



Special Session: Measurement models of CSR

Measuring corporate social responsibility using composite indices: Mission impossible? The case of the electricity utility industry



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ABSTRACT

Corporate social responsibility is a multidimensional concept that is often measured using diverse indicators. Composite indices can aggregate these single indicators into one measurement. This article aims to identify the key challenges in constructing a composite index for measuring corporate social responsibility. The process is illustrated by the construction of a composite index for measuring social outcomes in the electricity utility industry. The sample consisted of seventy-four companies from twenty-three different countries, and one special administrative region operating in the industry in 2011. The findings show that (1) the unavailability of information about corporate social responsibility, (2) the particular characteristics of this information and (3) the weighting of indicators are the main obstacles when constructing the composite index. We highlight that an effective composite index should have a clear objective, a solid theoretical background and a robust structure. In a practical sense, it should be reconsidered how researchers use composite indexes to measure corporate social responsibility, as more transparency and stringency is needed when constructing these tools.

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Índices sintéticos para medir la Responsabilidad Social Corporativa: ¿Una misión imposible? El caso de la industria eléctrica

RESUMEN

La responsabilidad social corporativa es un concepto multidimensional que puede medirse de distintas formas. Una de ellas es a través de índices sintéticos o compuestos, instrumentos que permiten resumir la información de múltiples indicadores en una sola medida. Este artículo pretende identificar los desafíos que se presentan a la hora de construir un índice sintético para evaluar la responsabilidad social corporativa. Este proceso se ilustra a través de la construcción de un índice sintético para medir los resultados sociales de setenta y cuatro empresas que operan en la industria eléctrica, procedentes de veintitrés países diferentes y una región administrativa. Los resultados evidencian que la escasa disponibilidad de información de responsabilidad social corporativa y sus particulares características, así como determinar las ponderaciones a asignar a los indicadores, son los principales obstáculos para elaborar el índice sintético. Subrayamos que, para que un índice sintético se construya adecuadamente, sus objetivos han de estar claramente definidos, el marco teórico en el que se apoya ha de ser sólido y, además, ha de comprobarse si dicho índice es robusto, extremo que se considera muy relevante. Las implicaciones prácticas sugieren reconsiderar cómo se usan los índices sintéticos para medir la responsabilidad social corporativa, evidenciando que es necesaria más transparencia y rigor a la hora de construirlos.

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Introduction

Composite indices (CIs) aggregate different single indicators into one measure,¹ summarizing multidimensional concepts (Grupp & Mogege, 2004). They are useful decision-making tools (Giambona & Vasallo, 2014) in the areas of sustainability, development, Human Rights and education, among others.

However, the use of CIs has also been criticized. For instance, Mitchell, May, & McDonald (1995) emphasized that CI measures without a sound theoretical background are flawed. Scott, Cocchi and Gemmill (2014) warned that some CIs are just arithmetic tools without a statistical basis. Moreover, Paruolo, Saisana and Saltelli (2013) and Salvati and Zitti (2009) highlighted the problem of compensability between indicators when high values of one indicator offset low values of another. Different types of indicators, continuous and categorical, should be mixed in some cases (Asselin, 2002). Although some authors have suggested using uncertainty and sensitivity analyses to test the robustness of CIs (Saisana, Saltelli & Tarantola, 2005; Singh, Murty, Gupta & Dikshit, 2012), such analyses are seldom carried out. Thus, we can assume that CIs are useful measurement tools, but only if they are constructed following a transparent process.

This study focuses on the measurement of Corporate Social Responsibility (CSR). Previous studies have shown that there are different measures and methods to do it (De la Cuesta, Pardo-Herrasti & Paredes-Gázquez, 2015; Martínez-García & Rodríguez, 2013). One of these measures is Corporate Social Performance (CSP), which encompasses policies, process and outcomes related to CSR (Wood, 2010). The use of CIs to measure CSR or CSP is widespread. While the authors of some studies construct their own CIs (Chen & Delmas, 2011; Van den Bossche, Rogge, Devooght & Van Puyenbroeck, 2010), others use those provided by CSR rating agencies (Ioannou & Serafeim, 2012; Miras-Rodríguez et al., 2014).

But, what kinds of problems arise when constructing a CI to measure CSR (CSR-CI)? This study aims to identify these problems and provide solutions to them, thus contributing to the CSR measurement literature. We illustrate these difficulties by constructing a CSR-CI to measure social outcomes in the electricity utility industry, attending to a specific dimension of CSR (social) and CSP (outcomes).

The article is structured as follows. The following section provides theoretical guidelines on how to construct a CI, attending to on the particularities of CSR. The section 'Academic exercise and results' applies the theory to the construction of the aforementioned CI. Discussion section discusses its implications in CSR research, and the last section includes the conclusions and limitations of the study.

Guidelines for constructing a composite index

This section provides insight on how to construct a CSR-CI, adapting the guidelines of the handbook of the Organization for Economic Co-operation and Development (OECD) for constructing CIs (OECD, 2008, p. 20). We divided the construction process into six stages: (1) theoretical framework, (2) indicator selection, (3) exploratory analysis of indicators, (4) multivariate analysis, (5) normalization, weighting and aggregation and (6) uncertainty and sensitivity analyses.

Theoretical framework

A CI is not a single, isolated measure, but the outcome of a theoretical review that justifies its construction. In the case of a CSR, this task is particularly difficult due to the lack of consensus on the

definition (Okoye, 2009). The definition of the CSR depends on how the concept is understood. Table 1 summarizes the four groups of theories and approaches to explain the meaning of CSR.

In cases like this, when there is no clear definition of a concept, we can use definitions proposed by international organizations. One of the definitions of CSR proposed by the European Commission includes aspects of the four groups of theories and approaches. The European Commission (2002, p. 3) defines CSR as "a concept whereby firms integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis". Based on this definition, a CSR-CI theoretical framework should address these basic issues:

- Firm-focused concept. As indicated by its name, the concept focuses on the firms.
- Multidimensionality. Different distinctions of dimensions exist, such as sustainability-centered (Singh et al., 2012), triple bottom line (Elkington, 1997) or responsibilities of a business (Carroll, 1979), among others.
- Stakeholder orientation. Stakeholders' expectations are taken into account through goals or benchmarks, which can be externally predefined (top-down approach) or set by the stakeholders themselves (bottom-up approach) (Khadka & Vacik, 2012; O'Connor & Spangenberg, 2008).
- Voluntariness. As the adoption of CSR is discretionary, there may be CSR information shortages. More and more initiatives promote full or partial regulation of CSR and its disclosure (Williamson, Stampe-Knippel, & Weber, 2014), but information still remains scarce.

In summary, a CSR-CI theoretical framework should be firm-focused, multidimensional and stakeholder-oriented, but its application is conditioned by the availability of information. Thus, the construction of a CI is limited both by the theoretical framework and the information available.

Indicator selection

Indicators are tools which provide information on firms' outcomes and promote institutional dialog (Vera, Langlois, Rogner, Jalal & Toth, 2005). CSR indicators are available from different sources. For instance, international organizations such as the World Bank and the United Nations disclose indicators related to CSR at the country level, while companies and CSR analyst organizations provide CSR indicators at the firm level.

CSR analyst organizations quantify firms' CSR efforts. They gather CSR information publicly disclosed by firms as well as private information when available. Escrig-Olmedo, Muñoz-Torres, Fernández-Izquierdo and Rivera-Lirio (2013) distinguished four types of organizations that analyze CSR: rating agencies, information providers, and rankings and sustainability indices. Some rating agencies also provide information, such as MSCI ESG data (former KLD) or Thomson Reuters Asset4 non-financial information database, among others.

Rating agencies construct their own CSR ratings, which are often used as aggregated multidimensional measures of CSR or CSP (Wood, 2010). However, these ratings may neglect negative impacts of firms (Scalet & Kelly, 2010) and may have a weak or non-existent theoretical background (Wood, 2010). Furthermore, due to lack of transparency in the rating construction process (Bendell, 2010; Scalet & Kelly, 2010), missing data and outlier analyses are seldom disclosed or even carried out.

Despite these drawbacks, CSR ratings are firm-focused and multidimensional measures. They fulfill some of the basic prerequisites of the CSR-CI theoretical framework. With regard to stakeholder orientation, these ratings are not adapted to the needs

¹ Hereafter, we refer to "single indicators" as "indicators".

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