ORIGINAL ARTICLE

Measuring greenwashing: A systematic methodological literature review

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Abstract

Greenwashing (GW) is a complex, dynamic, interdisciplinary, multidimensional, and multifaceted phenomenon. There are more theoretical than empirical studies on GW because of several difficulties in collecting accurate data and obtaining objective GW measures. After disentangling the multifaceted GW phenomenon by describing its main dimensions, this study provides a systematic methodological literature review on empirical research papers published from 1990 to 2022 in journals of Business, Management, and Accounting to understand how empirical researchers are operationalizing GW and how our methodological choices affect our understanding of this phenomenon. Our results show that the *actual* GW operationalization is challenging and that scholars are highly uncertain about how such operationalization should be designed and implemented to provide an *effective* GW measurement instrument. Further, a growing number of studies investigate hypothetical GW cases adopting perception-based measures, while limited research explores real GW cases.

KEYWORDS
green advertising, greenwashing, symbolic corporate environmentalism, systematic methodological literature review, window-dressing

1 | INTRODUCTION

Greenwashing (GW) occurs when there is a mismatch between corporate communication and performance on environmental issues. Lyon and Maxwell (2011) often-cited definition explains GW practices as "selective disclosure of positive information about a company's environmental or social performance without full disclosure of negative information on these dimensions, so as to create an overly positive corporate image" (p. 9).

A number of studies have empirically analyzed GW showing how it relates to firm variables. However, while GW is a complex, dynamic, interdisciplinary, multidimensional, and multifaceted phenomenon, prior research measured GW as a unidimensional construct (Quoquab et al., 2022) because this is how most prior studies have looked at environmental strategies (Feng et al., 2022; Kraus et al., 2020). The polymorphism of GW and the attempts to adapt it to different realities have made it difficult to articulate it in a single and uncontestable definition (Seele & Gatti, 2017; Siano et al., 2017). Moreover, many methodological difficulties occur when scholars try to measure GW, which has made the comparability and consistency of results challenging. For example, Lyon and Montgomery's (Lyon & Montgomery, 2015) review of 98 academic papers on GW argues that the field "needs thorough, careful empirical analysis of the impacts of greenwash, which requires both an ability to identify greenwash clearly and to measure its effects" (p. 21). Finally, some researchers have signaled that their

measurement scale for GW provides potential for future development of conceptualizing the phenomenon in a more unified way (Blome et al., 2017).

Some argue that academic research on symbolic environmentalism is still in an early stage (Martín-de Castro et al., 2017) and that GW literature currently is more theoretical than empirical (De Vries et al., 2015). In November 2022, a "Call for evidence" went out from three European Supervisory Authorities (EBA, EIOPA, and ESMA—ESAs) to collect stakeholders' opinions on what the key features, drivers, and risks associated with GW are and to illustrate hypothetical GW practices. Therefore, following Lyon and Maxwell (2011), we need more empirical work on GW to address the research gap in empirical methods that assess practical corporate responses to climate change concerns versus mere discursive responses (Coen et al., 2022). Szabo and Webster (2021) recently provided one of very few descriptions of GW methods and measures used in marketing, although they focus only on how GW is perceived. Consequently, there seems to be a weak understanding of how GW has been and could be measured and operationalized to give insight into its antecedents and consequences.

This study gives a methodological review of how GW has been operationalized in empirical research in the Business, Management, and Accounting fields and we show how methodological choices influence our understanding of the phenomenon. To achieve this aim, after disentangling the multifaceted GW phenomenon by describing its main dimensions, we have developed a systematic methodological literature review (SMLR) to understand how researchers are operationalizing GW to better understand the types and ranges of this phenomenon. Our review focuses on papers published from 1990 to 2022 in peer-reviewed journals of Business, Management, and Accounting (BMA) disciplines, indexed by the *Scopus* database, and dealing only with empirical GW research.

For every methodological approach, there are certain trade-offs and this is no different for GW—as yet no universally accepted best approach to studying GW has been established. Because different research questions and contexts can require different methods, quantitative, qualitative, and mixed methods have been used. Although this review initially attends to all the research methods, it eventually focuses on the quantitative literature. We highlight the advantages, potential dilemmas and risks, as well as the implications of certain methods and we introduce several pertinent questions that research in the field should address.

In comparison to the extant literature reviews, this study does not focus on the different conceptualizations of GW or the evolution of GW studies; it specifically focuses on how GW is approached in empirical studies from a methodological perspective and on how GW has been measured.

The study's main findings are the following. First, there is a great deal of "talking" about GW but still little "walking," that is, a considerable number of studies focus on GW from a conceptual perspective but very few investigate it specifically from an empirical perspective. Second, while there are very many definitions of GW, only one dominates the empirical studies, namely one that emphasizes a gap between performance and disclosure. Additionally, most studies focus only on GW and not on its other possible nuances, such as brownwashing, bluewashing, etc. Third, studies on GW largely work with hypothetical/presumed GW cases while there is very limited research on real cases of GW. Consequently, knowledge about GW in practice is still limited. Fourth, GW is operationalized and calculated in very few cases which mainly measure GW in terms of perceptions, which means that GW is considered a subjective rather than an objective phenomenon. Finally, a phenomenon of academic GW emerges in that several studies include the word "greenwashing" (or similar expressions) in the title or keywords but then mention it only once or twice in the paper. This means that scholars are using this word to attract interest in their papers even if the phenomenon is not a real theme.

This study makes several contributions to the current GW debate. First, it offers a systematic methodological literature review that can also support future empirical research on GW. This study highlights several methodological features that can be associated with investigating GW in practice, each containing some "options" showing what has been researched to date and what could be done in the future. Second, this study offers an overview of the current methodological tools and data sources that could be helpful in addressing some of the material challenges with the related pros and cons. Third, it shows some conflicts and gaps between how GW is conceptualized and how it is measured.

We structure the remainder of the paper as follows. Section 2 introduces the issue of GW measurement by preliminarily providing a conceptual analysis of this phenomenon in an attempt to show the more relevant dimensions that should be considered before operationalizing GW in empirical research, and it outlines measurement difficulties. Section 3 describes the methodology we use in performing the SMLR. Section 4 shows the SMLR results, which we fully discuss in Section 5. The final section provides conclusions and a research agenda.

2 | DISENTANGLING THE MULTIDIMENSIONAL NATURE OF GREENWASHING

A specific conceptualization of GW underpins each of its operationalization. Lyon and Montgomery (2015) outline the need for a broader inquiry into a taxonomy of the GW phenomenon. Therefore, a conceptual analysis aimed at detecting, destructuring, and isolating the main dimensions characterizing GW is required before we can investigate how this phenomenon has been operationalized in empirical GW research.

Companies' GW behavior can take on various forms. The multidimensionality of GW arises from the definition which focuses on the discrepancy between corporate communication and corporate performance regarding environmental issues. This refers to multiple dimensions of actively supporting environmental issues (Lyon & Maxwell, 2011) and multiple ways of disclosing a corporation's environmental concerns.

Bowen's (2014) review of many GW definitions concludes that the core elements of the GW domain can be summarized as the phenomenon is based on (1) *disclosure decisions* and (2) a *deliberate strategy*, (3) describing it as a *corporate phenomenon*, which (4) *benefits firms while damaging the environment and society overall*, (5) through *social and environmental issues* (Bowen, 2014). In the absence of an *external accusation* by an NGO or the media, which rebukes a company for presenting a misleading or false claim about its environmental responsibility it is not possible to distinguish between GW and "hypothetical GW." Indeed, deceitful GW is not visible and therefore is hard to detect (Seele & Gatti, 2017).

Based on the above GW conceptualization, we identify the following set of central GW dimensions. First, there is the "GW investigation area," which includes the aim and scope of GW investigation, focusing on the determinants or the effects of GW. A second dimension refers to internal factors (the types and levels of GW), external factors (the context variables), and hybrid GW factors. These refer to factors that are fully, only partly, or not at all under the control of the company and that should be considered in operationalizing GW (Delmas & Burbano, 2011; Testa & Iraldo, 2010; Testa, Boiral et al., 2018; Testa, Miroshnychenko et al., 2018).

a. *Aim of GW investigation.* First, the method of interpreting and operationalizing GW strictly depends on the relationship under investigation, which may relate to either GW *determinants* or *GW effects*. Each kind of relationship can be investigated by distinguishing external and internal factors.

a.1. *Determinants.* Only a few studies have empirically investigated various companies' circumstances of engagement in GW (Yu et al., 2020). Lyon and Montgomery (2015) focus on external as well as internal drivers. Among the former, they highlight the role of environmental pressures or incentives, such as a lax regulatory environment or insufficient pressure from relevant political groups (Delmas & Montes-Sancho, 2010). Among internal drivers, firm size plays a relevant role, with larger firms' GW practices more likely than smaller firms to overcome regulatory controls (Lyon & Montgomery, 2015). Zhang (2022) shows how financial constraints developed in the financial environment motivate companies' GW decision-making and thus become determinants of GW behavior. More precisely, he finds the company's leverage costs affect its GW behavior. Scholars such as Lyon and Montgomery (2015) and Marquis et al. (2016) indicate the need for more thorough analyses of GW drivers and deterrents.

a.2. *Effects.* There is extensive empirical research on the impact GW can have (Huang et al., 2020). Overall, GW literature has focused more on its organizational consequences than its antecedents (De Vries et al., 2015). This could be due to greater difficulties in detecting and measuring GW behavior determinants than corporate results, as well as to the risk of GW threatening companies' ability to obtain resources, legitimacy, or social support (Lyon &

Maxwell, 2011). Therefore, investigating GW effects appears to be a serious issue. Several studies have empirically investigated how GW affects corporate results, such as Walker and Wan (2012) looking at profitability, Guo et al. (2017) and Mahoney et al. (2013) looking at communication strategies, Du (2015) looking at accumulated returns, and Weber (2018) looking at cost of equity capital.

b. *Scope of GW investigation.* The majority of scholars conceptualize GW as an exclusively environmental issue (e.g., Chen & Chang, 2013). However, others (e.g., Seele & Gatti, 2017; Seele & Schultz, 2022) have a wider perspective, which considers GW as affecting more than environmental issues, thus covering a number of social dimensions (including CSR washing or bluewashing). This broader interpretation relates GW to social and economic issues as well (cf., Lyon & Maxwell, 2011), referring to the "triple bottom line" of sustainability which requires environmental integrity, social equity, and economic prosperity. Overall, the term GW can be extended to refer to false claims of every kind regarding corporate ethical actions and CSR.

c. *Types of GW.* Some organizations have distinguished several GW styles. For example, TerraChoice (2010) identifies "seven sins of greenwashing," "Southern Weekend" announced the 'Chinese Greenwashing List' which identifies ten kinds of GW, etc. Although some scholars have provided a taxonomy of GW types based on a set of mechanisms (e.g., Lyon & Montgomery, 2015; Siano et al., 2017), most GW research has not distinguished different forms of GW (Gatti et al., 2021). The need to clarify the full range of GW types has been mentioned in a number of studies (cf. de Jong, Harkink, & Barth, 2018, 2020; Lyon & Montgomery, 2015). Below we distinguish four main forms of GW.

c.1. *Disclosure and action.* GW can occur as both environmental disclosure ("talk") and environmental performance/action ("walk"). In this regard, the focus has been on the materiality and purpose of CSR disclosure (Khalil & O'Sullivan, 2017, p. 414), on various types of disclosure (sustainability reports, institutional communications, etc.) (Torelli et al., 2020) on the communication media companies use (Akturan, 2018; Knight et al., 2022), or on how to measure environmental performance/action (Coen et al., 2022, p. 3055; Gatti et al., 2021).

c.2. *Active and passive GW.* Active GW involves manipulation by means of, for example, misleading or inaccurate claims, vague or unprovable claims, meaningless claims, and overstatement or exaggeration. In contrast, passive GW is done by complete or selective omission, as well as incomplete comparisons and masking of information. Selective disclosure can also be enacted by disclosing only a selected group of investors. Further, active and passive GW can be performed at the disclosure and activity levels (Seele & Schultz, 2022).

c.3. *Claim and execution GW.* Claim GW is the most common type of GW which occurs when textual arguments are used

in advertising, creating a misleading environmental claim (e.g., Laufer, 2003; Lyon & Maxwell, 2011). *Executional* GW is perhaps more subtle in not explicitly being claimed, but advanced by exterior signals evoking nature in advertising using, for example, nature imagery through colors such as blue or green, sounds of birds or the sea, and natural landscapes like mountains and forests (Parguel et al., 2015). A third, hybrid type of GW, between claim and execution GW, lies in using "Environmental Management System" certification as a symbolic environmental action (Liute & De Giacomo, 2022; Lyon & Montgomery, 2015; Martín-de Castro et al., 2017; Yin & Schmeidler, 2009).

c.4. *Negative and positive GW.* Corporate GW strategies can present both negative and positive sides (Huang et al., 2020; Lee et al., 2018; Wu et al., 2020). While the *negative* aspect refers to incomplete information that deceives consumers, thus reducing the expected product value, the *positive* aspect refers to incomplete information that incentivises investments in social causes (Huang et al., 2020; Lee et al., 2018; Wu et al., 2020).

d. *Level of GW.* Previous studies mainly observed GW at two levels, the company and the product levels. *Company*-level GW refers to companies selectively disclosing their good environmental actions while concealing negative actions (Torelli et al., 2020). *Product* level GW refers to companies deceptively or inaccurately advertising a product's or service's environmental features, as in disseminating vague, incomplete, or false information that presents a public image of environmental responsibility (Delmas & Burbano, 2011).

e. *Industry.* When GW is operationalized, the distinction between environmentally more sensitive and environmentally less sensitive sectors becomes paramount because more sensitive sectors are usually also more regulated and subjected to environmental activist groups' scrutiny (Kim et al., 2017; Laufer, 2003; Seele & Gatti, 2017). Therefore, GW is more likely to happen in polluting companies bound by high sector regulations, as in the electricity provision industry, which ensures strong external pressure (Kim & Lyon, 2015) and severe sanctions of firms engaging in GW (Lyon & Maxwell, 2011).

f. *Geographical and institutional context.* GW operationalization, especially when it is based on perception (as opposed to more objective measures), should carefully consider the geographical context of investigation and the related institutional and cultural differences. Indeed, developed, developing and emerging countries differ a great deal in their environmental regulation and lay people's moral sensitivity (Coen et al., 2022; Delmas & Burbano, 2011; Du, 2015; Huang et al., 2020; Jog & Singhal, 2020; Rejikumar, 2016; Roulet & Touboul, 2015; Sun & Zhang, 2019; Yu et al., 2020).

g. *Stakeholder impact.* The GW behavior of enterprises can be motivated differently by different stakeholders and, conversely, how GW is done produces different stakeholders' reactions. Consumers, NGOs and investors can have different kinds of reactions when they learn about a company's GW behavior (Berrone et al., 2017; Bowen & Aragon-Correa, 2014; Chen & Chang, 2013; Fernando et al., 2014; Huang et al., 2020; Rahman et al., 2015; Ramus & Montiel, 2005; Rausch & Kopplin, 2021; Stafford et al., 2000).

h. *Locus of GW.* In operationalizing GW, its locus should be carefully noted. Pizzetti et al. (2021) consider where the discrepancy between the environmental "talk and walk" happens along the supply chain. They distinguish three types of GW that are internal and external to a company in differing degrees.

i. *Source of GW.* The source of GW can refer to its voluntary or unintentional origin, which is strictly related to the GW locus, as well as to whether an external accusation occurs.

i.1. *Intentional and unintentional GW.* GW can be triggered consciously or unconsciously (Delmas & Burbano, 2011; Gatti et al., 2021; Roulet & Touboul, 2015). Intentional GW relates to specific organizational intentions while unintentional GW emerges elsewhere in the organization (i.e., not in management), for instance, in their supply chain (Szabo & Webster, 2021), as in the case of indirect GW.

i.2. *Accused and unaccused GW.* Intentionality is given as a requirement in accusations of GW (Seele & Gatti, 2017). This implies that GW can only exist if a company's communications are blamed by the media, NGOs, or other stakeholders (i.e., if witnessed "in the eye of the beholder"), and the level of implied falsehood is irrelevant (Seele & Gatti, 2017).

j. *Objectivity of GW.* This criterion distinguishes between perceived and actual GW. Irrespective of a company's intentions (i.e., intentional GW) and of being perceived as such (i.e., accused of GW), what matters is whether stakeholders perceive the given behavior as GW, or not. In other words, people can suspect corporate GW in the absence of objective criteria and vice versa. A company might engage in GW, but if people do not perceive it as such, there may be no harmful consequences (De Vries et al., 2015). As mentioned, consumers cannot be completely sure about the legitimacy of their GW suspicions or to which extent complaints are justified (Rausch & Kopplin, 2021). Therefore, perceived GW is generally based only on skepticism constructs (Chen & Chang, 2013). However, again, the literature has been notably silent on defining and operationalizing the construct related to GW fear (Blome et al., 2017).

Table 1 summarizes the above GW dimensions.

The analysis discloses that GW is a multidimensional and complex phenomenon, which cannot be captured easily by listing a few features. In other words, a kaleidoscopic image emerges giving no generalized GW, but only variations of GW, each representing a mix of deception types and levels that also vary according to specific stakeholders' reactions (de Jong et al., 2020; Gatti et al., 2021; Lyon & Montgomery, 2015). Consequently, there are indeed serious difficulties in measuring GW.

Several theoretical approaches, such as legitimacy theory and signaling theory (de Freitas Netto et al., 2020), have been applied

TABLE 1 Disentangling GW phenomenon along its main dimensions.

GW investigation area	External GW factors
a. Aim of GW investigation	e. Industry
• Determinants	• Environmental sensitive
• External	• Environmental insensitive
• Internal	f. Geographical context
• Effects	• Developed countries
• External	• Developing countries
• Internal	• Emerging countries
b. Scope of GW investigation	g. Stakeholder impact
• Only environmental	• Investor
• Social (CSR/*blue washing*)	• Consumer
	• Activists/NGO
Internal GW Factors	• Media
c. Types of GW	• Public authorities
• Disclosure ('talk')	• Other
• Action/deeds ('walk')	
	Hybrid GW factors
• Active (manipulation/distortion)	h. Locus of GW
• Passive (hidden/selective disclosure)	• Internal (firm)
	• External (context/other firms/SC)
• Claim	i. Source of GW
• Executional	• Intentional
• EMS certification	• Unintentional
• Positive side	• Accused
• Negative side	• Unaccused
d. Levels of GW	j. Objectivity of GW
• Firm	• Actual
• Product	• Perceived

in attempting to define GW. However, the most widely used theoretical approach in empirical studies on GW is attribution theory, in which scholars argue that immoral and irresponsible corporate behaviors, such as GW, detrimentally affect organizations in several ways (Santos et al., 2023). Our SMLR, covering empirical articles that relate GW to measurement issues, confirms that previous research has largely been survey based. Therefore, the attribution theory also underpins our research.

3 | METHOD

Our study is based on a methodological review following systematic principles for searching, screening, as well as extracting and handling data.

A systematic literature review is based on a rigorous selection process to identify those articles that rely on the principles of comprehensiveness, quality, transparency, and replicability. Additionally, such a review reduces bias in both selection and analysis by double-checking and establishing a research protocol that involves different experts. Thereby we can achieve robust conclusions associated with the research field (Massa & Ladhari, 2023; Paul et al., 2021). We find this approach particularly appropriate for our case since there are abundant and diverse publications in this fast-growing field (Paul et al., 2021).

We use Paul et al.'s (2021) SPAR-4-SLR, which is a structured instrument for conducting a systematic review. It entails a multi-stage process based on several parameters for including and excluding more and less relevant literature. Following the SPAR-4-SLR protocol, we explain our methodology in three stages, showing how we assembled, arranged, and assessed material. In the assembling stage, we identify and gain access to the literature, in the arranging stage, we organize and cleanse the collected literature, and in the assessment stage, we evaluate and report on the literature (Paul et al., 2021).

Figure 1 summarizes our research design and the different SPAR-4-SLR stages.

Systematic literature reviews can be done from several perspectives, identified as domain-based, theory-based, and method-based reviews (Palmatier et al., 2018). In view of our research aim, we chose to do a method-based review, that is, a systematic methodological literature review, to investigate the development of methodological issues in a review domain (Paul et al., 2021).

3.1 | Assembling stage

We identify two substages in which the literature is first identified and then acquired.

3.1.1 | Identification of domain, research questions, source type, and source quality

This domain-based review attends to GW operationalization in the BMA field. Following our research aim, we articulated particular research questions during the research protocol design, for which we relied on a scoping review of the literature and on discussions engaging all researchers involved in the project. This resulted in the following research questions:

1. Which published GW studies are decidedly empirical?
2. How do empirical studies define GW?
3. Do the publications concern real or hypothetical (presumed) cases of GW?
4. Which research methods were used?
5. How has GW been operationalized?

To develop in-depth analyses and draw comparisons that deliver significant insights, with sources exclusively focused on this
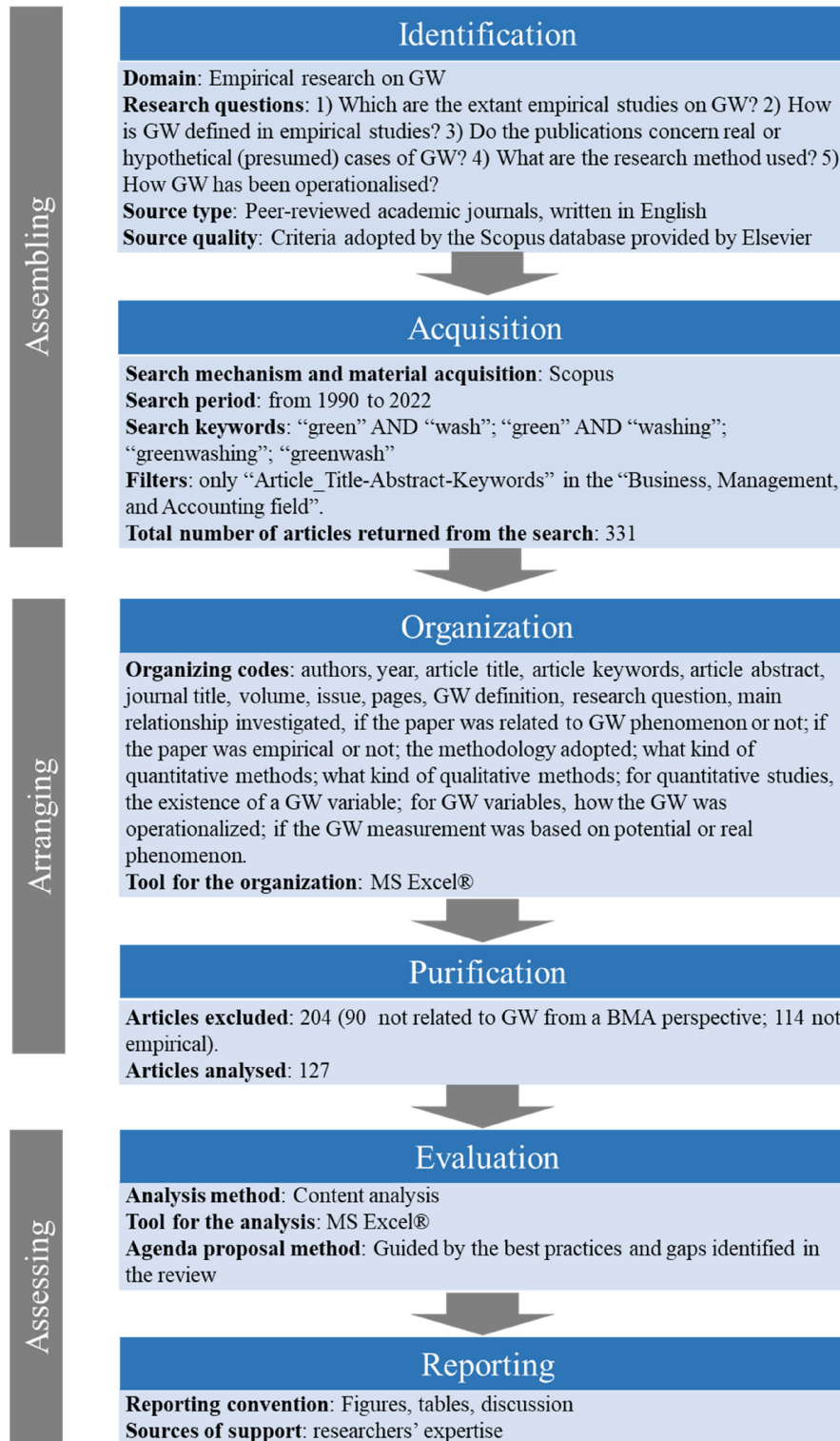
Identification

Domain: Empirical research on GW
Research questions: 1) Which are the extant empirical studies on GW? 2) How is GW defined in empirical studies? 3) Do the publications concern real or hypothetical (presumed) cases of GW? 4) What are the research method used? 5) How GW has been operationalised?
Source type: Peer-reviewed academic journals, written in English
Source quality: Criteria adopted by the Scopus database provided by Elsevier

Acquisition

Search mechanism and material acquisition: Scopus
Search period: from 1990 to 2022
Search keywords: "green" AND "wash"; "green" AND "washing"; "greenwashing"; "greenwash"
Filters: only "Article_Title-Abstract-Keywords" in the "Business, Management, and Accounting field".
Total number of articles returned from the search: 331

Organization

Organizing codes: authors, year, article title, article keywords, article abstract, journal title, volume, issue, pages, GW definition, research question, main relationship investigated, if the paper was related to GW phenomenon or not; if the paper was empirical or not; the methodology adopted; what kind of quantitative methods; what kind of qualitative methods; for quantitative studies, the existence of a GW variable; for GW variables, how the GW was operationalized; if the GW measurement was based on potential or real phenomenon.
Tool for the organization: MS Excel®

Purification

Articles excluded: 204 (90 not related to GW from a BMA perspective; 114 not empirical).
Articles analysed: 127

Evaluation

Analysis method: Content analysis
Tool for the analysis: MS Excel®
Agenda proposal method: Guided by the best practices and gaps identified in the review

Reporting

Reporting convention: Figures, tables, discussion
Sources of support: researchers' expertise

(Left vertical labels: Assembling, Arranging, Assessing)

FIGURE 1 SPAR-4-SLR diagram.

study's topic, we considered only scientific works published in peer-reviewed journals, thereby ensuring a homogenous set of sources. Thus, we excluded books, presentations, book reviews, and comments. This choice was also to be confident of using only reliable sources, that is, those that had passed a reviewing process (which is not assured with presentations or other types of

seminal works). Also, to offer a suitably structured scientific contribution, we could not consider book reviews and comments (Paul et al., 2021).

We restricted our literature search to publications written in English to avoid language bias or a preference for specific languages.

We conducted searches using the *Scopus* database provided by Elsevier (www.scopus.com). Such a comprehensive repository based on verified sources is assured to include papers with specific quality standards. In this regard, *Scopus* offers considerable coverage of peer-reviewed literature (Falagas et al., 2008). Furthermore, as one of the largest searchable citation and abstract sources, it is continually updated and expanded (Chadegani et al., 2013).

Journal ranking criteria were not used for exclusion purposes, as this SMLR aims to give a comprehensive overview of the issues regarding GW.

3.1.2 | Material acquisition through a search mechanism used over a search period with selected search keywords

The literature search was done directly in the selected databases. Next, we indexed the articles using *MS-Excel®*.

As mentioned and motivated above, we limited our research to BMA articles. Although the term and concept GW is also used in other disciplines, considering the researchers' expertise in this field, we decided to focus on BMA.

The time frame considered for this analysis is from 1990 to 2022, because before 1990 BMA research on GW was quantitatively poor and unfit for our dataset.

Regarding the search keywords, we read about 30 of the identified articles on the subject, based on which we prepared a preliminary list that would capture the multitude of definitions provided for GW. We discussed this list extensively and tested it before arriving at the following research string: "green" AND "wash"; "green" AND "washing"; "greenwashing"; "greenwash".

As we wanted specifically to investigate papers focused on GW and not the ones that mention the topic in passing, we searched for the given keywords in "Article_Title-Abstract-Keywords." Our rationale was that if greenwashing is not mentioned in any of these three items, we could reasonably conclude that the paper does not offer a meaningful contribution to the subject.

The initial search yielded 331 results.

3.2 | Arranging stage

This stage consists of two substages, organizing and cleaning the literature.

3.2.1 | Organizing the literature

To organize the extracted data, we used the following codes in an *MS-Excel®* document: authors, year, article title, article keywords, article abstract, journal title, volume, issue, pages, GW definition, research question, main relationship investigated, related to the

GW phenomenon or not; an empirical study or not; the methodology (quantitative vs. qualitative); which quantitative methods (e.g., ANOVA, regression, SEM, experimental design); which qualitative methods (e.g., case study, field study, content analysis); for quantitative studies, the instantiated GW variable; for GW variables, how the GW was operationalized (i.e., how the GW variable was quantified/built); the GW measurement based on a potential or real phenomenon.

3.2.2 | Cleansing the literature

After having applied the selection criteria as given above in Section 3.1.2, we divided the resulting 331 articles equally into three for each of the authors to scrutinize one third meticulously to check their relevance based on the two conceptual boundaries: "the paper deals with GW" and "the paper deals with empirical GW research." For such scrutiny, each author read the abstracts and, if necessary, the papers allocated to them. The research team met several times to discuss the selection criteria and their fit with the research objectives. Due to the complexity of GW, we discussed a considerable number of papers in plenary sessions to determine whether they should be included. At the end of this step, we removed 90 papers that did not deal with GW (most were articles published in the *Journal of Cleaner Production*, whereas others were in textiles- and clothing-related journals). Subsequently, after careful reading, another 114 papers were removed from the sample because they did not report on empirical GW research.

This approach eventually yielded a data set of 127 articles.

3.3 | Assessing stage

This stage consists of two substages, evaluating and reporting on the literature (Paul et al., 2021).

3.3.1 | Evaluating the literature

This study evaluates the content and methodological issues of 127 articles.

We conducted the descriptive analysis using *MS-Excel®* to identify the trends in publication, top journals publishing on GW, etc.

Similarly, we conducted content analysis for insight into the methodological issues presented and the choices made in the examined articles, as this is a commonly used method of analysis in systematic reviews (Paul et al., 2021).

This evaluation phase assisted in identifying 52 quantitative studies and research methods that explicitly measure GW, 44 quantitative studies in which the GW is not explicitly operationalized, and 31 qualitative studies.

The best practices and gaps identified in the review determined the agenda we eventually suggested for future research.

3.3.2 | Reporting

We give our report based on a combination of discussions, tables, and figures to accommodate a diverse group of readers (Paul et al., 2021).

The bibliographic data we obtained from the *Scopus* database is available from the authors on request. We base our analysis on the collected data and rely on the data set as being authentic and complete.

Following here, we present the results of the systematic review.

4 | RESULTS

We give a descriptive analysis of the SMLR's main results. Over 90% of the empirical GW studies date from the last 10 years, as Figure 2 shows. Thus, GW represents a research topic that is increasingly attracting attention. Additionally, it has emerged that while GW practices have significantly increased since 2000 (Blome et al., 2017; Parguel et al., 2015; TerraChoice, 2010), the dedicated empirical GW research emerged only after 2012, that is, 10 years later. Thus, there is a relevant temporal gap between the appearance of the phenomenon and the rise of relevant scientific interest in it.

The main journals in which empirical papers on GW have been published are the *Business Strategy and the Environment*, the *Journal of Business Ethics*, and the *Journal of Cleaner Production*, as shown in Table 2. The other 60 identified journals published one or two studies each on the topic we are studying.

This suggests that even if studies on GW are potentially welcomed by several journals in the management domain, researchers tend to submit them to journals specializing in sustainability, and ethics and environmental studies where they probably find a more fruitful discussion platform.

Regarding the content of the studies, the generally applied GW definition appears to be one that refers to the gap between "talk" and "walk," that is, to the misalignment of sustainability disclosure and sustainability performance. Several nuances of GW are based on such an understanding. For example, one refers to the presumed unreliability of what is declared (the gap between what is reported and what should be reported), another regards the gap between disclosure and performance, yet another relates silence on negative information, and a fourth one makes excessive use of "symbolic" expressions (i.e., ideas, principles, or possible future actions) which are compared to "substantive" expressions (i.e., facts or what has been done). In all, even if several concepts of GW can be identified, only one tends to be used in empirical studies about GW.

Another GW issue that has been investigated is the dichotomy between real/confirmed/actual cases of GW and presumed/hypothetical ones. As Table 3 shows, the analysis discloses that almost all the papers analyze cases of presumed/hypothetical GW (122 cases). Only five studies report on investigations devoted to actual GW cases W officially confirmed in institutional declarations or courthouse findings.

This means that there is still a lot of "talking" about GW as a theoretical phenomenon but very little understanding of whether and how it happens in practice. While the stream of studies on presumed, hypothetical GW contributes to raising awareness about its relevance, the few studies on real and confirmed GW are the ones that can contribute to policy drafting and introducing regulations that can counter GW's negative effects. The recent and growing
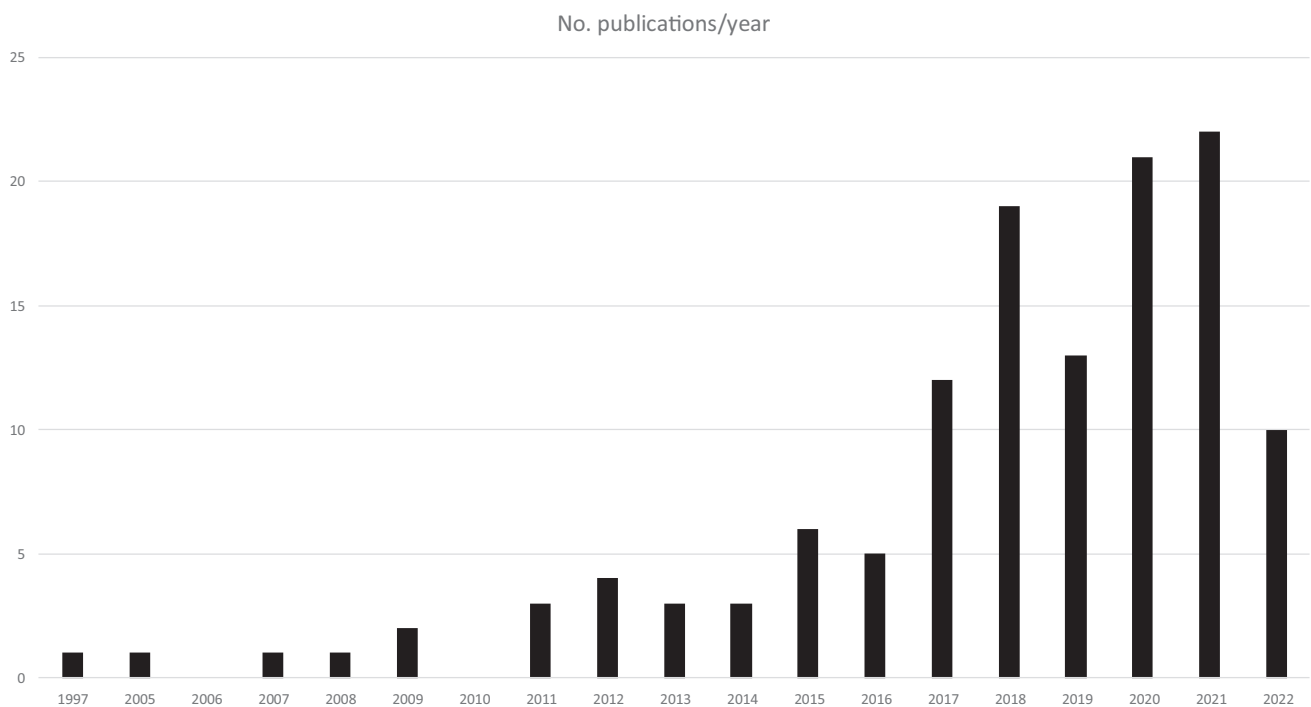
No. publications/year

FIGURE 2 Temporal distribution of the 127 publications.

TABLE 2 Journals with more than two papers on GW and no. of papers.

Journal	No. of papers
Business Strategy and the Environment	14
Journal of Business Ethics	13
Journal of Cleaner Production	13
Corporate Social Responsibility and Environmental Management	6
Organization and Environment	4
Journal of Business and Technical Communication	3
International Journal of Hospitality Management	3
Others	71
Total	127

TABLE 3 Analyzed cases of GW.

Cases	No. of papers
Real	5
Hypothetical	122
Total	127

TABLE 4 Research methodologies of GW.

Methodologies	No. of papers
Group comparison	3
Association/correlation	6
Regression	62
Modeling	22
Factor analysis	1
Case/field study	18
Content/visual/Thematic analysis	13
Mixed	2
Total	127

number of cases of companies convicted for GW practices alongside the tightening of environmental regulations should bring an increase in confirmed GW cases that can be meaningfully investigated.

From a methodological perspective, GW has been investigated mainly by means of quantitative approaches such as regressions or experimental design (96 cases), including mixed methods that take a quantitative and qualitative approach. Nevertheless, there are also qualitative approaches, such as case studies, field studies, text analysis, and descriptive statistics (31 cases).

Table 4 shows the distribution of the investigated papers in terms of research methodologies.

The 31 qualitative studies consider strategies companies adopted to gain (or regain) consumers/investors' trust regarding CSR issues through communication in advertisements, reports, etc. (24

TABLE 5 GW measurements.

	No. of papers
Panel A—GW quantification	
Quantification of GW	52
Quantification of proxies	44
Total	96
Panel B—GW—types of variable	
GW as an independent variable	42
GW as a dependent variable	10
Total	52
Panel C—GW measurements	
Perceptions	38
Calculation	13
Dummy	1
Total	52

cases), the pros and cons of environmental or social certification (3 cases), and the potential gap between what companies do and what they communicate (4 cases). Overall, from a qualitative perspective, the aim is to understand real GW cases or methods and GW effects in specific contexts by taking an exploratory approach. In addition, the methods mainly used to investigate real cases of GW are qualitative (4 out of 5 cases of real GW studies).

Quantitative studies are mostly based on regression analyses (regression, SEM, PLS, etc.) and model design (econometric modeling, experimental design, etc.).

Table 5 provides interesting insights into GW measurements.

Panel A shows that in 44 cases, it was not possible to quantify GW. These studies mainly analyzed and discussed corporate reporting and communication. The remaining 52 cases reported attempts to specifically and directly measure GW and its causes and effects.

When quantified, as Panel B shows, GW was adopted as an independent variable in 42 cases to understand its effects on financial performance, purchase and investment behaviors, earnings management practices, and auditors' opinions. Differently, 10 cases used GW as a dependent variable to understand its causes, of which the presence of financial constraints, ethical issues, and the level of ESG performance were suggested as the main causes.

Focusing on how GW has been quantified, as shown in Panel C, 38 cases used perceptions to measure (perceived) GW. Here the perceptions of consumers/customers (22 cases), undefined stakeholders (6 cases), managers (5 cases), investors (2 cases), experts (2 cases), and employees (1 case) were considered. In all, when GW was measured in terms of perceptions, the studies were dominated by customers' views, with only a few cases that considered other stakeholders. To collect data about perceptions, the researchers used questionnaires measuring perceived GW on a Likert scale. Then GW was matched with impressions of skepticism, reliability, or trust. To investigate perceptions, surveys or questionnaires included between 1 and 12 items (mostly using a 5- or 7-point Likert scale), with some

items based on previous studies, such as Chen and Chang (2013), but also Leonidou and Skarmeas (2017), De Vries et al. (2015), Zhang et al. (2018), and Laufer (2003).

The second quantifying approach taken in 13 cases assumes GW as the difference between a disclosure index and a performance index calculated following different methods. This approach aims to be an objective analysis since rather than relying on perceptions, it relies on hard data extracted from databases or reports. Performance and disclosure data are hand-collected in some cases, though in most cases are extracted from specific databases such as *Bloomberg* or *Asset4/Thomson Reuters*. Such dominant use of databases is related to the possibility of having access to a broad spectrum of reliable and verifiable data and to the use of generally accepted measures of disclosure and performance. Here GW is presumed to occur when there is a mismatch between the talk and walk indexes of a company and those of its peers. In this stream of studies, GW is calculated and transformed in a dummy variable (Du et al., 2018; Neumann, 2021; Testa, Miroshnychenko et al., 2018) or a continuous variable in terms of a score (Guix et al., 2022), an average (Huang et al., 2022), a percentage (Khalil & O'Sullivan, 2017), a ratio (Kim & Lyon, 2015; Marquis et al., 2016; Roulet & Touboul, 2015; Velte, 2021), or a difference (Walker & Wan, 2012; Yu et al., 2020; Zhang, 2022), with data mainly extracted from *Asset4*.

The third quantifying approach is used only in one paper (Du, 2015). It develops an economic model and considers GW as a dummy variable to test its theoretical effects.

Table 6 shows further details of the 52 *quantitative* studies and research methods used in measuring GW.

Table 7 shows further details of the 31 *qualitative* studies and research methods used in investigating GW. Of these, four are real case studies, whereas eight are hypothetical ones. Ten other qualitative studies adopted content analysis as methodology, and an additional seven are based on a field study method. The last two studies here use visual sociology and thematic analysis for their GW research.

Finally, there are 44 *quantitative* studies (for brevity not tabulated) for which the GW is not explicitly operationalized. The following studies illustrate distinctions that such studies have explicated: Abba et al. (2018) show that most research focuses on investigating the relationship between environmental disclosure and operational performance in environmental concerns. Berrone et al. (2017) distinguish between environmental performance and environmental legitimacy, Du et al. (2016) between weak corporate environmental responsibility and corporate philanthropy, Guo et al. (2020) between carbon disclosure and actual carbon mitigation performance, Hamza and Jarboui (2022) between CSR and disclosure tone management practices in sustainable reports, Hassan and Guo (2017) between environmental performance and reporting format, Hassan et al. (2020) between environmental performance and biodiversity/extinction disclosure, Koseoglu et al. (2021) between CSR performance and CSR reporting practices, Mahoney et al. (2013) between standalone CSR reports and weak CSR performance, and Wang et al. (2018) show how CSR performance relates to CSR report

readability. In some cases, the research assumes GW to occur when a symbolic corporate environmental certification, such as ISO 14001 certification or EMAS validation, is accepted (e.g., Martín-de Castro et al., 2017; Testa, Miroshnychenko et al., 2018). Other studies build on economic models (e.g., Lee et al., 2018; Lyon & Maxwell, 2011).

5 | DISCUSSION

Overall, our study posits that, as a relatively new concept, GW is often theoretically ambiguous and its practical operationalization still has numerous challenges.

The first element emerging from our SMLR refers to the fact that there is a lot of talking about GW but little walking, that is, there is more rhetoric than action. To elaborate, scholars have proposed a wide range of theoretical GW definitions and nuances, but there is very little empirical work. This means that GW largely remains an idea that is only rarely operationalized. This demonstrates a gap between theory and practice, also due to the different definitions being too poorly tested to be able to identify each one's strengths and weaknesses. This calls for more empirical studies on GW so that we can improve our understanding of the phenomenon not only from a theoretical or deductive perspective but also from a practical or inductive one.

The collected evidence also shows that GW is a concept that, from an empirical perspective, tends to be considered largely regarding its environmental dimension, referring to, for example, emissions, environmental impact, etc. This means that the third pillar of CSR, that is, the social dimension, is often overlooked. While many studies have conceived a broad definition of GW that embraces the social and environmental dimensions or have proposed the specific concept of bluewashing, empirical studies still focus mostly on "bad practices" which present GW as something that happens in respect of the "green" dimension. This issue calls for more research on GW's social dimension or both its environmental and social pillars.

Regarding the examined studies, the focus appears to be on hypothetical GW, that is, on situations that suggest possible instances of GW, but there are rather limited studies on cases of real GW, that is, cases officially declared as GW. This could be due to the limited availability of real GW cases even if a growing number of legal decisions have found firms guilty of GW. To be sure, investigating real GW cases requires specific information to be available if we are to achieve an in-depth understanding of why, how, who engages in GW, and what its effects are. Between the cases of hypothetical GW and real GW, there are also "gray" situations, that is, circumstances that are under official investigation but without any decision on them having been taken. Customer interest in green products is increasing, therefore more and more companies could now be tempted to do GW. This implies a potentially growing number of cases that can be investigated to understand GW in practice. Further, focusing on hypothetical GW which is based on models that are not generally accepted and have a limited number of applications can lead to a witch-hunt, thus indicating practices that in fact are not

TABLE 6 52 quantitative studies and research methods in measuring greenwashing.

#	Authors	Methodology	GW operationalization	GW measurement
1	Ahmad and Zhang (2020)	SEM	Consumers perception	6 items, 5-point Likert scale, from Leonidou and Skarmeas (2017)
2	Akturan (2018)	SEM	Consumers perception	5 items, 5-point Likert scale, from Chen and Chang (2013)
3	Blome et al. (2017)	PLS	Managers perception	2 items, 7-point Likert scale
4	Braga et al. (2019)	SEM	Consumers perception	12 items, 5-point Likert scale
5	Chen et al. (2019)	Regression	Consumers perception	5 items, 7-point Likert scale
6	Chen et al. (2020)	SEM	Consumers perception	6 items, 5-point Likert scale, from Chen and Chang (2013)
7	Cooper and Weber (2021)	Regression	Investors and MBA students perception	Categorical variable (1–3) based on the expectation of corporations to be more likely to engage in GW in the future. 1 item
8	De Vries et al. (2015)	Experimental design	Stakeholders perception	3 items, 7-point Likert scale
9	Du (2015)	Regression	Dummy	1 if a firm is on the list of GW published in the *South Weekend*, 0 otherwise
10	Du et al. (2018)	Regression	Calculation (dummy)	1 if a firm does not fulfill environmental responsibility but reports better environmental performance as environmental misconduct (wrongdoing) dressing, following Delmas and Burbano (2011), 0 otherwise
11	Farooq and Wicaksono (2021)	SEM	Consumers perception	6-point Likert scale, 2 items on previous incidents of GW based on the VW scandal
12	Feng et al. (2022)	Regression	Stakeholders perception	GW as the difference between symbolic (4 items) and substantive (4 items) environmental strategy, 7-point Likert scale
13	Ferrón-Vílchez et al. (2021)	Experimental design	Managers perception	4 items, 7-point Likert scale, adapted from Leonidou and Skarmeas (2017)
14	Gatti et al. (2021)	Experimental design	Non-professional investors perception	4 items, 7-point Likert scale, based on Dahlen and Lange (2006)
15	Ginder et al. (2021)	Experimental design	Consumers perception	4 items, 7-point Likert scale
16	Guix et al. (2022)	Regression	Calculation (score)	−1 point was given to every claim within each sentence, for each type and nature of misleading communication, resulting in more claims than sentences. Misleading communication occurs when it does not disclose correct scientific information, does not provide detailed and relevant information, hides the negative attributes of carbon offsetting or carbon offsetting projects, does not provide proof, evidence or certifications, and distracts customers from greater environmental impacts
17	Guo et al. (2018)	Experimental design	Managers perception	4 items, 7-point Likert scale
18	Guyader et al. (2017)	Experimental design	Consumers perception	Sum of dwell times on classic fabric softeners with misleading packaging
19	Ha et al. (2022)	SEM	Consumers perception	5 items, five-point Likert scale, from Chen and Chang (2013)
20	He et al. (2022)	SEM	Experts perception	7 items, 5-point Likert scale, based on Liu et al. (2020), Zhang et al. (2018)
21	Huang et al. (2022)	Regression	Calculation (average)	The focus is on the brownwashing (opposite of GW, when firms' actions go beyond their disclosed policies) calculated as the average gap between firms' environmental policy and implementation in three dimensions (resource reduction, emission reduction, environmental product innovation), from *Asset4*
22	Jog and Singhal (2020)	SEM	Consumers perception	5 items, 5-point Likert scale
23	de Jong et al. (2018)	Manova	Consumers perception	4 items, 7-point Likert scale

(Continues)

TABLE 6 (Continued)

#	Authors	Methodology	GW operationalization	GW measurement
24	de Jong et al. (2020)	Experimental design	Consumers perception	Behavioral-claim GW: 1 item, 3-point Likert scale; motive GW: 2 items, 5-point Likert scale
25	Khalil and O'Sullivan (2017)[a]	Content analysis and regression	Calculation (percentage)	Sentence count is used to differentiate between substantive and symbolic actions. GW has a high proportion of symbolic disclosures
26	Kim and Lyon (2015)	Regression	Calculation (ratio)	Continuous variable that indicates the difference between reported and actual emissions reductions, normalized by the firm's level of reported reductions
27	Ling and Abd Aziz (2021)	PLS	Consumers perception	4 items, 7-point Likert scale, adapted from Rejikumar (2016).
28	Marquis et al. (2016)	Regression	Calculation (ratio)	Difference between the absolute disclosure ratio (i.e., symbolic transparency) minus weighted disclosure ratio (i.e., substantive transparency)
29	Martínez et al. (2020)	Fuzzy model	Consumers perception	12 items, 10-point Likert scale, adapted from Braga et al. (2019), Wu and Chen (2014), Correa et al. (2017)
30	Musgrove et al. (2018)	Experimental design	Consumers perception	GW as consumer skepticism. 5-point Likert scale, from Mohr et al. (1998)
31	Neumann (2021)	Regression	Flash Eurobarometer survey on managers	2 items, dummy variable, equals 1 if the environment is one of the top priorities of a firm or if a firm has either an ISO 14001 or 14,064 in place, 0 otherwise
32	Nyilasy et al. (2014)	Experimental design, regression	Consumers perception	GW as green advertising × corporate environmental performance. Two scenarios with 4 items, 5-point Likert scale
33	Parguel et al. (2011)	Experimental design	Consumers perception	GW as perceived corporate brand equity. 4 items, 7-point Likert scale, adapted from Yoo and Donthu (2001)
34	Pizzetti et al. (2021)	Experimental design	Stakeholders perception	10 items
35	Quoquab et al. (2022)	Exploratory factor analysis	Consumers and experts perception	10 items, 5-point Likert scale
36	Rausch and Kopplin (2021)	SEM	Consumers perception	3 items, 5-point Likert scale based on Chen and Chang (2013); Mohr et al. (1998); Zhang et al. (2018)
37	Rejikumar (2016)	SEM	Consumers perception	4 items, 5-point Likert scale
38	Roulet and Touboul (2015)	Regression	Calculation (ratio)	Symbolic to substantive corporate social actions ratio (based on the average of 18 ratings equally weighed per general category, from Asset4)
39	Schmuck et al. (2018)	Regression	Consumers perception	5 items, 7-point Likert scale, based on Chen and Chang (2013), plus 2 more items
40	Szabo and Webster (2021)	Regression	Consumers perception	6 items, 7-point Likert scale, based on Chen and Chang (2013)
41	Tahir et al. (2020)	Regression	Employee perception	5 items, based on Chen and Chang (2013)
42	Taufik and Dagevos (2021)	Regression	Stakeholders perception	3 items, 7-point Likert scale, based on De Vries et al. (2015)
43	Testa, Miroshnychenko et al., (2018)	Regression	Calculation (dummy)	1 for firms in the top 75th percentile of the discrepancy index variable, 0 otherwise. Discrepancy index is the difference between the green practice index (average of a firm's internal and external environmental practices' KPIs) and the green communication index (average of a firm integration/vision and strategy KPIs), from Asset4
44	Testa et al. (2020)	Regression	Consumers perception	4 items, 5-point Likert scale, based on Leonidou and Skarmeas (2017)
45	Torelli et al. (2020)	Experimental design	Stakeholders perception	3 items, 7-point Likert scale, based on De Vries et al. (2015)

TABLE 6 (Continued)

#	Authors	Methodology	GW operationalization	GW measurement
46	Velte (2021)	Regression	Calculation (ratio)	Firms' environmental impact and policies (based on 61 items) and carbon performance (as total CO2 emissions score), from *Asset4*
47	Walker and Wan (2012)	Regression	Calculation (difference)	Difference between the value of substantive actions and the value of symbolic actions
48	Wang, Ma, et al. (2020)	Experimental design	Consumers perception	4 items, 7-point Likert scale, based on a study by Zhang et al. (2018)
49	Yu et al. (2020)	Regression	Calculation (difference)	A normalized measure representing a firm's relative position to its peers in the distribution of the *Bloomberg* ESG disclosure score minus a normalized measure representing a firm's relative position to its peers in the distribution of a modified *Asset4* ESG performance score
50	Zaidi et al. (2019)	Regression	Consumers perception	5 items, 5-point Likert scale, based on Laufer (2003) and Chen and Chang (2013)
51	Zhang (2022)	Regression	Calculation (difference)	As in Yu et al. (2020)
52	Zhang et al. (2018)	Regression	Consumers perception	5 items, 5-point Likert scale, based on Laufer (2003) and Chen and Chang (2013)

[a]Mixed methods.

misleading disclosures or are not done intentionally, as GW. In spite of "hypothetical GW" and even of actual or "true" GW, our analysis shows the difficulty of identifying this practice because both the misleading nature of green disclosures and the GW accusations are subjective (Seele & Gatti, 2017). Similarly, the lack of properly established lists of GW firms published by NGOs or other authoritative institutions (Du, 2015) does not give researchers an objective GW measure. Therefore, it is often difficult, if not impossible, "to measure precisely the extent to which firms engage in GW" (Kim & Lyon, 2015, p. 707).

In empirical studies, GW is generally defined as a mismatch between the "walk," that is, what a firm does, and the "talk", that is, what the company discloses. Since this is only one of the many definitions, scholars have proposed, we suggest that the other definitions are considered difficult to operationalize or irrelevant. While theoretical scholars have represented GW as a complex and multidimensional phenomenon (see Table 1), practical studies represent it as rather simplified. In addition, concerning multidimensionality, it seems that studies consider practices of, for example, brownwashing, that is, walking more than talking to be acceptable behavior, while talking more than walking in this respect, counts as unacceptable behavior. While the negative effects of disclosing false information to the markets are known and relevant, the opposite behavior of not disclosing particular kinds of information can also generate negative effects for firms and their stakeholders due to their lack of transparency. This calls for studies that focus on brownwashing phenomena.

Regarding quantitative studies, we have shown that these studies approach GW mainly as a matter of perception. This indicates that GW is not taken as an objective phenomenon; rather, it is seen as a subjective one that, consequently, can change over time and space: what is acceptable today can be unacceptable tomorrow and what stakeholders or a community find acceptable can be unacceptable to others. This implies problems regarding the reliability and variability of the research results. Further, in light of the considerations we mentioned, that studies focus only on a few types of stakeholders, mostly customers, becomes a relevant limitation for reliably understanding the GW phenomenon. Considering emerging regulations in favour of green financing, new studies should investigate investors' perceptions more in depth. Also, employees' or managers' perceptions deserve more research attention.

Regarding the few studies that measure GW with calculations, there is no convergence of proposed models or formulas. Consequently, it is possible that several options leading to different results, that is, different situations of hypothetical GW, can arise, which cannot offer any certainty.

The data used for calculations can be hand-collected (primary data) or taken from a database (secondary data). While recognizing that secondary data can offer reliable and standardized material, it can also limit the use of other information useful for an improved understanding of the GW phenomenon in practice. Databases usually do not present hand-collected data. Thus, with primary data, replication studies to test the proposed methodology's strength would be particularly welcome, as would be studies that suggest how to

TABLE 7 Thirty-one qualitative studies and research methods in exploring greenwashing.

Authors	Hypothetical/real GW	Methodology
Cliath (2007)	Hypothetical	Visual analysis
Contreras-Pacheco and Claasen (2017), Kassinis and Panayiotou (2018), Mobus (2012), Siano et al. (2017)	Real	Case study
Dornier (2021), Liute and De Giacomo (2022), Mason and Mason (2012), Mills (2009), Parkman and Krause (2018), Prasad et al. (2017), Saber and Weber (2019), Saeli (2019), Shin and Ki (2022), Zharfpeykan (2021)	Hypothetical	Content analysis
Fernando et al. (2014)	Hypothetical	Thematic analysis
Fox (1997), Hansen et al. (2011), Henninger et al. (2016), Kopnina (2019, 2021), Næss (2020), Seele and Gatti (2017), Zyl and Van (2013)	Hypothetical	Case study
Geerts (2014), Kahraman and Kazançoğlu (2019), Munasinghe et al. (2021), Singh (2013), Solomon et al. (2008), Toussaint et al. (2021), Wang, Walker, et al. (2020)	Hypothetical	Field study

identify GW moving from "hard data." Notably, extant studies show that it is difficult to collect accurate GW data because, for economic and other legitimate reasons, companies often attempt to conceal factual data (Cheng et al., 2017; Feng et al., 2022).

The above-mentioned considerations prompt reflection on how methodological choices affect our understanding of GW. Research paradigm preference and philosophical inclination determine a study's theoretical and methodological approach, its design, analysis, and how findings are interpreted. Positivist or objectivist researchers typically take a quantitative approach, presenting a statistical and context-free "unbiased" analysis and interpretation. In contrast, interpretivist or constructivist researchers take a qualitative approach, using more flexible designs which should facilitate an improved grasp of the multidimensionality of GW. Even if one approach is preferred to the other in the GW discourse, neither can be labeled as "the best" as each approach has its own purposes.

The examined empirical studies show a focus on environmental issues, that is, in "macro" analyses they conceptualize GW as a mismatch between a company's environmental disclosure and its environmental performance. Additionally, as not all such mismatching counts as GW, the threshold can be defined based on perceptions of "average behaviors." This has led to several hypothetical GW cases being identified in much higher numbers than real ones, that is, this established GW is a matter of perception.

Comparing the operationalized conception of GW with conceptions scholars have proposed, it emerges that only a limited number of concepts have been investigated empirically. This can be due to the existence of many definitions that have rarely been tested. Thus, we posit a need to start a selection process or to identify new measurement models that are able to grasp the complexity of GW. In addition, considering how GW has been constructed in empirical work, it appears as a naïve concept with blurry boundaries, since it is highly subjective and variable in time and space. Further, as a variable GW has been operationalized in different ways, leads to difficulties in comparing and aggregating the results of the different research components (i.e., performing a meta-analysis) to gain a complete picture of the phenomenon. In other words, to date, our knowledge of GW appears to be highly fragmented.

From these ideas, it emerges that empirically investigating GW requires a careful and systematic approach. Thus, we suggest a list of steps and considerations to develop this process. The list is not exhaustive but could be a guideline for the main issues, as follows:

1. Motivation: GW investigations should operationalize different definitions and dimensions of GW and aim thereby to contribute significantly to theory and practice. From the review, the need becomes clear to test the different definitions and to investigate more in-depth and in-practice GW. The current state of the art shows very much "conversation" and too little "action."

2. Focus: GW can be considered an umbrella term referring to different types of mismatch between theory and practice, such as the incongruities captured in social GW (also called "Bluewashing"), gender disparity ("Genderwashing" or "Femwashing"), digitalization ("Digiwashing"), downplaying disclosure of achievements ("Brownwashing"), etc. Researchers must specify clearly what type of GW they are studying to demonstrate what has been studied and clarify what actions should be taken.

3. Robustness: data based on perceptions are difficult to control, verify, replicate, and aggregate. Researchers should focus on a more robust methodology based on primary or secondary "hard data" as they are more stable and useful in terms of policy-making. In addition, the calculative methodology should be better tested and adopted by researchers in a wider range of fields to enable meta-analysis. Some have proposed certain GW calculations but they lack comparability as they refer to different datasets or different methodologies. Here, we suggest replication studies.

4. Practice and policy orientation: GW is a relevant and growing phenomenon of interest to policymakers, firms, practitioners, and researchers. Although the studies on hypothetical GW are relevant in testing methodologies and giving a first indication of the phenomenon, more explorative studies are required to understand why and how GW is done and consequently to develop models that can identify GW more precisely.

TABLE 8 GW limitations and research avenues.

Issue	Limitation	Research avenue
Limited number of empirical studies	Plethora of theoretical studies that are rarely tested. Little understanding of GW in practice	More empirical studies on GW
Focus mainly on the green dimension	Lack of understanding of the social dimension of GW (so-called bluewashing)	More empirical studies on bluewashing
Focus on hypothetical GW	Limited understanding of GW in practice	More empirical studies on real cases of GW
Adoption of only one definition of GW	Limited understanding of the complexity of the GW phenomenon	More empirical studies based on other definitions of GW
Focus on GW as "false information"	The phenomenon of brownwashing tends to be overlooked	More empirical studies based on brownwashing
Quantitative studies based on perceptions	Variability, reliability, and generalizability of the research results	More empirical studies on the perceptions of different stakeholders. Development of replication studies.
Quantitative studies based on calculations	Plethora of models and formulas.	More empirical studies based on calculations. Development of replication studies.
Quantitative studies are mainly based on secondary data	Standardization of the data; dependence on the data provided by databases.	More empirical studies based on hand-collected specific data

The last aspect we underline here regards different kinds of GW. As mentioned, many studies include the word "greenwashing" in the abstract or as keywords; yet, their focus is not on this issue. Several studies seem to use the term GW to attract readers to a hot topic even if the paper concentrates on other issues such as CSR reporting or CSR performance. This could be considered unethical behavior, similar to GW itself.

Table 8 summarizes the main issues discussed above, GW research limitations, and new research avenues.

6 | CONCLUSIONS

Although there is a growing body of literature on GW, a unitary definition of the concept is still lacking (Seele & Gatti, 2017; Walker & Wan, 2012). Understandings of GW are continuously evolving as different and more sophisticated practices develop. However, the way in which GW is conceptualized impacts its operationalization, which in turn affects the scholarly findings.

Therefore, arriving at unambiguous GW operationalization is becoming essential in academic reflection because the lack of clear measures to recognize GW could produce more drawbacks than environmental issues themselves. On the one hand, GW can be seen as a subset of fraud (Kurpierz & Smith, 2020), which could increase skepticism about green claims, thus discouraging even genuine CSR strategies (Chen & Chang, 2013; Lyon & Maxwell, 2011). On the other hand, without clearly defining GW, a "false GW" could emerge. Then, a company accused of GW can experience strong negative consequences such as reduced legitimacy and reputation damage, even if its CSR communication is not false or misleading (Seele & Gatti, 2017). Further, since many GW scandals are not directly related to a company's operations but

rather to its supply chain (Pizzetti et al., 2021), suppliers' involvement in a GW scandal could affect stakeholders' reactions to GW practices negatively.

It has been noted that public GW discussions are often polemic and based on inaccurate data. This kind of discourse should be distinguished from other "disinformation" (Lyon & Maxwell, 2011). Particularly, empirical research on GW in academic contexts should avoid creating a 'witch hunt' climate for companies they investigate. By ambiguously operationalizing GW (especially perceived GW), scrutinizing companies' risks that they will underreport in their environmental disclosure or performance (i.e., they will do "brownwashing"), thus reducing transparency for the market and the society.

This study aimed to provide an SMLR of how GW has been operationalized in empirical research within the BMA field. We discuss how methodological choices affect our understanding of the phenomenon. Our SMLR aims were to (1) identify best operationalizing practices, (2) highlight common hazards, and (3) develop recommendations for assessing the quality of models.

Our study has shown critical aspects of the extant empirical literature and the related research avenues. Overall, prior research indicates that the methodological and operational aspects of GW are often not suitably addressed and that the mechanisms for operationalizing GW need to be improved due to several limitations they have. Therefore, we require more research on what constrains GW operationalization and which solutions or methodological approaches could overcome them. We also need to develop GW measurement tools that could improve environmental management and guarantee a better alignment between performance and disclosure.

In all, even if the empirical studies examined here present less complexity than the theoretical ones do in terms of GW conceptualization, if they rely on the same definition they offer interesting perspectives regarding the various methodologies that can be used

to investigate the GW phenomenon, in terms of both causes and effects, and how it can be operationalized.

Our SMLR has some limitations that future research needs to take note of. Mainly, these are related to the limited scope of our review which focused only on the fields of business, accounting, and management of the last three decades and only on published articles. Such a focus could produce biased results and prevent the broad generalization of our findings. To overcome the narrow focus, similar studies would be necessary, to extend the current study's scope to include other research domains, a longer period of time, and unpublished research. Such future research could strengthen and cross-validate our findings.

Finally, our study could be limited by the fact that we considered GW as a multi-faceted phenomenon, which prohibited us from matching the different identified definitions, dimensions, and theoretical approaches with the codified methods. Future research could focus on specific GW dimensions to better understand whether and how they are related to a specific operationalization of GW.

CONFLICT OF INTEREST STATEMENT

None.

PEER REVIEW

The peer review history for this article is available at https://www.webofscience.com/api/gateway/wos/peer-review/10.1111/beer.12631.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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