

Is sustainability performance comparable? A study of GRI reports of mining organizations

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Abstract

The objective of this study is to analyze the measurability and interfirm comparability of sustainability performance through the qualitative content analysis of 12 sustainability reports of mining firms using the Global Reporting Initiative (GRI) guidelines. The systematic comparison of information disclosed in 92 GRI indicators sheds light on the reasons underlying the impossibility of rigorously measuring and comparing the sustainability performance of firms from the same sector, which are supposed to be strictly following the same reporting guideline. These reasons include qualitative aspects of sustainability, lack of compliance with GRI protocols, indicator contingency, ambiguous or incomplete information, data heterogeneity, and report opacity. The study makes it possible to return to the very notion of sustainability, its meaning, and flexible application by organizations. The results are discussed from three different theoretical perspectives (functionalist, critical, and postmodern), each of which proposes possible and complementary explanations of the main findings.

Keywords

sustainable development, reporting, GRI, measurability, comparability, content analysis, postmodernism

Introduction

The publication of corporate sustainability reports, once considered as a measure reserved for a few proactive firms, has become a common practice in recent years (KPMG, 2011; Moneva, Archel, & Correa, 2006; Unerman, Bebington, & O'Dwyer, 2007). In fact, according to the 2011 KPMG survey of corporate responsibility reporting, 95% of the 250 largest corporations in the world now publish a sustainable development report (KPMG, 2011). However, the credibility of such reports is based, to a large extent, on the initial assumption that it is possible to measure and compare sustainability performance and thereby to demonstrate genuine corporate commitment in this respect (Déjean, Gond, & Leca, 2004; Hopwood, 2009; Igalens & Gond, 2005; Waddock, 2008). The objective of this study is to examine this basic assumption through the content analysis of the reports of mining firms that are supposed to systematically follow exactly the same GRI (Global Reporting Initiative) guidelines.

Analyzing the interfirm comparability of sustainability performance addresses several major concerns. Performance measurement and comparison is in fact an issue that underlies stakeholder use of corporate sustainability reporting (Dragomir, 2012; Peck & Sinding, 2003). Corporate clients and the public in general are increasingly concerned about sustainability performance and recognition of the best firms. The need to measure, compare, and rank firms with regard to this issue is expressed in the publication of different rankings on the question in the economic press (Déjean et al., 2004; Delmas & Blass, 2010; Waddock, 2008). The rapid growth of ethical and environmental investment funds also raises the issue of the measurement and the comparability of corporate sustainability reporting (Aras & Crowther, 2009; Unerman et al., 2007). The selection of the firms that are deemed to be the most advanced in their field requires that performance indicators be based on clear, accurate, and comparable information.

Generally speaking, the interfirm comparability of sustainability performance is essential to determine the best-in-class organizations and represents one of the key principles of the GRI framework. Nevertheless, this comparability principle tends to be taken for granted and remains largely overlooked in the literature, which raises an essential and unanswered research question:

Is the information on sustainability performance released in the GRI reports of organizations from the same sector of activity really comparable and, if not, for what reasons?

The aim of this article is to answer this research question through the systematic comparison of the information released on 92 GRI indicators from 12 sustainability reports of mining firms. The mining activity is particularly relevant for this analysis as it involves a broad range of environmental and social issues that cover most sustainability indicators (Fonseca, McAllister, & Fitzpatrick, 2014; Günther, Hoppe, & Poser, 2007; Peck & Sinding, 2003). By focusing on the various issues undermining the comparability of GRI sustainability indicators, this study explores three main theoretical perspectives based on different assumptions on the measurability and transparency of information: the functionalist, critical, and postmodern perspectives. Each of these three theoretical perspectives sheds light on different comparability issues observed in this study and thus proposes complementary interpretations of the findings.

The functionalist perspective, which is largely dominant in the literature and clearly in line with the GRI principles, assumes that sustainability performance can be transparently measured and compared from rigorous and standardized reports. From this perspective, the lack of quantitative indicators, the incomplete information released by organizations, and the elastic conformity with the GRI requirements may explain the noncomparability issues observed in this study. The critical perspective does not question the measurability or comparability of information in itself but rather its reliability, which is undermined by its “managerial capture” (Owen, Swift, Humphrey, & Bowerman, 2000). The reasons of noncomparability are thus not technical but rather political, and sustainability reports tend to appear as an exercise of greenwashing controlled by unscrupulous managers. Finally, the postmodernist perspective is based on the assumption that sustainability is basically a discursive, elusive, and nonmeasurable concept. As a result, regardless of the appearance of rigor of indicators and the good faith of managers, sustainability reports cannot describe reality and be used to compare performance.

The article explores how the functionalist, critical, and postmodernist perspectives can challenge the commonly made assumption that sustainability performance is actually measurable and comparable.

Comparing Sustainability Reports: Myths and Expectations

Sustainability reports, which are increasingly used by various stakeholders to evaluate organizational performance in this area, guide investment decisions, and establish company accountability are based on the assumption that the information disclosed by organizations is measurable and comparable (Adams, 2004; Deegan & Blomquist, 2006; KPMG, 2011; Moneva et al., 2006; Peck & Sinding, 2003; Unerman et al., 2007). Generally speaking, although many empirical studies have been based on the measurement and comparison of sustainable performance, the issue of the comparability of information analyzed in these studies is very rarely addressed directly, clearly, and thoroughly. It has nevertheless been addressed indirectly or implicitly through the basic assumptions of three main theoretical perspectives or paradigms proposing an “implicit or explicit view of reality” (Morgan, 1980, pp. 606-607). Table 1 summarizes these three perspectives, shedding light on certain comparability issues and limits of the literature on the subject.

The Functionalist Perspective and the Taken-for-Grantedness of Comparability

According to the functionalist perspective, organizations are coherent and ordered systems whose performance can be controlled and optimized through rational measures (Dillard, 2007; Morgan, 1980). In this positivist and quite mechanist perspective, information on organizations, including the measurement of their performance, is deemed to be objective and based on facts rather than interpretations (Morgan, 1980). As a result, there is an implicit assumption that sustainability performance can be objectively measured, compared, and demonstrated through transparent and thorough reporting (see Table 1). These assumptions underlie many empirical and pragmatic studies based on the measurement of sustainability performance (Ambec & Lanoie, 2008; Rahman & Post, 2012; Singh, Murty, Gupta, & Dikshit, 2012). Despite the call for more critical research (Gray, 2010; Hopwood, 2009; Unerman et al., 2007) and the growing literature in this area, the majority of the studies on sustainability accounting and management are based on the descriptive, noncritical, and positivist approach of the functionalist perspective (Dillard, 2007; Unerman et al., 2007).

Similarly, most studies that rely on the integration and measurement of sustainable development within organizations assume that sustainability performance can and must be measured and compared. Such is the case, for example, with the many studies examining the relationship between sustainability and economic performance (Ambec & Lanoie, 2008; Aragón-Correa & Rubio-López, 2007). These studies postulate that sustainable development indicators, in particular those concerning environmental issues, can be objectively measured and compared, and that it is possible, at a baseline, to distinguish firms that make progress in sustainable development from those that do not. Market indexes such as the Dow Jones Sustainability Indexes, FTSE4Good, and Domini 400 Social Index aim to facilitate the selection of the most sustainable firms and therefore also assume that the information disclosed is measurable,

comparable, and reliable (Aras & Crowther, 2009; KPMG, 2011; Waddock, 2008). This basic assumption is also mirrored in the numerous rankings that measure and compare corporate commitment to sustainable development, such as the 100 Best Corporate Citizens in Corporate Responsibility Officers, the Best 50 Corporate Citizens in the Canadian Magazine for Responsible Business, and the Corporate Responsibility Index of the English association Business in the Community (Delmas & Blass, 2010; Waddock, 2008). That sustainability performance can be measured and compared is of also an implicit assumption of various studies on the development of new measurement tools and assessment methodologies in this area (Figge & Hahn, 2004; Hahn & Figge, 2011; Rahman & Post, 2012; Singh et al., 2012).

Table 1. Main Theoretical Perspectives on Sustainability Reporting and Interfirm Comparability.

	Functionalist perspective	Critical perspective	Postmodernist perspective
Basic assumptions about organizations	Ordered systems that can be objectively controlled, measured, and improved	Social structure shaped by power relations, ideology, and economic interests	Chaotic and narrative-based systems that cannot be grasped from normative perspectives
Sustainability reporting	Transparently describe sustainability performance when similar standards are followed	Quite superficial mechanism that tends to hide the fundamental unsustainability and contradictions of organizations	Spectacle or simulacrum that tells an idealized story to make people believe that sustainability can really exist and be achieved
Implicit assumptions about measurability and comparability	Sustainability performance can be measured and compared from rigorous and verified reports	Sustainability performance can be measured in theory but cannot be compared as long as information is controlled by organizations	Sustainability performance is based on the illusion that it can be rationally defined, measured, compared or achieved
Possible causes of noncomparability	Lack of standardization and technical and noncompliance issues	Deliberate greenwashing, managerial capture of reporting process, economic interests	Discursive and chaotic nature of sustainability issues, unrealistic expectations
Relevance for exploring new research perspectives	Limited by the mainstream and dubious assumption on the measurability and comparability of sustainability performance	Relevant to question the functionalist and mainstream literature, sheds light on power relationships; more empirical research is needed	Underexplored and promising perspective which questions the very notion of sustainability and its supposed measurability; calls for new theoretical and empirical research

Overall, the standardization of sustainability reports through the generalized use of the GRI guideline has strengthened the faith of researchers who adopt the functionalist perspective in the measurability and comparability of performance in this area. The GRI guideline is indeed generally considered to be the most detailed and reliable source of information on this issue (Daub, 2007; KPMG, 2011). First, the structured, rigorous, and standardized framework of GRI reports (Brown et al., 2009; Daub, 2007; Moneva et al., 2006) should facilitate comparative

analysis of sustainability performance. Nevertheless, comparative studies on GRI reports generally limit themselves to the analysis of the quality and the form of GRI reports (Chen & Bouvain, 2009; Deegan, Cooper, & Shelly, 2006; Holder-Webb, Cohen, Nath, & Wood, 2009; KPMG, 2011), rather than the measurement and comparison of sustainability performance.

Second, the use of the GRI framework allows organizations to better understand the concept of sustainable development, which is rarely clearly defined, and the manner of implementing it. For this purpose, the GRI proposes detailed structuring directives on how to consider the economic, social, and environmental dimensions of sustainable development. In addition to providing guidelines to structure sustainability reporting, the GRI proposes indicators, protocols, and technical recommendations to improve the precision, transparency, and pertinence of reports (Brown et al., 2009; Moneva et al., 2006). According to the GRI, the quality of information reported must be founded on several principles: reliability, clarity, balance, comparability, accuracy, and timeliness. These principles are in line with the ideal of transparency, rigor, and measurability of the functionalist perspective. Moreover, the definition of each indicator and the existence of sectional supplements in specific domains (financial services, logistics and transportation, publicity agencies, tour operators, telecommunications, and the automobile industry) facilitate the operationalization of the GRI framework and its adaptation to the needs that may vary substantially depending on corporate fields of activity. These definitions and details provided for each indicator are also expected to reinforce homogeneity in the criteria used to measure sustainability and therefore to facilitate interfirm comparability.

Third, the formalization of the different levels of application of the GRI framework is supposed to facilitate the reliability assessment of the reports and to strengthen their transparency. The different levels (A+, A, B+, B, C+, and C) are based on the completeness of application of the GRI framework and the existence of an internal report verification process. Levels A+ and A are supposedly the most demanding and complete levels of use of this reporting system. For instance, Level A assumes that the sustainable development report takes into account each core and sector supplement indicator. Level A+ assumes, in addition, that the report is audited by a third party (GRI, 2006). In theory, higher application levels of the GRI reports are supposed to mitigate the uncertainty and the credibility gap associated with mistrust toward information on sustainable development reported by organizations (Dando & Swift, 2003; GRI, 2006). Therefore, in principle, reports from the same sector of activity with A or A+ application levels are supposed to use the same indicators in the same way and to apply the GRI framework thoroughly. As a result, according to the functionalist perspective, sustainability performance information disclosed in these reports should be measurable and comparable, in particular if the firms are from the same sector of activity. In this optimistic perspective, possible difficulties in ranking companies according to their sustainability performance can be associated with a lack of standardization and technical issues (see Table 1). Nevertheless, such difficulties are assumed to be minor if the GRI framework is systematically used and, therefore, the basic assumptions on comparability and measurability are not questioned.

This edifice of rationality, rigor, and transparency has been widely questioned by critical research on sustainability accounting. Without directly questioning the measurability and comparability of sustainability performance in itself, this critical perspective clearly challenges the transparency and reliability of information disclosed by organizations.

The Critical Perspective and the Managerial Capture of Sustainability Reports

According to the critical perspective, organizations are shaped by power relations and the control over the norms and values that structure management practices (Dillard, 2007; Morgan, 1980). As a result, the information disclosed by organizations cannot be transparent, and it tends to reflect organizational interests more than stakeholder expectations (Dragomir, 2012; Owen et al., 2000; Unerman et al., 2007). Although the comparability of sustainability performance is very rarely addressed directly and explicitly, criticism of sustainability accounting often questions, from the outset, any attempts to measure and compare information disclosed by organizations (see Table 1). Such criticism generally concerns the elusive or narrowly focused interpretations of sustainable development, the difficulty of measuring performance in this area, the managerial capture of the reporting process, and the uncertain quality of information disclosed.

The problem which is probably raised most frequently concerns the very broad definition of sustainable development and its biased interpretation by managers (Gray, 2010; Moneva et al., 2006; Rahman & Post, 2012). Indeed, the lack of precision in defining the meaning and practical implications of sustainable development does not favor its implementation and may result in restrictive approaches that are more or less dissociated from reality (Devinney, 2009; Springett, 2003). The difficulty associated with clearly defining and implementing sustainable development undermines the consistency of the reports in the field (Deegan et al., 2006; Gray, 2010; Günther et al., 2007; Unerman et al., 2007). The problem in defining the concept is compounded by the multidimensional character of sustainable development and the variety of measures that may be taken to implement it (Gray, 2010; Igalens & Gond, 2005; Schwartz & Carroll, 2008). Therefore, organizations may deliberately place the emphasis on restrictive criteria that tend to mask certain problems or inefficiencies (Devinney, 2009; Fonseca et al., 2014; Neu, Warsame, & Pedwell, 1998). According to Gray (2006, 2010), sustainability accounting is largely disconnected from the real meaning of sustainability and what it should imply for organizations. Therefore, the social and environmental scope of sustainability cannot coincide with organizational boundaries. As a result, sustainability cannot be achieved by organizations through policies and reporting practices that tend to be too restrictive and superficial to reliably address sustainability issues.

From the critical perspective, the transparent and reliable sustainability disclosure seems basically incompatible with business as usual. Sustainability reporting could even act as a smoke screen, masking the fundamentally unsustainable nature of business practices and the use of superficial reports to legitimize activities (Gray, 2010; Moneva et al., 2006; Unerman et al., 2007). This criticism clearly suggests that the ideal of transparency, measurability, and comparability of sustainability performance is disconnected from real practices. One of the main obstacles in achieving this ideal is created by managerial capture of the reporting process, or the fact that

management take[s] control of the whole process (including the degree of stakeholder inclusion) by strategically collecting and disseminating only the information it deems appropriate to advance the corporate image, rather than being truly transparent and accountable to the society it serves. (Owen et al., 2000, p. 85)

External stakeholders are therefore rarely involved in the process of collecting and disclosing sustainability information (Unerman et al., 2007). Organizational control over information disclosure thus undermines the credibility of sustainability reports (Milne & Gray, 2007; Moneva et al., 2006; Owen et al., 2000). As a result, sustainability reporting can hardly be used as a reliable source of information to measure and compare organizational performance in this area.

The optimistic rhetoric of sustainability reporting and the uncertain quality of the disclosed information result, to a large extent, from the managerial capture issue and have been widely criticized in the literature (Adams, 2004; Cho, Roberts, & Patten, 2010; Gray, 2006). First, the language used in sustainability disclosure is generally based on positive and reassuring rhetoric that overlooks negative aspects (Adams, 2004; Cho et al., 2010). This biased language tends to reflect greenwashing practices orchestrated by organizations and projects an idealized image of reality (Boiral, 2013; Boiral & Gendron, 2011; Laufer, 2003). Second, the quality of the reports and of the information disclosed is quite uncertain (Adams, 2004; Deegan et al., 2006; Laufer, 2003; Peck & Sinding, 2003; Unerman et al., 2007). The development of certification and assurance mechanisms does not necessarily guarantee the quality of the information disclosed or the comparability of reports upstream of the reporting process. These mechanisms are in fact subject to commercial imperatives undermining the independence of auditors (Boiral, 2012, 2013; Boiral & Gendron, 2011).

Generally speaking, according to the critical perspective, the issues of greenwashing, managerial capture of the reporting process, and economic interests are assumed to undermine the possibility of comparing organizations' sustainability performance (see Table 1). Nevertheless, to our knowledge, this assumption on the noncomparability of sustainability performance has not been explicitly formulated and tested.

The Postmodernist Perspective and the Hyperreality of Sustainability Reports

Although the functionalist and the critical perspectives appear to be divergent, both tend to avoid, for very different reasons, the problem of sustainability performance measurability and comparability. In the dominant functionalist perspective, the possibility of measuring and comparing information and of complete relevant analyses such as rankings, performance measurements, and firm selections, and so forth, is taken for granted from the very outset. Conversely, the critical perspective sets aside this possibility from the beginning to question business discourse and the disclosed information on sustainable development performance, which it often sees as greenwashing. In this context, the (un)measurability and (un)comparability of sustainability performance disclosed in the reports is not really debated itself. Rather, it is a premise for various studies based on the measurement of sustainable development or for criticism of the manner in which firms use this concept. A new and maybe more relevant perspective would involve positing that sustainable development may be, from the outset, impossible to measure convincingly and may in fact not exist except in idealistic, socially constructed, and unrealistic public statements. This quite radical questioning of sustainability measurability and comparability is grounded in a postmodernist perspective (see Table 1). Such perspective is far from being monolithic and can be associated with the work of various thinkers such as Jean Baudrillard, Jean-François Lyotard, Jacques Derrida, and Guy Debord. Nevertheless, most postmodernist approaches are characterized by the criticism of the modern

belief that a single system, theory, or principle—such as the GRI or any other standard— can describe the complex, ambiguous, and unstable nature of reality: “To postmodernists, the world—especially the social world—is not objectively given. It is kaleidoscopic and unstable, and its constituent components are elusive” (Boisot & McKelvey, 2010, p. 419).

Authors who advocate the postmodern view of organizations have criticized the illusion of order, coherence, and truthfulness ensuing from managerial discourse and organizational theories (Boisot & McKelvey, 2010; Cooper & Burrell, 1988; Macintosh, Shearer, Thornton, & Welker, 2000; Milne, Kearins, & Walton, 2006). Business discourse also has a tendency to obscure disorder and internal contradictions to artificially present a coherent and harmonious vision in which firms supposedly “operate” according to observable and logical regulations (Boiral, 2013; Morrison & Millike, 2000). This discourse acts like a facade to provide an organized, structured, rational, and controllable representation of fundamentally confused, chaotic, and, above all, discursive issues. In this perspective, if sustainability performance cannot be compared and measured, it is not necessarily the fault of the organizations, the GRI framework, or underlying political forces. This impossibility may be caused primarily by unrealistic beliefs that sustainability is a reality, a goal, or a destination that can be reasonably described, measured, compared, or achieved. As a result, sustainability reporting, like debates on the question, is from the very start based on a sort of a fiction that lends a semblance of meaning, coherence, and order to a context that is more or less devoid of realism (Boiral, 2013). This criticism of the fictive and misleading representations in our society (symbols, images, digital information) is generally attributed to Jean Baudrillard (Macintosh et al., 2000). According to Baudrillard (1988, 1994), the postmodern society is in fact characterized by hyperreality: the proliferation of information and images that are disconnected from any reference to reality. This hyperreality is based on artificial representations or simulacra that appear to be real and legitimate, and conform to social expectations of order, trustfulness, social responsibility, and so forth. Nevertheless, the reality that is supposed to lie behind these artificial representations (such as the sustainability reports) is in fact not accessible and may be nonexistent. This elusive reality has been replaced by self-referential representations such as sustainability reports or much less detailed sources of information on sustainability. These representations are used by both stakeholders and researchers as proxies, mistakenly assumed to measure real issues. From this perspective, the nonmeasurability and noncomparability of sustainability performance described in GRI reports result not from technical problems (as in the functionalist perspective) or the managerial capture of the reporting process (as in the critical perspective) but from the fact that the search for indicators to measure the elusive, opaque, indefinable, and polymorphic reality of sustainability is in fact an impossible quest. Likewise, the difficulties in defining and implementing sustainable development (Deegan et al., 2006; Gray, 2010; Günther et al., 2007) result not from the lack of standardization (as in the functionalist perspective) or narrow focus and lack of good faith on the part of organizations (as in the critical perspective), but from the unsubstantial and narrative nature of information in this area (Boiral, 2013; Milne et al., 2006). As Milne et al. (2006) state in their comparison of corporate sustainability to Alice’s journey in wonderland, “business discourse on sustainability appears less concerned with an ultimate destination than with a journey to somewhere relatively undefined” (p. 802).

This postmodernist perspective is clearly the most radical one with regard to the issue of measurability and comparability: No matter how much good faith organizations display,

sustainability issues cannot be reasonably reported, measured, or compared because of their discursive and chaotic nature (see Table 1). Sustainable development reports are thus limited primarily to “telling a story” that projects an unrealistic image of the firm. The reassuring and artificial appearance of order, standardization, and measurability of these reports, instead of revealing real sustainability issues, in fact obscures them (Boiral, 2013). This quite radical standpoint remains apparently almost unexplored in the literature on sustainability reporting. Nevertheless, the hyperreality of accounting signs and their relative disconnection from referents in objective reality has been analyzed by a handful of researches in the accounting area (Gumb, 2007; Macintosh et al., 2000).

The three perspectives mentioned above help shed light on possible reasons explaining the (un)measurability and (un)comparability of sustainability performance. Nevertheless, in the absence of studies specifically focusing on this issue, such causes remain hypothetical.

Method

The objective of this study is to analyze the measurability and interfirm comparability of sustainability performance through the analysis of 12 sustainability reports of mining firms using the GRI guidelines with the A or A+ application level. This comparative analysis is intended to explore the possibility of creating the ranking of best performing firms in the field or the reasons why this endeavor is not possible. The research approach is based on a systematic, criterion-by-criterion content analysis of sustainable development reports whose performance measurement indicators are theoretically similar.

Choice of Sample

Rankings in sustainable development and responsible investment funds generally involve firms from different activity sectors. This diversity does not, however, favor performance comparisons in sustainable development (GRI, 2006). To avoid major differences in activities and discrepancies related to the sectorial specificities of sustainability issues, the present study only focuses on the mining sector. The choice of this sector is also motivated by the fact that mining activities involve a large range of sustainable development problems and that most of the major players in the field use GRI reporting (Deegan & Blomquist, 2006; Fonseca et al., 2014; Günther et al., 2007; Peck & Sinding, 2003).

This study examines sustainable development reports presented in English, in 2007, by mining firms registered by the GRI (G3 version) and having obtained the A or A+ application levels of this guideline. The content analysis focuses on 2007 data for various reasons. First, the time lag between the year covered by a sustainability report and the date when the report is actually released can be quite long (sometimes between 1 and 2 years). Second, the sample was chosen by selecting all the A and A+ GRI sustainability reports of mining organizations from the official list on the GRI website¹ as it appeared in 2009, when the data extraction process began. Third, given the volume of information analyzed, the data extraction, categorization, and analysis lasted nearly 2 years. The choice of sample was also based on the need to compare reports using the same GRI guideline (GRI, 2006) with the accompanying mining industry supplement (GRI,

2005). The analyzed reports were all available in English, making it easier to compare data. Finally, the choice of a high application level (A or A+) is explained by the most systematic and exhaustive possible use of the GRI guideline, including indicators related to the mining sector supplement (GRI, 2005). A total of 12 sustainable development reports that met the selection criteria were studied (see Table 2).

Data Analysis

The comparison between firms constituted most of the analytical work on data. This comparison was mainly based on content analysis, which remains a generic concept used to define a large variety of quantitative as well as qualitative methods focused on the analysis of documents through inductive or deductive categorization frameworks (Krippendorff, 2004). The content analysis carried out in this study was based on three main steps: development of a categorization framework, categorization of sustainability reporting, and qualitative interpretation of data.

First, a categorization framework was developed using an Excel spreadsheet on the basis of classification criteria and performance indicators proposed by the GRI, which focus on six main issues: economy, environment, work practices, human rights, society, and product responsibility (see Table 3)². Overall, the categorization framework grouped together 92 indicators, including 13 specific to the mining sector. Each indicator was defined and described in detail according to the GRI guidelines (GRI, 2005, 2006) to facilitate data codification and analysis.

Second, data from the 12 sustainability reports analyzed were compiled and organized according to the categorization framework. Most reports were available in portable document format (PDF) format and all were analyzed using the same categorization framework. Given the length and complexity of most reports, this categorization process was the most fastidious part of the data analysis. The framework included $12 \times 92 = 1,104$ entries classified according to the six GRI report issues (see Table 3). Although this framework involved complex and very detailed data, it in fact facilitated report analysis and the identification of pertinent information. Indeed, information structuring in the form of a table greatly simplified the analysis of the results by firm and by indicator. Main information from each report was compiled for each entry in the table. Data compilation and categorization were carried out by two coders working independently and using the same starting framework.

Table 2. Analyzed Sustainable Development Reports.

Firm ^a	Nationality	Report title ^b	Year of publication ^c	Number of pages in report ^d	GRI application level ^e
Anglo American	United Kingdom	Report to Society 2007: Focusing on a Sustainable Future	2008	73	A+
Anglogold	South Africa	Report to Society 2007	2008	218	A+
Avon Metals	United Kingdom	Our 20/20 Vision Sustainability Report 2008	2008	30	A
BHP Billiton	Australia	It's Our BHP Billiton Sustainability Report Full Report 2007	2007	309	A+
Codelco	Chile	Codelco Sustainability Report 2007	2008	147	A+
Illawarra Coal	Australia	Illawarra Coal, Pride, Passion Performance Sustainability Report 2007	2007	48	A
Newmont Mining	United States	Beyond the Mine: Newmont Sustainability Report 2007	2008	332	A+
Penoles Industries	Mexico	Our Stakeholders: The Core of Our Sustainable Development Strategy 2007 Sustainability Report	2008	120	A+
PT Kaltim Prima Coal	Indonesia	More Than Mining: Sustainable Development Report 2007	2008	74	A+
Rio Tinto	United Kingdom	Rio Tinto 2007 Annual Report—Sustainable Development Review	2008	12	A+
Teck Cominco	Canada	Our Commitment: Teck Sustainability Report 2008	2008	54	A+
Usiminas	Brazil	Sustainability Report 2007	2008	184	A

Note. GRI = Global Reporting Initiative.

^aThe list of firms was established at the time of the study (Spring 2009). Additions or minor changes may eventually be made to this list with the updating of reports recorded by the GRI.

^bQuotes in this article originate from these reports, most of which are available in portable document format (PDF). In the case of Rio Tinto, information on the GRI indicators may be found in a separate document published on the firm's website. For Avon Metals, information on GRI indicators is found in a distinct document (GRI Index).

^cThe reference year for all reports was 2007, except for Avon Metals (2006-2008).

^dThe number of pages corresponds to numbered pages. Some reports contain unnumbered pages.

^eBased on indications published on the GRI website.

Table 3. Analyzed Sustainable Development Indicators.

Aspects of sustainable development	GRI grid indicators ^a	Mining sector supplement indicators ^b	Number of indicators analyzed
Economy	9 (EC1 to EC9)	2 (MM1 and MM2)	11
Environment	30 (EN1 to EN30)	4 (MM3 to MM6)	34
Work	14 (LA1 to LA14)	2 (MM12 and MM13)	16
Human rights	9 (HR1 to HR9)	1 (MM11)	10
Society	8 (SO1 to SO8)	4 (MM7 to MM10)	12
Product responsibility	9 (PR1 to PR9)	No sector indicator	9
Total	79	13	92

Note. GRI = Global Reporting Initiative.

^aNames and number of indicators corresponding to core (48) and additional (31) indicators of the 2006 (G3) version of the GRI grid (Global Reporting Initiative [GRI], 2006).

^bNames and number of indicators of the sector supplement corresponding to those indicated in the 2005 version of this supplement (GRI, 2005).

Third, the categorized data were analyzed and interpreted. This interpretation was mainly based on a qualitative approach. Unlike conventional content analysis, which is generally based on the measurement of the occurrence frequency of words, symbols, or messages, the qualitative content analysis focuses on interpretation rather than quantification (Krippendorff, 2004). Qualitative data interpretation was based on answers to three main questions related to data from the 12 sustainability reports categorized according to the 92 performance indicators:

1. Is the information compiled on performance in the 12 reports comparable?
2. At first glance, which firms seem to perform best in relation to this indicator?
3. Is this indicator comparable or not? For what reasons?

These questions covered the main objective of the content analysis, which focused on the possibilities of rigorously comparing sustainability performance disclosed by firms using the same framework, and the difficulties raised by this approach. Answers to the three questions were systematically compiled by the two coders in a specific column of the Excel file. Interpretations of the three questions raised no problems or differences among coders, and despite the complexity of the reports, the results of the analyses showed greater consistency than foreseen. Moreover, the reasons why it was impossible to compare sustainability performance and to determine the most sustainable organizations were recurrent and gravitated around four main issues:

1. Measuring unmeasurable and unspecific information;
2. Comparing uncomparable measurements;
3. Interpreting incomplete and ambiguous information;
4. Analyzing opaque and self-proclaimed reports.

These issues were analyzed and illustrated through sample excerpts from reports to provide answers to the main research question, which concerned the comparability of sustainability performance in GRI reports.

Result Analysis

From the onset, it was assumed that the comparative analysis of performance indicators disclosed in sustainable development reports would be facilitated by many convergence factors: uniform sample, use of similarly structured reports, similar and standardized performance criteria, similar application levels (A and A+) of the GRI grid, and so forth. Despite these convergence factors, the measurement and comparative analysis of performance indicators was much more difficult than originally anticipated. Attempts to establish a global classification of the firms based on their performance in sustainable development substantiated the difficulties encountered. Despite the significant volume of data available and a systematic analysis of each report, it was impossible to create a serious, thorough, and valid comparison of sustainability performance. Thus, the answer to the first question of the data analysis (Is the information on performance comparable?) was clearly negative for each of the 92 indicators. This finding also answered the second question of the data analysis, which involved the possibility of establishing a ranking of the most sustainable organizations. The causes of this very clear-cut finding emerged progressively during the report-comparison process for each of the 92 indicators analyzed. The indicators were not comparable on an individual basis and neither were the overall situations of the firms. Exploration of these reasons was based on the categorization process and answers by the two coders to the third question of the data analysis: Is this indicator comparable or not? For what reasons? The reasons, which emerged from the qualitative analysis are not mutually exclusive and are presented below.

Measuring Unmeasurable and Unspecific Issues

The most frequent barrier to the comparison of sustainable development performance was the unmeasurable and unspecific nature of many GRI indicators. From the very onset, the indicators could not be clearly quantified, measured, or compared. One of the main characteristics of GRI indicators is in fact their qualitative aspect. Thus, less than 50% of all GRI indicators only focus on quantitative measurements. The majority of indicators are based either on qualitative data or are a combination of quantitative and qualitative data. Whatever their justification with regard to sustainability issues, qualitative data made interfirm comparisons more difficult.

This measurement problem concerned the six main criteria groups of the GRI framework: economy, environment, work practices, human rights, society, and product responsibility. For example, in environmental performance, the EN7 (initiatives to reduce indirect energy consumption and reductions achieved), EN14 (strategies, current actions, and future plans for managing impacts on biodiversity), and EN26 indicators (initiatives to mitigate environmental impacts of products and services and extent of impact mitigation) were hard to measure and even harder to compare. For societal performance, the same applies to the SO1 (nature, scope, and effectiveness of any programs and practices serving to assess and manage operational impacts on

communities, including entering, operating, and exiting) and SO4 indicators (action taken in response to incidents of corruption).

In most cases, the interest and pertinence of these indicators should not be questioned. Indeed, sustainable development is a multidimensional, pluridisciplinary concept. If measuring the concept were possible, measurements could not be restricted to a few quantitative variables. However, the qualitative, unmeasurable, and general nature of many indicators made comparison between firms difficult, if not impossible. Likewise, the often all-inclusive formulation of the indicators gave the firms a great deal of leeway in their interpretation and responses. In this context, reports were often limited to general statements highlighting corporate support of virtuous principles rather than clearly identifiable, measurable, and comparable actions. For example, in most cases, the HR5 indicator (operations identified in which the right to exercise freedom of association and collective bargaining may be at significant risk, and actions taken to the support of these rights) gave rise to rather evasive discourse. The following excerpts from reports analyzed concerning the HR5 indicator are representative of the type of information provided:

We fully recognize the right of our employees to freely associate and join trade unions. (BHP Billiton, p. 275)

Freedom of association, in particular, is recognized as a fundamental right within the group, and collective bargaining is encouraged in those countries where the relevant structures exist. (Anglogold, p. 94)

Avon Metals prides itself on its reputation as a fair and ethically run business. We aim to earn the trust and respect of the businesses and people within our sphere of influence (see diagram), through our core values of transparency, accountability, integrity, solidarity, courage, justice and democracy. (Avon Metals, p. 18)

The multiplication of general and unmeasurable information appears to create a sort of “background noise,” making the reports difficult to interpret and compare. Thus, potentially factual information that might be measurable and comparable tends to be lost in a sea of words lacking precision and specificity, making it difficult to pinpoint differentiating criteria. The rather global nature of certain GRI indicators also tends to reinforce this “background noise,” making comparisons of information disclosed even more difficult. Such was the case with several economic indicators such as EC8 (development and impact of infrastructure investments and services provided primarily for public benefit through commercial, in-kind, or pro bono engagement) and EC9 (understanding and describing significant indirect economic impacts, including the extent of impacts). In most reports, answers to these types of indicators mirrored the official corporate position regarding global issues instead of the specific stance of the firm.

Comparing Uncomparable Measurements

Despite the “background noise” produced primarily by the general and unmeasurable information disclosed, a great deal of numbered data was also presented. Generally speaking, it is clear that the creators of the GRI guideline sought to define measurable criteria that might eventually invite comparison in spite of the global and elusive nature of sustainability. Ironically,

however, quantitative indicators are not necessarily the most comparable ones. Two main reasons explain this paradoxical situation: different measurement scales used and the particular context of each organization.

The first reason, related to different measurement scales, was completely unanticipated, given the GRI goal of standardization and the many instructions on how to measure and present performance indicators. Yet, the measurement scales used in the reports are very mixed. For example, monetary values are presented in different currencies (Mexican pesos for Penoles Industries, pound sterling for Avon Metals, etc.). Units of mass and volume used to measure indicators such as EN1 (materials used by weight or volume) are also variable (kg, metric tons, kL, ML, m3, billions of liters, thousands of kL, mega liters, thousands of cubic meters, etc.). The following excerpts concerning the EN8 indicator (total water withdrawal by source) illustrate the problem:

Total Water Withdrawn Thousands kL 545,295.2. (Newmont, p. 206)

Total high-quality water use amounted to 161,670 mega-litres (ML). (BHP Billiton, p. 36)

Anglo American Group operations consumed a total of 251 million m3 of water in 2007. (Anglo American, p. 48)

Fresh water usage: total of 60 231 616 m3. (AngloGold, p. 175)

We withdrew 785 billion litres of water. (Rio Tinto, Website)

Obviously, converting these measurement units to standardize the measurement of a particular indicator is possible. However, in practice, this approach is rather unrealistic. First, the sheer amount of data presented using mixed measurement scales in these very voluminous reports would make the comparison tedious. Even when the same unit of measure is used, some information is presented in absolute values, and other, in percentages. Such is the case with materials used from recycled matter (EN2). More important, the indicators are used to measure very different activities. For example, the EC6 indicator (policy, practices, and proportion of spending on locally based suppliers at significant locations of operation) may be measured in percentage of goods and services purchased locally (Newmont), in volume of local purchases in billions of dollars for an affiliate (Anglo American), in total purchase volume and in number of suppliers worldwide (Rio Tinto), and so forth. The existence of several affiliates and the disclosure of information for different plants or regions complicate the task even more because of different levels of data aggregation, unit of analysis, and geographical scope covered. For example, depending on the indicator, information disclosed by Rio Tinto is presented with or without Alcan, which was purchased in 2007. Generally speaking, and depending on the case and the indicators presented, numbered information disclosed by the firms is presented as aggregate information or by affiliate. Moreover, the information is often associated with ill-assorted problems. Indeed, contrary to financial measures expressed in a defined monetary unit (e.g., the dollar), there are often many possible criteria that can be used to measure a particular environmental or social issue. For instance, numbered data on the EN23 indicator (total number and volume of significant spills) are hard to compare because they concern different substances (cyanide, hydrocarbons, oil, copper concentrate, acids, lubricants, etc.) calculated on the basis of

different scales and devoid of a precise assessment of their impact at the level of local ecosystems.

The second reason explaining the uncomparable nature of most numbered data was more foreseeable and it concerned the particular context of each organization. In fact, most GRI indicators appeared to be highly dependent on contextual specificities that made the comparison of reports on the same basis nearly impossible. The context involved many contingency factors linked to firm size, social and cultural aspects, and regions where the indicator measurement is applied, making each situation different and therefore difficult to compare. Social and cultural aspects can have a considerable impact on information disclosed, given differences in regulations, culture, or political context. These differences make comparisons difficult for many indicators. For example, work practices can be governed by regulations that differ from one country to another and can lead to bias in the measurement of criteria such as the LA4 (percentage of employees covered by collective bargaining agreements), LA5 (minimum notice period(s) regarding operational changes, including whether it is specified in collective agreements), and LA9 indicators (health and safety topics covered in formal agreements with trade unions). The specific nature of the territory in which firms operate, in particular the ones related to the environment, can also have a significant impact on several indicators. For example, habitat protection and biodiversity are essential aspects of sustainable development. Nevertheless, indicators on this subject, such as EN13 (habitats protected or restored) and E25 (identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff) are related to local ecosystems and are, by their very nature, hard if not impossible to rigorously compare.

Interpreting Incomplete and Ambiguous Information

Evaluating and comparing sustainability performance indicators requires information to be available, clear, pertinent, and interpretable. In practice, these conditions are rarely met satisfactorily for several reasons: lack of data on many performance indicators, disclosure of ambiguous or incomplete information, and difficulty in giving meaning to, or interpreting, certain indicators.

First, despite the volume of information found in the reports, the variety of examples presented, the pertinence of many sustainable development initiatives highlighted by the firms, and so forth, an in-depth analysis of the documents revealed that critical information was often disclosed in an incomplete manner or completely absent. From the start, this situation limits any possibility of comparison. For example, only 6 of the 12 firms studied (Newmont, BHP Billiton, Avon Metals, Illawarra Coal, PT Kaltim Prima Coal, and Usinas) offered information on the EN24 criterion (weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally). Firms that did provide information limited their answers to stating that basically, they did not contribute to the transportation of hazardous waste. Likewise, the MM9 indicator (describe resettlement policies and activities) was addressed by only four firms (Teck Cominco, Illawarra Coal, Penoles Industries, and PT Kaltim Prima Coal). Responses to this criterion were also rather brief. In some cases, the firms explicitly acknowledged that the data were not available but that it would become available in the future. However, more often than not, the

reports did not explain why measurements for certain GRI indicators were omitted. These omissions are clearly in contradiction with application levels A and A+ of the GRI, which assumes that all core indicators are addressed or, where applicable, an explanation is provided as to why the firm failed to address the issue (GRI, 2006).

Second, although most performance indicators seemed to be covered in the reports, this coverage was apparent only. Most of the reports analyzed failed to convincingly satisfy the GRI information and measures requirements for a number of indicators. Such was the case with the LA5 (minimum notice period(s) regarding operational changes, including whether it is specified in collective agreements), LA9 (health and safety topics covered in formal agreements with trade unions), and EN17 indicators (other relevant indirect greenhouse gas emissions by weight). Most of the information disclosed for these types of indicators could not be used to evaluate and compare performance in relation to specified criteria. Generally speaking, the sustainable development reports analyzed contained a great deal of information that seemed pertinent at first glance but, on closer review, was found to be noncompliant with GRI guideline specifications. The following excerpts concerning the LA6 indicator (percentage of total workforce represented in formal joint management–worker health and safety committees that help monitor and advise on occupational health and safety programs) provide convincing examples of this problem and the type of discourse adopted in the reports. Contrary to the LA6 requirements, no percentage ratios were provided by the reports, which appeared to be limited to highlighting the good practices implemented in this area:

Newmont's Global HSLP Team comprises health and safety experts who represent all facets of our business. The team works to conceptualize and develop a consistent approach to managing health, safety and loss prevention. (Newmont, p. 224)

Avon Metals has several trained health and safety representatives who participate in deployment of the location's proactive safety efforts. (Avon Metals, p. 13)

The commitments and obligations of our workers in the areas of safety and hygiene are established in the Collective Work Agreements and legislation on the matter. We have seventeen Safety and Hygiene Commissions comprised of unionized and non-unionized personnel. (Penoles Industries. 81)

Third, even if one assumes that some indicators are measured similarly by different organizations, it is not necessarily easy to decipher those indicators and evaluate the sustainability performance. In fact, some indicators are hard to interpret and can mean different things at the same time. For example, the EC4 (significant financial assistance received from government), SO5 (public policy positions and participation in public policy development and lobbying), and SO6 indicators (total value of financial and in-kind contributions to political parties, politicians, and related institutions by country) are not necessarily clearly connected with sustainable development. Indeed, in some cases, government grants received (EC4) can undermine fair competition and, in other cases, contribute to research in the field of clean energy. Similarly, political contributions and lobbying (SO5 and SO6) may be legal in some countries (e.g., the United States), but forbidden in others. If these concern social or environmental causes, they may eventually be portrayed as contributions to sustainable development. In this context, numbered data on grants received by firms or their financial contributions to political causes are

very difficult to interpret and even more so to compare. With a few exceptions, the reports were quite vague on these issues, limiting the answers to the firm's official position vis-à-vis legislation in force. This vagueness raises the question of the pertinence of certain GRI performance indicators, which appear to weigh down pointlessly the reports and contribute to making them more heterogeneous.

Analyzing Opaque and Self-Proclaimed Reports

The unwieldiness of the reports, the significant dissimilarity of the information disclosed by firms, and the complexity of the GRI indicators often make the documents hard to decipher. Although most reports group essential information for each criterion into tables, these tables are not sufficiently explicit or detailed to facilitate data evaluation or comparison. Readers wishing to thoroughly and systematically analyze the documents must read them in their entirety. In this context, and without first categorizing information systematically in each report, the comparative analysis of performance for each indicator seems impossible. At first glance, because of its tediousness, the approach used in this study appears to be implausible outside the context of academic research. Furthermore, even if undertaken, the painstaking process of systematically categorizing data in each report would ultimately reveal the depth of the problem of measuring and comparing data.

In addition, sustainability performance measurement presupposes, from the onset, that data disclosed are relatively reliable and, for the most part, reflect reality. Given the voluntary nature of these reports and pressure exercised by stakeholders advocating sustainable development, the application of the balance and reliability principles of the GRI guidelines can be legitimately questioned. According to these principles, reports must “reflect positive and negative aspects of the organization's performance” (GRI, 2006, p. 13) and be “substantiated by evidence” (GRI, 2006, p. 17). However, the analysis of the reports shows that the emphasis tends to be placed primarily on positive achievements in sustainable development. This trend partially accounts for the fact that more detailed explanations are provided for certain indicators and information furnished by different firms is asymmetrical, which complicates the comparison process. For example, in the Codelco report, roughly 20 pages are devoted to various projects highlighting the firm's commitment to the funding of projects on renewable energy, salmon farming, and the introduction of educational projects in Chile. The Newmont report, on the contrary, contains more than 60 pages devoted to the firm's sustainable management system (vision, firm policy, data verification mechanisms, five-star programs, etc.) and presents more or less detailed information on some 20 case studies on different aspects of sustainable development.

Each report describes, sometimes in great detail, and always in positive and reassuring terms, relatively specific actions that are practically impossible to compare. And yet, information on some aspects of sustainable development provides relatively consistent answers, making it difficult to distinguish between or compare organizations. This is often the case of indicators of illegal or unfounded practices on which the reports often furnish much more concise explanations and seem to repeat roughly the same findings, namely, that no problem has been noted. Moreover, as illustrated by the excerpts concerning the PR9 indicator (monetary value of significant fines for noncompliance with laws and regulations concerning the provision and use

of products and services) that follow, information on negative aspects of sustainable development is rarely clear, usable, and concurrent with indicators requested by the GRI:

Materiality assessment shows this topic is not sufficiently important to our stakeholders to warrant inclusion in our reporting. (Rio Tinto, Website)

No significant fines for noncompliance with laws and regulations concerning the provision and use of products and services. (Avon Metals, p. 19)

Product responsibility indicators are not material to our business. (Illawarra Coal, p. 7)

Discussion

The results of the study clearly demonstrate that it is impossible to measure and compare the sustainability performance disclosed in the analyzed GRI reports in a credible manner and to classify firms on this basis. This study also explores the main causes of measurability and comparability problems: unclear, ambiguous, or incomplete answers, release of qualitative and non-comparable data, unspecific information, heterogeneous measurement units, report complexity and opacity, overemphasis on positive elements, and so forth. When combined, these pitfalls seemed to have a multiplying effect. Indeed, information presented for the same indicator is often hard to measure, evaluated rather loosely, presented vaguely, and based on optimistic yet unclear statements. Such weaknesses are not glaringly evident at first glance because the reports were generally well written, presented, and structured, giving a rather convincing demonstration of the seriousness of corporate commitment to sustainable development. These reports are generally read and analyzed on an individual basis and certainly not within a comparative, transversal criterion-by-criterion analysis, such as the one undertaken in this study. The approach adopted in our study—which highlighted many of these not so apparent inconsistencies—is rather unusual, requires a considerable amount of tedious work, and probably has never before been performed systematically.

Surprisingly, in spite of the increasing amount of research on sustainability reporting, the interfirm comparability issues raised in this study are not necessarily apparent in the literature, either. Nevertheless, these issues can be analyzed through the lens of three main theoretical approaches described in the literature review: the functionalist, critical, and postmodernist perspectives. Table 4 summarizes the main findings of the study and their possible interpretation from these theoretical perspectives.

Table 4. Main Findings and Their Interpretation From Different Theoretical Perspectives.

	Unmeasurable and unspecific information	Uncomparable measurements	Incomplete and ambiguous information	Opaque and self-proclaimed information
Main comparability issues observed	Qualitative nature of many GRI indicators; Release of general and unspecific information	Different scales used; Contextual factors: Sociocultural aspects, regulations, ecological hotspots, etc.	Lack of data on many indicators, incomplete information; difficulty of interpreting certain indicators	Unwieldiness of the reports; overemphasis on positive statements; overlooking of problematic issues
Examples from the reports analyzed	Many essential issues are covered by qualitative indicators, such as risks related to corruption (SO2), biodiversity (EN12 to EN15), freedom of association (HR5), etc.	Percentage of employees covered by collective bargaining agreement (LA4) depends on local regulation; water withdrawal by source (EN8) is measured through various units	Resettlement activities (MM9) are addressed in four reports only; Percentage of employees represented in health and safety committees (LA6) is poorly addressed (no percent released)	Information on negative aspects such as risk for incidents of child labor (HR6) and noncompliance with regulations on products (PR9) is elliptic, often nonexistent and hard to verify
Interpretation from the functionalist perspective	Lack of quantitative indicators; certain GRI indicators could be revised to integrate more measurable indicators	Technical issue that can be solved through more standardization and more contextual data	Compliance issue that could be addressed by more rigorous external verification of GRI reports	The continuous improvement of reporting should improve over time the reports' transparency and balance
Interpretation from the critical perspective	Related to the vague definition of sustainability and its biased interpretation by organizations	The managerial capture of reports makes the measurements released unreliable	External verification is not reliable as long as it is decided and paid by the client organization	Greenwashing that could be mitigated through more involvement of stakeholders in the reporting process
Interpretation from the postmodernist perspective	Reflect the elusive and narrative nature of sustainability, which cannot be depicted through simple and unidimensional indicators	Quantitative data cannot capture the contingency, complexity, and context-dependency of sustainability issues	Information on sustainability is inevitably incomplete, ambiguous, and can hardly be both compliant and transparent	Reports always tell an idealized story based on self-proclaimed information that cannot reflect the chaotic nature of reality

Note. GRI = Global Reporting Initiative.

Paradoxically, the functionalist perspective is not necessarily without relevance in explaining our finding on the measurability problems and interfirm lack of comparability. Indeed, the mainstream literature on sustainability reporting underlines the importance of standardization, quantification, and information quality (Dando & Swift, 2003; KPMG, 2011; Rasche & Esser, 2006). Therefore, the positivist view on the measurability and comparability of sustainability reports assumes that the same rules must apply rigorously and transparently to release reliable measurements. However, the results of this study clearly show that this condition is not satisfied (see Table 4). First, many indicators are not measurable due to their qualitative nature. Second, the compliance with GRI reports is relatively low and measurement units are quite different from one report to another. Third, as also observed by Fonseca et al. (2014), the level of aggregation of data often differs from one report to another, which partly explains “the lack of compatible data and unit of analysis across sites” (p. 5). From the functionalist and positivist perspective, it can be assumed that interfirm noncomparability is in part related to technical and nonconformance issues that could be corrected through better quantification, standardization, and application of the GRI framework. As Hahn and Figge (2011) optimistically state, “It will be only through the thorough use of quantitative sustainability data as well as the ongoing standardization efforts that the availability and quality of such data will improve over time” (p. 340). Generally speaking, firms have little experience in reporting on sustainable development. In fact, information collection mechanisms are not necessarily well established. Therefore, one might assume that these mechanisms will become more refined over time and institutionalized, thereby contributing to enhancing report reliability and comparability. These improvements do not concern firms alone. They also apply to the GRI, which is a relatively recent initiative, and to the different stakeholders participating in the reporting process: external auditors, consultants, experts, and so forth. Like the firms, these different players are not necessarily well versed in the use of the regularly updated GRI grids. This learning process, which has already been emphasized in the literature (Gond & Herrbach, 2006; Igalens & Gond, 2005), results in an optimistic outlook similar, in essence, to the continuous improvement rationale associated with standards like ISO 9001 and ISO 14001. Therefore, a functionalist interpretation of the findings does not fundamentally question the possibility of measuring and comparing sustainability performance, which it takes as an accepted fact, but rather sheds light on the lack of rigor, rationality, experience, and standardization in this domain (see Table 4). Sustainability reporting would appear to be a form of managerial technology that requires precise adjustments and retuning.

However, this optimistic view does not explain the extent of performance measurement and comparison problems observed in our study. These problems call for a more critical perspective, notably concerning the managerial capture of the reporting process (see Table 4). First, the vague definition of sustainability, which is highlighted in various critical studies (Boiral, 2013; Deegan et al., 2006; Devinney, 2009; Gray, 2010; Unerman et al., 2007), can reinforce the control of managers over the reporting process through the release of unmeasurable and unspecific information mainly intended to improve corporate image. Second, the release of measurable and comparable data is not necessarily in the best interest of organizations because this information will increase the transparency on potentially negative aspects. As a result, organizations may be tempted to release uncomparable measurements. Third, the lack of conformance and opacity in spite of the A and A+ application level of the analyzed reports tends to lend credence to the

critical perspective. Although this study does not focus on this debated issue, the report analysis fails to identify intrinsic differences between application levels A+ (9 reports) and A (3 reports). In other words, the A+ reports, which were subject to external auditing, do not appear to be of better quality, more complete, or more rigorous than the A reports. Unlike the functionalist perspective, in the critical perspective, standardization and external auditing of reports cannot constitute a credible guarantee of quality of information because of commercial issues underlying the certification process (Boiral & Gendron, 2011; Deegan et al., 2006). The disconnection between the reassuring appearances of reporting and the hidden structures shaped by ideology and economic interests has been widely underlined in the critical theory in general (Dillard, 2007). From this critical perspective, the reports' opacity, ambiguities, and optimistic rhetoric that are demonstrated in the present study tend to hide underlying contradictions and reflect the managerial capture of the reporting process (Moneva et al., 2006; Owen et al., 2000; Springett, 2003). Such capture would require more involvement of stakeholders in the reporting process (Dragomir, 2012; Milne & Gray, 2007; Owen et al., 2000).

Although this critical outlook seems to shed more light on the reasons why the reports display superficial optimism and greenwashing (see Table 4), it addresses comparability issues in an indirect and quite an ideological manner. In fact, the issue of the possibility of measuring and comparing sustainability performance seems to be subordinated to political and economic issues rather than being clearly examined and questioned in itself: "there is no practical (as opposed to political or economic) reason why all organizations could not produce substantive social and environmental reports: the triple bottom line is a perfectly feasible aim" (Milne & Gray, 2007, p. 199). Furthermore, although political or economic reasons and the issue of managerial capture certainly influence the reporting process in general, such a critical perspective is not necessarily needed to explain the main results of this study. The postmodernist perspective described in the literature review proposes a new and very different approach, focusing on the fuzzy, elusive, and unmeasurable nature of sustainability itself instead of highlighting reporting technicalities (functionalist perspective) or underlying power relations (critical perspective). In this new perspective, the quantification of sustainability issues through the standardization of supposedly transparent and reliable indicators appears to be a modern myth based on the illusion that the chaotic and kaleidoscopic nature of complex phenomena can be analyzed rationally (see Table 4). First, the presence of a large amount of qualitative, general, and unspecific information in sustainability reports reflects the fact that an attempt to capture what sustainability really means and what it implies for organizations in practical terms is an impossible quest. Second, the contingency and context-dependency of many indicators clearly illustrates the kaleidoscopic nature of sustainability issues, which have no stable and comparable form, and change continuously depending on evolving circumstances: the multiplicity of contaminants released, the complex interactions with different ecosystems and the changing regulations, and so forth. This contingency and context-dependency also explains why the information disclosed can hardly be complete and unambiguous, regardless of the seriousness involved in the reporting process. The search for compliance appears to force organizations to release data that are rational, rigorous, and comparable in appearance only. Similarly, the many technical details inherent in the GRI guidelines are certainly legitimate, but they do not necessarily make sustainability performance more measurable and comparable, regardless of the amount of good faith organizations put into their reporting. The rationale for these technical details, which is intended to add more measurability and transparency, instead seems to impose, artificially and

on paper, a reassuring logical order onto chaotic, context-dependent, and heterogeneous phenomena (biodiversity, impact on local economies, prevention of climate change, management of career paths, and the fight against workplace discrimination). The GRI goal of “measuring, disclosing, and being accountable to internal and external stakeholders for organizational performance towards the goal of sustainable development” (GRI, 2006, p. 3) may be perceived as an attempt to give form, order, and substance to an elusive, diffuse, and confusing concept. From this standpoint, sustainable development indicators contribute primarily to drawing attention to tangible signs that “foster the belief” that sustainability can effectively exist somewhere, that it can materialize, be measured, and be pursued by supposedly responsive firms. Finally, the opacity of the reports and their optimistic rhetoric demonstrate that those reports essentially represent a sort of simulacra (Baudrillard, 1988, 1994) based on quite artificial information and images intended to tell an idealized story about corporate sustainability (Boiral, 2013).

This radical viewpoint of the postmodernist perspective is echoed by the clear-cut results of the study, which show that none of the 92 indicators could be rigorously compared. Moreover, even if some indicators could hypothetically have been measured and compared, what weight should be given to the different indicators and to how could such indicators represent a legitimate proxy of the sustainable development complexity? For example, how should the importance of noncompliance with biodiversity or child labor legislation be measured in relation to other criteria associated with industrial ecology or the reduction of greenhouse gas emissions? How can consistency be part of a concept that is measured using indicators that are so different and based on levels of concern that are not always clearly defined? How can stakeholders gain a clear idea of sustainability performance from such ill-assorted indicators? These questions illustrate the fragmented and elusive nature of sustainability performance, which is highlighted by the postmodernist perspective.

Contributions, Limitations, and Avenues for Future Research

The present article contributes to deconstructing the dominant basic assumptions concerning the measurability, comparability, and transparency of sustainability performance. The article also proposes several theoretical frameworks for analyzing sustainability reporting and its validity from complementary epistemological perspectives. Taken separately, each of these perspectives sheds light on specific and rather restrictive reasons for the (un) comparability of sustainability performance reports. However, the combination of functionalist, critical, and postmodernist approaches makes it possible to paint a more consistent and comprehensive picture of the complex reasons underlying comparability issues. The systematic analysis of these issues allows us to revisit the meaning of sustainable development and to question several basic premises underlying the dominant business discourse and scientific research on the topic. Generally speaking, the results of the study shed new light on the very loose manner in which sustainable development is interpreted and measured by firms and researchers alike, despite recourse to an identical and recognized standard. Given the limited study sample and the interpretive approach adopted in this study, its external validity in theoretical terms is limited. The same type of comparative study could be undertaken using GRI reports from other activity sectors or several sectors at the same time. Indeed, the results of this study are in principle limited to the mining sector and, consequently, cannot be generalized. However, it seems rather unrealistic to assume

that the fundamental problems observed here concern this sector alone. Another avenue for future research would consist of analyzing the interfirm comparability of sustainability performance by using GRI reports covering a longer period of time and/or published more recently. As the present study focuses on 2007 data, it is possible that changes have occurred in the reporting process of organizations. Moreover, although most reports studied were published in 2008 and 2009, that is to say after the launch of the GRI G3 framework in 2006, certain companies may have little experience of this framework. From the functionalist perspective, this relative inexperience with the G3 version of the GRI used in this study can explain the lack of standardization and noncompliance issues observed (see Table 1). Nevertheless, it is very unlikely that changing the year of reference would change the conclusions of the study. First, the main reasons undermining the comparison of performance (qualitative issues, context-dependency of information, and self-proclaimed rhetoric, etc.) are not related to the year of reference or possible changes in the GRI framework. Second, many GRI G3 indicators subject to comparability issues were already used in the GRI G2 version that was officially launched in 2002, long before the present study. For example, the core indicators on biodiversity (EN11 and EN12) of the G3 version were already present in the G2 version (EN6 and EN7). Third, the authors of this study continued to analyze GRI reports from the mining industry with the A and A+ level of application level since 2007 for the purpose of another research. Our observations indicate that the reasons underlying the comparability issues have not changed. For example, the information released on the risk for incidents of child labor (HR6), which represents a critical, well-documented, and widely discussed issue in the mining industry notably in Africa and South America (International Labour Office, 2005; Okyere, 2013), still remains unmeasurable, unspecific, ambiguous, and opaque. On one hand, certain 2012 reports such as those of BHP Billiton and Newmont do not release specific information on child labor. On the other hand, others reports remain very elusive and are based on self-proclaimed statements: “Anglo American’s business principles advance the abolition of child labour and these apply throughout our business and supply chain” (Anglo American, 2012, p. 20); “the company does not employ child labour, nor do we employ workers younger than 18 years of age in roles where they would be exposed to hazardous work, even if local legislation permits this” (AngloGold, 2012, p. 148). As a result, the sustainability reports of the mining organizations released in 2012 do not appear to be more transparent and comparable on this type of issue than those released in previous years. Nevertheless, future research could explore the comparability issues of the next version (G4) of the GRI framework, released in May 2013. Just like the G3 version, the GRI G4 has built on the previous version to improve the readability of the standard and its alignment with other international frameworks such as the United Nations Global Compact. It also has rephrased various indicators, notably on greenhouse gas (GHG) emissions, anticorruption practices, and supply chain management. Although the principle of comparability has not changed and still states that the reported information should “support analysis relative to other organizations” (GRI, 2013b, p. 14), from the functionalist perspective, the changes introduced in the new version could have improved the measurability and comparability of certain indicators. Future research could explore this assumption by focusing on GRI G4 reports from the same sector of activity, the same application level, and covering a 2 or 3 years period of time. Nevertheless, this type of research may be difficult to conduct in the short or medium term given that organizations can continue to use the G3 guideline until December 2015 (GRI, 2013a).

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Notes

1. The format, information, and Internet address of this list have changed over time. Currently, the list can be obtained at <http://database.globalreporting.org/search> (consulted in April 2013).
2. Detailed descriptions of each indicator, sector supplements, and indicator protocols are available on the GRI Website (consulted in April 2013): <https://www.globalreporting.org/Pages/default.aspx>

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