lastly, we estimate an instrumental variable (IV) equations using estimating generalized method of moments (GMM).

4.2 Dataset

4.2.1 Firm-level Accounting and stock data

The research project incorporates financial data sourced from Nikkei NEEDS Financial Quest in conjunction with our director data, resulting in a substantial dataset of 57,073 firm-year observations for analysis. Nikkei NEEDS is the database specifying Japanese listed companies, which is widely used in research on Japanese companies.

4.2.2 Directors' dataset

The study begins by analyzing a comprehensive dataset encompassing 855,306 director-year records from publicly traded Japanese companies over a span of 20 years, from 2000 to 2019. This data, sourced from the Toyokeizai Director Database, includes detailed information on directors, such as their birthplace, employment start year, alma mater, and job title, among others. In our main analysis, we use the information of birthplace to identify whether each director born in Japan or not.[8] Owing to the absence of unique identifiers, this research constructs a unique identification code for each director using their name and birth date. This identification process enables the focus on senior executives, specifically the presence of foreign CEOs.

After merging financial data with the Toyokeizai Director Database, we exclude firms in the financial and utilities industries. After applying these criteria, our final sample consists of 47,923 observations.

4.3 Variable Definitions

4.3.1 Directors' Foreignness

We add data on origin countries, particularly regarding their nationality biases, by matching the following two measures of the original countries in the case of foreign-born CEOs to assess the degree of foreignness among CEOs.

The economic development is measured by GDP per capita, which we obtain from the World Bank Open Data. We also use Human Development Index provided by the United Nations due to the following reasons.

As per the definition of nationality biases as described by Cook and Glass (2015), GDP Per Capital measures potential nationality biases based on the economic status of the CEO's country of origin. For each year, countries' GDPs are sorted in descending order, assigning higher ranks to countries with higher GDPs (e.g., the country with the highest GDP is ranked 1, while the country with the lowest GDP is ranked 15). The natural logarithm of each rank plus one is then calculated. CEOs from Japan are assigned a value of 0. Higher values indicate a lower GDP per capita for the CEO's

[8] We remove observations that lack CEO birthplace information.

country of origin, suggesting stronger potential for nationality biases.

Additionally, the study utilizes the *Human Development Index* to gauge potential nationality biases within corporate leadership. The HDI is presented as a value ranging from 0 to 1, with a higher value signifying a higher level of human development for a country. For foreign-born CEOs, the score is calculated by subtracting 1 from the HDI, indicating a lower HDI for their country of origin and suggesting a greater likelihood of nationality biases.

4.3.2 Innovation measurements

Our analysis utilizes the application and citation information for patent-level information. We combine several data sources. The patent information is obtained from IIP, an organization that maintains Japanese patent information for academic purposes.[9] However, the IIP data does not include firm identifiers such as ticker symbols. To address this, we employ The NISTEP Dictionary of Names of Universities and Public Organizations (version 2023.2) to identify the appropriate ticker codes for each patent.[10]

Our approach involves utilizing the number of patents that have been approved at a given year *t*. It is important to note that the time period between patent application and approval can span several years. Therefore, we count the number of patents at the time of application. To calculate the number of citations, we first tally the total count for all patents. Subsequently, we aggregate the figure at the firm-year level.

4.3.3 Corporate inclusion policy

We utilize the Toyokeizai CSR Database, available from 2004, to examine companies' diversity and inclusion Initiatives. Toyo Keizai Inc., a leading publisher in Japan focusing on politics, economics, and business, annually distributes surveys covering employment, CSR broadly, and environmental concerns to all listed and significant unlisted companies.

The dataset covers 726 companies in 2004, expanding to 1,457 by the end of the

[9] The website for the Institute of Intellectual Property (IIP) within the Foundation for Intellectual Property database can be accessed at https://www.iip.or.jp/patentdb/.

[10] The NISTEP Dictionary of Names of Universities and Public Organizations (version 2023.2) is available for access at <https://www.nistep.go.jp/en/>.

sample period. Despite handling a substantial number of variables, the response rates vary significantly across them. Given the limited sample of foreign CEOs, our analysis does not exclude companies with missing values for key variables. To address the issue of non-response to the Toyokeizai questionnaire in our baseline analysis, we default missing values to zero, assuming that companies with genuine diversity and inclusion efforts have no reason to withhold such information.

As a robustness check, we limited our sample to companies with complete CSR data, which yielded similar findings. We use Minority Initiatives (LGBT, Disabled Employment, Childcare Facility), Work Style (Flexible Work Schedule, Work From Home, In-house Venture, and In-house Free Agent), Transparency and Employee Engagement (Disclosure of Employee Performance and Employee Satisfaction Survey), and Inclusion (the sum of Minority Initiatives, Work Style, and Transparency and Employee Engagement) to measure organizational inclusiveness.

In addition to the abovementioned individual initiatives, we aggregate them to generate the Inclusion variable, which captures the total efforts. However, initiatives related to LGBT policies and diversity departments have been covered only since 2012. Consequently, in our main analysis, *Inclusion* is defined as the sum of all initiatives except LGBT Policy, LGBT Initiative, and Diversity Department, while *Inclusion_All* represents the sum of all initiatives.

4.4 Explanatory variables

We control for firm-level characteristics that may influence innovation activities and inclusion policies by incorporating the following variables. Following Kong et al. (2021), our first set of control variables captures firm-level characteristics. Larger firms are more likely to invest in R&D (Shefer and Frenkel, 2005), while younger firms tend to invest more aggressively than mature firms to facilitate market entry. Given the inherently risky and uncertain nature of innovation, firms with higher profitability and lower financial leverage are better positioned to undertake risky investment projects (Lai et al., 2015). Additionally, low-growth firms, proxied by the sales growth ratio (*SGR*), tend to invest more in R&D to sustain their market leadership (Vadakkepatt et al., 2021). We also include intangible assets to account for a firm's R&D orientation.

To control for corporate governance, we include *board size* (the total number of

directors) and *Outside director ratio* (the number of external directors divided by board size). Prior research suggests that independent directors enhance patent filings and citations, but their oversight tends to focus innovation efforts on existing technologies rather than disruptive breakthroughs (Balsmeier et al., 2017).

Furthermore, we incorporate CEO-level characteristics, including *CEO age*, *CEO joining period*, and *CEO tenure* (Cho and Kim, 2017). Older CEOs with a shorter career horizon tend to be more risk-averse and, consequently, less inclined to invest in R&D (Pandey and Rhee, 2015). However, as CEO tenure increases, firm-specific knowledge accumulation can enhance innovation activities(Islam and Zein, 2020).

4.5 Descriptive statistics

Panel A in Table 1 details the geographic backgrounds of CEOs within Japanese firms, highlighting significant representation from China, the United States, and France. Notably, a substantial proportion of Chinese-origin CEOs are identified as returnees, many of whom originated from the northeastern regions of China during the World War II era. The rarity of foreign CEOs in Japanese companies underscores the insular nature of Japanese corporate culture, which traditionally favors board members from within the organization (Fan et al., 2023; Jacoby, 2018). Panel B examines the annual distribution of foreign-born and locally born CEOs, revealing that, on average, 24 out of 3,569 companies are helmed by foreign-born CEOs. This statistic reflects the challenges foreign CEO face in penetrating the predominantly insider-driven boards of Japanese corporations. One possible explanation for this low representation is that financially struggling firms may be more inclined to hire foreign CEOs in an effort to bring about significant change.

[Insert Table 1 here]

Table 2 provides a comprehensive summary of the statistical data. All continuous variables, excluding the foreignness of CEO variables, have been winsorized at the 1% extremes to mitigate the impact of outliers. The average number of patents approved and citations is 56 and 49, respectively. CEO characteristics reveal an average age of 60 years and an average tenure at the current company of 8 years. Financial metrics

show an average leverage ratio of 48%, while the sales growth ratio (SGR) stands at 3%. Additionally, the average board size is noted to be 9 members, with outside directors comprising 12% of the board.

Panels B explores the Minority Background Index for CEOs, offering insights into foreignness at the leadership level. The GDP Per Capita, and Human Development Index averages for CEOs are reported as 2.08 and 0.49, respectively.

[Insert Table 2 here]

5. Results

5.1 Baseline regression analyses

To investigate the hypothesis that the level of foreignness among foreign-born executives will exhibit a positive correlation with innovation, this study utilizes Poisson Estimation in conjunction with High-Dimensional Fixed Effects, taking into account firm and year fixed effects.[11] According to Cohn et al. (2022), Chen and Roth (2024) and He et al. (2024), the frequent approach of calculating the linear regression of the logarithm of one plus the patent count typically delivers results that lack clear interpretation, and may potentially exhibit the incorrect sign in expectation. In comparison, the Poisson model with fixed effects provides consistent and relatively efficient estimates and is applicable under a wider range of conditions than is typically assumed. Furthermore, this model is suitable for addressing the issue of numerous zero observations in firm-level patenting activities.

To perform a robustness check, we conducted a Negative Binomial Regression with fixed effects, and the results have been reported in Table A2 in Appendix. Additionally, we achieved similar outcomes when we used the natural logarithm of the number of approved patents and citations as independent variables and employed OLS and firm-fixed regressions. The findings have been presented in Tables A3-4 in the Appendix material.[12]

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[11] The "*ppmlhdfe*" Stata command was used for estimation.

[12] It is also worth noting that when OLS, firm-fixed effect regressions, and IV regressions were used for estimation, the full sample was used. Meanwhile, the sample

The research examines the impact of various key independent variables on innovative activities. These variables include $Foreign\ CEO$, an indicator where a value is assigned to denote whether a CEO is foreign-born or not, $GDP\ Per\ Capita$ and $Human\ Development\ Index$. To control for potential confounding factors, the analysis incorporates both firm-level and CEO-level controls, along with firm and year fixed-effects. All independent variables are lagged by one year to address potential endogeneity concerns, and heteroskedasticity-consistent standard errors are reported to ensure the robustness of the findings.[13]

[Insert Table 3 here]

Model (1) and Model (4) in Panel A of Table 3 demonstrate a positive association between the presence of a foreign-born CEO and the number of patents and citations, which is statistically significant. Model (2) also demonstrates a positive correlation between GDP per capita and the number of patents, with a coefficient of 0.053 (p<0.01). The estimated coefficient of 0.053 implies that a one standard deviation increases in $GDP\ Per\ Capita$ (0.75) is correlated with a 4% increase in the number of approved patents ($= Exp\,(0.053 \times 0.75) - 1 = 4\%$). Similarly, Model (5) shows qualitatively similar results when the total number of citations is used instead of the number of patents. The estimated coefficient suggests that a one standard deviation increase in $GDP\ Per\ Capita$ (0.75) is associated with a 8% increase in the number of total citation ($=Exp\,(0.104 \times 0.75) - 1 = 8\%$). $Human\ Development\ Index$ in Model (3) and Model (6) engender positive and significant coefficients and the estimated coefficient suggests that, one standard deviation increase in $Human\ Development\ Index$ (0.23) is associated with a 9% increase in the number of total citation ($= Exp\,(0.368 \times 0.23) - 1 = 9\%$). These findings generally support the idea that there is a positive relationship between the foreignness of a CEO and the level of innovative activities

size in the Poisson model is 30,536, which is smaller than in the estimation where the logarithm of one plus the patent count was used as the dependent variable because the Poisson model addresses the issue of numerous zeros.

[13] The results based on the independent variables with two- and three-year lags are available in Appendix Table A5.

within a company.

With regard to the control variables, our findings indicate that larger, low-growth, and low-leveraged firms exhibit higher levels of innovative output. Furthermore, firms with a greater proportion of outside directors have been found to display a negative association with innovation activities. CEO age and tenure are also positively related to innovation outputs.

5.2 Robustness checks

Although the factors influencing the selection of birthplace are unlikely to simultaneously influence innovation activities, it is conceivable that firms known for their innovative edge and valuing inclusivity might prefer appointing foreign top management. Consequently, the observed positive correlation may not necessarily imply causation. The study utilizes Difference-in-Differences (DID) analyses and strengthens this methodology through the use of PSM-matched subsamples. Additionally, the study employs entropy balancing and GMM IV Regressions with industry- and year-fixed effects to further refine the interpretation of the relationship between leadership diversity and innovation, taking into account potential endogeneity concerns.

5.2.1 Difference-in-Differences Poisson Estimation

The utilization of a two-way fixed effects model, along with the random timing of the treatment, may introduce biases into the estimated results (Callaway and Sant'Anna, 2021; De Chaisemartin and d'Haultfoeuille, 2020; Sun and Abraham, 2021). To mitigate such concern, we employ the stacked regression model as recommended by Baker et al. (2022). We initially classified firm-year observations with foreign CEOs as the treatment group, while those without foreign CEOs were designated as the control group. Furthermore, we implemented an additional requirement for the treatment group, stipulating that foreign CEOs must remain with the company as CEO for a minimum of three years, given that it takes time for a CEO to increase a firm's patents and total citations. To investigate the impact of foreign CEO appointments on corporate innovation, Difference-in-Differences Poisson Estimation with High-Dimensional Fixed Effects were utilized. The variable Treat served as an indicator, with a value of

one indicating a treatment firm and zero for a non-treatment firm. Pre t and Post t represented the year indicator in relation to the initial appointment of a foreign CEO. $Treat * Pre_t$ $(Post_t)$ were included to assess whether the parallel trends assumption held in the DID approach. All interactions terms of $Treat * Pre_t$ $(Post_t)$ had a value of zero for the control group. As with Dak-Adzaklo and Wong (2024), the period immediately preceding the treatment (Pre 1) serves as the benchmark.

The pre-trend coefficient estimates in Table 4 showed that all $Treat * Pre_t$ coefficients were insignificant, indicating no significant difference between the treatment and control groups prior to the foreign CEO appointment. In contrast, the coefficients for $Treat * Post_t$ were significant and positive, with the magnitude of the coefficients generally increasing over time. The coefficient for $Treat * Post\ 5 * GDP\ Per\ Capita$ was 0.239, suggesting that, on average, the treatment group increased patent numbers by approximately 27% five years after the appointment relative to the control group.

[Insert Table 4 here]

In order to more thoroughly investigate the concept of $Foreignness$, we conducted additional analysis using quantitatively similar results when employing $Treat * Pre_t$ $(Post_t) * GDP\ Per\ Capital$ and $Treat * Pre_t$ $(Post\_t) * Human\ Development\ Index$. Unreported tables suggest that the greater the potential for nationality biases, the more likely it is that a foreign CEO will enhance innovation. To better illustrate the parallel trends and treatment effects pertaining to foreign CEO appointments, Figure 1 and 2 present the coefficient estimates for $Treat * Pre_t$ $(Post_t) * GDP\ Per\ Capital$, along with their corresponding 95% confidence intervals. These intervals convey the shift in patents and citations for firms with foreign CEOs relative to those without. The results of event-study regression analyses indicate that the parallel trends assumption is fulfilled, as all point estimates prior to the event are zero. Moreover, the treatment group demonstrates a substantial increase in innovation output during the post-event period, which suggests that the positive relationship between foreign CEOs and innovation is likely to capture a causal relationship.

[Insert Figure1 here]

[Insert Figure2 here]

5.2.2 Difference-in-Differences Poisson Estimation with PSM-matched subsamples

In a manner akin to He et al. (2024), this section undertakes a Difference-in-Differences (DID) analysis, employing matched subsamples and simultaneously considering firm and year fixed effects. This approach serves to address potential confounding factors that may be time-invariant and affect a firm's capacity for innovation.

The treatment group consists of companies that appointed a foreign director for the first time within the sample period, under the condition that the foreign director remained with the company for **at least three years, with data available for at least one year prior to the appointment**. Firms that never appointed foreign directors were designated as the control group. For each treatment firm at *t*-1 (where *t* represents the year of the first appointment), the most closely matched firm from the control group, within the same industry and year, was selected. The outcomes of the logit regression, both before and after matching, are depicted in Panel A of Table 5. To ensure that the matched subsamples possessed comparable characteristics, all control variables from Table 3 were incorporated, along with $\#\,of\ NewPatents$ and $\#\,of\ Citations$, aiming to isolate the effects attributable to foreign directors.

Model (1) in Panel A reveals that firms exhibiting high levels of innovation, possessing a substantial amount of intangible assets, demonstrating higher sales growth ratios, boasting smaller boards, and featuring a greater proportion of outside directors are more likely to appoint a foreign CEO. Model (2) conducts a post-match diagnostic logit regression to validate the parallel trends assumption, unveiling a significant divergence from Model (1). Following the matching process, no independent variables exhibited statistical significance, suggesting the absence of discernible pre-existing trends between the groups at *t*-1. Moreover, a subsequent χ^2 test for overall model fit yielded a value of 0.979, failing to reject the null hypothesis that the independent variables' coefficients are zero. This outcome implies that the PSM process effectively eradicated any observable differences between the treatment and control groups.

Panel B examines the evolution of $\#\ of\ NewPatents$ (Panel B) and $\#\ of\ Citations$ (Panel C) from *t*-5 to *t*+5 in the matched subsample. The Post variable takes a value of one for *t*>=0 and zero for *t*<=-1, while the Treat variable assumes a value of one for the treated group and zero for the matched control group. The findings in Panel B and C indicate that $Treat * Post$, $Treat * Post * GDP\ Per\ Capital$, and $Treat * Post *\ Human\ Development\ Index$ are all significant at the 1% level across all models. The point estimate in Model (1) of Panel B suggests that firms led by Foreign CEO tend to produce 44% more patents than the control groups five years after the event. While the sample size is relatively small, the results in Table 5 are generally consistent with those in Table 4.

[Insert Table 5 here]

5.2.3 Entropy balancing

While the DID with PSM-matched subsamples in the previous section supports our hypothesis, the sample size drops substantially due to one-to-one nearest matching, which may introduce sample selection bias. To address this concern, we follow Liu et al. (2025) and apply entropy balancing. Specifically, we calculate weights for each observation in the control group to equalize the mean, variance, and skewness with those of the treatment group. All control variables from Table 3 are incorporated to ensure balance.

Panel A of Table 6 presents the covariate balance statistics after entropy balancing, demonstrating that the reweighted control group closely matches the treatment group in terms of mean, variance, and skewness. Importantly, Panel B of Table 6 reports positive and significant coefficients for the foreignness variables, further supporting our hypothesis.Liu et al. (2025)

[Insert Table 6 here]

5.2.4 GMM Instrumental Variable (IV) Regressions

In this section, we estimate a IV equations using GMM estimates, where the

dependent variables for this analysis were $ln(NewPatents + 1)$ and $ln(Citation + 1)$. As Pandey and Rhee (2015) noted, hiring a foreign CEO is an unconventional choice that challenges both organizational and national norms. In examining the cases of Japanese companies, such as Mazda, Mitsubishi, and Nissan, which appointed foreign CEOs, researchers revealed that underperforming firms seeking significant transformations are more likely to select a foreign leader.

To test this hypothesis, we utilized $OLOSS\_3C$ as the instrumental variable. $OLOSS\_3C$ is a dummy variable representing three consecutive years of net losses. The data for this IV was obtained from the NEEDS-Cges: Corporate Governance Evaluation System. We assume that poor performance prior to the foreign CEO's appointment is less strongly associated with innovation activities in the post-appointment period.

The first-stage results in Table 7 indicate that $OLOSS\_3C$ is a significant predictor of the probability of appointing a foreign CEO. Specifically, $OLOSS\_3C$ is positively associated with the probability of appointing a foreign CEO. The partial F-statistic in the first stage is 13.39, exceeding the threshold of 10, suggesting strong instruments.

In the second stage, we find that $Foreign\ CEO$, $GDP\ Per\ Capita$, and $Human\ Development\ Index$ are all positively and significantly related to innovation outputs. The validity of our IVs is confirmed by several tests. In Model (1), the p-values for both the Anderson LM statistic and the Cragg-Donald Wald F-statistic are less than 1%, rejecting the null hypothesis of weak instruments.

[Insert Table 7 here]

5.3 Evaluating the Impact of Foreign CEO on Inclusion Initiatives

Our hypothesis is grounded in the belief that inclusive leadership fosters diversity and inclusion throughout the organization, ultimately enhancing innovative activities. To further explore this assumption, we conducted a series of additional analyses focused on the impact of inclusive leadership on organizational inclusiveness. While previous studies have examined the impact of corporate board diversity, few have investigated the determinants of the adoption of inclusion initiatives. One potential reason for this gap is the lack of available data. The Toyokeizai CSR database provides detailed items

associated with inclusion, enabling us to thoroughly investigate the impact of a foreign CEO on inclusion initiatives.

Table 8 provides a comparative summary of diversity and inclusion initiatives between firms led by foreign and local top management. Notably, 23% of firms with foreign top management have disclosed their foundational policy on LGBT rights and undertaken initiatives related to LGBT issues, a figure significantly higher than their counterparts at 12% (p<0.001). With respect to the employment of individuals with disabilities, we find that firms led by foreign CEOs are more likely to hire disabled individuals and establish special subsidiaries for this purpose. Furthermore, 10% (24%) of firms led by foreign CEOs have established diversity departments (childcare facility), significantly higher than the percentage for firms led by local CEOs. Additionally, the Minority Initiatives score, which is the sum of the aforementioned minority-related initiatives, is 1,472 for firms with foreign CEOs and 1.191 for firms with local CEOs (p<0.01).

Similarly, in terms of adopting a flexible work style, firms under foreign management are more inclined to formalize flexible work schedule, work-from-home policies and establish In-house Venture and In-house Free Agent. The findings imply that these approaches create a flexible work environment.

Moreover, it is evident that inclusive leaders place a greater emphasis on the distinct attributes and achievements of each individual. This is demonstrated by the practice of disclosing employee evaluation criteria and performance assessment results to the relevant individuals, as well as conducting surveys to gauge employee satisfaction. Such actions reflect a strong dedication to identifying and cultivating the diverse range of talents present within their workforce.

To capture overall efforts toward inclusion initiatives, we aggregate all the abovementioned individual initiatives. Since initiatives related to LGBT policies and diversity departments have been covered only since 2012, we create two variables for inclusion. The first, *Inclusion*, is defined as the sum of $Disabled\ Employment$, $Special\ Subsidiary\ for\ Disabled\ Employment$, $Childcare\ Facility$, $Diversity\ Department$, $Flexible\ Work\ Schedule$, $Work\ From\ Home$, $In-house\ Venture$, $In-house\ Free\ Agent$, $Employee\ Evaluation\ Criteria\ Disclosure$,

Disclosure of Employee Performance, and *Employee Satisfaction Survey*. Accordingly, *Inclusion* is available from 2004 onward. *Inclusion_All* is defined as the sum of all initiatives including *LGBT Policy*, *LGBT Initiative*, and *Diversity Department*.[14][15]

The average value of *Inclusion* is 3.07 for firms led by foreign CEOs, which is significantly higher than those led by local CEOs (2.05). When focusing on post-2012 subsample, *Inclusion_All* is also significantly higher for firms led by foreign CEOs.

[Insert Table 8 here]

Table 9 utilizes Poisson Estimation with High-Dimensional Fixed Effects to assess the influence of foreign top management on organizational inclusiveness. Model (1) of Panel A in Table 9 elicits a coefficient of 0.208, suggesting that the presence of a Foreign CEO is associated with a 23% increase in Inclusion initiatives. Moreover, *GDP Per Capita* and *Human Development Index* exhibit positive and significant results, reinforcing the notion that the degree of foreignness of a CEO functions as a catalyst for fostering an inclusive work environment.

To mitigate the possibility of self-selection bias, where foreign CEOs may be inclined to join companies that are already dedicated to diversity and inclusion, we first carried out entropy balancing and results are presented in Panel B. The outcomes of these regressions reveal consistent findings. Furthermore, we conducted GMM IV regressions, incorporating industry- and year-specific fixed effects. The outcomes of these regressions are presented in Table 10, yielding qualitatively similar findings.

[Insert Table 9 here]

[Insert Table 10 here]

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[14] To ensure that our main results are not driven by the availability of inclusion data, we rerun the analysis in Table 3 using the post-2012 subsample. Table A6 in the appendix yields qualitatively similar results, indicating that our findings hold across different subsamples.

[15] Table A7 in the appendix presents the results of the principal component analysis. Specifically, we use the predicted value of the first principal component as *Inclusion_PCA*.

5.3.1 Evaluating the Impact of Inclusion on innovation

We also posit that Inclusion serves as a potential avenue through which foreign CEOs enhance innovation outputs. To evaluate this, we employ Poisson Estimation with High-Dimensional fixed effects, with the $number\ of\ NewPatents$ (Column 1 and 3) and $number\ of\ Citations$ (Column 2 and 4) in Table 11 as dependent variables. Our hypothesis anticipates a positive correlation between *Inclusion* and innovation, and the results in Table 11 confirm this expectation. The estimated coefficient of 0.016 in Column 1 implies that an increase of one standard deviation in *Inclusion* is associated with a 4% increase in the number of $NewPatents$. Qualitatively similar but weaker results are obtained when *Inclusion_All* is used as the independent variable.

[Insert Table 11 here]

5.3.2 The Impact of CEOs' Foreignness on Innovation, Moderated by Local Experiences

Finally, we investigate the influence of the local experience of foreign CEOs on the relationship between CEO foreignness and innovation. Ding et al. (2021) found that American firms are more likely to execute cross-border M&As and have a significantly higher likelihood of acquiring targets in countries where their CEOs have studied or worked. Notably, the local experience of the CEO is a crucial determinant of the success and long-term performance of cross-border M&As. Local experience provides CEOs with valuable insights into the local market, culture, and business practices, enabling them to make more informed decisions and foster stronger relationships within the local context.

As a proxy for local experience, we adopt the $Japanese\ University\ Dummy$, which is assigned a value of one if a CEO graduated from a Japanese university, and zero otherwise. Our focus is on the interaction term of $Japanese\ University\ Dummy$ with $Foreign\ CEO$, $GDP\ Per\ Capita$, and $Human\ Development\ Index$. Model (1) in Panel A of Table 12 exhibits negative and insignificant coefficients on Foreign CEO and Japanese University Dummy, indicating that foreign CEOs without local

experience and local CEOs graduating from Japanese universities display poor innovation outputs. Conversely, the interaction term $Foreign\ CEO * Japanese\ University\ Dummy$ yields a significant coefficient of 0.509, emphasizing that the success of foreign CEOs in driving innovation greatly depends on their local experience. Qualitatively similar results are obtained for the interaction term between the foreignness of CEO and $Japanese\ University\ Dummy$.

Meanwhile, when the number of citations is used as the dependent variable, the interaction term becomes insignificant. Overall, these results in Table 12 highlight that foreign CEOs with local experience are better equipped to navigate the nuances of the Japanese market, leveraging their understanding to enhance innovation within the company.

[Insert Table 12 here]

6. Discussion and Conclusions

This paper examines the impact of the foreignness of CEOs on innovation, and inclusion initiatives. Upper echelons theory proposes that the unique perspectives and experiences associated with foreign-born leadership enhance a company's innovative capabilities and inclusion practices. Moreover, these leaders' intrinsic drive to mitigate the biases and skepticism connected with their foreign origin (liability of foreignness) further intensifies these effects. We posit that these benefits are more pronounced in situations in which executives experience heightened levels of foreignness and stronger biases due to their country of origin.

We test our hypothesis employing the dataset of corporate executives covering all publicly-held Japanese companies from 2000 to 2019. We measure the foreignness of foreign-born CEOs based on the GDP and the Human Development Index (HDI) of the original countries. The number of patents filed at the time of application and the total number of citations received are used to gauge the level of innovation intensity.

First, employing Poisson regression and incorporating firm and year fixed effects, the research uncovers that the degree of foreignness of a CEO, as gauged by GDP and the Human Development Index (HDI) of their origin country, proves to be substantially related to innovation. Notably, the foreignness of the CEO itself does not appear to have

an impact on innovation. The results suggest that the disparity between the CEO's original and current countries, as well as the gap between the two countries, are both relevant factors in the innovation process. To address the issue of endogeneity, we conducted the analysis using a matching sample and IV estimates.

Next, we focus on the mediatory role of inclusion in the relationship between innovation. To this end, we will employ the extensive inclusion initiative data from the Toyokeizai CSR database. The database is constructed by the survey for listed companies covering various aspects of CSR activities. Our analysis demonstrated a positive association between the foreignness of CEOs and the likelihood of companies disclosing their foundational policies for enhancing diversity issues. Lastly, we highlight that the implementation of inclusion initiatives has a favorable effect on innovation, with this effect moderated by the CEO's local expertise.

Our study contributes several strands of literature. First, we highlight the role that CEOs foreignness in innovation and D&I. Previous studies find out that CEOs play a critical role for driving innovation (Galasso and Simcoe, 2011; Hirshleifer et al., 2012; Islam and Zein, 2020; Makri and Scandura, 2010; Sunder et al., 2017). However, the short-termism of CEOs hampers innovative activities (Cho and Kim, 2017). Our findings show that the foreignness of the CEOs improves the firm's innovation activities. Second, while diversity is a socially important issue, the impact of diversity is unclear. On the one hand, several studies point out the positive impact of board diversity on the firm performance (Campbell and Mínguez-Vera, 2008; Carter et al., 2003). On the other hand, no evidence (Chapple and Humphrey, 2014) or negative impact (Bjørnskov, 2008; Frijns et al., 2016). This is in line with the idea that cultural diversity increases communication costs (Anderson et al., 2011). Our study adds to the existing literature by emphasizing the crucial role of inclusion in unlocking the potential of diversity. It achieves this by reducing communication costs, promoting an inclusive work environment, and integrating diverse ideas.

Our findings have both managerial and practical implications. Our results indicate the positive impact of foreign CEOs on innovation and inclusion. Stimulating investment in innovation is critical for the corporation's growth. Furthermore, the rise of ESG concerns sheds light on the importance of diversity. Current studies highlight the critical role of inclusion in addition to diversity to improve the effectiveness of

diversity. Our paper shows that the origin of the CEOs matters for enhancing corporate inclusion in addition to diversity.

This study has some limitations that should be taken into consideration. First, our paper employs data from publicly-held companies. The impact of executive foreignness would have a different impact on innovation and inclusion for private companies because of the difference in the corporate governance structure. The corporate executives are chosen at the annual meetings. Publicly-held companies are owned by diversified equity holders, whereas privately-held companies are usually owned by a small number of shareholders, including the CEO. Moreover, the pressure from the diversified equity holders may lead to the short-termism of by executives, whereas the pressure is mild for privately-held companies. Therefore, the role of the CEO's foreignness on innovation and the importance of inclusion may differ. Second, while our paper uses the R&D expenditure and patent information as the proxy of corporate innovation, there is a possibility that these measurements do not capture the degree of innovativeness well. Third, our study attempts to eliminate the endogeneity concern as possible. However, there is a possibility of missing some alternative channel of the endogeneity.

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Table 1 Sample firms

Panel A: Geographic Origins of CEOs

Country or region of origin of CEO	Freq.	Percent
China	129	40.19
United States	57	17.76
France	35	10.9
Taiwan	26	8.1
United Kingdom	15	4.67
Malaysia	13	4.05
South Korea	12	3.74
India	9	2.8
Germany	8	2.49
Canada	6	1.87
Australia	4	1.25
Netherlands	3	0.93
South Africa	2	0.62
Romania	1	0.31
New Zealand	1	0.31
Total	321	100

Panel B: Breakdown of Foreign and Domestic CEOs

Year	Local CEO	Foreign CEO	Total
2000	1,911	9	1,920
2001	2,000	8	2,008
2002	2,059	10	2,069
2003	2,105	9	2,114
2004	2,155	9	2,164
2005	2,233	12	2,245
2006	2,294	16	2,310
2007	2,382	14	2,396
2008	2,428	13	2,441
2009	2,455	17	2,472
2010	2,467	16	2,483
2011	2,480	15	2,495
2012	2,518	17	2,535
2013	2,555	15	2,570
2014	2,558	19	2,577
2015	2,586	23	2,609
2016	2,586	25	2,611
2017	2,615	25	2,640
2018	2,619	25	2,644
2019	2,596	24	2,620
Total	47,602	321	47,923

Notes: Panel A outlines the geographic origins of CEOs, categorizing them by their countries of origin. Panel B details the annual distribution of firms, distinguishing between those led by foreign and local CEOs.

Table 2 Summary statistics

Panel A: Firm characteristics

Variable	Mean	Median	Min	Max	S.D	N
# of NewPatents	56.271	3.000	0.000	1037.000	166.284	30536
ln(NewPatents+1)	1.937	1.386	0.000	6.925	1.911	30536
# Citation	49.380	4.000	0.000	682.000	117.123	30536
ln(Citation+1)	2.003	1.609	0.000	6.522	1.994	30536
ROA	0.050	0.044	-0.204	0.244	0.051	30536
Size	10.877	10.718	7.053	15.331	1.623	30536
Leverage	0.481	0.483	0.083	0.933	0.200	30536
Intangible Assets	1.065	0.326	0.012	21.355	2.607	30536
SGR	0.030	0.023	-0.401	0.761	0.140	30536
Firm Age	58.379	59.000	4.000	111.000	22.049	30536
Board Size	8.806	8.000	3.000	21.000	3.528	30536
Outside Directors	0.124	0.091	0.000	0.600	0.143	30536
CEO Age	60.371	62.000	36.000	78.000	7.715	30536
Joining Period	27.878	32.000	0.000	51.000	14.079	30536
CEO Tenure	8.327	5.000	1.000	40.000	8.373	30536
Japanese University	0.974	1.000	0.000	1.000	0.160	30536

Panel B: CEO Level Minority Background Index

	Mean	Median	Min	Max	S.D	N
GDP Per Capital	2.083	2.398	0.693	2.773	0.753	317
Human Development Index	0.488	0.437	0.190	0.771	0.234	321

Notes: This table reports the summary statistics of the variables used in our estimations. Panel A delineates the characteristics of firms. Panels B highlights the metrics employed to evaluate CEOs' degree of foreignness. See Appendix Table A1 for the definition of variables.

Table 3: Poisson Estimation with High-Dimensional Fixed Effects: The Influence of CEO Foreignness on Innovation Activities

Panel A: z-statistics based on heteroskedasticity-consistent methods

	# of NewPatents			# of Citation		
	(1)	(2)	(3)	(4)	(5)	(6)
Foreign CEO	0.087**			0.190***		
	(2.27)			(3.67)		
GDP Per Capital		0.053***			0.104***	
		(3.54)			(4.28)	
Human Development Index			0.164**			0.368***
			(2.42)			(3.33)
ROA	-0.480**	-0.482**	-0.482**	-0.270	-0.271	-0.276
	(-2.15)	(-2.16)	(-2.16)	(-1.22)	(-1.22)	(-1.25)
Size	0.460***	0.461***	0.460***	0.283***	0.284***	0.282***
	(13.60)	(13.62)	(13.59)	(8.26)	(8.28)	(8.23)
Leverage	-0.308***	-0.308***	-0.306***	0.237**	0.236**	0.240***
	(-2.95)	(-2.95)	(-2.92)	(2.56)	(2.55)	(2.60)
Intangible Assets	-0.004	-0.005	-0.004	-0.001	-0.001	-0.001
	(-0.98)	(-1.00)	(-0.96)	(-0.30)	(-0.33)	(-0.27)
SGR	-0.195***	-0.195***	-0.194***	-0.103*	-0.103	-0.102
	(-3.09)	(-3.09)	(-3.07)	(-1.65)	(-1.64)	(-1.63)
Firm Age	-0.007	-0.007	-0.007	-0.007	-0.007	-0.007
	(-1.19)	(-1.20)	(-1.19)	(-0.95)	(-0.97)	(-0.95)
Board Size	0.001	0.001	0.001	-0.002	-0.002	-0.002
	(0.32)	(0.31)	(0.35)	(-0.89)	(-0.87)	(-0.81)
Outside Directors	-0.128*	-0.128*	-0.126*	0.145*	0.144*	0.151*
	(-1.80)	(-1.81)	(-1.77)	(1.87)	(1.86)	(1.95)
CEO Age	0.001	0.001	0.001	0.004**	0.004**	0.004**
	(0.74)	(0.71)	(0.73)	(2.06)	(2.00)	(2.04)
CEO Joining Period	-0.000	-0.000	-0.000	-0.001	-0.001	-0.001
	(-0.24)	(-0.20)	(-0.36)	(-0.99)	(-1.01)	(-1.18)
CEO Tenure	0.003*	0.003*	0.003*	0.003**	0.003**	0.003**
	(1.82)	(1.82)	(1.87)	(1.98)	(2.01)	(2.05)
Constant	0.218	0.213	0.221	1.758***	1.758***	1.769***
	(0.40)	(0.39)	(0.40)	(3.08)	(3.09)	(3.11)
Firm-fixed effects	YES	YES	YES	YES	YES	YES
Year-fixed effects	YES	YES	YES	YES	YES	YES
N	30536	30536	30536	30536	30536	30536
Pseudo R2	0.936	0.936	0.936	0.886	0.886	0.886

Panel B: z-statistics based on heteroskedasticity-consistent methods clustered at the firm level

	# of NewPatents			# of Citation		
	(1)	(2)	(3)	(4)	(5)	(6)
Foreign CEO	0.087			0.190**		
	(1.51)			(2.46)		
GDP Per Capital		0.053**			0.104***	
		(2.08)			(2.90)	
Human Development Index			0.164*			0.368***
			(1.80)			(3.30)

Panel C: z-statistics based on heteroskedasticity-consistent methods clustered at the year level

	# of NewPatents			# of Citation		
	(1)	(2)	(3)	(4)	(5)	(6)
Foreign CEO	0.087**			0.190***		
	(2.07)			(4.13)		
GDP Per Capital		0.053***			0.104***	
		(4.59)			(5.84)	
Human Development Index			0.164***			0.368***
			(2.72)			(3.70)

Panel D: z-statistics based on heteroskedasticity-consistent methods clustered at the firm and year levels

	# of NewPatents			# of Citation		
	(1)	(2)	(3)	(4)	(5)	(6)
Foreign CEO	0.087			0.190**		
	(1.42)			(2.54)		
GDP Per Capital		0.053**			0.104***	
		(2.20)			(3.20)	
Human Development Index			0.164*			0.368***
			(1.89)			(3.65)

This table reports the relationship between CEO foreignness and innovation using Poisson regression. All estimations include firm and year fixed effects. Panels A, B, C, and D report z-statistics based on robust standard errors and standard errors clustered at the firm, year, and firm-year levels. See Appendix Table A1 for variable definitions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 4: Difference-in-Differences Poisson Estimation with High-Dimensional Fixed Effects: The Influence of CEO Foreignness on Innovation Activities

	# of NewPatents	# of Citation
Treat*Pre5	0.123	0.053
	(0.51)	(0.23)
Treat*Pre4	-0.019	0.146
	(-0.26)	(0.99)
Treat*Pre3	-0.066	0.051
	(-1.03)	(0.48)
Treat*Pre2	0.002	0.038
	(0.06)	(0.45)
Treat*Post0	-0.033	0.296**
	(-0.22)	(2.24)
Treat*Post1	0.159***	0.246**
	(2.66)	(2.46)
Treat*Post2	0.264***	0.320***
	(3.31)	(3.24)
Treat*Post3	0.198***	0.299***
	(2.98)	(3.10)
Treat*Post4	0.233***	0.345***
	(5.25)	(3.28)
Treat*Post5	0.239***	0.455***
	(4.44)	(4.86)
Control Variables	YES	YES
Firm-fixed effects	YES	YES
Year-fixed effects	YES	YES
N	30257	30257
Pseudo R2	0.934	0.885

Notes: This table reports the results of stacked regression model. $Treat$ is an indicator for the firm within a cohort is considered a treatment firm, and zero otherwise. $Pre\ t$ and $Post\ t$ represent the year indicator for the n^{th} year in relation to the initial appointment of a foreign CEO. See Appendix Table A1 for the definition of variables. z-statistics based on heteroskedasticity-consistent methods are shown in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Figure 1 Difference-in-Differences coefficient in years relative to the initial appointment of a foreign CEO (# of NewPatents)

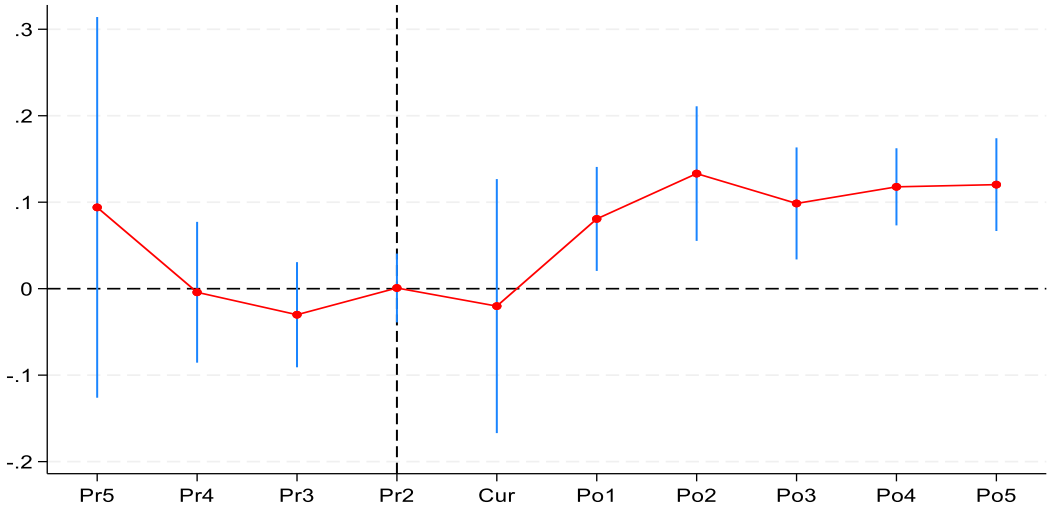
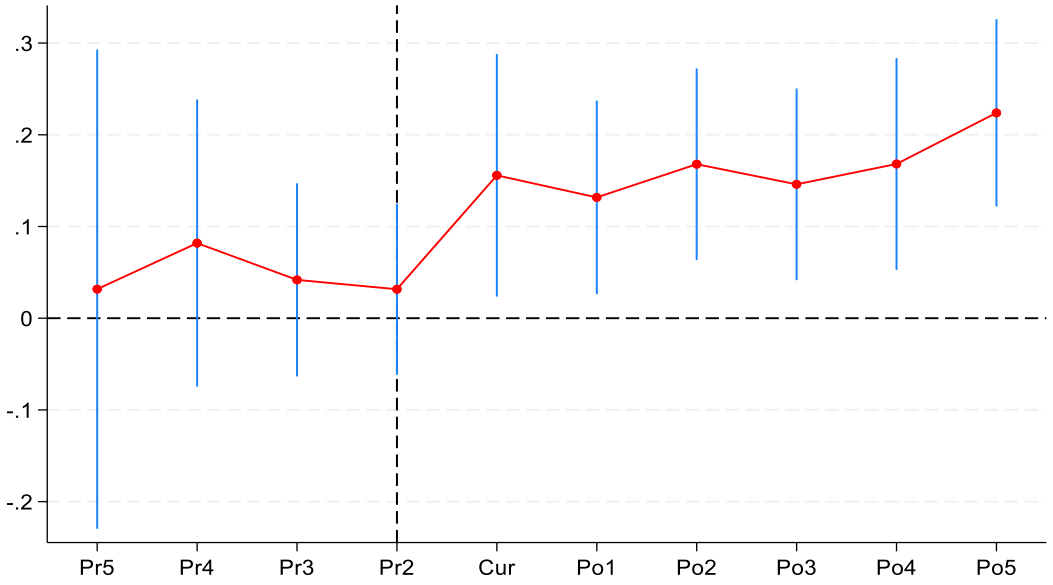


Figure 2 Difference-in-Differences coefficient in years relative to the initial appointment of a foreign CEO (# of Citation)



Note: The charts illustrate the outcomes of event-study regression analyses, which dissect the base effect over time. The figures also display the 95 percent confidence intervals through the use of whiskers.

Table 5: PSM + DID +Poisson Estimation with High-Dimensional Fixed Effects: Evaluating the Impact of Foreign CEO on Innovation Activities

Panel A: Prematch Propensity Score Logit Regression and Postmatch Diagnostic Logit regression

	(1)	(2)
	Prematch	Postmatch
# of NewPatents	0.001***	-0.004
	(2.82)	(-0.28)
# of Citation	0.002**	0.005
	(2.33)	(0.23)
ROA	4.985***	-15.340*
	(2.67)	(-1.66)
Size	0.431***	-0.105
	(5.83)	(-0.27)
Leverage	1.302**	0.201
	(2.35)	(0.08)
Intangible Assets	0.000	0.012
	(0.02)	(0.11)
SGR	0.039	3.054
	(0.06)	(0.98)
Firm Age	-0.010**	-0.002
	(-2.40)	(-0.11)
Board Size	-0.155***	0.072
	(-4.30)	(0.35)
Outside Directors	3.612***	0.045
	(6.74)	(0.02)
CEO Age	-0.014	0.065
	(-1.05)	(0.79)
CEO Joining Period	-0.051***	0.008
	(-6.68)	(0.14)
CEO Tenure	0.029*	-0.035
	(1.93)	(-0.36)
Constant	-8.742***	-2.912
	(-9.34)	(-0.69)
N	30536	28
p-value of $\chi 2$	0.000***	0.979

Panel B: # of NewPatents

	(1)	(2)	(3)
Treat*Post	0.367***		
	(3.51)		
Treat*Post*GDP Per Capital		0.129***	
		(2.81)	
Treat*Post*Human Development			0.855***
			(3.21)
Post	-0.371***	-0.363***	-0.375***
	(-3.80)	(-3.34)	(-3.83)
Control Variables	YES	YES	YES
Firm-fixed effects	YES	YES	YES
Year-fixed effects	YES	YES	YES
N	124	124	124
Pseudo R2	0.991	0.991	0.991

Panel C: # of Citation

	(1)	(2)	(3)
Treat*Post	0.775***		
	(3.56)		
Treat*Post*GDP Per Capital		0.293***	
		(2.86)	
Treat*Post*Human Development			1.640***
			(2.76)
Post	-0.715***	-0.706***	-0.739***
	(-2.83)	(-2.75)	(-3.01)
Control Variables	YES	YES	YES
Firm-fixed effects	YES	YES	YES
Year-fixed effects	YES	YES	YES
N	124	124	124
Pseudo R2	0.969	0.969	0.969

Notes: The treatment group consists of companies that appointed a foreign CEO for the first time within the sample period, under the condition that the foreign CEO remained with the company for at least three years, with data available for at least one year prior to the appointment. Firms that never appointed foreign directors were designated as the control group. For each treatment firm at t-1 (where t represents the year of the first appointment), the most closely matched firm from the control group, within the same industry and year, was selected. The outcomes of the logit regression, both before and after matching, are shown in Panel A of Table 5. The Post variable takes a value of one for t>=0 and zero for t<=-1, while the Treat variable assumes a value of one for the treated group and zero for the matched control group. z-statistics based on heteroskedasticity-consistent methods are shown in parentheses. See Appendix Table A1 for the definition of variables. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 6: Entropy balancing model

Panel A Covariate balance statistics after entropy balancing

	Treat			Control		
	Mean	Variance	Skewness	Mean	Variance	Skewness
ROA	0.040	0.008	-0.576	0.040	0.008	-0.576
Size	10.920	5.591	0.466	10.920	5.591	0.466
Leverage	0.486	0.044	0.007	0.486	0.044	0.007
Intangible Assets	3.626	31.340	2.200	3.626	31.340	2.200
SGR	0.083	0.070	0.870	0.083	0.070	0.870
Firm Age	41.820	668.800	0.454	41.820	668.800	0.454
Board Size	7.625	7.615	1.096	7.625	7.615	1.096
Outside Directors	0.304	0.040	0.029	0.304	0.040	0.029
CEO Age	54.340	96.870	0.651	54.340	96.870	0.651
Joining Period	12.490	164.300	1.460	12.490	164.300	1.460
CEO Tenure	5.948	25.130	1.723	5.948	25.140	1.725

Panel B2: Entropy balancing model

	# of NewPatents			# of Citation		
	(1)	(2)	(3)	(4)	(5)	(6)
Foreign CEO	0.166***			0.186*		
	(3.47)			(1.95)		
GDP Per Capital		0.061***			0.094**	
		(3.27)			(2.35)	
Human Development Index			0.200**			0.347**
			(2.46)			(2.12)
Control Variables	YES	YES	YES	YES	YES	YES
Firm-fixed effects	YES	YES	YES	YES	YES	YES
Year-fixed effects	YES	YES	YES	YES	YES	YES
N	30536	30536	30536	30536	30536	30536
Pseudo R2	0.979	0.979	0.979	0.953	0.953	0.953

Notes: This table presents the results of the entropy balancing model. Panel A reports the summary statistics and covariate distributions after applying entropy balancing to assign weights to firms led by domestic CEOs. Panel B replicates the analyses from Table 3 while incorporating the weights generated in the first-stage entropy balancing. See Appendix Table A1 for variable definitions. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 7: GMM IV Regressions with Industry- and Year-Fixed Effects

Panel A: ln(NewPatents +1)				
	1st-Stage	(1)	(2)	(3)
Foreign CEO		10.011***		
		(3.07)		
GDP Per Capital			3.612***	
			(3.27)	
Human Development Index				14.548***
				(3.24)
OLOSS_3C	0.024***			
	(3.66)			
Partial F-statistics: First stage	13.39			
Anderson LM statistic (Under identification test)		13.289	15.777	15.203
Cragg-Donald Wald F statistic (Weak identification test)		58.010	88.766	92.936
N		36495	36495	36495
Panel B: ln(Citation+1)				
		(1)	(2)	(3)
Foreign CEO		6.711**		
		(2.53)		
GDP Per Capital			2.422***	
			(2.65)	
Human Development Index				9.421***
				(2.59)
OLOSS_3C	0.024***			
	(3.66)			
Partial F-statistics: First stage	13.39			
Anderson LM statistic (Under identification test)		13.289	15.777	15.203
Cragg-Donald Wald F statistic (Weak identification test)		58.010	88.766	92.936
N		36495	36495	36495

The dependent variables in the second stage are *ln(NewPatents + 1)* and *ln(Citations + 1)*. The instrumental variable, *OLOSS_3C*, is a dummy variable indicating three consecutive years of net losses. The data source for the instrumental variable is the NEEDS-Cges Corporate Governance Evaluation System. See Appendix Table A1 for variable definitions. z-statistics, computed using heteroskedasticity-consistent methods, are shown in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 8: Summary Statistics on Inclusion Initiatives (2004-2019)

	Foreign CEO	Local CEO	P-Value
LGBT Policy (Since 2012)	0.226	0.123	0.000***
LGBT Initiative (Since 2012)	0.217	0.119	0.002***
Diversity Department (Since 2012)	0.230	0.147	0.009***
Disabled Employment	0.448	0.453	0.895
Special Subsidiary for Disabled Employment	0.093	0.061	0.078*
Childcare Facility	0.244	0.112	0.000***
Flexible Work Schedule	0.366	0.293	0.036**
Work From Home	0.319	0.105	0.000***
In-house Venture	0.116	0.063	0.005***
In-house Free Agent	0.192	0.074	0.000***
Employee Evaluation Criteria Disclosure	0.407	0.319	0.013**
Disclosure of Employee Performance	0.395	0.292	0.003***
Employee Satisfaction Survey	0.267	0.161	0.000***
Minority Initiatives	1.472	1.191	0.062*
Work Style	0.994	0.536	0.000***
Transparency and Employee Engagement	1.069	0.771	0.000***
Inclusion (Since 2004) N=21643	3.070 N=172	2.049 N=21471	0.000***
Inclusion_All (Since 2012) N=9903	4.402 N=106	3.327 N=11019	0.003***

Notes: The Toyokeizai CSR database has provided ESG-related data since 2004; therefore, our inclusion analyses focus on the sample period from 2004 to 2019. Notably, initiatives related to LGBT policies and diversity departments have only been covered since 2012. Consequently, in our main analysis, *Inclusion* is defined as the sum of all initiatives except for *LGBT Policy*, *LGBT Initiative*, and *Diversity Department*. *Inclusion_All* is defined as the sum of all initiatives. See Appendix Table A1 for variable definitions. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 9: Poisson Estimation with High-Dimensional Fixed Effects: Evaluating the Impact of Foreign CEO on Inclusion Initiatives (2004-2019)

Panel A Poisson Estimation without entropy balancing

	Inclusion (Since 2004) N=21643			Inclusion_All (Since 2012) N=9903		
	(1)	(2)	(3)	(4)	(5)	(6)
Foreign CEO	0.208***			0.207**		
	(2.63)			(2.27)		
GDP Per Capital		0.062*			0.076**	
		(1.90)			(2.25)	
Human Development Index			0.183			0.383**
			(1.19)			(2.14)
Control Variables	YES	YES	YES	YES	YES	YES
Firm-fixed effects	YES	YES	YES	YES	YES	YES
Year-fixed effects	YES	YES	YES	YES	YES	YES
N	21643	21643	21643	9903	9903	9903
Pseudo R2	0.473	0.473	0.473	0.490	0.490	0.490

Panel B Entropy balancing model

	Inclusion (Since 2004) N=21643			Inclusion_All (Since 2012) N=9903		
	(1)	(2)	(3)	(4)	(5)	(6)
Foreign CEO	0.384***			0.324***		
	(5.24)			(4.94)		
GDP Per Capital		0.121***			0.120***	
		(4.47)			(5.14)	
Human Development Index			0.467***			0.597***
			(3.48)			(4.53)
Control Variables	YES	YES	YES	YES	YES	YES
Firm-fixed effects	YES	YES	YES	YES	YES	YES
Year-fixed effects	YES	YES	YES	YES	YES	YES
N	21643	21643	21643	9903	9903	9903
Pseudo R2	0.549	0.548	0.547	0.526	0.526	0.526

Notes: The Toyokeizai CSR database has provided ESG-related data since 2004. Notably, initiatives related to LGBT policies and diversity departments have only been covered since 2012. Consequently, in our main analysis, *Inclusion* is defined as the sum of all initiatives except for *LGBT Policy*, *LGBT Initiative*, and *Diversity Department*. *Inclusion_All* is defined as the sum of all initiatives. See Appendix Table A1 for variable definitions. z-statistics based on heteroskedasticity-consistent methods are shown in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 10: GMM IV Regressions with Industry- and Year-Fixed Effects: Evaluating the Impact of Foreign CEO on Organizational Inclusiveness (2004-2019)

Panel A Results based on 2004-2019 subsample

		Dependent Variable: *Inclusion*		
	1st-Stage	(1)	(2)	(3)
Foreign CEO		6.238**		
		(2.36)		
GDP Per Capital			2.251**	
			(2.45)	
Human Development Index				9.066**
				(2.44)
OLOSS_3C	0.024***			
	(3.66)			
Industry-fixed effects	Yes	Yes	Yes	Yes
Year-fixed effects	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes
Partial F-statistics: First stage	13.39			
Anderson LM statistic (Under identification test)		13.289	15.777	15.203
Cragg-Donald Wald F statistic (Weak identification test)		58.010	88.766	92.936
N		36495	36495	36495

Panel B Results based on 2012-2019 subsample

		Dependent Variable: *Inclusion_All*		
	1st-Stage	(1)	(2)	(3)
Foreign CEO		16.770**		
		(2.27)		
GDP Per Capital			5.756**	
			(2.52)	
Human Development Index				23.026**
				(2.52)
OLOSS_3C	0.028**			
	(2.56)			
Partial F-statistics: First stage	8.41			
Anderson LM statistic (Under identification test)		6.450	8.373	8.315
Cragg-Donald Wald F statistic (Weak identification test)		31.567	55.861	59.566
N		18471	18471	18471

Notes: The dependent variables in the second stage are *Inclusion* and *Inclusion_All*. The instrumental variable, *OLOSS_3C*, is a dummy variable indicating three consecutive years of net losses. The data source for the instrumental variable is the NEEDS-Cges Corporate Governance Evaluation System. See Appendix Table A1 for variable definitions. z-statistics, computed using heteroskedasticity-consistent methods, are shown in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 11: Poisson Estimation with High-Dimensional Fixed Effects: Inclusion on Innovation Activities (2004-2019)

Dependent Variable:	# of NewPatents (1)	# of Citation (2)	# of NewPatents (3)	# of Citation (4)
Inclusion	0.016***	0.017***		
	(4.66)	(4.00)		
Inclusion_All			0.013***	-0.007
			(3.47)	(-1.06)
Firm-fixed effects	Yes	Yes	Yes	Yes
Year-fixed effects	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes
N	27157	25573	12533	11029
Pseudo R2	0.947	0.893	0.966	0.893

Notes: This table reports the relationship between inclusion and innovation using Poisson regression. z-statistics based on heteroskedasticity-consistent methods are shown in parentheses. See Appendix Table A1 for the definition of variables. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 12: Poisson Regression Analysis of High-Dimensional Fixed Effects: Examining the Impact of CEO Foreignness on Innovation Activities, Moderating Effect of Local Experiences

Panel A # of NewPatents

	(1)	(2)	(3)
Foreign CEO	-0.107		
	(-1.58)		
Japanese University Dummy	-0.067	0.022	0.070
	(-1.35)	(0.39)	(1.09)
Foreign CEO*Japanese University Dummy	0.509***		
	(5.37)		
GDP Per Capita		-0.011	
		(-0.42)	
GDP Per Capita *Japanese University Dummy		0.162***	
		(4.29)	
Human Development Index			-0.002
			(-0.02)
Human Development Index *Japanese University Dummy			0.535***
			(3.23)
Control Variables	YES	YES	YES
Firm-fixed effects	YES	YES	YES
Year-fixed effects	YES	YES	YES
N	30536	30536	30536
Pseudo R2	0.981	0.980	0.980

Panel B # of Citation

	(1)	(2)	(3)
Foreign CEO	0.227		
	(1.52)		
Japanese University Dummy	0.074	0.071	0.016
	(0.52)	(0.55)	(0.14)
Foreign CEO*Japanese University Dummy	-0.019		
	(-0.13)		
GDP Per Capita		0.102	
		(1.59)	
GDP Per Capita *Japanese University Dummy		0.003	
		(0.05)	
Human Development Index			0.298
			(1.11)
Human Development Index *Japanese University Dummy			0.090
			(0.36)
N	30536	30536	30536
Pseudo R2	0.953	0.953	0.953

Notes: This table presents the results of Poisson regression with entropy balancing. The dependent variable is the number of new patents (*# of NewPatents*) in Panel A and the number of citations (*# of Citations*) in Panel B. *Japanese University Dummy* is assigned a value of one if a CEO graduated from a Japanese university, and zero otherwise. See Appendix Table A1 for the definition of variables. z-statistics based on heteroskedasticity-consistent methods are shown in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Appendix

Appendix Table A1: Variable Definition

Foreign CEO	This is a binary indicator where a value is assigned to denote whether a CEO is foreign-born or not
GDP Per Capita (Nationality biases)	This variable measures potential nationality biases based on the economic status of the CEO's country of origin. For each year, countries' GDPs are sorted in descending order, assigning higher ranks to countries with higher GDPs (e.g., the country with the highest GDP is ranked 1, while the country with the lowest GDP is ranked 15). The natural logarithm of each rank plus one is then calculated. CEOs from Japan are assigned a value of 0. Higher values indicate a lower GDP per capita for the CEO's country of origin, suggesting a stronger potential for nationality biases.
Human Development Index (Nationality biases)	This study employs the annual Human Development Index (HDI) data to investigate possible nationality biases among corporate leaders. The HDI is presented as a value ranging from 0 to 1, with a higher value signifying a higher level of human development for a country. For foreign-born CEOs, the score is calculated by subtracting 1 from the HDI, indicating a lower HDI for their country of origin and suggesting a greater likelihood of nationality biases.
Innovation Activities	
# of NewPatents	The number of approved patents applied at year *t*. Usually, it takes several years between the patent application and approval. The number of patents are counted at the timing of the application.
# of Citation	The total number of citations for all patents at year *t*.
Ln (R&D+1)	The natural logarithm of the research and development (R&D) expenditures, incremented by one.
ln(NewPatents+1)	The natural logarithm of the number of approved patents applied at year *t*, incremented by one.
ln(Citation+1)	The natural logarithm of total number of citations for all patents at year *t*, incremented by one. The patent application and citation information is also obtained from IIP.
Inclusion initiatives	
LGBT Policy	A dummy variable denotes the presence (1) or absence (0) of a company's foundational policy regarding LGBT (lesbian, gay, bisexual, and transgender) inclusivity and rights.
LGBT Initiative	A is a binary variable that takes a value of one if a firm has undertaken any initiatives related to LGBT, and zero otherwise.
Disabled Employment	Disabled employment is a variable that is set to one for firms that have hired individuals with disabilities and zero for those that have not.
Special Subsidiary for Disabled Employment	The Special Subsidiary for Disabled Employment is valued at one for firms that have established a special subsidiary for the purpose of hiring individuals with disabilities. Conversely, those firms that have not set up such a subsidiary are not assigned this value.
Childcare Facility	The value assigned to diversity departments is one for companies that have established childcare facility, and zero otherwise.

Diversity Department	The value assigned to diversity departments is one for companies that have established such departments, and zero otherwise.
Minority Initiatives	The sum of LGBT Policy, LGBT Initiative, Disabled Employment, Special Subsidiary for Disabled Employment Childcare Facility and Diversity Department.
Flexible Work Schedule	A dummy variable indicates the presence (1) or absence (0) of a flexible work.
Work From Home	A dummy variable indicates the presence (1) or absence (0) of a formal work from home policy within a company.
In-house venture	In-house Venture is a binary variable that takes a value of one if a firm has undertaken in-house venture initiatives, and zero otherwise.
In-house Free Agent	In-house Free Agent is a binary variable that takes a value of one when a company implements In-house Free Agent initiatives, allowing employees to pitch themselves for positions in other departments within the same company. It assumes a value of zero when no such initiatives are in place.
Work Style	The sum of Flexible Work Schedule, Work From Home, In-house venture and In-house Free Agent.
Employee Evaluation Criteria Disclosure	This variable denotes whether a company practices transparency in disclosing evaluation criteria (1 for yes, 0 for no).
Disclosure of Employee Performance	This variable denotes whether a company practices transparency in disclosing employee performance evaluations to the individuals concerned (1 for yes, 0 for no)
Employee Satisfaction Survey	This variable reflects whether a company conducts surveys to assess employee satisfaction (1 for conducted, 0 for not conducted).
Transparency and Employee Engagement	The sum of Employee Evaluation Criteria Disclosure , Disclosure of Employee Performance and Employee Satisfaction Survey
Inclusion	The first Inclusion variable is defined as the sum of Disabled Employment, Special Subsidiary for Disabled Employment, Childcare Facility, Flexible Work Schedule, Work From Home, In-house Venture, In-house Free Agent, Employee Evaluation Criteria Disclosure, Disclosure of Employee Performance, and Employee Satisfaction Survey. This measure excludes LGBT policies and Diversity Departments, as these variables became available only after 2012 and 2010, respectively. Accordingly, Inclusion is available from 2004 onward.
Inclusion_All	The second Inclusion variable is defined as the aggregate of several factors: LGBT Policy, LGBT Initiatives, Disabled Employment, Special Subsidiary for Disabled Employment, Childcare Facility, Flexible Work Schedule, Work From Home, In-house Venture, In-house Free

	Agent, Employee Evaluation Criteria Disclosure, Disclosure of Employee Performance, and Employee Satisfaction Survey. Accordingly, Inclusion_All is available starting in 2012.
Control Variables	
ROA	Operating income divided by total assets.
Size	The natural logarithm of total assets.
Leverage	Leverage is total liabilities scaled by total assets.
Intangible Assets	The total value of a company's intangible assets divided by its total number of employees.
SGR	Sales growth ratio.
Firm Age	The number of years since the company was established.
Board Size	The number of directors on the board.
Outside Directors	The number of external directors divided by board size.
CEO Age	The age of CEOs.
CEO Joining Period	The total number of years a CEO has been with the current company from the time they joined.
CEO Tenure	The tenure of CEOs.
OLOSS_3C	A dummy variable indicating three consecutive years of net losses.
Japanese University Dummy	A dummy is assigned a value of one if a CEO graduated from a Japanese university, and zero otherwise.

Table A2: Negative Binomial Regression with Fixed Effect: The Influence of CEO Foreignness on Innovation Activities

	# of NewPatents			# of Citation		
	(1)	(2)	(3)	(4)	(5)	(6)
Foreign CEO	0.328***			0.267**		
	(3.31)			(2.13)		
GDP Per Capital		0.152***			0.088	
		(3.33)			(1.52)	
Human Development Index			0.605***			0.407
			(3.01)			(1.63)
Control Variables	YES	YES	YES	YES	YES	YES
Firm-fixed effects	YES	YES	YES	YES	YES	YES
Year-fixed effects	YES	YES	YES	YES	YES	YES
N	32341	32339	32341	30538	30536	30538

Notes: See Appendix Table A1 for the definition of variables. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table A3: OLS and Firm-Fixed Effect Regression Analysis: The Influence of CEO Foreignness on Innovation Activities

Panel A: OLS

	ln(NewPatents+1)			ln(Citation+1)		
	(1)	(2)	(3)	(4)	(5)	(6)
Foreign CEO	0.138*			0.192***		
	(1.93)			(2.74)		
GDP Per Capita		0.095***			0.104***	
		(3.21)			(3.55)	
Human Development Index			0.370***			0.463***
			(3.23)			(4.00)
N	43451	43449	43451	43451	43449	43451

Panel B: Firm-Fixed Effect Regression Analysis

	ln(NewPatents+1)			ln(Citation+1)		
	(1)	(2)	(3)	(4)	(5)	(6)
Foreign CEO	0.015			0.126**		
	(0.52)			(1.97)		
GDP Per Capita		0.022*			0.061**	
		(1.79)			(2.19)	
Human Development Index			0.138**			0.355***
			(2.47)			(3.06)
Control Variables	YES	YES	YES	YES	YES	YES
Firm-fixed effects	YES	YES	YES	YES	YES	YES
Year-fixed effects	YES	YES	YES	YES	YES	YES
N	43377	43375	43377	43377	43375	43377

Notes: The dependent variables for this tables are l*n(NewPatents+1)* and *ln (Citation+1)*. See Appendix Table A1 for the definition of variables. z-statistics based on heteroskedasticity-consistent methods are shown in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively

Table A4: OLS and Firm-Fixed Effect Regression Analysis: Evaluating the Impact of Foreign CEO on R&D Expenditures

	OLS			Firm-Fixed Effect		
	(1)	(2)	(3)	(4)	(5)	(6)
Foreign CEO	0.758***			0.182*		
	(5.72)			(1.96)		
GDP Per Capita		0.351***			0.086*	
		(6.39)			(1.91)	
Human Development Index			1.412***			0.597***
			(6.44)			(2.88)
Control Variables	YES	YES	YES	YES	YES	YES
Firm-fixed effects	NO	NO	NO	YES	YES	YES
Industry-fixed effects	YES	YES	YES	NO	NO	NO
Year-fixed effects	YES	YES	YES	YES	YES	YES
N	43451	43449	43451	43377	43375	43377

Notes: The dependent variables for this table are *R&D* (the natural logarithm of the research and development (R&D) expenditures, incremented by one). See Appendix Table A1 for the definition of variables. z-statistics based on heteroskedasticity-consistent methods are shown in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table A5: Poisson Estimation with Two- and Three-Year Lagged Independent Variables

Panel A Two-year lagged independent variables

	# of NewPatents			# of Citation		
	(1)	(2)	(3)	(4)	(5)	(6)
Foreign CEO	0.083**			0.161***		
	(2.24)			(2.70)		
GDP Per Capital		0.044***			0.087***	
		(2.98)			(3.09)	
Human Development Index			0.144**			0.348***
			(2.33)			(3.58)
Control Varaibles	YES	YES	YES	YES	YES	YES
Firm-fixed effects	YES	YES	YES	YES	YES	YES
Year-fixed effects	YES	YES	YES	YES	YES	YES
N	29872	29870	29872	28177	28175	28177
Pseudo R2	0.942	0.942	0.942	0.890	0.890	0.890

Panel B Three-year lagged independent variables

	# of NewPatents			# of Citation		
	(1)	(2)	(3)	(4)	(5)	(6)
Foreign CEO	0.068**			0.166***		
	(2.03)			(2.76)		
GDP Per Capital		0.030**			0.090***	
		(2.18)			(3.18)	
Human Development Index			0.106*			0.395***
			(1.92)			(4.35)
Control Varaibles	YES	YES	YES	YES	YES	YES
Firm-fixed effects	YES	YES	YES	YES	YES	YES
Year-fixed effects	YES	YES	YES	YES	YES	YES
N	27624	27622	27624	26013	26011	26013
Pseudo R2	0.945	0.945	0.945	0.893	0.893	0.893

Notes: See Appendix Table A1 for the definition of variables. z-statistics based on heteroskedasticity-consistent methods are shown in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table A6: Poisson Estimation with High-Dimensional Fixed Effects: Subsample Analysis (2012–2020)

	# of NewPatents			# of Citation		
	(1)	(2)	(3)	(4)	(5)	(6)
Foreign CEO	0.199***			0.352***		
	(3.38)			(2.87)		
GDP Per Capital		0.069***			0.113**	
		(2.68)			(2.20)	
Human Development Index			0.234**			0.490*
			(1.97)			(1.91)
Control Variables	YES	YES	YES	YES	YES	YES
Firm-fixed effects	YES	YES	YES	YES	YES	YES
Year-fixed effects	YES	YES	YES	YES	YES	YES
N	12533	12533	12533	11029	11029	11029
Pseudo R2	0.966	0.966	0.966	0.893	0.893	0.893

Notes: See Appendix Table A1 for the definition of variables. z-statistics based on heteroskedasticity-consistent methods are shown in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table A7: Principal Component Analysis (PCA)

	Inclusion_PCA			# of NewPatents	# of Citation
	(1)	(2)	(3)	(4)	(5)
Foreign CEO	0.748***				
	(3.86)				
GDP Per Capital		0.290***			
		(3.46)			
Human Development Index			0.727**		
			(2.14)		
Inclusion_PCA				0.016***	0.018***
				(4.80)	(4.28)
Control Variables	YES	YES	YES	YES	YES
Firm-fixed effects	YES	YES	YES	YES	YES
Year-fixed effects	YES	YES	YES	YES	YES
N	37632	37632	37632	27157	25573

Notes: This table presents the results of the principal component analysis (PCA). Specifically, we use the predicted value of the first component as $Inclusion\_PCA$. See Appendix Table A1 for variable definitions. z-statistics based on heteroskedasticity-consistent methods are shown in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.