

Transnational Analysis of ESG Information Disclosure: Environmental Concerns among Listed Companies in China and the United States

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Abstract: This research provides a transnational analysis of the environmental concerns embedded within the ESG (Environmental, Social, and Governance) information disclosure practices of listed companies in China and the United States. By examining 10 representative firms from each country, the study aims to highlight the variances in environmental awareness and subsequent actions undertaken by entities in these two major economies. However, as some argue, “Nonpecuniary factors, such as ESG considerations, should never take precedence over investment returns, risk or lowering fees”. Despite this perspective, our investigation adopts a cross-border lens, offering a more holistic perspective. The primary methodological tools involve evaluating ESG report ratings based on MSCI scoring rules and analyzing word frequencies related to environmental topics in Q4 2022 conference call transcripts. Preliminary findings indicate that the predictive effect of the MSCI score does not significantly differ between the two regions, and the attention to environmental issues, as evidenced by word frequencies, is comparable. The study acknowledges limitations arising from the limited dataset and the temporal scope of the research. Nevertheless, this research presents significant implications for international ESG policymaking, potentially guiding more effective strategies to attain Sustainable Development Goals. It also suggests avenues for further research, particularly in expanding the dataset and refining keyword sentiment analysis methodologies.

Keywords: ESG (Environmental, Social, and Governance), Environmental Concerns, MSCI Score, Transnational Analysis, Sustainable Development Goals

1. Introduction

1.1. Research Background

Over the course of the last several decades, the global community has faced an increasingly complex array of socio-environmental challenges. These range from the undeniable manifestations of climate change to the unsettling reduction in our planet's natural resources. Simultaneously, the perils of water contamination pose not only environmental but also health concerns, with ripple effects that touch

communities in both developed and developing nations. Furthermore, socio-economic disparities, underscored by the widening gap between the affluent and the less fortunate, have become more pronounced. These disparities, coupled with issues of labor rights, challenge our ideals of equality and fairness in the modern workforce.

Amid these multifaceted challenges, the role of corporations in shaping and sometimes exacerbating these issues has come under intense scrutiny. The concept of corporate responsibility has evolved from mere philanthropy to an integrative approach where businesses are expected to harmonize profit motives with societal and environmental welfare. As highlighted, "Creating social value focuses on the motivations and preoccupations of entrepreneurial leaders as they look to activate change within their companies" [1]. This sentiment underscores the essential role of leadership in steering corporations towards a more responsible and socially conscious trajectory in today's complicated global landscape.

In this evolving landscape, a significant portion of the investor community is transitioning from a traditional profit-centric view to a holistic perspective. They increasingly recognize that a company's environmental and societal practices deeply influence its overall sustainability and long-term value proposition. Such a paradigm shift isn't just ethically driven; it's grounded in risk management. Companies that neglect these aspects might face not only reputational damage but also tangible operational and financial risks. Consequently, the pillars of Environmental, Social, and Governance (ESG) have solidified their position as essential metrics in the evaluation process. No longer relegated to the sidelines, ESG considerations have become central to determining the potential and viability of investments. This is not merely a trend but a reflection of the changing dynamics of business and investment practices. This transformative perspective has brought ESG disclosure into sharp focus. Instead of being an optional endeavor, it has become a cornerstone for many international corporations' operational frameworks. This transparency not only aids investors in making informed decisions but also establishes a dialogue between companies, stakeholders, and the broader community, fostering collaboration and understanding towards a more sustainable future.

The emphasis on Environmental, Social, and Governance (ESG) factors in the investment world has witnessed an unprecedented uptick in recent years. With institutional investors and fund managers integrating ESG metrics into their valuation models, it's clear that the investment landscape is undergoing a paradigm shift. This shift is rooted in the recognition that a company's ESG commitments and performance can offer predictive insights into its future financial stability and growth prospects. As aptly put, "Environmental and social governance (ESG), corporate social responsibility (CSR), and human rights considerations also need to be woven into the long-term strategy, as sustainable financial performance results from good ESG and ethical treatment of all stakeholders" [2]. This holistic approach to business and investment underscores the importance of ethical considerations in achieving sustainable success.

Governments and regulatory bodies worldwide are not only taking note but also actively shaping this transition. According to KPMG's "Impact of ESG Disclosures", "The European Commission has now issued guidelines to provide practical recommendations on reporting the impact of economic activities on the climate and of climate change on businesses" [3]. Such regulations don't merely promote disclosure; they standardize it, ensuring comparability and reducing the risk of "greenwashing." As businesses increasingly weave ESG data into their financial narratives, stakeholders from shareholders to consumers gain a more holistic view of a company's overall health and its broader impact on society and the environment. Integrated reporting, blending financial metrics with non-financial ones, paints a detailed portrait of a company's strategic agility and long-term vision in a rapidly changing world. Complementing these efforts are third-party agencies that have emerged as crucial intermediaries. By evaluating and rating companies based on their ESG performance, they offer a distilled perspective on the vast and often complex landscape of

sustainability practices. These ratings are not just informative but can heavily influence investment flows, further underscoring their importance. The trajectory of ESG-centric investing and corporate practices indicates a future where ESG disclosures aren't mere supplements but core components of business and investment strategies. As global challenges, from climate crises to socio-economic inequities, intensify, the rigor and depth of ESG evaluation are poised to deepen. Companies will not only be judged by their profit and loss statements but also by their impact on the planet and its inhabitants. For investors, the expanded lens of ESG considerations offers both a risk-mitigation tool and a guidepost to identify future-ready businesses.

In the interconnected world of the 21st century, businesses no longer operate in isolation. They are part of a global ecosystem with intricate dependencies on societies and governance structures. ESG disclosure serves as a conduit, bridging the information gap between businesses and their myriad stakeholders, ranging from investors to everyday consumers. Such transparency is not just about accountability; it's about adaptability in a rapidly changing world. In the article of "ESG Reporting in an Increasingly Volatile World – Relevance and Evolution", the author Venkateshwaran indicates "similarly, approximately 50,000 companies in the European Union that are gearing up for the new reporting requirements under the Corporate Sustainability Reporting Directive" [4]. One of the most salient advantages of robust ESG disclosure is its ability to foster proactive decision-making. By highlighting potential vulnerabilities and areas of improvement, it empowers companies to be ahead of the curve and seize emerging opportunities. In an era where information travels at breakneck speed, being reactive can be detrimental, not just in terms of financial loss but also in reputational damage. Furthermore, as global economies witness tectonic shifts, there's an evolving understanding of what constitutes value. Financial capital is just one dimension; natural capital and human capital have become critical parameters influencing business valuation and longevity. ESG disclosure, thus, is an acknowledgment of this multi-dimensional approach to value creation and preservation. Another pertinent aspect is the evolving consumer mindset. The digital age has ushered in an era of informed consumers. They are not just looking for products or services; they seek alignments with values and a greater purpose. A company's ESG performance can significantly influence purchasing decisions. Employee dynamics are also changing. Talent, especially among younger generations, gravitates towards organizations that resonate with their personal values. Good ESG performance can be a differentiating factor in attracting and retaining top-tier talent. Looking forward, as sustainable investing becomes mainstream and as global challenges escalate, the demands for ESG disclosure will inevitably intensify. Regulatory frameworks might get stricter, and stakeholder expectations will surge. Companies' adept at navigating this landscape, not just as a compliance exercise but as a strategic imperative, are the ones likely to thrive.

1.2. Comparative Environmental Perspectives

In undertaking a detailed comparative analysis of environmental priorities between publicly listed companies in both China and the United States, we venture into a multi-dimensional exploration of the environmental ethos and consciousness manifesting through their respective ESG disclosures. The exercise not only illuminates the shared ethos and distinctive methodologies of enterprises within these two globally influential economies, but it also paves the way for the identification and potential adoption of best practices, driving the agenda of global environmental cognizance forward. At the heart of this study lies a quest to comprehend the myriad facets of investor sentiment across these economic behemoths. Recognizing the gravity of environmental concerns among Chinese and American investors allows us to gauge the cascading influence such concerns wield over corporate behaviors. Companies, in response to the palpable shifts in investor sentiment, often recalibrate their strategies, giving rise to a more profound engagement with sustainable practices. This dynamic can lead to heightened levels of ESG disclosure and, consequently, superior ESG ratings. Moreover, while

quantitative data from ESG scores provide an initial snapshot, the narratives accompanying these scores enrich our understanding. They serve as testament to a corporation's journey—be it the triumphs in implementing green technologies, challenges faced in sustainable supply chain management, or transformative strategies aimed at reducing environmental footprints. By digging in these diverse narratives and data-driven insights, we aim to provide a holistic view of environmental responsiveness among corporations in these regions. Furthermore, it is anticipated that this comprehensive perspective will serve as a catalyst for international collaboration. By recognizing synergies and areas of alignment, nations can collectively spearhead initiatives, fostering a harmonized approach to environmental challenges and stewardship.

1.3. ESG Ratings

The evaluation process for ESG ratings is characterized by a sophisticated, multi-tiered structure designed to ensure rigorous analysis in its application across various industries and regions. Variables like “corporate governance key issue scores, key issue controversy deductions, key issue management scores, key issue exposure scores, etc.,” are all included in consideration [5]. This intricate methodology demands high standards of diligence to ascertain the veracity and accuracy of data. At the outset, a series of both automated and manual data integrity checks are instituted. This dual-layer verification process managed under the watchful eyes of sectoral luminaries and regional team directors, ensures that any discrepancies or anomalies are identified and rectified promptly. Their collective expertise ensures that the nuances specific to each industry and region are aptly considered in the rating process. Before any ESG rating sees the light of day, it undergoes these exacting data quality assessments as the ESG committee collects 100+ specialized datasets and 3,400+ media sources monitored daily by governments, NGOs, and companies [5]. Every rating is subject to scrutiny, first by an analyst well-versed in the specificities of the relevant sector, followed by an auditor who ensures procedural compliance. In scenarios where the primary analyst's evaluation suggests an adjustment to the rating or in particular pre-defined circumstances, the intervention of a senior analyst becomes paramount to ensure that the proposed modifications are both justified and consistent with overarching guidelines. Furthermore, there's a robust governance framework in place. Any deviations from standardized company evaluations, the introduction of outliers in ratings, or substantive alterations to established two-letter ratings are presented to the Rating Methodology Committee for their approval. This committee plays a pivotal role in maintaining the sanctity of the rating process. Thereafter, the ESG Methodology Committee, tasked with the overarching responsibility of the ESG rating framework, meticulously examines enhancements endorsed by the Rating Methodology Committee [5]. They not only review but also actively recommend potential refinements to ensure that the system remains contemporary and reflective of evolving global standards.

Within the architecture of the ESG rating methodology, the allocation of weights to environmental and social pivotal concerns is entrusted to the Rating Methodology Committee. This esteemed body embarks on a rigorous appraisal of each salient issue to ascertain its significance both environmentally and socially. Subsequently, they calibrate weights to ensure a faithful representation of the inherent importance of each of these pivotal concerns. Weight determinations are predicated upon a suite of criteria, encompassing the prominence of the issue, its quantifiability, standardization across sectors, ease of implementation, and the credibility of data associated with it. These salient issues are not merely abstract considerations; they serve as a lens into the external ramifications attributable to a particular enterprise or sector. They provide a holistic overview of an entity's performance, revealing its environmental footprint and social impact. From an environmental vantage point, salient concerns span areas such as the ramifications of climate change and the strategic management of waste and pollutants. These facets offer insights into a firm's ecological stewardship and long-term sustainability

strategies. On the social front, pivotal concerns encompass human rights and labor practices. These elements highlight a company's commitment to ethical practices, thereby shaping its societal imprint and reputational capital.

ESG ratings meticulously assess a corporation's ethical governance and operational practices, positioning these evaluations in context with industry counterparts. The foundational elements of these ratings are delineated by pivotal indicators, each crafted to provide a nuanced understanding of various facets of a corporation's operational ethos and resultant performance. These pivotal indicators are ascertained through a system of score values, which exhibit flexibility contingent on the nature of the indicator in question [5]. Certain indicators hinge upon quantitative metrics or a spectrum of outcomes, while others adhere to predetermined score benchmarks. The rating's cumulative score is an amalgamation derived from the values attributed to these pivotal indicators. Individual topic scores span a continuum from 0 to 10 and are discerned through the application of a proprietary score conversion algorithm. Concurrently, scores pertaining to key questions are computed analogously, drawing upon inherent question scores and benchmarking against the apex value designated for each specific question. In instances where scores tread into negative territory, a floor of 0.0 points is mandated. Subsequently, industry-calibrated corporate scores are extrapolated from the weighted means of scores attributed to essential concerns. This method ensures that they resonate within the context of the broader industry peer landscape. The culminating ESG rating bestowed upon a company is a reflection of its industry-calibrated score, offering a rigorous and comparative evaluation of its corporate sustainability.

1.4. The Value of Environmental Mentions in Conference Call Transcripts

Conference calls are a goldmine of information about a company's priorities and actions, especially when it comes to environmental or ESG issues. When company leaders frequently mention terms like "sustainability," "carbon emissions," or "recycling," it's a clear indicator that these topics are on their radar. The elements of ESG have gained popularity in recent years' earning calls as "the impact that ESG performance can have on corporate financial performance – amplifies short-term market pressures" [6]. Researchers find these transcripts particularly useful. By scanning for specific environmental keywords, they can quickly pinpoint a company's commitment to certain practices. This streamlined approach means that, instead of sifting through pages of reports or official documents, experts can get a snapshot of the company's ESG strategies in real-time. But these calls aren't just beneficial for researchers. Investors, too, rely on them to determine a company's worthiness. If leaders actively discuss their efforts toward reducing their carbon footprint or supporting local communities, it can signify a forward-thinking company, which might be a more attractive investment. These conference calls also serve as a platform for company leaders to address various concerns and showcase their plans. The topics they choose to highlight often align with their long-term strategies. If they're emphasizing eco-friendly initiatives, it's likely because they see them as crucial to the company's growth and longevity. Furthermore, these calls often include a Q&A session where analysts and investors can ask direct questions. The responses to these queries, especially those concerning environmental and social issues, are telling. A company that provides detailed, well-thought-out answers demonstrates its commitment, whereas vague responses might suggest a lack of thorough planning. Public perception plays a massive role in a company's success. If a business is recognized as environmentally conscious and socially responsible, it can boost its reputation, drawing in more customers and investors. However, as noted, "Importantly, the finding that firms with low CSR but high transparency can still do well and have high profitability is counterintuitive and deserves careful attention" [7]. Hence, how a company presents itself on these calls, particularly concerning ESG matters, can directly influence its public image and future prospects. In essence, by examining the frequency and depth of environmental topics in conference call transcripts,

stakeholders can glean insights into a company's genuine dedication to environmental and ESG practices. It's a window into the company's soul, highlighting its values, strategies, and future direction.

2. Research Questions and Goals

2.1. Research Assumptions, Objectives, and Hypotheses

2.1.1. Introduction and Background

Our globalized world is witnessing a growing emphasis on responsible corporate behavior, especially with regard to sustainable business practices. Within this context, the focus on ESG (Environmental, Social, and Governance) disclosure has gained paramount importance. This study aims to explore the interplay between ESG ratings and nationality, specifically comparing Chinese companies listed in the U.S. and U.S. domestic listed companies. The aim is to identify if and to what extent these factors influence a company's concern for environmental issues.

2.1.2. Rationale

Companies operate within a societal and environmental framework. Their actions not only affect their profitability but also the broader ecosystem. The intricate relationship between businesses and their socio-environmental obligations suggests that those that align their operations with sustainable principles often position themselves better for long-term success. Echoing this statement, it's observed that "Besides financial information, non-financial information has recently gained relevant attention as investors also look for sustainability in their investment decisions. Companies are increasingly characterized by their non-financial information" [8]. In light of these considerations, discerning the genuine commitment of companies toward sustainability becomes a matter of both ethical and economic importance.

2.1.3. Principal Research Questions

- Does the level of ESG disclosure, as represented by their scores, play a significant role in determining the extent to which companies prioritize environmental concerns?
- Does the nationality of a company, specifically comparing Chinese companies listed in the U.S. with U.S. domestic listed entities, influence the depth of their environmental focus?
- In the event of observed disparities, what underlying factors might account for these variances in environmental commitment between the two groups?

2.1.4. Objectives and Significance

To examine the authenticity and depth of commitment behind corporate ESG disclosures and understand if nationality plays a role in influencing these declarations. By offering insights into the genuine focus of corporations towards sustainable practices, this research aims to:

- Facilitate introspection and improvement within corporations.
- Aid investors in making informed decisions, ensuring they invest in responsible businesses.
- Foster collaboration and knowledge exchange between multinational companies, encouraging a collective approach to global environmental challenges.

2.1.5. Proposed Hypotheses

- Hypothesis 1: Both a company's ESG score and its nationality play crucial roles in determining its focus on environmental concerns. This indicates that the socio-cultural and regulatory landscapes, coupled with ESG commitments, jointly shape a company's environmental strategy.
- Hypothesis 2: While ESG scores significantly influence a company's environmental priorities, nationality differences might not necessarily dictate their level of environmental commitment. This perspective underscores the universal importance of ESG considerations, transcending cultural or national boundaries.

2.1.6. Conclusion and Future Implications

While the above hypotheses will be subjected to rigorous empirical testing, the findings will inevitably focus on the intricate dynamics between corporate responsibility and environmental sustainability at play. Furthermore, the results stand to influence future corporate strategies, investment decisions, and potentially, regulatory considerations in the realm of sustainability.

2.2. Limitations of the Research

2.2.1. Sample Size and Industry Limitations

Our study encompasses data from a selection of 10 Chinese companies listed in the U.S. and 10 U.S. domestically listed enterprises. Given the constrained sample size and the narrow industry segmentation, it becomes challenging to make broad-based comparisons between new energy entities and conventional firms. This limited diversity inherently restricts the generalizability of our findings, rendering certain variables insignificant in impacting our analytical outcomes.

2.2.2. Methodological Constraints on Keyword Analysis

The scope of our analysis on keyword frequency from corporate conference calls is confined to a modest dataset, specifically focusing on the Q4 2022 calls. The chosen set of 16 climate or environment-related keywords, while curated with due consideration, has been delineated by our team without the aid of advanced sentiment analysis algorithms. This introduces a degree of subjectivity and potential omission in our keyword selection. As such, the list might not be exhaustive or reflective of the entire spectrum of relevant environmental discourse.

2.2.3. Future Research Avenues

For future endeavors, broadening the dataset and leveraging more sophisticated analytical algorithms can provide enhanced insights. A richer and more comprehensive dataset, complemented by mature and reliable sentiment analysis tools, could bolster the robustness of our findings. Such an approach would allow for a more nuanced understanding of keyword correlations, paving the way for more definitive and actionable conclusions.

3. Methodological Approach in The Empirical Examination of Corporate ESG Disclosures

3.1. Data Collection and Preliminary Analysis

This empirical research integrated methodologies from data science and computer science disciplines to extract and analyze relevant corporate data. Initially, data was sourced manually for 10 Chinese companies listed in the U.S. — namely Alibaba, NIO, XPeng, Tencent, JD, Pinduoduo, Li Auto, BYD, Vipshop, and NetEase — also with 10 prominent U.S. public entities, including Apple,

Microsoft, Amazon, First Solar, Tesla, Alphabet, Walt Disney, Next Era Energy, Johnson Controls International, and Visa.

Central to our study are:

- The ESG report ratings, derived using MSCI's scoring criteria, are represented in alphanumeric format ranging from CCC to AAA.
- The frequency count of 16 pre-defined environmental keywords within the Q4 2022 conference call transcripts. These terms, ascertained through a preliminary sentiment analysis, comprise climate, carbon, sustainable, emission, green, energy, environment, pollution, gas, recycle, solar, electric, ecosystem, resource, waste, and renewable.

3.2. Data Structuring and Transformation

Post-collection, the data was organized into structured Excel and CSV formats, readying it for quantitative analysis. A binary system was introduced for the "Country of Origin" variable, termed "US_CN": U.S.-based entities were assigned a value of '1' and their Chinese counterparts a '0'. Given the alphanumeric nature of the "ESG_score" based on MSCI ratings, a transformation was imperative for regression analysis. A tiered quantification system was applied: (CCC, B, BB) were mapped to '1', (BBB, A) to '2', and (AA, AAA) to '3'.

3.3. Regression Model Parameters

Our regression modeling deployed the transformed "ESG_score" (ESG_score_i) and "US_CN" (US_CN_i) as predictor variables. The logarithmically adjusted frequency count of environmental keywords, notated as log(#keyword+1)_i, was the outcome variable of interest. This robust analytical framework, rooted in empirical methods and interdisciplinary techniques, aims to uncover insights into corporate attention to environmental concerns as reflected in their communications and disclosures.

$$\log (\#keyword + 1)_i = \beta_0 + \beta_1 * US_CN_i + \varepsilon \quad (1)$$

$$\log (\#keyword + 1)_i = \beta_0 + \beta_1 * US_CN_i + \beta_2 * ESG_score_i + \beta_3 * US_CN_i * ESG_score_i + \varepsilon \quad (2)$$

Table 1: Summary of Regression Data

Variables	log_total	log_total
U.S.	0.480	-0.795
	(0.410)	(1.828)
Rank	0.247	(0.485)
US*Rank	0.511	(0.767)
Constant	2.073***	1.529
	(0.290)	(1.106)
Observation	20	20
R-squared	0.071	0.169

Standard errors in parentheses

***p<0.01, **p<0.05, *p<0.1

4. Innovation of the Research

The current investigation delineates a nuanced exploration into the disparities in environmental engagement, as manifested through the ESG disclosures of publicly traded entities in both China and

the United States. Distinctively broadening the analytical lens beyond the prevailing studies, often anchored to environmental scrutiny within singular national or regional contexts, this research accentuates a transnational purview. As observed, “With the rise of environmental awareness since the 1960s, enterprises have increasingly been required to comply with international treaties and regulations” [9]. This historical shift underscores the importance of understanding environmental cognizance and initiatives between companies operating within these two pivotal economies, both of which have been influenced by global environmental movements and regulations.

Opting for firms that actively disseminate ESG-related information as the fulcrum of investigation, this study diverges from the conventional emphasis on corporate environmental performance assessments and managerial praxis in the environmental domain. Moreover, it ingeniously amalgamates the ESG rating paradigm with an analytical overview of environmentally pertinent terminologies within corporate conference calls, striving to unearth potential interconnections. Given that ESG disclosures epitomize a voluntary, transparent enterprise action, probing the nuances therein can unmask the degree of proactive environmental stewardship demonstrated by these corporations.

Yet, the ambit of this research isn't merely circumscribed to gauging corporate environmental attention; it extends to delving into the tangible environmental strategies adopted. This encompasses definitive corporate initiatives in realms such as energy efficiency, emission mitigation, resource recycling, carbon footprint reduction, and strategic environmental surveillance, along with frameworks addressing pertinent environmental challenges. Such a multifaceted perspective, in essence, fosters a holistic comprehension of the subject.

In unveiling the environmental engagement contrasts between Chinese and American listed firms, this investigation aspires to furnish cogent policy recommendations beneficial for both governmental entities and international consortiums in refining ESG ordinances and fostering environmental collaboration. Unlike the more traditional studies that predominantly dwell on operational environmental evaluations, this research accentuates the ripple effect at a strategic policy echelon. In summation, the distinctiveness of this scholarly endeavor lies in its cross-national comparisons, emphasis on ESG disclosures, multifaceted environmental analysis, alignment with Sustainable Development Goals, and its prospective influence in policymaking, a confluence of attributes that endows it with both profound academic rigor and pragmatic resonance.

5. Conclusion

Based on the data analysis and its elucidation, we arrive at the following conclusions:

For column (1): The coefficient of the "US" variable is positive, albeit statistically insignificant.

For column (2): The coefficient of the interaction term does not demonstrate significance, implying that there is no distinguishable difference in the predictive power of the MSCI score between US and Chinese companies.

Unfortunately, in light of these conclusions, our two hypotheses have been rejected. Nonetheless, it is conceivable that many of you might have discerned or anticipated certain limitations or areas of refinement in our study. Let's now pay more attention to a comprehensive analysis of potential enhancements and improvements. Due to time constraints, we were unable to collect our data from a broader spectrum of companies, leading to a potential increase in the randomness of our regression outcomes. Furthermore, the limited dataset, encompassing just 20 listed companies from both China and the US, presented a rather narrow array of company types, thereby diminishing the significance of using company types as a variable for comparison. Additionally, the data we gathered concerning keyword frequencies from the conference calls of these 20 companies was restricted to only one quarter of 2022 (Q4). Importantly, the selection of the 16 keywords from these calls was based on manual sentiment analysis, devoid of any sophisticated sentiment analysis algorithmic interpretation, raising concerns about the precision of these keywords. In future research, with access to more

expansive company datasets and by leveraging more refined algorithms, we aspire to increase the reliability of our findings.

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