Benchmarking the initiatives of ESG research leaders

Benchmarking das iniciativas dos líderes em pesquisa científica sobre ESG

Benchmarking de las iniciativas de los líderes en investigación ESG

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Abstract
The term "Environmental, Social, and Governance" (ESG) has become fundamental for companies seeking to align their operations with a positive and sustainable impact. However, the spread of ESG is not equal worldwide. Therefore, the most advanced countries in ESG can be benchmarked for policies and practices that can accelerate the implementation of sustainable strategies in others. This work aims to identify ESG initiatives in the three countries with the highest h-Index (China, the United States, and Italy) that contribute to Sustainable Development (SD), investigating their articles, authors, and universities. For this purpose, Scopus was used to survey the h-Index and other data, combining a Bibliographic Study of the articles with Secondary Data Analysis of other papers. The progress made by these countries in expanding and strengthening ESG practices is significant and diverse. Together, they are shaping the global ESG landscape, driving more sustainable corporate practices. The results of this work shed light on the studies carried out in these nations, showing the advancement of ESG driven by financial markets, their contributions to SD, and the relevant role of universities in this regard.

Keywords: ESG. Environmental, Social, and Governance. China. United States. Italy. Sustainable Development.

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Benchmarking das iniciativas dos líderes em pesquisa científica sobre ESG

Resumo

O termo “Environmental, Social and Governance” (ESG) tem se tornado fundamental para empresas que buscam alinhar suas operações com um impacto positivo e sustentável. Contudo, a expansão do ESG não acontece de forma igualitária mundialmente. Desta forma, os países mais avançados em ESG podem ser objeto de benchmarking de políticas e práticas que podem acelerar a implementação de estratégias sustentáveis nos demais. O objetivo deste trabalho é identificar nos três países com maior h-Index (China, Estados Unidos e Itália) iniciativas de ESG que contribuam para o Desenvolvimento Sustentável (DS), investigando seus artigos, autores e universidades. Para isto a Scopus foi utilizada no levantamento do h-Index, e demais dados, combinando Estudo Bibliográfico dos artigos com Análise de Dados Secundários de outros documentos. Os avanços destes países para a expansão e fortalecimento das práticas de ESG são significativos e diversos. Juntos, eles estão moldando o cenário global de ESG, impulsionando práticas corporativas mais sustentáveis. Os resultados deste trabalho lançam luz sobre os estudos realizados nessas nações, mostrando o avanço do ESG impulsionado pelos mercados financeiros, suas contribuições para o DS, e o papel relevante das universidades neste sentido.


Resumen

El término "medioambiental, social y de gobernanza" (ESG, por sus siglas en inglés) se ha convertido en fundamental para las empresas que buscan alinear sus operaciones con un impacto positivo y sostenible. Sin embargo, la difusión de ESG no es igual en todo el mundo. Por lo tanto, los países más avanzados en ESG pueden servir de referencia para las políticas y prácticas que pueden acelerar la aplicación de estrategias sostenibles en otros. El objetivo de este estudio es identificar las iniciativas ESG en los tres países con mayor Índice h (China, Estados Unidos e Italia) que contribuyen al Desarrollo Sostenible (DS), investigando sus artículos, autores y universidades. Para ello, se utilizó Scopus para estudiar el índice h y otros datos, combinando un estudio bibliográfico de los artículos con un análisis de datos secundarios de otros documentos. Los avances realizados por estos países en la expansión y el fortalecimiento de las prácticas ASG son significativos y diversos. Juntos, están configurando el panorama mundial de ESG, impulsando prácticas corporativas más sostenibles. Los resultados de este trabajo arrojan luz sobre los estudios realizados en estas
Benchmarking das iniciativas dos líderes em pesquisa científica sobre ESG

naciones, mostrando el progreso de ESG impulsado por los mercados financieros, sus contribuciones al DS y el papel relevante de las universidades en este sentido.


**Introduction**

The increasing occurrence of crises caused by climate change and environmental degradation, combined with social problems and inequalities, have put pressure on companies and governments to adopt more sustainable practices to mitigate environmental damage and promote social justice (Díaz Tautiva et al., 2024; Kuzey et al., 2023; Rafique et al., 2022). In addition, other factors such as corporate scandals and governance failures have exposed the need for ethical and transparent management to ensure the trust of investors and stakeholders (Hassan et al., 2023; He et al., 2024; Taliento et al., 2019). Such factors have contributed to stakeholders demanding more information on corporate activities' environmental, social, and governance (ESG) impacts (Buallay, 2019; Fatemi et al., 2018). In this way, ESG has become essential for companies seeking to align their operations with a positive and sustainable impact on society and the environment (Díaz Tautiva et al., 2024; Zhao et al., 2018).

The ESG pillars form the ideal basis for Corporate Sustainability (CS) assessments, which is why this information from publicly traded companies has been used for various financial market analyses (Chiaramonte et al., 2022; Paolone et al., 2022; Taliento et al., 2019). In this sense, ESG is also one of the most important types of information for developing regulations and public policies (Brogi & Lagasio, 2019; Bruno & Lagasio, 2021; Paolone et al., 2022). Corporate awareness of the impacts of business activities is as essential to achieving the Sustainable Development Goals (SDGs) as government participation (Birindelli et al., 2018; Chen et al., 2023; Rafique et al., 2022). Likewise, ESG has been receiving attention from society, which uses this information as a CS indicator to pressure companies and governments for their respective responsibilities (He et al., 2024). For these and other reasons, ESG has been widely studied, increasing the number of scientific publications (Fatemi et al., 2018; He et al., 2024; Khan et al., 2024).

The expansion of ESG in the corporate sector has highlighted the uneven development of this topic between countries, showing that much progress still needs to be made in this field...
to achieve significant results in Sustainability (Buallay, 2019; Gregory, 2022a; He et al., 2024; Tan & Zhu, 2022). However, the evidence of how ESG initiatives can contribute to sustainable development in countries where there is a greater concentration of scientific research remains unexplored, generating a research gap (Aboud et al., 2024).

In this sense, the most advanced countries in ESG can benchmark policies and practices that have already proven effective, so that companies and governments in other countries can adopt these models, accelerating the implementation of sustainable strategies (Buallay, 2019). This learning by observing initiatives that already work in some economies is called the knowledge spillover effect (Rafique et al., 2022). Therefore, the emerging research question is: what can be learned from the ESG initiatives of the countries that stand out in publication terms?

Based on this, this work aims to identify ESG practices in the three countries with the highest h-Index (China, the United States, and Italy), investigating their articles, authors, and universities.

Theoretical Background on ESG

Since 1992, the United Nations Environment Program Finance Initiative (UNEP FI) has advocated the inclusion of environmental and social factors in the decision-making processes of financial institutions (He et al., 2024; Tan & Zhu, 2022; Zhao et al., 2018). However, it has been since the publication of the UN Principles for Responsible Investment (UN-PRI) in 2006 that the disclosure of corporate information on the environmental, social, and governance impacts of their activities has placed ESG at the center of CS assessments (Avramov et al., 2022; Li et al., 2021). ESG considerations have become increasingly important in corporate decision-making, with the disclosure of this information playing a key role in informing the financial market and protecting shareholder interests (Wang et al., 2023; Zhao et al., 2018). With this, companies explore more ethical and sustainable ways of conducting business in the long term, with the integration of ESG aspects into the focus of capital markets (Brogi & Lagasio, 2019; Chen & Xie, 2022; He et al., 2023).

With the growing interest of these markets in the ESG practices of publicly traded companies, metadata analysis agencies for the financial market, such as MSCI, Bloomberg, and Standard and Poor's, have begun to systematize criteria for evaluating these practices (Tan & Zhu, 2022). The ESG rating has become an increasingly relevant indicator for guiding
Benchmarking das iniciativas dos líderes em pesquisa científica sobre ESG

investment funds and supporting corporate sustainable development, as well as providing a benchmark for financial institutions to identify potential benefits and market opportunities (Giese et al., 2019; Luo et al., 2023; Tan & Zhu, 2022). ESG-rated companies send positive signals to stakeholders, implying that they will follow a sustainable transformation strategy, and can reduce information asymmetries and financial constraints while conveying transparency and trust in the attitudes of managers (Baldini et al., 2018; Brogi & Lagasio, 2019; Tan & Zhu, 2022).

This perception of the financial market directly affects large publicly traded companies, those that have their assets divided into shares that are traded on Stock Exchanges (BV), and indirectly other types of companies, since it is part of the ESG pillars to also generate value throughout their supply chain (Chiaramonte et al., 2022; Díaz Tautiva et al., 2024; Taliento et al., 2019). Thus, it can be said that ESG strengthens corporate practices so that they actively contribute to SD and the common good, and it is up to governments to create legislation and enforcement in line with this objective (Birindelli et al., 2018; Chen et al., 2023; Wang et al., 2023).

Research Method

This paper is a Bibliographical Review of the selected articles combined with Secondary Data Analysis on the engagement of authors and universities in ESG. To this end, its composition began with an investigation of the countries with the greatest development of ESG research. Thus, the following terms were entered into the Scopus database for title searches: ESG or Environmental, Social, and Governance plus at least one of the following terms: Sustainability, Sustainable Development, Corporate Social Responsibility, Performance, Disclosure, Reporting, Stakeholder, Investment, Financial, Assessment, CSR, or Economic. In addition, filters were applied for the period, limiting it to 2018 to 2023; document type, for only articles or reviews; and language, for only English, resulting in 1,887 papers.

Scopus was chosen as the database for this work due to its academic reliability, the abundance of papers on the subject, and because it allows an analysis of the relevance of the results obtained through the h-Index (Khan, 2022; Passas et al., 2022). The h-Index is a performance indicator that relates the number of documents published to the number of citations of each paper, generating a factor that allows the most prominent elements to be
Benchmarking das iniciativas dos líderes em pesquisa científica sobre ESG

ranked (Hirsch, 2007; Merigó et al., 2018; Reis et al., 2017). In this study, the elements analyzed for each country were the articles, selected by the number of citations, representing their relevance to ESG, while the authors and universities were selected by h-Index, as a performance indicator (Reis et al., 2017).

Due to the volume of information, it was decided to analyze the three countries with the highest h-Index by number of papers published. It is important to note that in this study the three countries had the same h-Index (42), but were differentiated by the number of publications (China with 462, United States with 247, Italy with 179). A more in-depth analysis was also carried out to identify, among the results, the elements most engaged with ESG in the country analyzed, as shown in Figure 1.

Figure 1

Research workflow

Identification of ESG Initiatives, Results and Discussion

The results of the data collected have been organized into sections by element (articles, authors, and universities). Their initiatives are structured in tables followed by discussions.

4.1 Articles

In this section, the most cited articles investigated ESG initiatives that contribute to the sustainability goals of the selected countries, following the analysis criteria shown in the research method (Fig. 1), as shown in Table 1.
### Table 1

**Most influential articles on ESG**

<table>
<thead>
<tr>
<th>Countries</th>
<th>Articles</th>
<th>References</th>
<th>Initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>ESG and corporate financial performance: Empirical evidence from China's</td>
<td>Zhao et al. (2018)</td>
<td>Environmental and labor indicators of China’s five largest energy supply corporations were observed to map ESG development in the companies, guided by a performance index obtained from the global average of companies in the same segment (energy, mining, textiles, retail, etc.).</td>
</tr>
<tr>
<td></td>
<td>listed power generation companies</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The effect of ESG rating events on corporate green innovation in China:</td>
<td>Tan &amp; Zhu (2022)</td>
<td>Some characteristics were analyzed, such as the quantity and quality of investments in technology and innovation by companies with class A shares on the Chinese Stock Exchange between 2010 and 2018, to identify how ESG practices promote green innovation in companies and whether this innovation is relevant to the country's business and technological development.</td>
</tr>
<tr>
<td></td>
<td>The mediating role of financial constraints and managers' environmental</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>awareness</td>
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<tr>
<td></td>
<td>ESG disclosure and financial performance: Moderating role of ESG investors</td>
<td>Chen &amp; Xie (2022)</td>
<td>Data from ESG rating agencies (MSCI, Bloomberg, etc.), such as indicators of product safety, anti-discrimination practices, ethics, governance, and board composition of China's non-financial listed companies from 2000 to 2020, was investigated to show how investors influence ESG performance outcomes through monitoring listed companies.</td>
</tr>
<tr>
<td></td>
<td>Firms and social responsibility: A review of ESG and CSR research in</td>
<td>Gillan et al. (2021)</td>
<td>A review of scientific articles on corporate finance was carried out to investigate how the variables of territoriality, sector of operation, composition of the board of directors, and ownership structure (family-owned, state-owned, publicly traded, or mixed) impact the value and ESG strategies of companies.</td>
</tr>
<tr>
<td></td>
<td>corporate finance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>“Why and how investors use ESG information: Evidence from a global survey”</td>
<td>Amir &amp; Serafeim (2018)</td>
<td>A questionnaire on ESG was developed and answered by 652 US CEOs and investment managers to identify investors’ motivations and difficulties concerning ESG.</td>
</tr>
<tr>
<td></td>
<td>“ESG performance and firm value: The moderating role of disclosure”</td>
<td>Fatemi et al. (2018)</td>
<td>Data from 403 US publicly traded companies between 2006 and 2011 was used, looking at factors such as the number of shareholders and the existence of a CSR committee on the board of directors to identify how concerns about ESG aspects relate to companies' ESG strategies and reports.</td>
</tr>
<tr>
<td>Italy</td>
<td>How Do Companies Respond to Environmental, Social, and Governance (ESG)</td>
<td>Clementino &amp; Perkins (2021)</td>
<td>Representatives of 18 Italian companies from different business sectors, with ESG ratings simultaneously from eight agencies, were interviewed, comparing the data evaluated in the metrics with the companies’ responses to investigate the relationship between the ESG rating and the companies’ sustainability performance.</td>
</tr>
<tr>
<td></td>
<td>Ratings? Evidence from Italy</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Composition and activity of the board of directors: Impact on ESG</td>
<td>Birindelli et al. (2018)</td>
<td>The characteristics (gender, size, frequency of meetings, experience, skills, and independence of directors) of the boards of directors of 108 banks in Europe and the USA were investigated to find out how boards affect ESG performance, and the impact of women’s participation on them.</td>
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<tr>
<td></td>
<td>performance in the banking system</td>
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</tbody>
</table>
Benchmarking das iniciativas dos líderes em pesquisa científica sobre ESG

The ESG aspects (environmental, social, and governance) of companies from five European countries (Belgium, France, Germany, Italy, and Spain) from 2014 to 2017 were analyzed to investigate the relationship between companies’ ESG engagement, market value and financial returns.

The analysis of the articles in Table 1 revealed an interrelation of internal and external factors that influence the development of ESG in companies. Among the internal factors are the composition of the board of directors and the coherence of top management's environmental, social, and governance concerns with corporate practices (Birindelli et al., 2018), sustainability investment decisions (Amir & Serafeim, 2018; Gillan et al., 2021; Tan & Zhu, 2022), and compliance with ESG evaluation and rating metrics (Clementino & Perkins, 2021; Fatemi et al., 2018; Taliento et al., 2019; Zhao et al., 2018). These factors have shown positive results and competitive advantage in aspects such as investments in green innovation, and the presence of women on boards of directors, provided they are equal in number (Birindelli et al., 2018; Zhao et al., 2018).

External factors are related to the monitoring and pressure exerted by stakeholders, especially investors, and the social, cultural, and regulatory characteristics of the territory, as they affect the administrative structure, internal policies, and strategies of companies (Amir & Serafeim, 2018; Chen & Xie, 2022; Gillan et al., 2021). Stakeholders’ attention to ethical issues influences corporate governance, generating transparency in reporting, while promoting reliability and resilience for businesses, and improving their ESG rating (Amir & Serafeim, 2018; Chen & Xie, 2022; Gillan et al., 2021).

4.2 Authors

This section investigates the contributions of the authors with the highest h-Index in ESG that are most aligned with the sustainability goals of the selected countries, following the analysis criteria shown in the research method (Fig. 1), as shown in Table 2.
### Table 2

**Most influential authors on ESG**

<table>
<thead>
<tr>
<th>Countries</th>
<th>Authors</th>
<th>References</th>
<th>Initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>Linda-Eling Lee, Global Research Chief of ESG on MSCI</td>
<td>Eccles et al. (2020)</td>
<td>It investigated the historical bases of the KLD and Innovest evaluation agencies, identifying the indicators of ESG evaluation metrics that can be used by companies to adjust their ESG policies and practices with the correct contextualization.</td>
</tr>
<tr>
<td>USA</td>
<td>Richard P. Gregory, Professor at East Tennessee State University</td>
<td>Gregory (2022b)</td>
<td>It explored the relationship between ESG scores and different financial variables such as earnings data, leverage, liquidity, return on equity (ROE), cash flow, tangibility, and stock volatility, to identify how ESG pillars influence companies' results in times of crisis.</td>
</tr>
<tr>
<td>USA</td>
<td>M. Kabir Hassan, Professor at New Orleans University</td>
<td>Khan et al. (2024)</td>
<td>It found that the costs passed on to the supply chain of large corporations did not support sustainability, especially in environmental and social aspects, developing a pricing method that aims to generate sustainability and financial security in the supply chain.</td>
</tr>
<tr>
<td>Italy</td>
<td>Valentina Lagasio, Professor at Sapienza Università di Roma</td>
<td>Bruno &amp; Lagasio (2021)</td>
<td>Comparing existing ESG legislation between European countries, mapping their pros and cons to guide improvements for both policymakers and companies and professionals in the financial system.</td>
</tr>
<tr>
<td>Italy</td>
<td>Francesco Paolone, Professor at Universitas Mercatorum</td>
<td>Cambrea et al. (2023)</td>
<td>Investigated the ESG performance of Italian listed companies in the Mercato Telematico Azionario from 2003 to 2019 to confirm that women as executive directors on corporate boards are essential for advising and monitoring ESG practices that achieve better performance.</td>
</tr>
<tr>
<td>Italy</td>
<td>Stefano Piserà, Researcher at Università degli Studi di Genova</td>
<td>Chiaramonte et al. (2022)</td>
<td>It investigated the stability of banks in 21 European countries between 2005 and 2017 to assess the joint and separate effects of ESG aspects, confirming that their strengthening is reflected in better ratings and more stability, increasing the reliability and value of these institutions.</td>
</tr>
</tbody>
</table>

The Chinese authors validated their research with information on class A listed companies (i.e. the best types of shares on a stock exchange) on the Shanghai and Shenzhen stock exchanges between 2011 and 2019, looking at characteristics such as the number of shareholders and employees, (dis)respect for consumer rights, and environmental and public responsibilities. Chinese authors include Professor Feng He, who was awarded one of Tianjin's Innovative Talents for his ESG research on innovation, sustainability, and corporate
social responsibility (BWU, 2023).

The US authors include Linda Eling-Lee, who was recognized as one of the 100 most influential women in the US financial sector in 2020 and 2022, according to Barron's, a financial magazine linked to the New York Stock Exchange (Barron's, 2020, 2022). The results of the publications by these authors that most drive the development of ESG highlight: the importance of considering the performance history and specific characteristics of each company (Giese et al., 2021); Governance as the pillar that generates more resilience for companies when facing crises (Gregory, 2022b); and the role of large corporations concerning sustainability in their supply chains, ensuring that smaller companies can generate results in all three aspects of ESG (Khan et al., 2024).

Among the Italian authors, there was an alignment towards strengthening regulations and practices relating to ESG in the financial system of the countries of the European Union. Due to her work in this area, Valentina Lagasio has been awarded three prizes by the Sapienza University of Rome. The financial system is essential in the dissemination of ESG practices to achieve SD, insofar as through ESG practices companies will contribute to reducing their environmental footprint (E), improving working conditions, diversity and equity (S), and considering stakeholders and good governance practices, including in business strategies and planning (G) (Bruno & Lagasio, 2021; Cambrea et al., 2023; Chiaramonte et al., 2022).

4.3 Universities

This section investigates the ESG practices of the universities with the highest h-Index listing how their ESG practices have contributed to the advancement of sustainability in the selected countries, as shown in Table 3.

<table>
<thead>
<tr>
<th>Countries</th>
<th>Universities</th>
<th>References</th>
<th>Initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>Capital University of Economics and Business</td>
<td>CUEB (2024)</td>
<td>It has created the first (Chinese) Capital Market Innovation Development Forum as an opportunity to increase ESG dialog between Governments, Companies, and Academia.</td>
</tr>
<tr>
<td></td>
<td>Xi’an Jiaotong University</td>
<td>XJTU (2024)</td>
<td>Prepared an Action Plan for the development of ESG in universities, taking into account the national goals for technological, scientific, and educational development, the principles of ESG, and the SDGs.</td>
</tr>
</tbody>
</table>
Benchmarking das iniciativas dos líderes em pesquisa científica sobre ESG

<table>
<thead>
<tr>
<th><strong>University</strong></th>
<th><strong>Country</strong></th>
<th><strong>Year</strong></th>
<th><strong>Initiative</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Shanghai University of Finance and Economics</td>
<td>SUFE (2024)</td>
<td>Launched an International Development and ESG Practices pilot program for academic training for senior executives of local companies.</td>
<td></td>
</tr>
<tr>
<td>Fordham University</td>
<td>USA</td>
<td>Fordham University (2024)</td>
<td>Developed a curriculum to help professionals navigate the ESG landscape, including a course in partnership with the Value Report Foundation (VRF) aimed at the SASB certification accreditation exam.</td>
</tr>
<tr>
<td>East Tennessee State University (ETSU)</td>
<td>USA</td>
<td>ETSU (2024)</td>
<td>It set up a Sustainability department, through which programs were implemented to reduce carbon emissions, such as the adoption of public transport and cycling, changes in food services to reduce food, water, and energy waste, and composting of organic waste used as fertilizer on the campus itself.</td>
</tr>
<tr>
<td>University of Pennsylvania</td>
<td>USA</td>
<td>UoP (2023)</td>
<td>It has created ESG laboratories, where it encourages its students to find solutions to real corporate ESG problems, promoting the expansion of ESG among small and medium-sized companies in partnership with the university.</td>
</tr>
<tr>
<td>Sapienza Università di Roma</td>
<td>Italy</td>
<td>Uniroma1 (2024)</td>
<td>Included Sustainability Sciences as a subject in all undergraduate courses, to generate capillarization of ESG practices through propagation in all areas of knowledge.</td>
</tr>
<tr>
<td>Alma Mater Studiorum Università di Bologna</td>
<td>Italy</td>
<td>Unibo (2024)</td>
<td>It has developed a University Energy Plan in which it defines strategies to promote the efficient use of energy and increase the social, economic, and environmental sustainability of its activities.</td>
</tr>
<tr>
<td>Università degli Studi di Firenze</td>
<td>Italy</td>
<td>Unifi (2024)</td>
<td>It has implemented a Green Office, where it concentrates the planning and control of the university's activities to direct them according to the ESG pillars to achieve the SDGs.</td>
</tr>
</tbody>
</table>

Chinese universities have supported the government's sustainable development plans, promoting various events to broaden the dialog between government, business, and academia. Their initiatives have been carefully planned to help accelerate the progress of ESG between the corporate sector and policymakers. This commitment by educational institutions aims to support these two fronts for the stability of the economic system in this phase of sustainable transition. While in the US, universities have chosen to adopt more independent initiatives, developing practices that contribute to SD on a more regionalized scale. In a way, this is also related to the stage of maturity of ESG in macroeconomic terms in the country, allowing these institutions to expand and strengthen ESG principles in microeconomic terms, generating capillarity. In Italy, universities have formed various alliances, as regional and national, as with other countries in the EU and other parts of the world, placing the SDGs at the heart of their activities, in commitment to the UN’s 2030 Agenda. In doing so, they have taken ESG to a new level, which goes beyond the dissemination of knowledge and the individual initiatives of each institution, as all activities must reflect the pillars of ESG.
4.4 Discussion

The initiatives of China, the USA, and Italy to expand and strengthen ESG are significant and diverse. Together, these nations are shaping the global ESG landscape, driving more sustainable corporate practices, and positively influencing the financial markets regarding environmental, social, and governance responsibility.

As a major world power in terms of production, China seeks to maintain the economic development rates of recent decades and generate positive results in terms of ESG, one of the most critical points of this challenge is the transformation of its energy sector, dominated by coal (Chen & Xie, 2022; Zhao et al., 2018). With sustainable development plans and carbon neutrality targets by 2060, the country faces challenges in ESG implementation, needing to direct efforts towards increasing corporate commitment and improving regulatory oversight (Zhao et al., 2018). The SynTao Green Finance organization has been rating ESG in China's publicly traded companies since 2015 and is one of the main third-party agencies authorized to carry out ESG ratings in the country. It combines in its ratings the country's stage of development with the real situation of outstanding environmental protection problems, using multiple dimensions of corporate management and long-term benefits for society, such as corporate green innovation (Tan & Zhu, 2022).

In the US, most of the financial market is controlled by institutions with greater power and influence over corporate strategies and practices, but they are also more committed to PRI, and more than 80% consider ESG information relevant for decision-making (Amir & Serafeim, 2018; Gillan et al., 2021). Between 2014 and 2018, ESG investment funds in the country grew by 60%, with a 140% increase in the number of assets marketed (Eccles et al., 2020). In 2020, US$17.1 trillion was invested in ESG strategies in the US, 42% more than in 2018 (Edmans, 2023). Overseen by the U.S. Securities and Exchange Commission, many companies are linking executive compensation to ESG metrics (Edmans, 2023; Uyar et al., 2023), in addition to many of them complying with guidelines such as those of the Organization for Economic Cooperation and Development (OECD), which defines responsible business conduct in areas such as human rights, the environment and anti-bribery (Brogi & Lagasio, 2019). The adoption of ESG practices by companies combined with the creation of economic policies by legislators shows a growing movement, but they still face challenges in gaining the full trust of the US financial market (Edmans, 2023; Gregory, 2022b). In this sense, the commitment of the country's five largest banks (JPMorgan Chase,
Bank of America, Wells Fargo, Citigroup, and Morgan Stanley) to adopt programs to improve their ESG performance, contributes to a positive change in the national scenario (Brogi & Lagasio, 2019). The US banking sector also stands out for the participation of women on boards of directors, showing that gender diversity on these boards reduces information manipulation, contributing to better ESG performance (Adeneye et al., 2024).

Italy is relevant for ESG analysis due to the number of companies in the country that have adopted sustainability practices (Clementino & Perkins, 2021). Studies show that although ESG culture is widely practiced in Italian companies, ESG ratings do not significantly influence company returns, indicating that the financial market does not prioritize these practices (Bruno & Lagasio, 2021; Landi & Sciarelli, 2019; Taliento et al., 2019). Italy implemented the EU 2014/95 Non-Financial Reporting Directive (NFRD) in 2016, requiring large companies to publish a Non-Financial Statement (NFS), audited by companies known as the Big 4 (Deloitte, EY, KPMG or PwC) (Santamaria et al., 2021). The National Commission for Companies and the Stock Exchange (CONSOB) oversees these statements, ensuring compliance of companies that have published following Global Reporting Initiative (GRI) standards (Santamaria et al., 2021). In addition, Italy was one of the first EU countries to adopt gender quotas on boards of directors, significantly increasing female representation on boards since 2012. In the European banking sector, the high rate of female employees highlights women's contribution to sustainability, especially in environmental and social aspects (Cambrea et al., 2023).

Given this, it can be seen that although these three countries stand out in terms of ESG, each of them has a different way of contributing and impacting, providing important insights for other countries that are seeking to develop in ESG.

Conclusion

The main contribution to the literature provided in this paper was to show how the frontiers of ESG are expanding beyond scientific knowledge and being applied in the three countries with the highest h-Index.

By analyzing what the main publications and authors in these countries are researching and how these works contribute to the development of ESG, relevant results were found to support investors. They observed various internal and external factors that interfere with companies’ ESG and financial performance. Reinforcing themes such as compliance with
Benchmarking das iniciativas dos líderes em pesquisa científica sobre ESG

regulations and evaluation metrics, investments in innovation and sustainable technology, and the participation of women in strategic roles on boards of directors, shedding light on gender diversity issues in companies. In addition, they demonstrated the reliability of ESG Indexes, proving that integrating ESG principles into business management brings corporate and competitive advantages, promoting the ongoing need for research to improve methodologies and align theory and practice in ESG integration strategies. Similarly, the results of research into the activities of universities and scientific research funders have shown that their engagement has been essential to the success of ESG in academic terms, but above all as a tool to boost Sustainable Development simultaneously on various fronts, such as scientific, corporate, social and governmental. Evidence of this can be found in the activities carried out by universities, involving companies, governments, and societies in dialogues and action plans aimed at sustainability, as well as the financial support of funding funds, which support projects based on environmental, social and governance aspects, generating responsibility in ESG.

The practical contribution of this work lies in the structuring of strategies that can be replicated by policymakers, regulatory bodies, and universities in other countries. So that more virtuous examples of ESG practices can emerge, contributing to the global growth of Sustainable Development, and promoting environmental protection, social justice, and corporate integrity.

Concerning future research opportunities, work could be carried out to evaluate the same elements of this research in developing countries. The elements of the research could also be expanded into a more comprehensive analysis, investigating how countries have used ESG investments to create sustainable technology and innovation.

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Benchmarking das iniciativas dos líderes em pesquisa científica sobre ESG


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Benchmarking das iniciativas dos líderes em pesquisa científica sobre ESG


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