Corporate Scandals and Global Indexes: Examining the Roles of Corruption, Development, Press Freedom, Sustainability, and Democracy

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ABSTRACT

This study explores the relationship between corporate scandals and a set of global indices to understand whether governance institutions and structures, levels of economic, social, and democratic development, and freedom of the press influence the number of scandals. The study uses the Human Development Index, Corruption Perceptions Index, Sustainable Development Goals Index, World Press Freedom Index, and Democracy. The research question is whether the more corrupt, underdeveloped, and anti-demcratic a country is, the greater the number of corporate scandals. The study uses descriptive statistics between 1989 and 2015 to analyze the relationship between these factors. Surprisingly, the results show that more developed countries had more reported scandals on average. The study highlights the need for governments, corporations, and civil society to work together to prevent and address corporate scandals and promote sustainable development, democratic governance, and human rights.

KEYWORDS

Corporate scandals, Global indexes, Transparency, Transgression, Corruption, Development, Press freedom, Sustainability, Democracy, HDI, CPI, SDGI, WPFI, DI

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1.   INTRODUCTION

This study investigates the relationship between corporate scandals and a set of indices to understand whether the number of scandals is influenced by governance institutions and structures, by levels of economic, social, and democratic development and by freedom of the press. The contribution would be to gain a deeper understanding of the complex relationship between the mentioned factors and corporate scandals and to identify potential policy interventions or strategies to mitigate the risk of corporate misconduct in more developed countries.

Several indexes have been developed to measure societal progress and well-being. These indexes are essential tools that help policymakers and the public to monitor and compare the performance of different countries and regions in areas such as economic development, human development, corruption, press freedom, and democracy.

For this study, we will address the Human Development Index (HDI), Corruption Perceptions Index (CPI), Sustainable Development Goals Index (SDGI), World Press Freedom Index (WPFI), and Democracy Index (DI). Generally, these indexes are essential for monitoring progress toward development, transparency, and democratic governance. They help to inform policy decisions and hold governments accountable for their performance in these areas and may impact corporate scandals, revealing weaknesses in governance, transparency, and accountability, which are vital components of these indexes.

For example, corporate scandals involving bribery, embezzlement, or other forms of corruption can negatively impact a country's score on the CPI, which measures the perceived level of public sector corruption in countries. High-profile corporate scandals may also damage a country's reputation, making it less attractive to investors and negatively impacting economic development. Similarly, corporate scandals may harm a country's score on the DI, which measures the level of democracy in countries based on five categories. For example, scandals involving corporate influence on government officials or election interference can undermine public trust in democratic institutions and negatively impact a country's score on the index. Moreover, corporate scandals can also impact the SDGI, which measures progress toward achieving the Sustainable Development Goals (SDG). For example, scandals involving environmental pollution, worker exploitation, or other human rights violations can undermine a country's progress toward achieving the SDG and negatively influence its score on the index.

In summary, corporate scandals can significantly impact those indexes, as they can reveal weaknesses in governance, transparency, and accountability, which are vital components of the indexes. Therefore, governments, corporations, and civil society must work together to prevent and address corporate scandals and promote sustainable development, democratic governance, and human rights. Thus, we aimed to relate the number of corporate scandals with these global indexes: HDI, CPI, SDGI, WPFI, and DI.

The common sense and logical reasoning of the information we absorb on social networks are that the most corrupt, underdeveloped, and anti-democratic countries are more cases of corporate scandals they have. According to a report published by Transparency International, in support of the United Nations' SDG against corruption (Pring, 2017), 57% of the global population deems their government's performance unsatisfactory. Conversely, only 30% of individuals were content with their government's performance. While in Europe, only 9% said they had already paid bribes in the last 12 months for public services, this percentage in global terms rises to 25%. Therefore, we consider it necessary to delve deeper into these issues.

In this sense, we will investigate, using descriptive statistical techniques, whether the level of corruption, development, and democracy influence the number of corporate scandals.

The results showed that the more developed, sustainable, and democratic countries had the highest number of publicized scandals.

Section 2 brings us a theoretical foundation, followed by section 3, which addresses the methodology. Section 4 deals with the results and discusses them. Finally, the conclusion is contained in Section 5.

2.   THEORETICAL FRAMEWORK

Governance controls can contain two main analysis levels. First, the firm-level analyzes the company's internal controls and how they can interact with stakeholders. Second, the country-level, which is formed by the set of laws, regulations, and public controls that exist in a given country, imposed by the "…legal system, the rule of law, the risk of expropriation, corruption…" (Francis et al., 2013), and as is the case of public companies listed on stock exchanges, which is overseen by some government body and/or the stock exchange itself through the regulation (Schiehll & Martins, 2016). As our analysis does not include individual characteristics in companies, our study will follow the country-level prism, analyzing the robustness of countries against corporate scandals (Cohen, 2020).

In their research, Dorfleitner et al. (2022) have identified HDI and WPFI as country-level variables that directly impact corporate scandals. On the other hand, indices like CPI and DI are related to transparency in a country's political and legal systems, as well as its financial and economic systems (Duho et al., 2020; Mazzi et al., 2018; Sonenshine & Erickson, 2022). Therefore, these indices are crucial in determining the level of protection the systems provide in a given country. Consequently, we aim to analyze how the number of scandals is related to these publicly accessible measurements of a country's systems.

2.1. Corporate Scandal

We used the Barkemeyer et al. (2020) study as the theoretical basis of this work. Let us start with the definition of corporate scandal contained in it:

> Hence, we define a corporate scandal as a rare, significant, and public situation that creates highly undesirable outcomes for the firm and its stakeholders, where the situation is widely perceived as a breaching of norms by the company and/or its officers and the affected party is not fully complicit in the effect (Barkemeyer et al., 2020, p. 386).

We can thus notice that because it must be necessarily public, the existence of the media in this process is a necessary part of originating/disclosing a scandal. For this reason, many scandals "only occur" in societies massively influenced by the media (Adut, 2005; Alexander, 1989; Thompson, 2000). For example, that can be an important clue for cross-checking scandal information with the WPFI or DI (Aguiar et al., 2019) or the clear separation between corruption and a corruption scandal captured by the CPI (Zirker & Barrett, 2017).

According to Thompson (2005), corporate scandals involve two key components: unethical behavior and the social disclosure process. In addition, the media plays a crucial role in facilitating and ensuring the scandal comes to light.

In another study, Clemente and Gabbioneta (2017) proposed that for there to be a corporate scandal, it is necessary that (i) a triggering event, or a transgression, (ii) significant aftermath, and (iii) public disclosure or wide publicity of the fact. We can then infer that scandals are "caused"/disclosed by media publicity, in another way, by the press, general or specialized. Furthermore, scandal events should cause significant damage to those harmed, whether financial or not. Moreover, how the press approaches the scandal (modeling) will be influenced by the treatment that companies and the local media receive from the local government (regulation, crackdown) controlling the transgressive event's disclosure and details.

Finally, the corporate scandal is an audience perception of a transgression that has occurred (Bhutta & Saeed, 2011; Clemente & Gabbioneta, 2017; Dorfleitner et al., 2022), which is always shaped by the media before reaching out to the public, a process that it is explained by the Agenda-Setting Theory (Barkemeyer et al., 2020; Mccombs & Shaw, 1972). We can infer that transgression cases, even if severe, unethical, or punished, are not scandals without the media modifying filter.

To understand the different types of corporate scandals, we must first define the various transgressions that lead to them. Financial fraud, for example, is a type of transgression that can result in a corporate scandal. It is important to note that the audience's perception of these transgressions often defines scandals.

Corporate fraud is a prevalent type of scandal that spans several dimensions, including accounting, tax, banking, security, and other forms of fraud (Dyck et al., 2010). According to Jensen (2005), corporate fraud is an agency problem that results in costs. Moberg (1997) provides examples of corporate fraud, such as embezzlement, insider trading, self-dealing, lying about facts, failure to disclose facts, corruption, and cover-ups. There is a significant amount of research in the realm of accounting and financial fraud, resulting in varying definitions of the term by different authors (Jory et al., 2015; Kuhn & Ashcraft, 2003; Shapiro, 2011; Soltani, 2014). We emphasize that media coverage is crucial for corporate fraud to escalate into a scandal. Nonetheless, fraud always serves as a precursor to a scandal (Hail et al., 2018; van Driel, 2019).

It is important to acknowledge that transgressive events often occur before scandals. Several types of scandals include bribery, embezzlement, investment schemes, insider trading (Hail et al., 2018), financial misstatements, money laundering, asset misappropriation, mergers and acquisitions (Montesdeoca et al., 2019), pollution, child labor, oil spills, mine collapses, labor exploitation, spying (Rudkin et al., 2019), product recalls, poor labor conditions, toxic products, medical malpractice, misleading marketing, nuclear incidents, product withdrawals (Utz, 2019), human trafficking, trafficking of narcotics, and trade in illicit animal products (Kimeu, 2014). The list goes on.

2.2. Relationship between Corporate Scandals and Country-Level Indexes

It has been observed that corporate scandals are often associated with weak corporate governance, individual misconduct (especially by those in management positions), or market pressure (Kochan, 2002; Kuhn & Ashcraft, 2003). To prevent conflicts, whether transgressive or not, corporate governance plays a vital role by implementing various mechanisms such as

accountability, external auditing, board of directors, disclosure, and committees (Brennan et al., 2019).

In order to evaluate the effectiveness of corporate governance, we consider two sets of independent variables: those at the firm-level and those at the country-level (Cohen, 2020). The country-level variables reflect how well a country's corporate governance system operates and safeguards against issues like accounting fraud, corruption, and environmental disasters through laws, regulations, accountability measures, investor protection, transparency, and disclosure requirements (Adams et al., 2019). However, Schiehll and Martins (2016) have noted that it is difficult to draw concrete conclusions about the impact of country-level factors on a company's performance.

In their study, Gerged and Elheddad (2020) focused on one component of the HDI to explore the relationship between national governance. However, Aguiar et al. (2019) conducted a more comprehensive analysis examining the six dimensions of the World Bank's World Governance Index and the HDI. They found a positive correlation between governance and human development, indicating that better governance leads to more significant human development. Therefore, the HDI was used to indicate well-being and social development and was related to government performance through the World Governance Index (Gerged & Elheddad, 2020).

The HDI can be a reliable proxy for assessing a country's social and economic development level. Therefore, it is often utilized in various studies that seek to establish a correlation between a country's characteristics and specific events, such as medical or ethical behavioral incidents. For instance, research by Terreros et al. (2022) showed a negative correlation between HDI and doping cases in the Olympic games.

Dorfleitner et al. (2022) state that a high HDI is associated with more developed societies with high moral standards. The paper suggests that scandals are more likely to be detected and systematically characterized as unethical practices in countries with higher levels of prosperity, as they are less accepted in such societies. Likewise, this analysis can be done with the WPFI as a proxy for freedom of expression and transparency, even if the practical results are not necessarily the same, unrelated to corporate scandals (Dorfleitner et al., 2022).

Concerning DI, we can use induction to infer that it is a proxy of a country's political systems and has a measurable scale. While it is composed of multiple sub-items, Laebens and Lührmann (2021) discovered that a decrease in the index signifies an impending threat to democracy and that accountability, as a tool for corporate governance, can help combat this issue. Even though the study's results were inconclusive, Forti et al. (2011) also utilized DI as a proxy to determine if the type of democracy in a country had any impact on the size of its stock markets.

Some studies use CPI as a measure of corruption at a country-level and connect it to cases of corporate corruption scandals, regardless of the type of corruption that occurs, whether it be financial, sports-related, government-related, or political (Johnson, 2015; Terreros et al., 2022; Zirker & Barrett, 2017). The findings of these studies are generally complex and inconclusive. However, some studies have found a negative correlation between low CPI values and higher reported transgressions (Terreros et al., 2022).

When studying corruption prevention, CPI is often used as a proxy. This approach involves exploring corporate governance, corporate social responsibility (CSR), and other mechanisms that promote transparency and accountability. Understanding corruption levels in different

countries can impact corporate governance and social responsibility (Agyei-Mensah & Buertey, 2019; Damasceno & Neves, 2018; Mazzi et al., 2018).

Corporate governance is crucial in preventing scandals. It can be evaluated by HDI, WPFI, DI, and CPI, which assess a country's development, transparency, political system, and corruption prevention. Understanding corruption levels can impact corporate governance and social responsibility.

2.3. Global Indexes and Transparency against Corporate Scandals

Using straightforward, dynamic, and responsive indicators is crucial in tracking social changes (Siedenberg, 2003). Global and country-level indicators play a crucial role in combating corruption, measuring global development, and addressing issues such as coercion of freedom and anti-democracy. Research conducted by Aguiar et al. (2019), Damasceno and Neves (2018), and Siedenberg (2003) highlights the significance of these indicators.

The impact of culture on corporate disclosure decisions is a debate among researchers. While some studies suggest that national culture and legal systems (country-level) are significant factors, others have yielded inconsistent findings, making it difficult to draw definitive conclusions. Nonetheless, it is essential to recognize that societal norms and values play a role in shaping a company's disclosures and must be considered when evaluating them (Agyei-Mensah & Buertey, 2019). Therefore, conducting a global assessment utilizing indicators specific to each country is imperative to ensure accuracy and fairness.

Transparency plays a crucial role in identifying corporate scandals, enabling companies to be scrutinized and held accountable for their actions. Without transparency, companies can easily conceal any unethical or illegal activities. On the other hand, when transparency is present, it increases the likelihood of detecting and holding companies accountable for their actions.

When firms make disclosures, they show investors and other stakeholders their dedication to fighting corruption and improving transparency and accountability. These disclosures send important signals (Duho et al., 2020). Research has shown that countries with higher corruption rates tend to have lower transparency levels, which might increase the risk of corporate scandals (Agyei-Mensah & Buertey, 2019; Mazzi et al., 2018)

Generally, the researchers chose some specific indicators because they are widely used and publicly available, and they cover different aspects of open society orientations, such as economic freedom, human development, press freedom, and corruption perception. Despite their flaws and controversies, these indicators are reliable and have been used in many studies (Buscema et al., 2016).

It has been verified that there is a positive relationship between HDI and transparency. Transparency may improve the quality of life through a better quality of governance. The central roles played by transparency and participation coupled with accountability have been confirmed. Additionally, the HDI was utilized to measure transparency in explaining the size of stock markets in different countries (Forti et al., 2011).

Concerning the CPI, it aims to combat corruption globally, as supported by research from Buscema et al. (2016), Damasceno and Neves (2018), and Morse (2011). Therefore, this index is a reliable way to measure corruption scandals at a country-level. Besides, the study of Duho et al. (2020) provides a hypothesis that the participation of multi-stakeholder initiatives on anti-

corruption (CPI) will result in more likelihood of anti-corruption reporting (negative relationship). That leads us to conclude that regarding the indicators we are analyzing, countries with a high prevalence of corruption (low CPI) tend to disclose more on corruption analysis. Although that result is an exception concerning the other studies, as a consequence, we will have more cases of publicized scandals.

As has been seen, transparency and disclosure are likely linked to a country's CPI, as experts and business individuals who rate CPI are assumed to have insights into these factors. Greater transparency and disclosure are expected to result in a higher CPI, indicating less corruption. Transparency is key to measuring governance, and corruption is a significant governance failure (Sharma & Sharma, 2015). Some studies also have found a negative correlation between transparency (and/or disclosure) and high corruption (low CPI) in emerging markets and between accounting disclosure and CPI (Mazzi et al., 2018; Sonenshine & Erickson, 2022).

Notwithstanding, as corruption is significantly related to CSR performance, it can show the tie between CPI and transparency. Corruption harms businesses by causing a lack of transparency and inefficiency. Transparency can reduce corruption, lead to fewer scandals, and a more trustworthy business environment (Agyei-Mensah & Buertey, 2019).

Again, transparency is crucial in the fight against corruption, which often intersects with other crimes like money laundering, human trafficking, drug trafficking, and illegal wildlife trade (possible scandal cases). The CPI is a tool used by governments, non-governmental organizations, and media outlets to measure corruption and maintain transparency in different regions and countries (Kimeu, 2014).

Mukherjee and Chakraborty (2013) and Sonenshine and Erickson (2022) considered CPI and DI as proxies for transparency and democracy in their work. A study by Sonenshine and Erickson (2022) found that institutional factors such as democracy, transparency, and corruption significantly affect equity returns and flows in emerging markets. In industries owned or controlled by the government, a decline in corruption (CPI) and democracy levels (DI) has a positive impact. In contrast, the financial sector and other highly concentrated industries are negatively affected by increased transparency. These factors and indices can also be used to analyze corporate scandals. As we can see, a country's level of democracy (DI) can positively impact reducing corruption, as it often promotes transparency and accountability (Duho et al., 2020).

Transparency, corruption, and governance are closely linked. Indices like HDI, CPI, and DI can reveal a country's level of transparency, democracy, and corruption. Transparency leads to less corruption and a more trustworthy business environment, improving a country's economy and well-being.

Currently, there is a debate among professionals in the scientific community regarding the adequacy of using the Gross Domestic Product as the sole measurement for evaluating development. Some experts argue that the HDI, which encompasses economic factors and other indicators, provides a more comprehensive analysis (Aguiar et al., 2019; Siedenberg, 2003). Another alternative to CPI is the Global Integrity Index, which focuses on a smaller group of countries (Buscema et al., 2016). Additionally, the Freedom House index, similar to the WPFI, has gained considerable attention since its inception in 1980 (Buscema et al., 2016; Martin et al., 2016). These alternative indices offer researchers and policymakers a more nuanced understanding of development, enabling them to make more informed decisions.

We have chosen to conduct a microanalysis of the following global indexes: HDI, CPI, WPFI, and DI. These indexes have proven helpful in measuring discrimination, corporate governance, and CSR and have a track record for accurate comparisons. In addition, we hope to gain valuable insights by analyzing these indexes from an individual perspective.

We did not utilize the Global Competitiveness Index, Economic Freedom Index, and Freedom House Index as some of their aspects, like health, education, and corruption, are already covered by the HDI and CPI. Additionally, civil freedom and democratic status, which are included in the WPFI and DI, could not be linked to corporate scandals, unlike technological innovation. Furthermore, these indices have a limited number of countries covered compared to the chosen ones, including the Global Integrity Index. Lastly, the Economic Freedom Index has been criticized heavily by contemporary scientists and is hardly used by the academic community (Buscema et al., 2016).

As for potential indicators that could be added for future research on open society issues, the authors suggest that other indicators related to social and environmental sustainability, political participation, and civil liberties could be considered (Buscema et al., 2016). Consequently, our goal was to incorporate the principles of CSR, encompassing all three areas. However, despite our efforts to connect corporate governance and responsibility to transparency, disclosure, and scandals, our research did not yield many relevant documents. Nevertheless, according to a report published by Transparency International, in support of the United Nations' SDG against corruption (Pring, 2017), international public institutions are working towards these goals, which cover the various aspects of CSR. In addition, there is evidence from cross-country studies to support the idea that socio-economic and socio-political factors strongly correlate with sustainable development, which is the desired outcome we wish to assess (Mukherjee & Chakraborty, 2013).

The triple bottom line and SDG are essential in CSR. The triple bottom line focuses on profit, people, and the planet, while the SDG promotes sustainable development. The SDG can also help companies with their CSR efforts by serving as a measure of its three dimensions. The SDGI is an index that quantifies CSR based on fulfilling the 17 SDG (Lee & Hess, 2022).

Moreover, the SDGI and transparency are interconnected as the SDGI can act as a framework for corporate conduct, highlighting the connection between SDGI and CSR as transparency is a part of CSR. SDGI result was conducted more transparently (Lee & Hess, 2022).

Based on this reasoning, we chose to utilize the convenience selection approach and integrate the SDGI indicator to scrutinize its correlation with corporate scandals from a unique perspective in contrast to the previously chosen indicators.

The HDI is a composite index that measures a country's overall development level based on three dimensions: health, education, and income (https://hdr.undp.org/, retrieved on February 14th, 2023). It was developed by the United Nations Development Programme (UNDP) and is widely used as a measure of human development and well-being. This index influences policymakers' decisions in many countries and allows them to identify areas where development efforts are needed (UNDP, 2022). However, some critics have argued that it does not capture critical dimensions of human development, such as gender equality, political freedom, and environmental sustainability (Investopedia, 2022).

As shown in Figure 1, the HDI is divided into three dimensions, but it is also a composite of several other sub-indices, which together make up the main index (UNDP, 2023).

Figure 1. The three dimensions of HDI
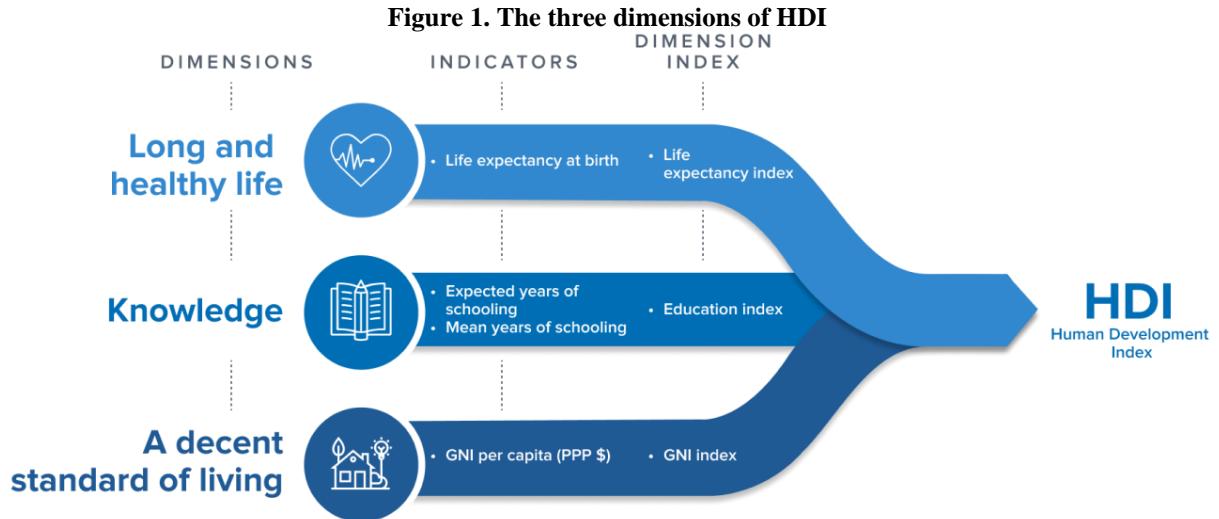
The indicator can serve as a measure for assessing a country's economic development, quality of life, and overall human progress. That is due to its per capita income component (Morse, 2011; Mukherjee & Chakraborty, 2013; Sharma & Sharma, 2015).

In a study by Ortega et al. (2016), various perspectives on the relationship between economic growth and human development were explored. However, the hypothesis remains inconclusive as conflicting studies either support or refute the connection. Nevertheless, scholars persist in their efforts to test this correlation.

Although both the HDI and CPI have garnered attention from the media and academia (Buscema et al., 2016), HDI appears to be more widely recognized than CPI in international media. This trend is also reflected in using these indicators in scientific databases, with HDI being utilized 27 times more frequently in indexed documents (Morse, 2011).

The CPI is a composite index that measures the perceived level of public sector corruption in countries and territories worldwide (https://www.transparency.org/en/, retrieved on February 14th, 2023). Transparency International, a global civil society organization combating corruption, publishes the index annually. The CPI has been widely used to raise awareness of corruption and promote transparency and accountability in public sector institutions. However, some critics have argued that the index is based on perceptions rather than objective corruption measures and may not capture the full extent of corruption in different countries (Siedenberg, 2003).

In 2012, the CPI calculation methodology was updated, and a new range of 0-100 was introduced, as seen in Figure 2. As a result of this change, only CPI scores from 2012 onwards can be compared, making it necessary to make statistical adjustments to the previous period for our study. Again, it is because the methodology used before 2012 was incompatible with the new scale, and thus the results could not be compared on an equal footing (Transparency International, 2021).

Figure 2. CPI scale from 0 to 100
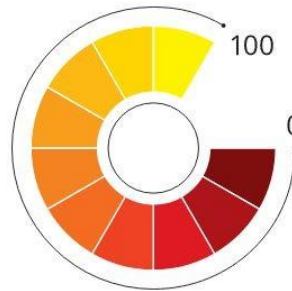
The recent development of environmental and sustainability issues cannot be ignored globally. Although Mukherjee and Chakraborty (2013) recommend using the Environmental Performance Index to measure environmental sustainability, we strongly advocate for the SDGI nominees as it assesses sustainability across three crucial dimensions: environmental, social, and economic.

The SDGI is a composite index that measures progress toward achieving the United Nations' SDG. The index was developed by the Sustainable Development Solutions Network and the Bertelsmann Stiftung and is calculated based on 17 SDG and 169 targets (https://www.sdgindex.org/, retrieved on February 14th, 2023).

The SDG encompasses a broad spectrum of subjects, including but not limited to poverty alleviation, food security, public health, education, gender parity, access to clean water and sanitation, renewable and sustainable energy sources, equitable job opportunities, economic expansion, industrial growth, innovative infrastructure, decreased social disparities, eco-friendly urbanization, responsible consumption and production, climate change mitigation, marine conservation, terrestrial biodiversity, peacekeeping, fair governance, and collaborative partnerships towards achieving the SDG. Moreover, policymakers can use it to guide their efforts toward sustainable development. The SDGI has been widely used to track progress toward sustainable development and has influenced policy decisions in many countries. However, some critics have argued that it does not capture the full complexity of sustainable development and may oversimplify the challenges different countries face (Siedenberg, 2003).

The WPFI is a global ranking of countries based on the level of press freedom and the extent to which journalists can operate independently without censorship, intimidation, or harassment. The index is published annually by Reporters Without Borders (RSF). This non-profit organization defends and promotes freedom of information and press worldwide, besides advocating for greater protection for journalists and media workers (RSF, 2016). The WPFI has been widely used to monitor and raise awareness of threats to press freedom worldwide; however, some critics have questioned the index's methodology and argued that it might not capture the full range of challenges journalists face in different countries (Siedenberg, 2003).

The DI is a global ranking of countries based on the state of their democracy. The index is published annually by the Economist Intelligence Unit (EIU), a research and analysis division of the Economist Group, which also publishes The Economist magazine (EIU, 2021). The DI has been widely used as a tool to monitor and raise awareness of threats to democracy around the world and to advocate for greater protections for democratic institutions and civil liberties. However, some critics have questioned the index's methodology and argued that it might not capture the full range of challenges faced by democracies in different countries (Siedenberg, 2003). The DI measures the level of democracy in 167 countries and territories based on five

categories: electoral process and pluralism, civil liberties, the functioning of government, political participation, and political culture (EIU, 2021). Each country has a score out of 10, which determines its overall ranking.

In the upcoming method section, we will explore the index rating scales in greater detail. For now, we have transcribed their primary features in Table 1 to provide a more straightforward overview and understanding of the selected indicators.

Several studies have identified various correlations among chosen indexes. One such correlation is between a country's HDI and CPI, as highlighted by researchers. Interestingly, a higher CPI level is linked to a lower HDI, which points towards the negative impact of corruption on a country's human development. This finding has been supported by Ortega et al. (2016) and Sharma and Sharma (2015). Another correlation that has been established is a positive correlation between WPFI and HDI, as reported by Martin et al. (2016).

2.4. Objective and Hypothesis

Based on past research, global indexes are essential for corporate governance, social responsibility, and transparency. Each index can capture different issues, and data collection is accessible. These country-level indices may also indicate a connection to corporate scandals. Therefore, it is necessary to conduct an initial study to determine their usefulness in identifying relevant countries for transparency and risk control for investors.

Indeed, scholars have studied the impact of human development, democracy, corruption, sustainability, press freedom, and transparency on corporate scandals, but no study, to our knowledge, considers it all together. Hence, in this study, we aim to investigate the relationship between five global indexes at once and the occurrence of corporate scandals.

Following this thought, we address the research question **RQ**: Can we infer that the more corrupt, underdeveloped, and anti-democratic a country is, the greater the number of corporate scandals?

Thus, our hypothesis is **H:** More developed countries have fewer cases of corporate scandals.

This hypothesis is based on the assumption that higher levels of development and economic prosperity lead to more robust legal and regulatory frameworks, creating greater transparency and accountability in corporate governance. However, as we have seen, some academics said otherwise (e.g., Dorfleitner et al., 2022).

As the theoretical framework section observed, corporate scandals are public situations that create highly undesirable outcomes for firms and their stakeholders. They usually involve unethical behavior and are disclosed through the social disclosure process, which the media facilitates. Furthermore, the occurrence of corporate scandals can be influenced by the regulatory environment of a country. Hence, it is plausible to suggest that more developed countries with more robust regulatory frameworks will have fewer cases of corporate scandals, as common sense says.

Thus, to meet our objective, we relate the number of corporate scandals in a variety of countries with the following global indexes; HDI, CPI, SDGI, WPFI, and DI through descriptive statistics between 1989 and 2015. By doing so, we hope to understand better the relationship between a country's level of development (global indexes) and the occurrence of corporate scandals.

Table 1. Summary of key features of selected global indices and relevant observations

Characteristics	HDI	PCI	SDGI	WPFI	DI
Facet	the overall level of human development	the perceived level of corruption in the public sector	progress in achieving sustainable development goals	level of press freedom and independence	the state of democracy
Possible Proxies	(i) life expectancy at birth, (ii) education attainment, (iii) gross national income per capita	(i) perception of corruption among public officials, (ii) transparency in the public sector, (iii) rule of law and absence of bribery and embezzlement	(i) environmental sustainability, (ii) social inclusiveness and equality, (iii) economic development and poverty eradication	(i) media freedom, (ii) journalists' rights and safety, (iii) access to information and media pluralism	(i) free and fair elections, (ii) civil liberties and political participation, (iii) respect for the rule of law
Issue being captured	human development	corruption	sustainable development	press freedom	democracy
Contained territories	some	yes	no[a]	yes	yes
Countries/regions covered in 2021	191	180	193	180	167
Reporting	annual	annual	annual	annual	annual
Database start	1990	1995	2000	2002	2006
Last report	2021	2022	2022	2023	2022
Amount of dimensions/goals	3	13 (data sources)	17	7/5[b]	5
Number of indicators	4	5	231[c]	97/117[b]	60
Tiers of assess	4	10	5	5	4
Rating scale	0-1	0-100	0-100	0-100	0-10
Global average score in 2021	0.732	43	66	64.9	5.28
Mudança de critério da escala	no	Yes, new range of 0-100 in 2012[d].	no	Yes, methodology revision in 2013 and 2022.	no

Characteristics	HDI	PCI	SDGI	WPFI	DI
Comparison over time	No, although comparable versions of the HDI have been published.	No, a mix of surveys included in the CPI varies each year. As a result, only scores from 2012 onwards are comparable[e].	yes	No, the WPFI surveys changed yearly, with varying rating scales (2002-2012). No report in 2011, and 2012 covers 2 years. Only scores from 2013 onwards are comparable f.	No, there were missing data in 2007 and 2009.
Responsible organization	United Nations Development Programme (UNDP)	Transparency International (an NGO)	Sustainable Development Solutions Network (SDSN)	Reporters Without Borders (RSF), an NGO	The Economist Intelligence Unit (EIU)[g]
Alternative Indicator	Gross Product Domestic	Global Integrity Index	Environmental Performance Index; Social Progress Index	House Freedom Index	Freedom House Index (Democracy Status dimension); Varieties of Democracy (V-Dem)

Note. Elaborated by the authors (2023).

[a] No data for Hong Kong.

[b] Methodology revision from 2013 to 2021 / methodology revision from 2022.

[c] The SDGI framework has 248 indicators, including 231 distinct ones and some repeats.

[d] From 1995 to 2011, the scale was 0-10.

[e] Missing data for Afghanistan from 1995 to 2006; and Dominican Republic from 1995 to 2000.

[f] No data for Dominican Republic in 2002.

[g] A research and analysis division of the Economist Group.

3.   METHODOLOGY

The study has a nature of descriptive objectives in a quantitative approach by applying statistical methods and *ex-post-facto* research procedures (Gerhardt & Silveira, 2009; Turrioni & Mello, 2012). As the primary tool, we used descriptive statistics for data analysis and visualization tools such as frequency distributions and Pareto charts to describe and provide a quantitative data summary of the data set and also to explore patterns, relationships, and trends in the data and to identify outliers or unusual observations (Berenson et al., 2015; McPherson, 2001).

As explained in the introduction and the theoretical basis, we will use global indicators of socio-economic development and governance (Damasceno & Neves, 2018; Siedenberg, 2003) to compare with the number of scandals in the respective countries of the sample.

3.1.   Sample, Period, Data Source, and Collection

All indicators had their data taken from their official websites and collected on the same day, February 14th, 2023. As each indicator has its specificities, as shown in Table 1, their own period of study could be different, and some missing data was properly addressed.

As for the corporate scandals in our sample, we already understand that a disclosure factor dramatically influences their perception and knowledge (Bhutta & Saeed, 2011). Another factor that we must consider is the internationalization of scandals. When we become aware of a scandal in another country, it is assumed that the event has been widely publicized (Clemente & Gabbioneta, 2017; Coombs, 2007).

Some studies on corporate scandals do not disclose exactly how the data collection was carried out, causing difficulties in its replication. Barkemeyer et al. (2020) published a list of scandals collected worldwide from 1989 to 2015, and we will use it for our analysis. Therefore, Table 2 summarizes the sample of countries with companies with disclosed corporate scandals.

Table 2. Scandal cases per country

#ID	Country	Developed[a]	#Cases
1	Afghanistan	undeveloped	1
2	Australia	yes	3
3	Brazil	undeveloped	1
4	Canada	yes	4
5	Dominican Republic	undeveloped	1
6	France	yes	5
7	Germany	yes	5
8	Hong Kong	yes	1
9	India	undeveloped	2
10	Ireland	yes	1
11	Italy	yes	2
12	Japan	yes	10
13	Malaysia	undeveloped	1
14	Netherlands	yes	3
15	Philippines	undeveloped	1
16	Portugal	yes	1
17	South Korea	yes	1
18	Sweden	yes	1

#ID	Country	Developed[a]	#Cases
19	Switzerland	yes	3
20	UK	yes	24
21	USA	yes	50
	Total Scandal Cases		121

Note. #ID = Identification Number; #Cases = Number of Scandals Cases in each country between 1989 and 2015. Adapted from "Media attention to large-scale corporate scandals: Hype and boredom in the age of social media" by Barkemeyer, R., Faugère, C., Gergaud, O., & Preuss, L., 2020, *Journal of Business Research*, 109, pp.394-395. https://doi.org/10.1016/j.jbusres.2019.12.011

[a] A country needs to meet specific criteria to be classified as developed. Specifically, it must score above 75% of the maximum classification (median) for each index in at least 3 out of 5 over the entire available data period. The country will be considered developing if it fails to meet this requirement.

The first piece of information we should shed light on is the number of scandals in the group of undeveloped countries, seven cases in six countries, or even a median of 1 and an average of ~1.2 cases per country. While in the group of developed countries, the number of cases is 114 cases in 15 countries, or even a median of 3 and an average of 7.6 cases per country. From the median, a measure that smoothes out the outliers, we would conclude that developed countries disclose three times more scandals than undeveloped countries.

3.2. Index Rating Scales

The HDI range is between 0 and 1, where 0 is totally underdeveloped and 1 is fully developed, as shown in Table 3 (UNDP, 2023). However, in order to be able to relate it with the other indicators, we set up an ordinal scale, where 1 is the worst classification, and 4 is the best.

Table 3. Rating scale of HDI level

IR[a]	HDI Level				
4	Very High		$\geq$	0.800	
3	High	0.700	$\leq$ HDI	<	0.800
2	Medium	0.550	$\leq$ HDI	<	0.700
1	Low		<	0.550	

Note. Adapted from https://hdr.undp.org/data-center/human-development-index#/indicies/HDI, retrieved on February 14th, 2023.

[a] The authors established this ordinal scale to be able to relate this indicator with the others (also with an ordinal scale).

A country's score (CPI) is the perceived level of public sector corruption on a scale from 0 to 100, where 0 means highly corrupt and 100 means very clean (Transparency International, 2021). Also, for purposes of adaptation to our study, as the CPI world map has 10 color scales (Figure 2), we divided our ordinal scale into 10, as we can see in Table 4, where 1 means highly corrupt and 10 means highly clean, in other words, 1 is the worst classification, and 10 is the best.

Table 4. Rating scale of CPI score

IR[a]	CPI Score				
10	Highly Clean	90	$\leq$ CPI	$\leq$	100
9	Extremely Clean	80	$\leq$ CPI	<	90
8	Very Clean	70	$\leq$ CPI	<	80
7	Clean	60	$\leq$ CPI	<	70
6	Moderately Clean	50	$\leq$ CPI	<	60
5	Moderately Corrupt	40	$\leq$ CPI	<	50

IRª	CPI Score				
4	Corrupt	$30 \leq$	CPI	$<$	40
3	Very Corrupt	$20 \leq$	CPI	$<$	30
2	Extremely Corrupt	$10 \leq$	CPI	$<$	20
1	Highly Corrupt	$0 \leq$	CPI	$<$	10

Note. Elaborated by the authors (2023).
ª The authors established this ordinal scale to be able to relate this indicator with the others (also with an ordinal scale).

The SDGI range is between 0 and 100, where 0 means no goals were met and 100 means all goals were met (Sachs et al., 2022), as shown in Table 5. However, to relate it with the other indicators, we set up an ordinal scale, where 1 is the worst classification, and 5 is the best.

Table 5. Rating scale of SDGI level

IRª	SDGI Level				
5	Very High	$\geq$			80
4	High	$70 \leq$	SDGI	$<$	80
3	Medium	$60 \leq$	SDGI	$<$	70
2	Low	$50 \leq$	SDGI	$<$	60
1	Very Low		$<$		50

Note. Adapted from https://dashboards.sdgindex.org/map, retrieved on February 14th, 2023.
ª The authors established this ordinal scale to be able to relate this indicator with the others (also with an ordinal scale).

WPFI was the indicator that had the most variation in its scales over time. Despite the new change from 2022, our sample is until 2015, as we will explain. Then, we will not work with 2022. From 2013 to 2022, the range of this index was between 0 and 100, where 0 is completely limited, and 100 is totally free (RSF, 2023c), as shown in Table 6. However, to be able to relate it with the other indicators, we set up an ordinal scale, where 1 is the worst classification, and 5 is the best.

Table 6. Rating scale of WPFI map from 2013 to 2022

IRª	WPFI Map				
5	Good	$85 \leq$	WPFI	$\leq$	100
4	Satisfactory	$75 \leq$	WPFI	$<$	85
3	Problematic	$65 \leq$	WPFI	$<$	75
2	Difficult	$45 \leq$	WPFI	$<$	65
1	Very Serious	$0 \leq$	WPFI	$<$	45

Note. Adapted from https://rsf.org/en/index-methodologie-2013-21?year=2021&data_type=general, retrieved on February 14th, 2023.
ª The authors established this ordinal scale to be able to relate this indicator with the others (also with an ordinal scale).

The WPFI had an inverted scale of what it is today regarding scoring, where a lower score means a better ranking and a high score means a worse one. It happened between 2002 and 2012. However, from 2002 to 2010, the lowest value was 0 (zero), and we did not find a maximum value, which despite being close to 100, in some years exceeded it. In 2011/2012, the lowest value was -10, and we did not find a maximum determined value for the highest value, as in the previous period (Martin et al., 2016; RSF, 2023b). During these 3 changes in 2002/2008, 2009/2010 (RSF, 2023a), and 2011/2012 (RSF, 2023b), the 5 scales varied slightly. Table 7 represents the actual 2011/2012 values but can be applied by analogy to previous

periods, respecting slight variations. All these variations were considered when we set up the ordinal scale, which is not influenced by the WPFI methodological changes.

Table 7. Rating scale of WPFI map 2011/2012

IR[a]	WPFI Map[b]				
5	Good	-10	$\leq$ WPFI $<$	0
4	Satisfactory	0	$\leq$ WPFI $<$	12
3	Problematic	12	$\leq$ WPFI $<$	45
2	Difficult	45	$\leq$ WPFI $<$	65
1	Very Serious	65	$\leq$ WPFI $<$	$+\infty$

Note. Adapted from https://rsf.org/en/index-methodologie-2013-21?year=2021&data_type=general, retrieved on February 14th, 2023.
[a] The authors established this ordinal scale to be able to relate this indicator with the others (also with an ordinal scale).
[b] There are slight variations from 2002 to 2008 and 2009 to 2010.

Regarding DI, even though each country is then grouped into four regime types based on their average score (full democracies, flawed democracies, hybrid regimes, and authoritarian regimes) (EIU, 2021) to be able to relate it with the other indicators, we also set up an ordinal scale, where 1 is the worst classification, and 4 is the best as is showed on Table 8.

Table 8. Rating scale of DI types

IR[a]	DI Types			
4	Full Democracies	8 $<$ DI $\leq$	10
3	Flawed Democracies	6 $<$ DI $\leq$	8
2	Hybrid Regimes	4 $<$ DI $\leq$	6
1	Authoritarian	0 $\leq$ DI $\leq$	4

Note. Adapted from "Democracy Index 2021: The China challenge" by Economist Intelligence Unit, 2021, pp.67-69.
[a] The authors established this ordinal scale to be able to relate this indicator with the others (also with an ordinal scale).

4. RESULTS AND DISCUSSION

Our first analysis focuses on the frequency of occurrence of scandals during the period studied. Figure 3 shows an upward trend in cases of 3.5 times over the last 27 years. Visually, a peak started in 2001, coinciding with the scandals that began with the Enron and Worldcom crisis in 2000 (Friedrichs, 2004).

Unlike the 2000 crisis, the 2008 Subprime crisis has the year of occurrence as the end of the peak and not the beginning (Hail et al., 2018). Otherwise, no relationship was found between increases in scandals and years. Thus, it appears that scandals are random, and despite seeing some ties with the major world economic crises (Barkemeyer et al., 2020), there is no relationship between their beginning and end. Thus, there is a contingency of the increase in cases from 2009 onwards. Therefore, it is interesting to study the causality of the relationship between global crises and the growth in cases of scandals to determine this suspicion.

This work uses a database with 121 scandals over 27 years, an average of approximately 4.5 cases per year. Due to the amount of news we can find in the media, we can think that this number is minimal for worldwide coverage. However, in addition to not having access to the selection criteria for scandal cases, we must recognize that scandal cases are known through the

media and that the latter has authorship in national and international disclosure. Therefore, we can infer a relationship between the press and news dissemination.

Figure 3. Annual frequency of scandals
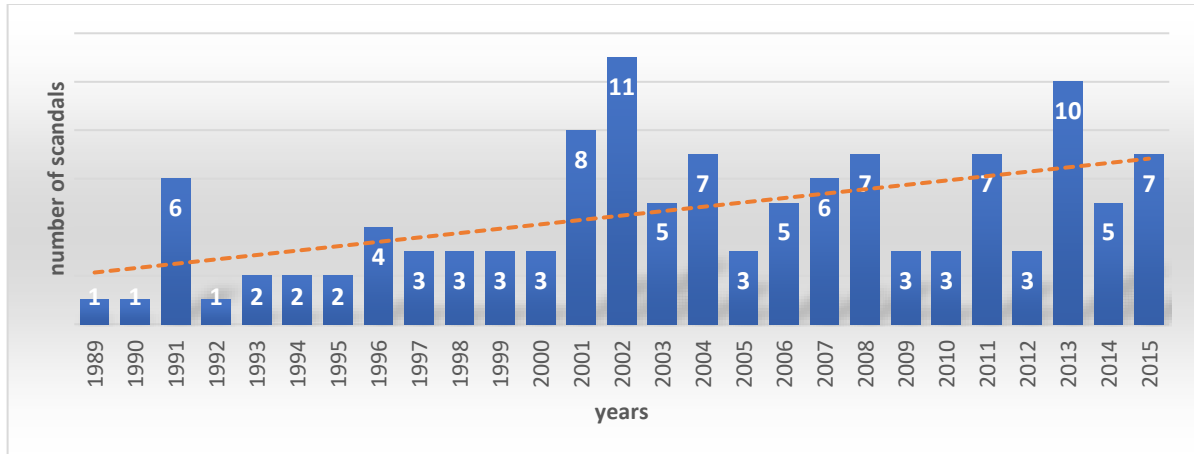
Note. The line drawn corresponds to the trend in the number of scandals over time. Elaborated by the authors (2023).

4.1. Individual Analysis of Indexes

Table 9 presents the descriptive statistics for all considered indexes.

Table 9. Descriptive statistics of global indexes of governance and development

	HDI	*CPI*	*SDGI*	*WPFI*	*WPFI*	*DI*
Data Period	1990 to 2015	1995 to 2015	2000 to 2015	2002 to 2012	2013 to 2015	2006 to 2015
Mean of Index	0.794	64.612	71.684	14.151	76.881	7.737
Mean of Rating Scale	3.350	6.995	3.616	3.943	3.651	3.424
Standard Error (Index)	0.006	1.088	0.517	1.125	1.408	0.105
Median of Index	0.855	73	75.14	8.00	76.51	8.065
Median of Rating Scale	4	8	4	4	4	4
Average Rating Scale	Very High	Very Clean	High	Satisfactory	Satisfactory	Full Democracy
Standard Deviation	0.146	22.401	9.249	17.066	11.175	1.520
Kurtosis	1.921	-0.932	1.232	1.559	-0.957	3.309
Skewness	-1.547	-0.596	-1.339	1.483	-0.369	-1.631
Range	0.681	87	40.48	83	37.23	7.4
Minimum Index Value[a]	0	0	0	-10[b]	0	0
Minimum	0.273	8	44.82	-9	56.31	2.48
Maximum Index Value[a]	1	100	100	142[c]	100	10
Maximum	0.954	95	85.3	74	93.54	9.88
Count (n)	546	424	320	230	63	210

Note. Obtained by Excel and adapted by the authors (2023).
[a] These are the maximum and minimum possible values of the index scale.
[b] There are nuances on these scales between 2002 and 2012. It was the lowest value in this entire range.
[c] There are nuances in these scales between 2002 and 2012. The maximum value in this interval was 142, but the best denotation would be +∞.

In a global analysis of all the indicators (Table 9), we highlighted the average of the classification scale, which was very close even though they did not fit the maximum. It means that the countries in the sample have a high level of development, governance, transparency, and freedom, including democracy. This framework was made using the median of the rating

scale. The result is consistent, as we can see that the mean of the rating scale is close to the median. Indeed, the indexes average is between 70% and 80% of the maximum values, indicating a good classification of the sample countries. If we use the median, the results get even more significant.

In an individual analysis, the HDI and DI do not stand out. However, CPI already has a median greater than the mean, revealing a long tail in the distribution. Furthermore, there is a significant standard deviation since the minimum value of the sample is close to 0 (zero), and its range is very long. It shows that although most countries in the sample are very upright, some are extremely corrupt.

The SDGI has an interesting value for the mean of the index (around 72%), with a minimum value close to 45% and the maximum value close to 85%. Thus, we can infer that the countries in this sample generally have similar characteristics, but mainly with a high degree of achievement of goals.

It is not easy to analyze the WPFI in the period before 2013. There is a significant standard deviation due to the lack of definition of the maximum value of the indicator. At the same time, range analysis becomes difficult to understand, and its median is far from the mean. The weakness of the WPFI sample between 2013 and 2015 is the short sample size. However, it is already starting to form a profile closer to the SDGI, with a smaller range. As a result, the average and the median are already coherent, and what stands out the most is the minimum value of this sample, which is close to 60% of the maximum possible value. Roughly speaking, we can conclude that countries rank high on the scale. Furthermore, there is consistency when comparing this indicator with the previous period, which makes us accept data for the entire period for analysis.

4.2. Analysis of the relationship between scandals and indexes individually

For the following analyses, it is imperative to note the data period (Table 9), as some indices have significant disparity. Let us go to the core of the study, which is to relate the scandals with the index.

The HDI has complete data from 1990 and is the most extended period indicator we must analyze. The Pareto chart helps us to identify and prioritize the most relevant categories in a data set. Furthermore, in Figure 4, we can confirm that of the 121 cases of corporate scandals that occurred, were publicized, and captured by the sample, 94% of them occurred in countries that had, in the year of the event, a "Very High" classification by the HDI, that is, the maximum classification of development. There is not even a "long tail effect" in the sum of the other frequencies that could make the usual Pareto 80/20 framework.

Figure 4. Pareto chart of scandal frequency by HDI rating scale from 1990 to 2015
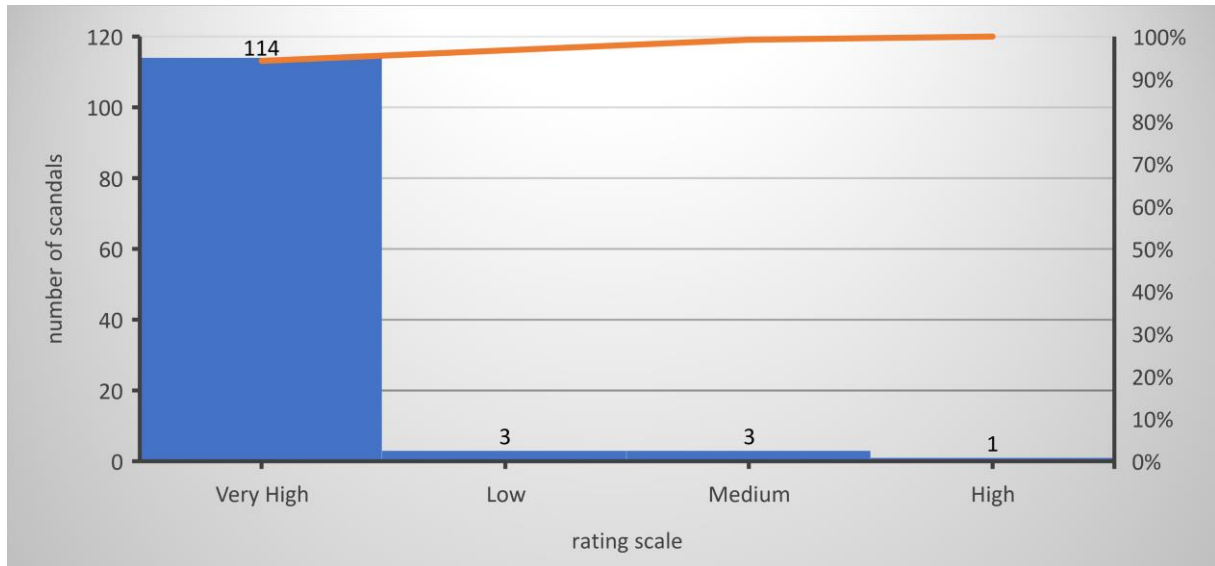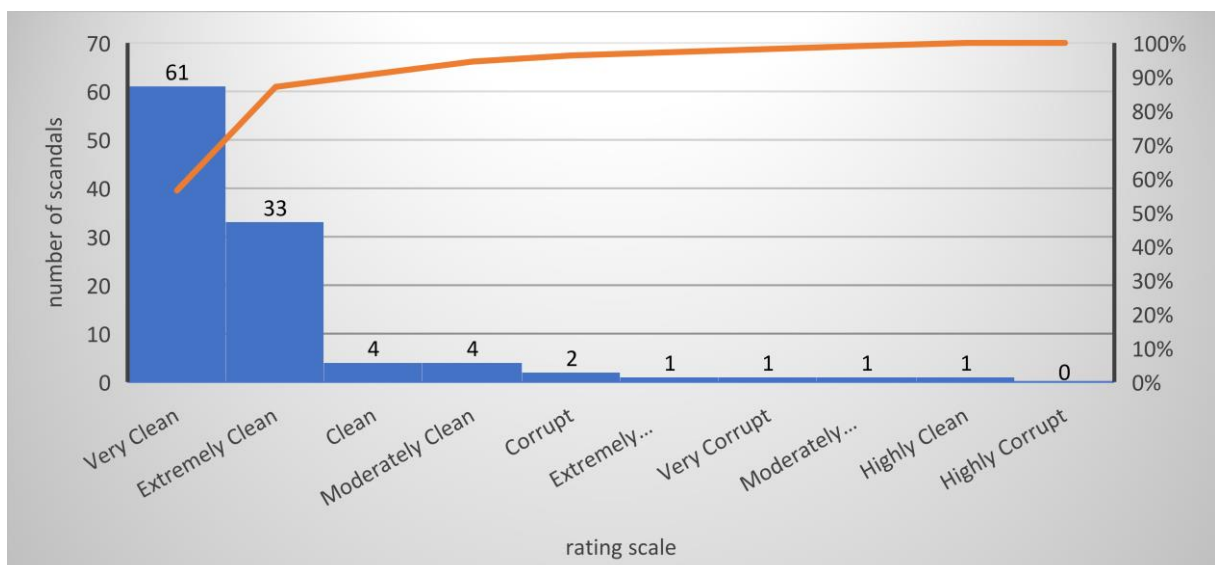

Note. Total of 121 scandal cases. Elaborated by the authors (2023).

This analysis shows us a paradox between the number of scandals that occurred and their classification of development level. This is a descriptive objective study, but it becomes necessary in subsequent studies, an explanatory objective study in order to identify the factors that contribute to this phenomenon. The factors that triggered this could be numerous. The degree of knowledge, one of the dimensions of the HDI, can favor this relationship. Perhaps its citizens tend to perceive and discuss scandals in their communities more openly in a civic way and to avoid new ones.

The CPI scale has 10 levels, with Figure 5 concentrating 87% of scandal cases in the "very clean" and "extremely clean" classifications, which on a scale from 0 to 10 would correspond to 8 and 9, respectively (see Table 4). Crossing this result with the median in Table 9, we infer that, like the HDI, this sample's scandals are concentrated in companies with the best classifications.

**Figure 5. Pareto chart of scandal frequency by CPI rating scale from 1995 to 2015**

Note. Total of 108 scandal cases. Elaborated by the authors (2023).

We observe another paradox since the CPI is an index of corruption perception. It tells us that the more corrupt a country is, the fewer scandals it shows. However, again, there is a need to deepen the factors contributing to this antagonism. Shouldn't our reasoning about this result be that the more complete this perception, the more local society can identify cases of scandals? Nevertheless, on the other hand, if citizens perceive a high level of corruption, can governments be so corrupt that they do not disclose private corruption cases? This paradoxical result opens our minds to an infinity of hypotheses to explain this fact.

The result of the Pareto chart in Figure 6 matches the results of the SDGI descriptive statistics. Figure 6 shows that 90% of scandal cases in the period were in countries with a "High" rating, a 4 on a 1-5 scale, and focused on companies that successfully meet sustainability goals. So, countries concerned with sustainable growth have more scandals than those that do not have the same issues. Here, we can use the same lines as HDI and CPI, where sustainable concerns make scandals more publicized. Nevertheless, on the other hand, unsustainable countries cannot reveal their scandal cases.

Figure 6. Pareto chart of scandal frequency by SDGI rating scale from 2000 to 2015
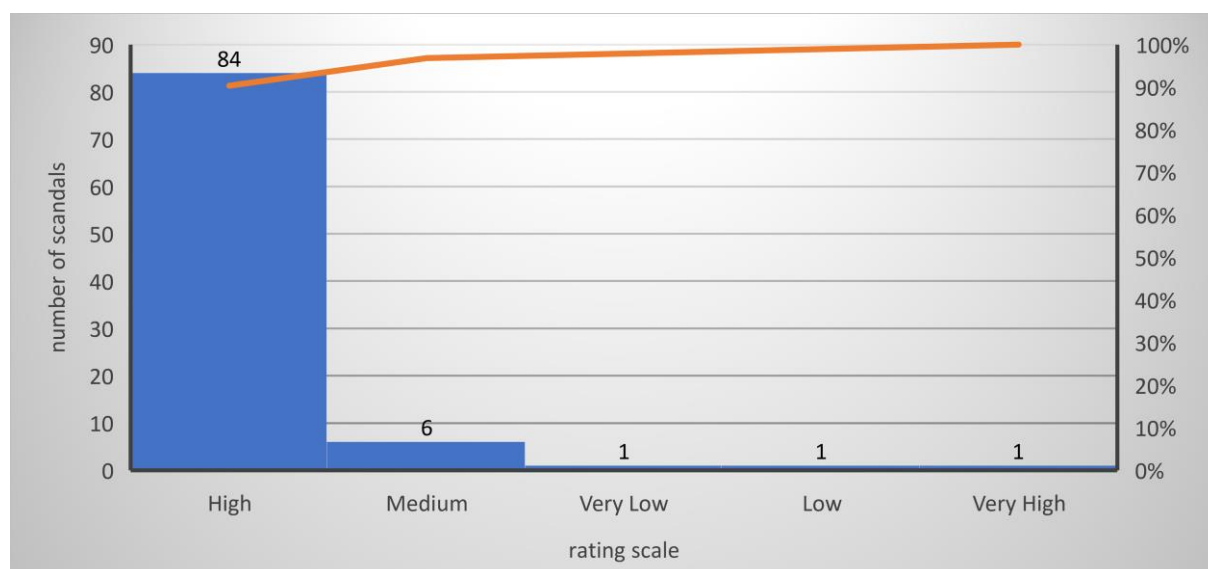
Note. Total of 93 scandal cases. Elaborated by the authors (2023).

Although the SGDI has a slight difference in the descriptive statistics analysis, the behavior in the Pareto chart study was almost identical, except that countries generally do not reach the maximum classification in this indicator despite being high.

In graphic terms, the results for WPFI were suchlike the CPI. However, the CPI has 10 scales, while the WPFI has only 5. Figure 7 indicates that 57% of the scandals occurred in countries with a "Satisfactory" rating and 37% with a "Good" rating. They correspond to scales 4 and 5 (Tables 6 and 7). Around 94% of scandals occur in countries with a high press freedom rating.

Figure 7. Pareto chart of scandal frequency by WPFI rating scale from 2002 to 2015
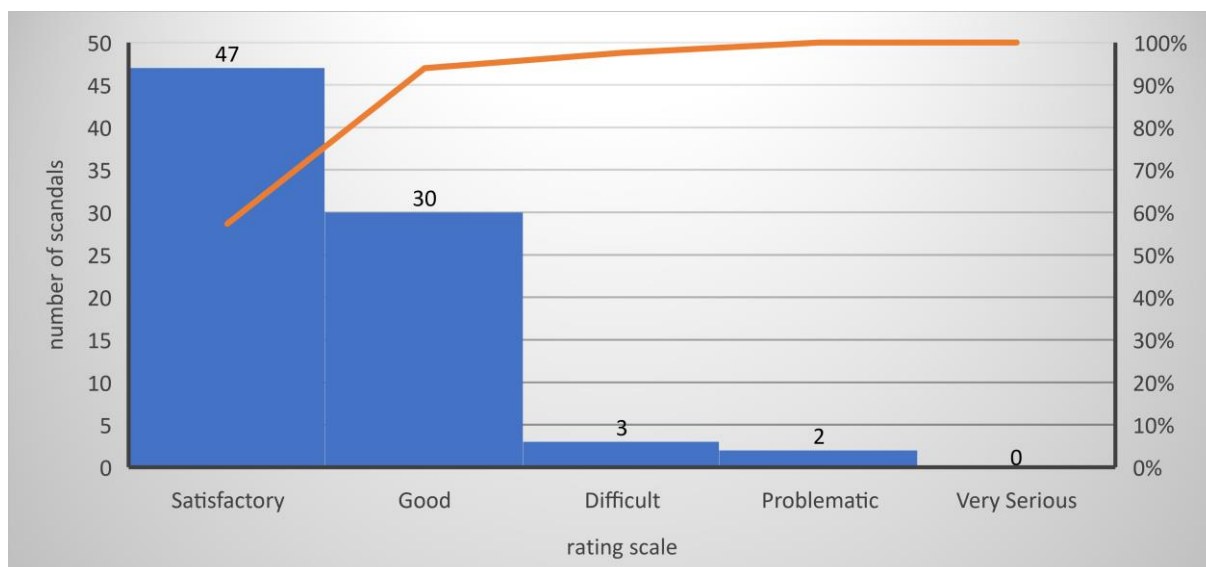
Note. Total of 82 scandal cases. Elaborated by the authors (2023).

The chart analysis illustrates the descriptive statistics, despite the obstacles we have already exposed concerning the period from 2002 to 2012.

For this indicator, the result would not be paradoxical because the more freedom of the press in a country, the more its media will publicize the cases of corporate scandals they find, unlike the repressive governments that did not let reporters do their work. However, the "Good" index, the scale's maximum, is not the predominant one. For example, "Satisfactory" has a size of 61% compared to 39% for "Good". So, although we have an excellent rational line of thought, the fact that the disclosure was not made in most countries with great freedom of the press does not allow us to accept this hypothesis completely. Therefore, it is necessary to explain better these factors that led to a good result but not an excellent one.

With 86% of the cases of corporate scandals, the maximum classification "Full Democracy" of DI indicates in Figure 8 that authoritarian and hybrid regimes do not disclose. Despite DI having the smallest sample, Figure 8 shows that only 2% of cases were detected in authoritarian regimes in the sample used.

Figure 8. Pareto chart of scandal frequency by DI rating scale from 2006 to 2015
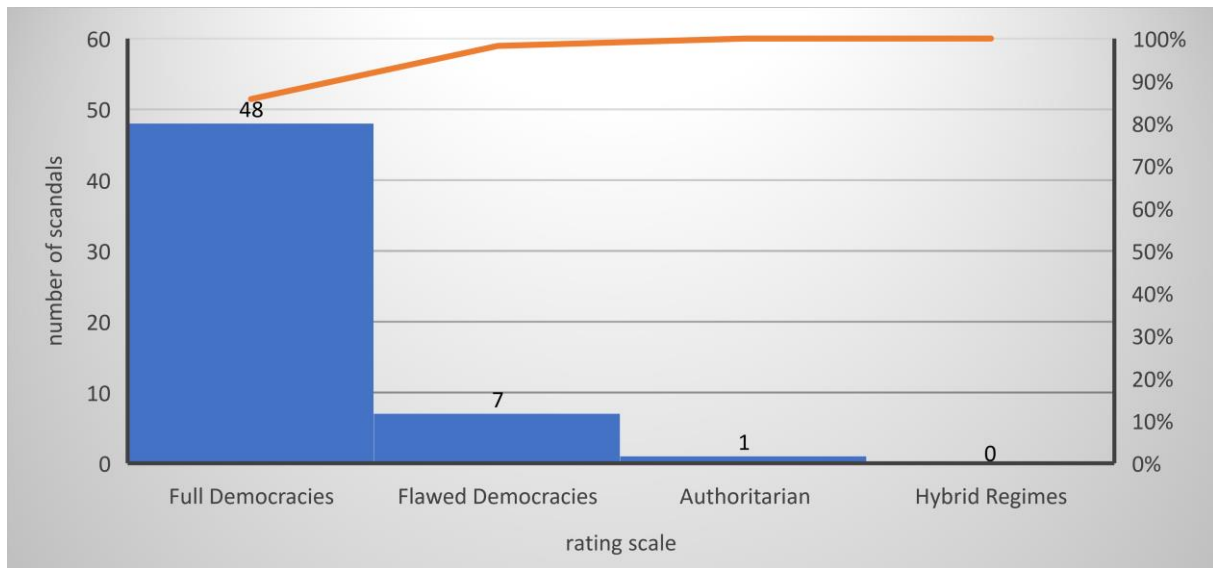
Note. Total of 56 scandal cases. Elaborated by the authors (2023).

These results harmonize with the others from the view that the more democratic the country, the greater the freedom for publicizing corporate scandals in the media. The classification "Full Democracy" reached the maximum level of a scale from 1 to 4. The relationship with the statistical result is consistent.

4.3.   Relationship Analysis Between Scandals and All Indexes Together

SDGI and WPFI have a 5-level scale (Tables 5 and 6), while CPI has 10 levels (Table 4). So that we could have more immediate comparability, we reduced all indexes to 4 levels through an association. Thus, we kept the HDI and DI. In addition, we divided the classification into "Defective", which means that the country does not comply with the index requirements (scale 1). At intermediate levels, "Medium" (scale 2) is for when less than half are fulfilled, and "High" (scale 3) is for more than half so. Finally, "Full" (scale 4) indicates excellent compliance with the index.

The CPI was framed, initially dividing the scale by two (5 levels) and then joining the two upper levels. So, for maximum framing, the score must be between 60 and 100. Then, the remaining 3 levels are divided into every 20 points, from 0 to 20, 20 to 40, and 40 to 60.

We gave the same treatment to SDGI and WPFI. That is, we merged the last two classes into one. So from now on, scales 4 and 5 correspond to class 4 (Full).

Respecting the temporal availability of each index, we made four comparisons and showed them in Table 10. First, from 1995 to 1999, we can compare only the HDI and the CPI. Then, to analyze the periods of global economic crises, we constructed a period from 2000 to 2007, after Enron 2000. And another one from 2008 to 2015, after the Subprime crisis in 2008. Finally, Table 10 reveals the whole period of the database, even understanding that there is no direct comparability due to the individual temporal differences of the indices.

Table 10. Number of corporate scandals through the ages

Index	Level				%Full	Total
	Defective	**Medium**	**High**	**Full**		
			1995 to 1999			
HDI	0	0	0	15	100%	15
CPI	0	0	1	14	93%	15
			2000 to 2007			
HDI	0	2	0	46	96%	48
CPI	0	1	1	46	96%	48
SDGI	0	0	3	45	94%	48
			2008 to 2015			
HDI	1	1	2	41	91%	45
CPI	1	2	1	41	91%	45
SDGI	1	1	2	41	91%	45
WPFI	1	2	1	41	91%	45
DI	1	0	7	37	82%	45
			1990 to 2015			
HDI	3	3	1	114	94%	121
CPI	1	4	3	100	93%	108
SDGI	1	1	6	85	91%	93
WPFI	0	3	2	77	94%	82
DI	1	0	7	48	86%	56

Note. %Full = Percentage of the rating Full over the total number of scandals in all categories. Elaborated by the authors (2023).

We can see that around 90% of corporate scandals were disclosed in countries that have a global development and governance index as "Full". Furthermore, the more "Defective" the country's level, the smaller the number of publicized scandals. In general, all indexes showed the same behavior. It indicates that, even with the need for more statistical tests, the indicators can be interchangeable to study their relationship with corporate scandals. That shows a likely statistical correlation.

As for the two time periods of economic crises created (2000-2007 and 2008-2015), despite a slight superiority in the concentration in the "Full" classifications in the Enron period over Subprime (Barkemeyer et al., 2020; Hail et al., 2018), both have similar results. However, correlating these results with Figure 3, we can see a correlation between the Enron crisis, with the increase in scandals, but this did not happen with the Subprime crisis. So, except for the Enron crisis, there is no chronological correlation with any global event we could have noticed in the other years (Barkemeyer et al., 2020; Hail et al., 2018).

5. CONCLUSION AND IMPLICATIONS

We can already use this data and discussions to address the issue raised in the study. Beginning with the hypothesis (**H**), which must be rejected, since more developed countries, according to the metrics of the indexes analyzed, do not have few cases of corporate scandals. They own, on average, 90% of them (Table 10).

We can individually summarize the results as follows:

- HDI was paradoxical. The more developed, the more scandals are disclosed.

- CPI was paradoxical. The more corrupt, the fewer scandals are disclosed.
- SDGI was paradoxical. The more sustainable, the more scandals are disclosed.
- WPFI showed unity because the more freedom, the more scandals are disclosed. Attention, because the result did not reach the maximum score that would be expected (see Figure 7).
- DI showed unity because the more democracy, the more scandals are disclosed. In other words, more democratic freedom.

Thus, we can answer our research question that it is impossible to infer that more corrupt, more underdeveloped, and more anti-democratic countries have many cases of corporate scandals. In reality, they own less (Siedenberg, 2003). Hence, it is a statement and not an explanation of itself.

Our research shows that global indexes significantly associate the number of transgression cases and their disclosure as a corporate scandal. Our findings are consistent with the work of Dorfleitner et al. (2022) and Terreros et al. (2022), who found a positive correlation between HDI and transgressions, as well as Terreros et al. (2022) study, which saw a negative correlation between CPI and transgressions. Additionally, Aguiar et al. (2019) and Gerged and Elheddad (2020) research suggests a positive association between HDI and governance. Greater governance leads to increased transparency and disclosure of scandal cases, which our previous findings support (Duho et al., 2020; Forti et al., 2011; Sonenshine & Erickson, 2022).

So, our study problem indicates that, despite being logical, common sense is invalid (Pring, 2017), as it was found that the most upright, most developed, and most democratic countries have the highest number of publicized scandals (Damasceno & Neves, 2018). We use the word "disclosed" here and in various parts of the text, as we cannot state that transgressions do not occur in these countries, even though we can state that scandals are not disclosed in them.

The practical contribution of this study is to gain a deeper understanding of the complex relationship between global indexes and corporate scandals. By identifying potential policy interventions or strategies to mitigate the risk of corporate misconduct in more developed countries, governments, corporations, and civil society can work together to prevent and address corporate scandals. That can promote sustainable development, democratic governance, and human rights, which are vital for the well-being of society. Additionally, companies can use this information to improve their governance structures and transparency, reducing the risk of scandals and improving their reputation and attractiveness to investors.

Another purposeful use of words is that in "Defective" countries, we cannot say there are undisclosed scandals since disclosure is a mandatory requirement for a "transgression" to become a scandal. Thus, we were able to meet the objective of the work, which was to relate the number of cases of corporate scandals with the global indicators of governance and development. Last, the result was paradoxical and showed that, in general terms, more developed countries with better governance revealed a more significant number of corporate scandals.

5.1. Limitations and Future Research

The study is limited to its methodology and sample. As for the method, only analyses using descriptive statistics and plotted graphs were used. As for the data, we used a ready-made sample of 21 countries with scandals between 1989 and 2015.

We see several future opportunities for the continuation of this study. Among them is the use of other statistical tools, such as a statistical correlation between indices, to determine if the results are consistent. Second, analyze the plotting of graphs and dispersion. Third, check the possibility of exploring through regression techniques that capture the casual relationship that the indicators can influence the number of scandals that occurred. Another exciting opportunity is to update the database of scandals published up to the 2020s. Finally, carry out studies with explanatory objectives to understand how the factors that make up each index can explain the results presented, which had a descriptive purpose.

6. ACKNOWLEDGMENTS

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