Reputation risk management on the discourse of Samarco corporate reports

Gerenciamento de riscos à reputação no discurso dos relatórios corporativos da Samarco

José Alex Nobrega de Oliveira[a], Yara Consuelo Cintra[a]

[a] *Universidade Federal do Rio de Janeiro*

Abstract

The objective of this research is to investigate the influence of reputation risk management (RRM) on the disclosure of corporate reports, especially sustainability reports. The study analysed reports of Samarco - mining company responsible for the Fundão dam in Mariana, Minas Gerais, Brazil, object of the accident occurred in November 2015. The period comprised 2010 to 2016, the latter covering the disaster and its social and environmental impacts. The content analysis of the reports suggests the use of social and environmental reports as an RRM tool by analyzing selected reputation elements and applying an image restoration typology. The findings contribute to the understanding of the determinants of socio-environmental disclosure, broadening the spectrum of legitimacy theory, adding the reputation component and risk management to reputation.

Resumo

O objetivo desta pesquisa é investigar a influência do reputation risk management (RRM) sobre o disclosure de relatórios corporativos, em especial dos relatórios de sustentabilidade. Foram analisados os relatórios da mineradora Samarco – responsável pela barragem de Fundão, em Mariana, Minas Gerais, Brasil, objeto do acidente ocorrido em novembro de 2015. O período avaliado foi 2010 a 2016, tendo o último relatório contemplado o desastre e seus impactos ambientais e sociais. A análise de conteúdo dos relatórios sugere uso dos relatórios socioambientais como instrumento de RRM por meio da análise de elementos de reputação selecionados e da aplicação de uma tipologia de restauração de imagem. Os achados contribuem para a compreensão dos determinantes do disclosure socioambiental, ampliando o espectro da teoria da legitimidade, agregando a componente reputação e o gerenciamento de riscos à reputação.

Pratical implications

This research shows that sustainability reports are able to influence the reputation of companies. This fact can encourage greater disclosure by companies, increasing the level of information and providing greater transparency about the actions taken by companies.

Corresponding author: Tel. +55 (21) 3938-5262

E-mail: jaohliveira@gmail.com (J. A. N. de Oliveira); yaracintra@facc.ufrj.br (Y. C. Cintra)

Universidade Federal do Rio de Janeiro, Departamento de Contabilidade. Av. Pasteur, 250 - Urca, Rio de Janeiro/RJ - 22290-902, Brazil.

1 INTRODUCTION

In the last twenty years, there has been a significant increase worldwide in the production of social and environmental or corporate social responsibility reports. These reports take different forms, and are currently better known as 'sustainability reports', which in most countries are voluntary disclosures and have been the subject of frequent academic research (Lozano & Huisingh, 2016).

Deegan (2002) compiled the main motivations for companies to disclose social and environmental information: compliance with legal requirements; economic rationality considerations; the recognition that people have an inalienable right to information; meeting community expectations; response to threats to the organization's legitimacy; management of powerful stakeholder groups; attracting responsible investment; compliance with industrial requirements or specific codes of conduct; avoidance of more onerous disclosure regulations; and winning reporting awards.

Gray, Owen and Adams (1996) understand that the disclosure of social responsibility improves accountability. In contrast, the social and environmental report can be used to meet the needs of the issuing institution, to the detriment of the broad group of stakeholders, which may limit its accountability potential (Bebbington, Larrinaga & Moneva, 2008; Cho et al., 2015).

As reputation is an intangible asset capable of generating value (Roberts & Dowling, 2002), it is reasonable to assume that it has the potential to influence disclosure. Thus social and environmental reports would be part of reputation risk management (RRM) and its processes. Bebbington, Larrinaga and Moneva (2008) consider this relationship to be intuitive, but little explored in the social and environmental accounting literature.

In this sense, the article discusses the intertwined panorama of legitimacy theory, reputation, and image. Legitimacy theory is based on the notion of the social contract. In compliance with the expectations of a social environment, companies are recognized as legitimate, receiving the social license to operate. It is dynamic, demanding companies' efforts to achieve balance and legitimacy. The literature has long recognized the role of communication and social reporting, that is, disclosure, in this context (Patten, 1991; Bice, 2014).

On November 5, 2015, a Samarco mining company´s dam, in the municipality of Mariana, state of Minas Gerais, burst, causing the most massive environmental disaster in Brazil until that date. With the disruption of the Fundão dam and the displacement of the Santarém dam, a wave of mud annihilated the municipality of Bento Rodrigues, and the enormous amount of solid tailings caused severe problems in seven more districts of Mariana, reaching other states after. In addition to the environmental impacts, there was the destruction of homes, infrastructure and pasture areas, fields and forests, the death of domestic and wild animals, and the loss of 19 human victims killed in the accident (Serra, 2018; Wanderley et al., 2016).

The objective of this research is to investigate the influence of RRM on the disclosure of corporate reports, especially on sustainability reports. Samarco Mineração S.A. was chosen for analysis due to the accident in Mariana, which caused severe social, environmental, and financial damage. As a result, the organization may be sensitive regarding its reputation. A content analysis of the sustainability reports published in the period 2010 to 2016 was performed, as well as an application of the image restoration typology developed by Benoit (1995), drawing on Bebbington, Larrinaga and Moneva (2008), and Arora and Lodhia (2017) to identify components of reputation risk management in the reports.

This research aims to contribute to the literature in theoretical, methodological, and practical dimensions. In theoretical-conceptual terms, the present study seeks to develop the proposition that reputation risk management may "put 'flesh' on the 'bones' of the theory of legitimacy" (Bebbington, Larrinaga & Moneva, 2008, p. 338), that is, to fill gaps in the theory of legitimacy. The article presents a schematic method of analysis for comparing the results and the base theory. As a practitioner's point of view, the research aims to encourage organizations to engage in greater transparency and accountability in their search for reputation and legitimacy (Larkin, 2003).

2 THEORETICAL FRAMEWORK

2.1 Legitimacy and reputation

In social and environmental accounting literature, legitimacy theory appears as one of the main theoretical bases for understanding and justifying corporate behavior, including disclosure (Deegan, 2002; Deegan, Rankin & Tobin, 2002; Eugenio, Lourenço & Morais, 2010; Kuruppu, Milne & Tilt, 2019; Milne & Patten, 2002). Legitimacy theory proposes that the organization seeks to direct the public's perception, through the actions of its managers so that their activities are seen according to social values, and the company, legitimate. In this context, social and environmental disclosure is used by the organization to strategically manage its stakeholders and obtain legitimacy (Deegan, 2002).

Wink (2012) applied legitimacy theory to analyze the reaction of a company in the Brazilian mining sector concerning accounting reports disclosure as a form of legitimation, due to news of accidents occurred. Other research has shown that the search for maintaining the social contract has had an impact on the reports issued by companies after the occurrence of an environmental accident (Cho, 2009; Patten, 1992; Pellegrino & Lodhia, 2012; Sancovschi & Silva, 2006).

Bebbington, Larrinaga and Moneva (2008) question the explanatory power of the legitimacy theory, proposing that the RRM thesis would provide a more refined perspective to explain the social and environmental disclosure. They propose the hypothesis that reputation is the driving factor of reports and suggest the analyses of the disclosures as part of the reputation risk management process. Unerman (2008), along the same line, that the disclosures be analyzed as part of the reputation risk management process. Unerman (2008), along the same line, states that the primary motivation on the part of report issuers is the reduction of reputation risks.

Bebbington, Larrinaga and Moneva (2008) mention the difficulty that researchers have in distinguishing reputation and legitimacy, even using the terms interchangeably. Suchman (1995) highlights the social construct character of legitimacy and classifies it into three different types (pragmatic, moral, and cognitive), as well as outlines the different efforts and strategies of companies to gain, maintain or repair legitimacy. The author lists "build reputation" as one of the topics for gaining legitimacy in the pragmatic strategy.

Deephouse and Carter (2005, p. 331) understand that legitimacy is based on "gathering and adhering to the expectations of social system norms, rules and meanings; reputation refers to a comparison of organizations to determine their relative position". Kuruppu and Milne (2014) conclude that reputation is an asset managed through direct action, particularly during negative incidents, while legitimacy is a broader social status that requires companies to comply with social values and legal frameworks. Chart 1 shows differences between reputation and legitimacy, from the perspective of actions required of companies.

Legitimacy	Reputation
Long-term actions	Immediate actions
Longer term response	Direct response
Single organisation focus	Comparisons with organisations
Wider social status	Bankable asset

Chart 1. Differences between legitimacy and reputation
Source: Arora e Lodhia (2017, p. 1288).

2.2 Reputation risk management and disclosure

Operational risks are part of the functioning of routine business processes and the way people associated with these processes behave (Larkin, 2003). Hence the importance of risk management, which involves the prevention, reduction or control of potential or current risks. Risk management is concerned with assessing and mitigating the effects of financial volatility, bad debt, and liquidity problems, but also assessing specific risks for the markets or industries in which a company operates. Asked about the risk that worries them most, most entrepreneurs mention risks about reputation (Bebbington, Larrinaga & Moneva, 2008).

Thomaz and Brito (2010) related reputation with the concept of corporate image. They formulated the hypothesis that the different stakeholders attribute practically the same importance to reputation, concluding that, although each group of stakeholders has a different perception of how reputation is formed, they end up giving it the same importance. Larkin (2003) highlights that building and maintaining a reputation requires care, meticulous planning and constant work over the years.

Reputation concepts range from a perspective focused on economic and strategic management, which understands reputation as a resource, to a sociological perspective that sees reputation as the result of socially shared impressions about a company (Fombrun & Van Riel, 1997). Miles and Covin (2000) present reputation as a consequence of credibility, trustworthiness, reliability, and responsibility

A company's reputation as an intangible resource has the potential to bring strategic advantage, as it contributes to a favorable image for both internal and external stakeholders (Arora & Lodhia, 2017). Fombrun (1996) described reputation as a strategic asset capable of producing tangible benefits such as premium prices for products, lower costs for capital and labour, enhanced employee loyalty, broader scope in decision making, and higher tolerance of society in the face of crises. Fombrun and Van Riel (1997) defined corporate reputation in terms of the past and future perception of different audiences that interact with the company compared to the other, representing a resource capable of bringing a competitive advantage or disadvantage, depending on their positive or negative perceptions.

Reputation is contextual; that is, different organizations will have different reputation characteristics depending on the details of their situation (Deephouse & Carter, 2005). Reputation, while an intuitively attractive concept, is a complex organizational characteristic, so it affects how it can be formally studied, with reputation ranking studies and reputation indexes being the most popular way of approaching corporate reputation, as well as a large part of the academic study.

The analysis of six reputation ranking studies by Bebbington, Larrinaga and Moneva (2008) - Fortune, Management Today, Financial Times, Rayner, Reputation Quotient and Reputex Social Responsibility Ratings – revealed that they focus on five reputation elements: financial performance; quality of management; social and environmental responsibility performance; employee quality; and quality of goods and services. It can be argued that these aspects, which are not mutually exclusive, and some of them are certainly interrelated, are used by individuals when assessing the company's reputation, and also perceived by managers as capable of influencing the reputation view in the organization. When disclosing social and environmental information with an emphasis on the five elements of reputation during accidents or other moments of risk, it is highly likely that such disclosures intend to manage reputation. The elements allow relating the disclosure with the perspective of the RRM, providing a supported analysis.

Friedman and Miles (2001) suggest that RRM is one of the main drivers of social and environmental reports, demonstrating that the search for maintaining a company's reputation would make it more aware of the need to manage a wide range of environmental, social and ethical risks and to show that it acts accordingly.

Toms (2002) focused on an economic view of reputation by using the resource-based view of the firm, complemented by quality-signalling theory. The author found that the quality of disclosure, the power of the institutional shareholder and the low risk were consistently associated with a high corporate environment reputation. The quality of disclosure, especially regarding social and environmental responsibility, is the determinant element of most recent disclosures used by corporate reputation rankings. These results led Toms (2002, p. 276) to conclude that there is "strong support for the relationship between disclosure strategy and environmental reputation".

Benoit (1995) provides a conceptual framework for the link between RRM activities and the discourses resulting from image restoration strategies of the organizations (Chart 2). Image restoration literature comprises individual accounts, excuses and apologies, and corporate responses to criticism. The author provides explanations for Exxon (massive oil spill), Union Carbide (chemical discharge fatal accident), and Tylenol (deadly product poisoning) responses to the crises they faced that threatened their reputation. According to the author, human beings engage in activities that lead to conflicts and potential damage to reputation, resulting in restoring image strategies to manage reputation.

Benoit (1995, p.72) argues that the type of discourse observed is a function of two factors: i) a "reprehensible" act must have been committed or perceived as committed by an audience involved; ii) the actor must be held responsible for the act by the relevant public. Bebbington, Larrinaga and Moneva (2008) suggest that, once these two factors are present, reputation management discourses or image restoration strategies, in Benoit's terms, are likely to emerge.

Strategy and sub-strategies	Explanation
Denial (includes simple denial and blaming others)	In both cases the responsibility for the act is avoided, either because the subject is not responsible or because someone else has been specifically identified as being responsible. Silence with regard to impacts may also be seen to be a variation of denial
Evading responsibility due to:	
Provocation	Offensive act has been undertaken in response to another offensive act. As a result, the provocateur should be held accountable not the subject. Such an explanation may emerge in accounts of union – company conflict, for example
Defeasibility	Responsibility cannot be assigned because lack of information, volition or ability on behalf of the subject means that it would be unfair for them to be held to account
Accident	Responsibility is reduced due to lack of control over the offensive act
Good intentions	While the outcome of the act is negative it may be that the motives of the subject were good and the outcome could not have been anticipated
Reducing offensiveness of event by means of:	
Bolstering	Subject may provide information about other aspects of their behaviour or character which are positive and thus are in contrast to the negative event
Minimization	The impact of the negative event may be downplayed, although responsibility is acknowledged
Differentiation	The particular offensive act is distinguished from other acts of this type. So while there may be, for example, a pollution incident is not of the type of incidents which would be seen to be serious. The organisation in question may also be differentiated from others who are less "good"
Transcendence	The context in which the offensive act emerges is redefined or a rationale for the action is offered so that its offensiveness is transcended. For example, providing a financial return in a competitive business context may be used to explain laying off employees
Attack accuser	The offensiveness of the act can be reduced if an impression can be created that the accuser is somehow responsible for or deserves what has befallen them. Narratives about irresponsibility of, for example, workers or local communities may be used. For example, in Bhopal those living next to the chemical facility and government failures to clear shanty towns around the site were suggested as contributory factors in the death toll, both of which were seen to be outside of Union Carbide's control and hence should reduce the offensiveness of the impact of the gas leak
Compensation	While the offensiveness of the act is not challenged, the subject reduces its impact by offering compensation to those affected. For example, investment in community programmes in areas affected by corporate activities may be used to boost reputation
Corrective action	Corrective action is promised either to make good the impact of the offensive act or actions are taken to ensure that it cannot happen again. This strategy may or may not include accepting responsibility of the act
Mortification	Responsibility is acknowledged as is the offensiveness of the act and the subject asks for forgiveness

Chart 2. Benoit typology of image restoration strategies
Source: Bebbington, Larrinaga and Moneva (2008, p. 343) based on Benoit (1995, pp.74-79)

3 METHODOLOGY

The research strategy adopted is a case study, selected as a "high impact" case of the phenomenon of interest, highly significant problem, and for the society (Patton, 2015, p.274). The content analysis comprised 2010 to 2014 annual, and 2015/2016 biannual corporate sustainability reports, using Iramuteq® software that performed a lexical analysis of a set of words by context (Camargo & Justo, 2013), making it possible to visualize the discourse trend of the reports.

Quantitative analyses of textual data were performed using the descending hierarchical classification (DHC) method and lexical analysis, providing contexts (lexical classes) and discourse classes characterized by the studied vocabulary and by the segments of texts that shared this vocabulary. The study corpus was constituted from each of the six reports analyzed. The material was divided into elementary contexts units (ECU), text segments around three lines that shared the same words, allowing to identify the dimensions and/or categories emerging within each class.

The words in the DHC were selected for their significance (p), frequency (%), and the highest chi-square (Q^2) values in the class. The level of significance represents the maximum probability of error when rejecting a hypothesis. All selected words had a $p < 0.001$, indicating a significant association. Content frequency is the occurrence of the word in the text segments of the class related to the occurrence in the corpus. Q^2 test verified the association of the ECU with a corresponding class, so the higher its value, the greater the association.

The content analysis aimed to identify the main disclosure terms and the elements of reputation based on the corporate reputation rankings presented in section 2.2: *financial performance; quality of management; employee quality; social and environmental responsibility performance; and quality of goods and services*. The analysis is divided into two parts: the reports before and after the Fundão dam burst disaster.

In addition, the typology of image restoration developed by Benoit (1995) was applied to Samarco 2015/2016 post-accident report, according to the structure presented in the theoretical framework (Chart 2).

4 PRESENTATION AND ANALYSIS OF RESULTS

Samarco Mineradora S.A. is a privately held mining corporation, controlled in equal parts by two shareholders: BHP Billiton Brasil Ltda., an Anglo-Australian corporation, and Vale S.A., a privatized Brazilian corporation. Its main product is iron ore pellets, commercialized in the global steel industry market. The company is primarily an exporter. In order to illustrate its reach, in 2012, it sold its production to steelmakers in 25 countries in America, Asia, Africa, Europe, and the Middle East (Samarco, 2012).

After this brief characterization of the company, the following analysis is divided into two topics: 4.1) lexical analysis and identification of the elements of reputation in the reports' discourse, and 4.2) analysis of the discourse contained in the post-accident report, in the light of the typology of image restoration strategies developed by Benoit (1995).

4.1 Analysis of the elements of reputation in Samarco's sustainability reports

It is necessary to identify each individual and its discourse to execute a content analysis with the aid of the Iramuteq® software. Each sustainability report was identified individually, and six variables were defined (sustainability reports for the years of 2010; 2011; 2012; 2013; 2014 and 2015/2016).

The general corpus consisted of six variables (reports), separated into 6,218 text segments (TS), with the use of 5,217 TS, making up 83.9% of the total. A total of 219,977 terms or words emerged; 12,057 distinct words, among which, 4,140 with a single occurrence.

The content was categorized into three classes of discourse, according to the proximity identified by the program. The classes present a degree of association with the reports, established by calculating the chi-square (Q^2) and were named based on the terms that stood out in the textual analysis, as summarized in Table 1.

Table 1. Relationship between class and year of the report

Class	Name of class	Year of report	Q^2 of association with class
		2012	15.82
1	Emphasis on management	2013	10.45
		2014	8.25
2	Emphasis on ties with society	2015/2016	123.92
3	Emphasis on production	2010	38.75
		2011	12.47

Source: research data.

4.1.1 Analysis of the elements of reputation in the reports before the dam burst

In this topic, discourse classes 1 and 3, related to the sustainability reports before the dam rupture, are analyzed for the occurrence of words and the five elements of reputation.

Class 3 - emphasis on production - is more linked to the sustainability reports for the years 2010 and 2011, with the highlight words "water" (Q^2=318.32), "ton" (Q^2=241.6), "million" (Q^2=240.41), "ore" (Q^2=217.82), "river (Q^2=216.94), "germane" (Q^2=207.62), in addition to the words "emission", "tailings", "plant", "energy", "pellets", "iron", "gas", "consumption" and "waste". The recurring discourse focused on the production and dissemination of sustainability strategies as a way of leveraging reputation and consequently improving image perception.

The discourse is in line with the growing export of iron ore and the rising production of the company at the time. The use of the words "production" and "plant" was recurrent in the reports, extolling the expansion of production, with the inauguration of a new pelletizing plant, with increased productivity gains, leveraging the financial performance. The words "iron" and "pellets" were also highlighted in the discourse, emphasizing their production gains and the *quality of goods and services*.

The element *social and environmental responsibility performance* was relevant in the reports of class 3, with the word "water" taking on great prominence since these reports demonstrated the company's actions in reusing water in its processes, as well as returning it under proper conditions to the ecosystem, in addition to the words "waste" and "emission," also presented within the same context. However, in the reports, there was no specific emphasis on the *quality of management or employee quality*.

Chart 3 lists the elements of reputation and the recurring words in the 2010-2011 reports discourse related to class 3 - emphasis on production.

Elements of Reputation	Recurring words in class 3 reports
Financial performance	Production and plant
Quality of management	------
Employee quality	------
Social and environmental responsibility performance	Water, waste and emission
Quality of goods and services	Iron and pellets

Chart 3. Elements of reputation and recurring words – class 3 discourse
Source: research data.

Class 1 - emphasis on management - the words "risk" (Q^2 = 219.48); "business" (Q^2 = 213.51), "employee" (Q^2 = 206.64), and "management" (Q^2 = 203.43) predominated, followed by others such as "conduct"; "Communication", "sustainability", "compliance", "reputation", "company", "strategic", "practical", "security", "model", "health", "vision", "customer", "market" and "performance".

It is possible to observe a predominance of the discourse around the quality of management, its interaction with stakeholders and the generation of value, given Samarco's core activity of mining ores and the price drop of the commodity in the international market, thus reinforcing the discourse focused on management and commitment to adding value.

Chart 4 lists the elements of reputation and the recurring words in the discourse of 2012 to 2014 reports, related to class 1 - emphasis on management.

Elements of Reputation	Recurring words in class 1 reports
Financial performance	Business
Quality of management	Management
Employee quality	Employee
Social and environmental responsibility performance	Conduct, sustainability, risk and compliance
Quality of goods and services	Strategic

Chart 4. Elements of reputation and recurring words – class 1 discourse
Source: research data.

4.1.2 Analysis of the reputation elements in the report after the dam burst

Class 2 - emphasis on ties with society - associated with the 2015/2016 report, the discourse is closely linked to the collapse of Fundão dam, with the predominant words, "community" ($Q^2 = 677, 09$), "local" ($Q^2 = 356.91$), public ($Q^2 = 261.7$), "foundation¬" ($Q^2 = 207.29$), "Renova" ($Q^2 = 174.16$), in addition to the words "rupture", "repair", "dialogue", "education", "income", "work", "economy", "state", "municipal", "social", "hiring", "employment", "population" and "program".

The words suggest the company's initiative to be socially capable and available to repair the damage caused, in addition to the social importance of its functioning. Class 2, therefore, presents a context of social concern of the studied company, and demonstrate its social actions with the communities close to the region where the company operates and the proposal for environmental recovery and protection of forest areas.

Elements of Reputation	Recurring words in class 2 reports
Financial performance	Economy and contribution
Quality of management	Renova Foundation, remediation and dialogue
Employee quality	Education
Social and environmental responsibility performance	Community, work and rupture
Financial performance	------

Chart 5. Elements of reputation and recurring words – class 2 discourse
Source: research data

Samarco's discourse portrays efforts to demonstrate that, despite the negative financial results in the years 2015 and 2016, justified by the collapse of Fundão dam, the company had sufficient financial reserves to cover all social and environmental liabilities and future capacity to resume operations, relying on the potential of its iron ore mines to generate positive results for its financial stakeholders. It demonstrates the presence of financial performance element of reputation in the management of reputation risks.

One of Samarco's statements (2017, p.35) confirms positive results and production volumes higher than the previous period: "an 1.5% increase over the previous year (25,075 million tons), despite the impacts of suspended operations at Germano and Ubu. Sales of products reached 24,918 million tons". Samarco also communicated that, in the second semester of 2017, parent companies (BHP and Vale) agreed to provide loans to guarantee the necessary cash flow to meet the expected disbursements, such as TTAC programs under responsibility of Samarco, in addition to the company's operational needs. The company presents itself as financially capable of meeting its social and environmental commitments, in addition to implying its ability to resume activities and generate revenue.

The quality of management element of reputation is associated with the discourses in class 1 (reports from 2012 to 2014) and class 2 (biannual report 2015/2016). It suggests Samarco was already concerned with demonstrating the quality of its management before the accident, however changing the focus. In the 2015/2016 report discourse, quality of management becomes part of the strategy, demonstrating the ability of the company to deal with the consequences of the accident.

The company's presidency opened the 2015/2016 biennium sustainability report with a message that highlights the company's constant commitment to repair the damage and its ability to carry out such repair. The company highlighted the risks faced due to the tragedy, including risks to reputation, but seeking to convey its ability to overcome these challenges:

> 2015 was the year in which Samarco experienced, in practice, the impacts of the materialization of one of the principal risks of its business: the failure of a tailings dam. This fact turned out to be an environmental tragedy which marked the history of Samarco, thus requiring an enormous response capacity and *exposing the Company to a series of other risks related to its reputation* [emphasis added], its operating licenses and its actual continuity.

> The model of risk management constructed by Samarco adopted practices of market reference (based on the Enterprise Risk Management – ERM model), of the Committee of Sponsoring Organizations of the Treadway Commission - CO SO, and guidelines of the stockholders Vale S.A. and BHP Billiton Brasil. The Risk Management Policy and its manual establish the criteria for assessment and monitoring of the risks. (Samarco, 2017, p. 15).

The company expresses its concern with risk management, especially those related to its reputation, in a clear demonstration of the influence of risk management on the sustainability report.

Concerning *social and environmental responsibility performance*, the post-accident sustainability report portrayed Samarco as a socially responsible company, in order to strengthen this perception among the various stakeholders, following the statement by Bebbington, Larrinaga and Moneva (2008) that companies, when focusing on social and environmental responsibility, highlight their performance in order to manage their reputation.

Given the destruction caused by the rupture of the dam, Samarco sought to disseminate information that highlighted its commitment to society and the environment in which it operates, highlighting investments in technology and efficiency, rationalization of natural resources and "compliance and continuous evolution in the environmental area as a path to assure the longevity of its business" (2017, p.37). It reported that in 2015 up to the accident, more than R$ 45 million were invested in environmental projects and pointed out that "the larger expenses were in industrial effluents and water, in the Ubu facility, and in the extension of the fourth spillway and the auxiliary spillway of the Fundão dam, in addition to the system of internal and abutment drainages, at the Germano facility"; that is, the critical items in the causes of the accident. The company also informed that after the accident, "the team of environmental management dedicated itself to the execution of the actions of prevention, monitoring, and mitigation of the emergency impacts resultant from the failure."

Another point massively present in the report is the attempt to show how Samarco has been dealing with the repair of the environmental tragedy, showing its commitment and responsibility, creating the Renova Foundation that succeeds Samarco in the role of being responsible for repairs. It admitted that the rupture of the dam generated a series of impacts on the environment, in Minas Gerais and Espírito Santo, on "land and water biodiversity, water quality of water bodies, silting of rivers, estuaries and mangroves at the mouth of the Doce River and conservation units, were identified and are now covered by the Framework Agreement (TTAC)". It also commented on hiring a company aiming at recovery and monitoring plans (Samarco, 2017, p. 74).

Arora and Lodhia (2017) claim that the corporate communications about the quality of the workforce are used to divert the attention from the problems experienced, highlighting the employee quality element of reputation. In Samarco's sustainability report for the 2015/2016 biennium, there is an entire section dedicated to communicating the constant improvement of the workforce, and its concern to contain the disaster occurred. One aspect that the company makes clear in the report is the concern that its relationship with employees is based on reputation, which again demonstrates that the company has a constant concern with the theme and the use of social reports as an instrument of reputation risk management. The following excerpt points in this direction: "Samarco people management model is based on organizational culture and values, and *governed by Climate, Culture and Reputation survey* [emphasis added] used to define policies to improve the working environment and ensure business competitiveness". (Samarco, 2017, p. 49).

Regarding the *quality of goods and services provided*, as one of the largest exporters of Brazilian iron ore, Samarco highlighted the importance of the goods the company produces for the country's economy. The company emphasized the popular opinion that its operations should be resumed, due to the society's understanding that the activity performed is very important, describing its measures for operational resumption (Samarco, 2016, p. 29).

4.2 Application of the Benoit typology

The actions taken by Samarco to recover the damage caused were the strong point of the disclosure of the sustainability report after the accident. The lack of disclosure of an annual sustainability report in 2015 is noteworthy, as the company opted to disclose the biennial report 2015/2016 with aggregated data. A possible justification for this fact concerns the image, which was analyzed using the typology of image restoration strategies developed by Benoit (1995), as shown in Chart 6.

Strategy	Explanation	Excerpts from discourses in sustainability reports
Compensation	Although the intensity of the act is not contested, the subject reduces its impact by offering compensation to those affected	With the support of BHP Billiton and Vale, Samarco has mobilized, since the Fundão dam burst, to aid impacted communities, to resettle the homeless population, to support the search for missing persons and to provide clarifications to authorities and public authorities (Samarco, 2016, p. 68)
		Relocation of those who lost their homes, distribution of drinking and mineral water, the rescue of animals, psychosocial care, and restoration of damaged accesses, among others, were the work fronts for emergency action (Samarco, 2016, p. 68)
		Families who lost their homes were installed in homes or accommodation (Samarco, 2016, p. 68)
		835 hectares revegetated urgently in the municipalities of Mariana, Barra Longa, Rio Doce and Santa Cruz do Escalvado, in order to control processes of erosion and carrying solids with the rains (Samarco, 2016, p. 68)
		818 students from the impacted communities in the region of Mariana and Barra Longa completed the 2015 school year and started the 2016 school year on schedule, according to the school calendar (Samarco, 2016, p. 68)
		Samarco promoted the cleaning and renovation of schools, real estate (residential and commercial), public areas and is conducting dredging the tailings retained in the reservoir of the hydroelectric plant Risoleta Neves (Candonga). Nine access bridges to the communities were rebuilt and cleared for passage, one of them every 15 days (Samarco, 2016, p. 71)
		Samarco assisted 5,639 animals from November 2015 to July 2016. Large animals were sent to farms in Mariana and Acaiaca (Samarco, 2016, p. 72)
Corrective action	Corrective action is promised to improve the impact of the offensive act or actions to ensure that it does not happen again	The dams were built in line with the national dam safety policy (Law 12.334/2010), with their own safety inspections and 24-hour shift operation teams, for maintenance and monitoring (Samarco, 2016, p. 64)
		Seeking to meet the guidelines of the Civil Defense and the Fire Department and aiming to reduce risks, the company adopted additional measures and started works on the dams to ensure the safety of the remaining structures and contain the flow of tailings (Samarco, 2016, p. 64)
Mortification	Responsibility is recognized, as is the offense of the act, and the subject asks for forgiveness	Once again, I deeply regret the lives that were lost (Samarco, 2016, p. 7)

Chart 6. Benoit typology applied to the 2015/2016 report
Fonte: dados da pesquisa.

The discourse in the 2015/2016 sustainability report was permeated by mechanisms of image restoration provided for in the typology developed by Benoit (1995), corroborating the idea of using the report as part of the RRM processes.

Thus, based on the five elements inherent to reputation and on the image restoration strategies proposed by Benoit (1995), the influence of RRM elements is verified, suggesting the use of social and environmental disclosure as a risk management tool for reputation, especially during a time of crisis.

5 CONCLUSION

The objective of this research was to investigate the influence of reputation risk management on the disclosure of corporate reports, especially on sustainability reports. The research was developed through the analysis of sustainability reports of the mining company Samarco, responsible for the disaster of the Fundão dam, with RRM and legitimacy theory as the theoretical framework.

From the analysis of the reports, it was possible to establish a link between social and environmental disclosure and the RRM processes. The disclosures of the sustainability reports were compared against the elements of reputation and the typology of image restoration. The results are consistent with the research that considers disclosure as an RRM tool and, above all, after a significant adverse event. Evidence of concern for reputation was found in all of Samarco's analysed reports. It is interesting to note that, through content analysis, it was possible to draw a parallel with the evolution of the company and business environment over the years of the studied period, culminating in the accident and its management.

Previous research has shown that the search for maintaining the social contract has had an impact on the reports issued by companies following an environmental accident. In the case of Samarco, a qualitative analysis of its biennial 2015/2016 post-disaster sustainability report, compared to the reports from 2010 to 2014, demonstrated the change in the focus of discourse.

In addition, the data analysis suggests that, following an adverse event with considerable damage to reputation, the company would discharge disclosures to legitimize its existence. This is in line with the idea developed throughout the text that, in times of crisis, reputation and its management play a preponderant factor in disclosure, more than legitimacy, which is acquired in the long run. The study argues that the RRM perspective brings a broader understanding of the disclosure, but it does not preclude explanations based on the theory of legitimacy as the theoretical bases are difficult to distinguish and move in the same direction.

This research brings contributions to the area of study in theoretical, methodological, and practical dimensions. In the first, a more refined look is brought in to identify the determining factors of social and environmental disclosure, expanding the spectrum of the theory of legitimacy, adding the reputation component and the reputation risk management as an intermediary factor in achieving/maintaining/repairing legitimacy. As per methodological contribution, this research applied a schematic analysis method that allowed greater objectivity in the content analysis and comparison of the results with the base theory. The practical contribution brought is that the understanding of the extent to which social and environmental reports are able to influence reputation may encourage more organizations to disseminate them more and better.

Regarding the limitations of the research, the subjectivity inherent to the method of analysis adopted requires inference from the researchers in the different phases. It is also relevant to mention the complexity in determining how the RRM influences the strategies of disclosure of corporate reports in the case presented, given the difficulty of finding information, predominantly confidential, about this type of management from outside the company. The research is based on published external reports. Another limitation is that the Fundão dam failure happened on a date close to the development of this research. Therefore, there are events yet unfolding, ongoing investigations, whose results may impact the analysis carried out.

As future studies, we suggest an investigation of the managers' perceptions of reputation and the study of internal reporting and engagement processes of stakeholders, as well as how the reporting function is linked to other aspects of operations, such as the organization's decision-making and planning, which can contribute to its reputation. It is also essential to expand the study of reputation and disclosure using a larger sample of companies in different economic sectors. While this article was in preparation, a new dam rupture, by the mining company Vale S.A. - one of the parent companies of Samarco - occurred in Brumadinho-MG. This devastating accident left 240 dead, and 32 went missing. As a result, several cases of dam failure risks were reported, such as the municipality of Barão de Cocais-MG, when the city's population was evacuated. Such occurrences confirm the relevance of academic research in the mining sector, including voluntary and mandatory regulation, inspection, and disclosure.

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