Graph selectivity in Corporate Social Responsibility reporting in the oil and gas sector

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# Corporate Social Responsibility (CSR) disclosures

1. The disclosure of information focused on sustainability, the environment, climate change and human rights has grown exponentially in recent years (Bose & Khan, 2022; Pizzi, Rosati, et al., 2021).

2. Although more companies disclose information on CSR, there is no evidence that the number of cases of unaccountability is decreasing (Reitmaier et al., 2024).

3. **CSR reporting should reflect a company's commitment to sustainability.**

12.6. encourage companies, especially large and trans-national companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle

Oil and gas companies

1. While CSR reporting is essential across all sectors, the unique environmental and social impacts of the oil and gas industry presents an important case for studying how companies may selectively present information.

2. Oil and gas companies have **environmentally sensitive and controversial activities** (Hackston & Milne, 1996; Reverte, 2009) with significant impacts on the global sustainable development, climate change, environment, society, health and safety (Comyns & Figge, 2015; Doni et al., 2022; Pizzi, Moggi, et al., 2021).

3. These companies are notorious for exhibiting **biased behaviors**, engaging in **unscrupulous activities**, and committing **irregularities and fraud in their CSR reporting** and practices (Du & Vieira, 2012; Kwarto et al., 2024).

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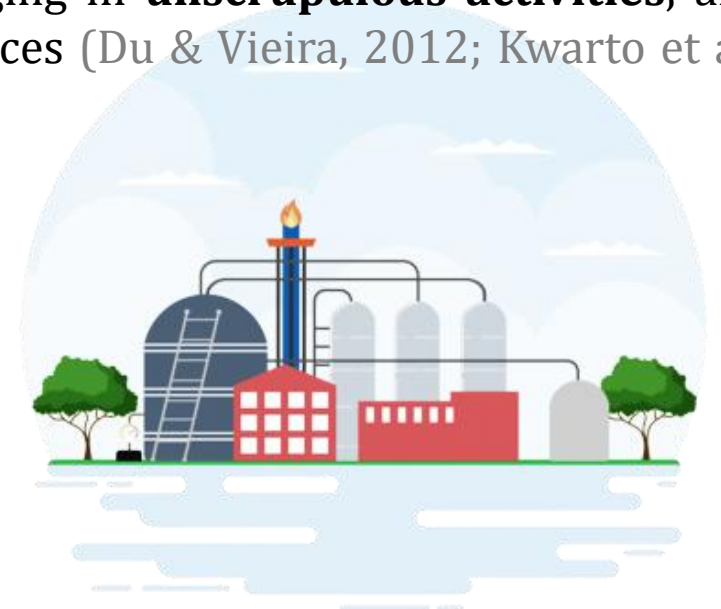
Impression management: Graph selectivity

1. Visual communication plays a central role in shaping stakeholder perceptions. According to Merkl-Davies & Brennan (2007, pp. 12–13) **visual and structural manipulation** is an IM and concealment technique that aims to **emphasize the positive news** by manipulating the presentation of information.

2. Graphs into CSR reporting can significantly increase the effectiveness of data presentation. However, play a crucial role in shaping the narrative of CSR reporting, often serving as an IM tool (Cardoso et al., 2024; Cho et al., 2012a, 2012c; García-Sánchez & Araújo-Bernardo, 2020; Gardin, 2015; Hrasky, 2012; M. J. Jones, 2011) .

Selectivity →

Deliberate choice based on the performance or outcome of the topics represented.

Graphs are presented mainly when they portray positive results, while unfavorable results are minimized by not being represented.

GOOD NEWS
BAD NEWS

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Hypothesis development

1. Visual elements can be manipulated to influence beliefs, cognitive processes, decision-making and legitimacy (Kassinis & Panayiotou, 2018; Lock & Araujo, 2020). Graphs represent a specific form of visual communication frequently employed in the **management of organizational legitimacy** (Cho et al., 2012b; Hrasky, 2012).

2. IM is a dynamic phenomenon that can be shaped by external contextual factors. A critical gap in the literature remains regarding how these behaviors are shaped by contextual factors, particularly **macroeconomic conditions** and **normative contexts**.

H1 ➡ **Graph selectivity in CSR reports is lower during a financial crisis**

H2 ➡ **Graph selectivity in CSR reports is higher in companies that have adopted more recent CSR reporting frameworks**

Sample selection and objective

1. The oil and gas sector has grown significantly over the last decade and is one of the largest in the world (Elhuni & Ahmad, 2017). Although the oil industry has enormous resources and capacities, this does not necessarily make it successful in terms of sustainability-related performance (Schneider et al., 2011).

| World Benchmarking Alliance — **N = 100 companies** | → | Stand-alone CSR reports between 2008 and 2021 — **N = 77 companies; 690 reports** | → | Stand-alone CSR reports obtained (data available) — **N = 74 companies; 668 reports** |

The study aims to investigate the determinants that influence oil and gas companies to manipulate and emphasize CSR disclosure, through graph selectivity.

Research design

Graphical selectivity measurements

1. **Selection of graphs:**
   - 20,228 graphics were detected in 668 CSR reports.

2. **Selectivity analysis (topics for CSR disclosure):**
   - Based on sector guidelines for CSR reporting in the oil and gas sector and previous literature (CCE, ENV, GBE, SHS, SOC, ECO).

3. **Selectivity analysis (trend presented):**
   - Based on the trend depicted (positive trend, negative trend, positive topic, negative topic and informative).

Variables of interest

1. **Variables for financial contexts:**
   - GFC, SDC, COVID19.

2. **Variables for CSR reporting frameworks:**
   - GRI, IPIECA, SDG, SASB-TCFD.

Statistical tests

1. **Descriptive statistics;**

2. **Parametric tests:**
   - t-test, ANOVA and chi-squared test of independence.

3. **Non-parametric tests:**
   - Mann-Whitney U and Kruskal-Wallis's test.

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Descriptive statistics

1. There was an increase in the number of graphs.

2. The average number of pages with graphs showed a downward trend, reaching its lowest value in 2021, with only 9.9% of pages containing graphs.

3. Social information stood out as the most represented, accounting for 29.1% of the total (5,889 graphs), followed by graphs with environmental information, representing 20.9% (4,232 graphs).

Table 1. Descriptives statistics for graphs per topic

Graph	Topic presented					
	CCE	ENV	GBE	SHS	SOC	ECO
Mean	5.390	6.340	1.100	3.930	8.820	4.710
Median	4.000	5.000	0.000	3.000	5.000	2.000
Sd	7.160	6.770	2.030	4.300	17.000	8.810
Kurtosis	42.300	6.220	11.800	4.190	50.300	106.000
Minimum	0	0	0	0	0	0
Maximum	80	52	15	27	189	147
Sum	3600	4232	737	2626	5889	3144

The results suggest a reduction in graphical density in reports over time and the existence of topic selectivity in visual CSR reporting.

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Descriptive statistics

1. Graphs depicting negative topics with a decreasing trend were the most recurrent category, accounting for 24.6% of the total.

2. The number of graphic elements presenting positively oil and gas companies was substantially higher.

3. The results show a predominance of favorable visual representations, with 9,442 graphs illustrating CSR activities positively.

Table 2. Descriptives statistics for graphs per trend

Graph	Informative	Good news		Bad news	
		Increasing trend	Decreasing trend	Increasing trend	Decreasing trend
Mean	9.100	6.680	2.640	4.410	7.460
Median	6.000	4.000	1.000	3.000	6.000
Sd	9.480	11.000	6.110	5.530	7.510
Kurtosis	4.820	29.500	32.500	14.000	6.430
Minimum	0	0	0	0	0
Maximum	61	105	56	53	54
Sum	6081	4459	1762	2943	4983

This trend reinforces the findings of previous studies, which point to the symbolic use of graphs in CSR reporting manage companies' legitimacy.

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Inference analysis: Macroeconomic conditions

1. GBE topic was, on average, significantly more disclosed during the COVID-19 pandemic period (1% significance level).

2. The topic ECO was significantly less present during the same period (5% significance level).

3. Graphs reporting good news with an increasing trend were significantly more used during the GFC (1% significance level).

4. During the COVID-19 period, there was a significant reduction in the use of graphs showing bad news with an increasing trend (5% and 1% significance level).

5. **This pattern reveals that selectivity in the visual construction of graphs was more accentuated during financial crises and less evident during the COVID-19 pandemic. Such reliance on graph reveals not only an attempt to control public perception but also a willingness to sacrifice genuine accountability for reputational management.**

H1 ❌ ✅

Inference analysis: CSR reporting frameworks

1. The CSR reporting frameworks impact topic disclosure (5% and 1% significance level).
   - Companies that adopted the GRI G3 framework disclosed fewer GBE and CCE topics.
   - Companies that adopted the SASB-TCFD recommendations or IPIECA standard disclosed less SOC and ECO graphs.

2. There are statistically significant differences in the selectivity of graphs that present good news with an upward and downward trend (5% and 1% significance level).
   - Older standards, such as GRI G3 and G4, are associated with greater graphic selectivity in the presentation of favorable trends.
   - The adoption of the SDGs also reinforces this graphic selectivity.
   - The SASB-TCFD recommendations promoted a more substantive approach to graphic disclosure.

3. **CSR reporting frameworks influenced visual communication oriented towards the symbolic valorization of CSR actions, promoting a positive institutional image and securing symbolic legitimacy, but also prioritizing reputational maintenance over full and candid communication of performance.**

H2 ☒ ☑

Conclusions, limitations and future development

1. This research contributes to understanding the role of IM through the graph selectivity of CSR reports in the oil and gas sector. IM behavior compromises the credibility and transparency of disclosures, especially in an industry that already faces high scrutiny from stakeholders.

2. By adopting an approach based on legitimacy theory, the study also points to the importance of considering external factors in the study of visual IM techniques addressing a research gap: *is the graph selectivity in CSR reporting used as an IM technique in the oil and gas sector?*

3. This research provides tools for investors to critically evaluate such content and highlights the need for more comprehensive regulations that encompass visual disclosures. It also alerts companies to the reputational risks of the selective use of visual elements, encouraging more ethical communication.

4. This research also has limitations that should be addressed in future research: Other CSR communication tools and a content analysis to analysis the meaning of the messages.

THANK YOU!

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