

Governance Structure and the Credibility Gap: Experimental Evidence on Family Businesses' Sustainability Reporting

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Abstract This paper examines the success of corporate communication in voluntary sustainability reporting. Existing studies have focused on the perspective of the communicators but lack an understanding of the perspective of information recipients to clearly evaluate this interactive communication process. This paper looks at the issue of a credibility gap perceived by external stakeholders when they doubt the authenticity of communicated information due to the reporting company's governance structure. The paper uses family businesses to exemplify the emergence of such a gap when outsiders become concerned about the potential agency problem of the integrated ownership and management controlled by a few members of the same family. Following source credibility theory, these concerns raise a credibility gap associated with a family firm's trustworthiness and goodwill, even if the family has the expertise to carry out sustainability reporting. The findings of two experimental studies indicate that family businesses suffer a greater credibility gap than non-family businesses. An external and independent assurance service can mitigate such gaps, especially when the service is comprehensive and targets family businesses. The paper provides a complete view evaluating corporate communication by looking at the interaction between the communicating company and the information recipients.

Keywords Assurance · Credibility gap · External stakeholder · Family business · Governance structure · Sustainability reporting

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Introduction

Corporate reports are one of the main approaches a company uses to communicate with stakeholders by disclosing what they are interested in and need, such as sustainability reports of a company's ethical behavior tending to society and the environment (Cornelissen 2004). The success of such communication requires that the stakeholders judge the reported information as credible (O'Reilly and Roberts 1976). Information credibility is determined by how stakeholders perceive the expertise, trustworthiness, and goodwill of the reporting company (Perloff 2010). If stakeholders question any one of these three dimensions, they are likely to develop a credibility gap, resulting in limited confidence, trust, and acceptance of the information disclosed by the reporting company (Dando and Swift 2003; Hovland et al. 1953). Stakeholders would then have a less positive perception or even a negative reaction, such as avoiding any interaction with the reporting company (Fisher et al. 1979; O'Reilly and Roberts 1976).

The credibility issue is particularly relevant in sustainability reporting. A sustainability report is a report published by a company or organization about the economic, environmental, and social effects of its everyday activities. According to a recent KPMG (2015) survey on global companies, sustainability reporting is a voluntary reporting practice in most countries, without mandatory requirements on the contents. Compared to mandatory reporting, which provides only the required information, such as financial reports, voluntary sustainability reporting provides more information about a company's activities than merely financial outcomes, such as its environmental waste, energy portfolio, or working health and safety measures (Gray 1997; Thorne et al. in press). Although this type of information is not legally required, it plays an important

role in helping the decision making of various stakeholder groups, including the risk evaluation of investors' targeted companies, the ethical implications of consumers' purchases, and organizational attractiveness to potential employees (Axjonow et al. in press). However, its voluntary nature is more likely to be subject to a credibility gap when there is no mandatory standard to ensure the validity and reliability of the reporting process and contents (Gibbins et al. 1990; Harrison and van der Laan Smith 2015). With a credibility gap in the mind of stakeholder groups, the reporting company could fail to realize its intended benefits, such as building its reputation as an ethical company and elevating the market's evaluation of its social contributions (Gong et al. in press; Wang and Li 2016). This gap could even harm the reporting company and other companies with increasing societal pressure (Marquis et al. 2016). For example, governments, non-governmental organizations (NGOs), and the media have become more skeptical about car manufacturers' disclosures of the greenhouse gas emission of their vehicles since the exposure of Volkswagen's misleading reporting in 2015 (Campbell et al. 2016). The greater credibility gap resulted in more regulatory tests, decreasing sales on diesel vehicles, and loss of investor confidence.

The literature examines various factors that can influence stakeholders' evaluation of a reporting company's credibility, focusing on factors that determine the extent and quality of a company's sustainability reporting, including company size, governance structure,¹ industry norms, and governmental regulations (e.g., Lee in press; Marquis et al. 2016; Ortas et al. 2015). Studies also examine whether these factors would determine the employment of an independent and external party to perform assurance services to verify the report and improve the credibility (e.g., De Beelde and Tuybens 2015; Perego and Kolk 2012; Sethi et al. in press; Simnett et al. 2009). However, these studies focus mostly on the communicator's perspective in evaluating the credibility gap without understanding the other important party in this communication process: the recipients of such sustainability information. Since corporate communication and credibility are determined through the interaction between the information communicator and recipients (Perloff 2010), examination of the external stakeholders' perspective is required for a complete view of communication about corporate ethical behavior through sustainability activities.

This paper provides the recipient's perspective of corporate communication, that is, that of external stakeholders, to examine the credibility gap in sustainability reporting. It uses

source credibility theory to examine the gap resulting from the reporting company's governance structure and the role of assurance services to address such a gap. The study first considers the governance structure of the reporting company by focusing on family businesses. Family businesses provide an opportunity to exemplify the development of a credibility gap between internal and external members of a reporting company. This setting vividly illustrates the emergence of a credibility gap due to the agency problem associated with the dominance of a controlling family in the firm's governance structure, in which the integration of ownership and management is controlled by a few family members. This situation can increase information asymmetry and distrust between the controlling family and external, non-family stakeholders (Schulze et al. 2001; Wiseman et al. 2012), causing the latter to question whether the former is trustworthy and truly has the latter's interests at heart in sustainability reporting (Zientara in press). Thus, the family business setting allows this study to examine if the internal governance structure of the reporting company would result in a serious credibility gap as perceived by external stakeholders.

This paper then examines one of the common practices that a reporting company can take to address the credibility gap: having an additional assurance service assess the reported information (Dando and Swift 2003). By employing a more credible external party to verify the reported content, a reporting company might be able to mitigate its serious credibility gap associated with its own governance structure (Ackers and Eccles 2015; Owen et al. 2000), especially for family businesses. Since assurance services can vary in terms of levels of assessor effort and type, being subject to the influence of the controlling owner-managers of the reporting company (Curtis and Turley 2007), the study examines how these factors would interact with the reporting company's governance structure in determining external stakeholders' evaluation of the information credibility of a sustainability report. The results of the two experimental studies show that a family firm is indeed more likely to be subject to a greater credibility gap than a non-family firm is, even if both firms have the same expertise in sustainability reporting. Such credibility gaps can be mitigated by an external assurance service, which has more consistent positive effects on family firms than on non-family firms. The improvement is greater when the assessor provides a more detailed level of service to compensate for the reporting firm's credibility gap, especially for a family firm. However, there is no significant difference between different types of assessors (i.e., professional accountants or specialist consultants) for family and non-family firms.

This paper contributes to the corporate communication literature by examining the credibility gap and its reduction. The paper provides a different perspective from other

¹ In this paper, the term *governance* is used broadly to include ownership and management (Shleifer and Vishny 1997), rather than board-related corporate governance only.

studies, which tend to focus on the views of the reporting company and assurers. It complements communication studies with the viewpoint of the information recipients. Their role as outsiders can create a perception gap regarding the insiders working with(in) the communicating company, affecting the success of corporate communication. Additionally, consideration of the reporting company's governance structure indicates that the value of the assurance service does not depend purely on the assurers per se. It is jointly determined by the reporting company and the assurer through the evaluation of external stakeholders. Assurance services have greater and more consistent value when there are greater differences between the two parties' credibility. Furthermore, contrary to the positive views in family business studies (Campopiano and Massis 2015; Prado-Lorenzo et al. 2009), this paper presents the possible disadvantages of the sustainability reporting of a family business, since external stakeholders may question report credibility even if the controlling family has the ability to communicate with stakeholders. The findings suggest that a family firm can overcome external stakeholders' skepticism through the adoption of assurance services, which are undervalued in the literature (Barako et al. 2006; Salvato and Moores 2010). This paper presents a more complete view of corporate communication. The success of corporate communication in terms of its credibility is socially determined by multiple parties, including the communicator and the information recipients, and this can be an influential factor if the reporting company maintains its ethical behavior in corporate sustainability in the long run.

Theoretical Background

Emergence of the Credibility Gap in Sustainability Reporting: Source Credibility Theory

Credibility is critical to the success of communication in which the information provider tries to convince the recipient about the communicated content (Hovland et al. 1953). Credibility is defined as a value resulting from the information recipient's perception of the expertise, the intention of the information provider (Hovland et al. 1953, pp. 21–22), and their trust of the validity of the communication (Giffin 1967). The recipient uses three core characteristics to determine the credibility of the information provider, that is, the source (Perloff 2010): first is *expertise*, whether the source has knowledge or skill in the communicated content; second is *trustworthiness*, if the source has the honesty and integrity to be transparent about its actions; and the third is *goodwill*, if the source has the recipient's interests at heart. If a recipient has concerns about one of

these characteristics, the source is likely to be perceived as having low credibility and the recipient is less likely to use the communicated information for his/her decision-making process (Birnbaum and Stegner 1979).

Source credibility is particularly important for sustainability reporting. Sustainability reporting is a voluntary practice through which companies disclose information about their ethical behavior to society, such as its involvement in environmental protection or in the local community (Gray 1997). However, there is no mandatory regulation that guarantees the validity of the reported content. Stakeholder belief and trust in the reported information are further required (Reynolds and Yuthas 2007). Sustainability reporting is one of a firm's stakeholder management strategies in dialoging with stakeholders and responding to their demands (Ullmann 1985). If stakeholders do not trust the reports and incorporate related information into their decision making, the purpose and success of sustainability reporting in presenting business ethics will be nullified (Gray 1997).

Stakeholders' concerns about source credibility can be called the *credibility gap*. It is defined as stakeholders' lacking of trust in the ability or intention of the reporting company (Dando and Swift 2003). It causes stakeholders to have little confidence in the authenticity of company claims in the report. The voluntary nature of sustainability reporting further reinforces this credibility gap. A company can strategically choose what to disclose about its actual behavior, especially unethical behavior (Wang and Li 2016). The reality can even differ from what the reporting company discloses in a report. For instance, the reporting company could claim that it supports a local community but show no concrete evidence of which community and how it is supported (Cerin 2002). Selective disclosure or even the omission of sustainability information can raise stakeholders' concerns about the reporting company's potential credibility gap (Perloff 2010, p. 174).

The credibility gap can undermine the goal of sustainability reporting to improve the company's stakeholder relationships, such as resulting in fewer investments by financial analysts and lower consumer purchases (Connors et al. in press; Pflugrath et al. 2011). When individuals perceive that the information is from a less credible source, that is, the company itself, instead of an independent organization, such as an NGO (Swaen and Vanhamme 2005), the resulting credibility gap prevents them from believing the report. They may even perceive the company as unethical and not assuming accountability of its own social impact (Dando and Swift 2003), despite its voluntary disclosure about its sustainability activities. The emergence of a credibility gap offsets the reporting company's goal of communicating its ethical behavior to maintain good stakeholder relationships.

Rise of the Credibility Gap from the Agency Problem in Corporate Governance: Family Ownership and Management

Several factors can raise the credibility gap, depending on the factors that are either internal or external to the reporting company. This section first addresses the internal factors: the reporting company's governance structures in ownership and management and the resulting influence on external stakeholders' perception of the reporting company's trustworthiness and goodwill, despite its expertise. Governance structure captures the influence of the controlling owner-managers' interests and power in the firm's voluntary disclosure (Wang and Li 2016). The structure determines if the reporting company has an incentive to disclose sustainability information voluntarily (Chau and Gray 2002). If the controlling owner-managers care only about their own interests without goodwill toward the other stakeholders, the reporting company is less likely to disclose sustainability information that is not necessarily beneficial to its financial returns (Prado-Lorenzo et al. 2009), limiting its trustworthiness. Additionally, governance structure represents whether the owners and managers are monitored through voluntary reporting (Barako et al. 2006). If the reporting company lacks an appropriate monitoring system, potential agency problems could arise and undermine the transparency regarding the trustworthiness of the disclosure (Ali et al. 2007).

In agency theory, problems arise when the misalignment of interests between organizational members, such as a Type I agency problem between owners and managers, induces information manipulation and asymmetry to benefit a particular party (Gong et al. in press; Jensen and Meckling 1976; Pagano and Röell 1998). One way to address a Type I agency problem is to integrate the owner and managers, as in family businesses, where the family members of the controlling owners are also involved in the top management team (Fama and Jensen 1983). Compared to non-family businesses with separate ownership and management, the integration of ownership and management in family businesses could provide a stronger incentive and coordinative ability to voluntarily publish more information, such as sustainability reports. By publicizing the firm's ethical behavior in helping society and the environment, the controlling family can improve its private reputation, which is closely tied to the firm's reputation (Prado-Lorenzo et al. 2009). As a result of sustainability reporting and the reputational benefits, the controlling family can expect to elicit the stable support of external non-family stakeholders for the family's continuous reign of the company over generations (Campopiano and Massis 2015).

However, family businesses are subject to another type of agency problem (Type II agency problems between

shareholders; Morck et al. 2005): that between the family and non-family stakeholders (Coffee 2005). This type of agency problem is likely to create a more serious credibility gap when the problem extends beyond the owners and managers to a broader group of stakeholders who are not family members. Since the controlling family tends to prioritize its interests first, especially when the family's interest is in conflict with the firm's or other stakeholders' interests (Schulze et al. 2001), it can raise external and non-family stakeholders' skepticism about the actions of the family business, including sustainability reporting. If a firm's decision clashes with the family's interests—for example, innovation, acquisition, and accounting practices that would undermine the family's control—the controlling family would use its governing ability to prevent such a decision (Gomez-Mejia et al. 2011; Morck and Yeung 2003). The family-first mindset would induce external stakeholders' questions about the family's goodwill dimension regarding its sustainability activities targeted at non-family stakeholders, even if the controlling family has expertise in organizing those activities (Zientara in press).

External stakeholders' concerns about the controlling family's goodwill can later raise questions about the family's trustworthiness in reporting practices. The governance structure with integrated ownership–management and the controlling family's dominance implies less pressure and monitoring by non-family owners and managers (Barako et al. 2006). This situation allows the family to selectively disclose sustainability information to protect its interests, given the existing evidence that family businesses tend to avoid being associated with any negative sustainability information (Bingham et al. 2010; Dyer and Whetten 2006). In the eyes of external stakeholders, the controlling family is not under pressure to voluntarily disclose too much information that could otherwise jeopardize its power (Chau and Gray 2002), undermining the trustworthiness dimension of the credibility. Therefore, even if the family firm has the expertise and motive to publish credible sustainability reports, it could suffer from a large credibility gap as perceived by external and non-family stakeholders with concerns about its goodwill and, later, about its trustworthiness to fully present information.

Hypothesis 1 (H1) External stakeholders will perceive a sustainability report published by a family firm as less credible than if it had been published by a non-family firm.

Finding Rescue: External Assurance Services

The other important aspect affecting the credibility gap is the external factors of the reporting company. The reporting company's credibility can depend on the degree of pressure in the environment, including regulations, the

industry, and the market (Gibbins et al. 1990) or the assurance services provided by an external party (Harrison and van der Laan Smith 2015). Assurance service is defined by the International Federation of Accountants (IFAC 2013) as an engagement in which the practitioner obtains sufficient evidence to reach a conclusion designed to enhance the information users' confidence in the assured information. A reporting company can voluntarily decide to hire an external assessor to examine its reports, especially a voluntary sustainability report. This voluntary decision aims to improve the credibility of such voluntary disclosure through the credibility of the assessor (Ackers and Eccles 2015), particularly for a reporting company that suffers a great credibility gap, such as utility firms with greater environmental impacts (De Beelde and Tuybens 2015; Sethi et al. in press; Simnett et al. 2009) and, similarly, family firms.

However, a few family business studies on assurance services have an uncertain view of the value of assurance to family businesses. Family business scholars believe that the integration of ownership and management can provide a self-sustained incentive and monitoring system for reporting practices (Barako et al. 2006). The governance structure of family businesses can reduce agency costs, limiting the value of external assurance as an additional monitoring procedure to ensure information credibility (Salvato and Moores 2010). Despite this uncertain view, in the eyes of external stakeholders, assurance services still have value for family businesses, even if such services provide only symbolic value. In source credibility theory, when external stakeholders, as information recipients, perceive two sources of differing credibility, they are more likely to be persuaded by the communicated information. Even if the source of the content (i.e., the reporting family business) is perceived as having lower credibility, it can be compensated by the high credibility of the communicator (i.e., the assessor), improving stakeholders' perceptions (Hovland et al. 1953).

Assessors are believed to have higher credibility due to their expertise in checking whether the reported information is supported by objective evidence (Owen et al. 2000; Power 1997). Assessors need to follow international standards to perform their services, such as the AccountAbility 1000 Assurance Standard (AA1000AS) and the International Standard on Assurance Engagements (ISAE) 3000. These standards specify the assurance procedures that ensure assessors demonstrate professionalism and integrity (Simnett et al. 2009), representing not only the expertise but also the trustworthiness dimension of credibility. Additionally, assessors need to be external to and independent of the reporting company (Ackers and Eccles 2015), suggesting that, to a certain extent, their goodwill represents the interests of external stakeholders instead of

the reporting company. Therefore, assurance is argued to benefit a family firm when the assessors appear more credible than the reporting company in the mind of external stakeholders, because assessors have expertise in assurance procedures to improve the trustworthiness of the assured information with their goodwill as external parties.

Hypothesis 2a (H2a) External stakeholders will perceive a sustainability report published by a family firm as more credible if the report is assured.

Additionally, external assurance could provide much greater value for family businesses than for non-family businesses in terms of addressing the credibility gap. Following source credibility theory, the greater the difference in credibility between the sources, that is, the reporting firm and the assessor, the more effectively the high-credibility source (i.e., the assessor) can address the credibility gap of the low-credibility source (Hovland et al. 1953). Since family businesses are proposed as having a greater credibility gap than non-family businesses, the former may enjoy more benefits than the latter from external assurance.

Hypothesis 2b (H2b) Improvement in the credibility of an assured sustainability report is greater if the report is published by a family firm than by a non-family firm.

Extent of Rescue Needed: Levels of Assurance Service

Although external assurance can help address the credibility gap, its value differs depending on assurance levels in terms of the time spent on the assurance process, the procedures performed by the providers, and the form of conclusion in the final assurance report (Sethi et al. in press). It represents the interaction between the external assurance service and the internal owner-managers of the reporting company. When the reporting company voluntarily adopts an external assurance service for a sustainability report, it can determine the level of assurance service it wants the provider to perform (O'Dwyer et al. 2011).

There are two levels of services: *reasonable assurance* and *limited assurance* (AccountAbility 2008; IFAC 2013). Table 1 presents the differences between the two levels. For the assurance process, limited assurance spends less time on mostly analytical procedures and the inquiries of internal stakeholders, such as employees. Reasonable assurance, instead, takes more time on much extensive procedures, such as third-party confirmations, observations, and inspections (IFAC 2013). It involves more data than limited assurance to secure report users' confidence (Hasan et al. 2003; Hodge et al. 2009; Schelluch and Gay 2006). Reasonable assurance can issue positive forms of

Table 1 Differences between limited and reasonable levels of assurance services. Source: ISAE 3000 (IFAC 2013)

	Limited level	Reasonable level
Timing	Less time spent in the assurance procedures	More time spent in the assurance procedures
Extent of procedures	Limited procedures, mainly through a quantitative approach with analytical practices on figures obtained from internal managers	Extensive procedures, including both quantitative and qualitative approaches, such as observation and confirmation with third parties
Conclusion in the assurance report	Negative form in indirectly expressing the assessor was not aware of potential material misstatements in the assured report from a limited period of limited procedures	Positive form in directly expressing the assessor's opinion whether the assured information is fairly presented after a long period of extensive procedures
Specifications of the assurance standard	Few requirements due to limited procedures and a negative form of conclusion	Stricter requirements regarding the assurance processes before the assessor can issue a positive form of conclusion

statements with terms such as *effective in all material respects* or *free from material misstatement*. In contrast, limited assurance can only use negative forms of statements, such as *nothing has come to our attention* or *we have not detected material errors* (IFAC 2013).

These differences lead to different levels of effectiveness of assurance services addressing the credibility gap. Reasonable assurance is expected to be more effective in addressing the credibility gap than limited assurance is. The former requires more time and its assurance procedures are under stricter assurance standard requirements than the latter are (IFAC 2013). For external assurance, reasonable assurance implies that the assessors have gathered more information to support the credibility of a sustainability report, such as trustworthiness in its transparency and completeness (Hasan et al. 2003; Schelluch and Gay 2006). Additionally, the resulting positive form of the assurance report provides a more reliable indication of the quality of the assured information to prove its trustworthiness than the negative form of limited assurance does. A positive form of statement signals assessors' confidence in whether the assured information is faithfully presented, after detailed and careful data collection and analytical processes. It also signals a greater level of responsibility taken by the assessors to endorse the assured information (Mock et al. 2007). Through reasonable assurance, assessors show high credibility with greater expertise to ensure the trustworthiness of the reported content.

However, some scholars question the value of reasonable assurance for family businesses with a large credibility gap. They argue that the integration of ownership and management allows the controlling family to have greater discretion in intervening in assurance procedures when assessors gather data from the internal managers, undermining the assurance's effectiveness (Coffee 2005; Fan and Wong 2005). Additionally, the dominance of the controlling family renders it less sensitive to differences in assurance results when there is a lower probability of punitive action imposed by limited numbers of external

shareholders for a negative form of assurance statement (Ballesta and García-Meca 2005). These scholars argue that the integration of ownership and management in family firms can potentially compromise the assurance level (Ball et al. 2000), undermining the expertise dimension of the assessor's credibility to address the credibility gap.

Despite the potential of expertise being compromised in a family firm, assessors are expected to maintain their trustworthiness via faithfully reporting any limitations imposed by the managers in the final statement targeted at report readers. Assessors cannot issue a positive form report if the procedure is limited by the managers (IFAC 2013). Even if the expertise dimension of assurance procedures is constrained in a family firm, assessors will maintain their trustworthiness when they perform reasonable assurance by following well-established assurance standards (Harrison and van der Laan Smith 2015). Therefore, reasonable assurance can still address the credibility gap for a family firm more effectively than limited assurance can when the former has higher trustworthiness due to the requirement of full transparency about the assurance processes.

Hypothesis 3 (H3a) External stakeholders will perceive an assured sustainability report published by a family firm to be more credible when the assurance is reasonable rather than limited.

Given that reasonable assurance has higher credibility than limited assurance, its value is likely to be greater when there is a greater credibility difference between the assessor and the reporting company, according to source credibility theory (Hovland et al. 1953). Since a family business is argued to suffer from a greater credibility gap than a non-family business is, the credibility difference between the assessor and the reporting company would be the greatest for reasonable assurance and a family firm and the least for limited assurance and a non-family firm. By addressing the largest credibility difference, reasonable assurance will have the greatest value.

Hypothesis 3b (H3b) Improvement in the credibility of a reasonably assured sustainability report is greater if the report is published by a family firm than by a non-family firm.

From Whom to Seek Rescue: Types of Assurors

The type of assurator is another important factor in the assurance's effectiveness (O'Dwyer 2011; O'Dwyer and Owen 2007). Currently, there is no regulation on what kinds of organizations can provide assurance services (Junior et al. 2014). Compared with financial assurance, which can be performed only by accountants and financial auditors, the assurers of sustainability reports can vary from traditional financial auditors to consultants specialized in issues of environment, society, or management systems. As long as the assurers can maintain goodwill as independent parties, possess expertise related to the disclosed information, and have been trained in assurance techniques, they are eligible service providers (IFAC 2013; Wallage 2000).

Previous studies have mixed views on which types of assurers can provide greater value in addressing credibility gaps. Wallage (2000) provides insights from large professional accounting firms and argues that financial accountants have more advantages than specialist consultants do. Accountants' experience in large multidisciplinary firms enables them to employ a more comprehensive approach to verify a cross-discipline sustainability report (Ball et al. 2000). Their experience in financial assurance makes them appear more competent than non-accounting assurers, even if they perform a limited level of assurance (Ackers and Eccles 2015). Their involvement in financial assurance also comprises their goodwill as professional and independent assurers. This drives them to maintain their expertise and goodwill dimensions of credibility (Martínez-Ferrero and García-Sánchez in press; O'Dwyer 2011).

Regarding specialist consultants, some scholars believe that they provide different value from what accountants provide. Consultants tend to possess professional knowledge of the sustainability issues in the specific industry in which the reporting company is located. Martínez-Ferrero and García-Sánchez (in press) conduct a longitudinal examination on sustainability reporting and assurance across different countries. They find that specialist consultants' knowledge about the risks associated with the reporting company's industry allows them to better detect potential errors in the company's sustainability report. Additionally, compared with accountants who face reputational constraints from financial assurance, consultants can provide more innovative services (O'Dwyer 2011). They try to adopt a more holistic approach with robust

procedures and focus on various stakeholders' interests (O'Dwyer and Owen 2005, 2007). Consultants' credibility comes from their knowledge and comprehensive approach in the expertise dimension.

Despite consultants' credibility in expertise, their services may not provide as much value as accountants for a reporting company with a large credibility gap, such as a family firm, in the eyes of external stakeholders. Unlike accountants who also perform financial assurance services, consultants do not have credibility developed in other sectors that can signal their expertise in assurance services per se (Gray 2000). Additionally, external stakeholders may perceive that consultants' assurance is merely an extension of their consulting services and would question whether they are truly independent to maintain goodwill toward the stakeholders' interests (Ball et al. 2000). Instead, accountants' reputation in financial assurance services not only provides the foundation for their credibility in sustainability assurance, but also drives their actual efforts to maintain the independence and rigor of their procedures (Ackers and Eccles 2015). Thus, for external stakeholders, accountants may appear more credible than consultants in terms of goodwill as independent assurers, even if the latter's expertise is in sustainability issues.

Hypothesis 4a (H4a) External stakeholders will view an assured sustainability report published by a family firm as more credible when the report is assured by a professional accounting firm than when it is assured by a specialist consultant.

Accountants' services may be more valuable for a family business than for a non-family business due to the argument of source credibility theory that the greater the difference in credibility between the sources, the more the credibility gap can be addressed (Hovland et al. 1953). Since accountants are more likely to be perceived as being highly credible than specialist consultants are, they are likely to provide more value in addressing the credibility gap of the reporting company and more so for a family firm with a greater gap than for a non-family firm.

Hypothesis 4b (H4b) Improvement in the credibility of a sustainability report assured by a professional accounting firm is greater if the report is published by a family firm than by a non-family firm.

Methods and Results

This paper involves two experimental studies recruiting different external stakeholder groups to test the hypotheses. Study 1 targeted individuals working in NGOs addressing

European sustainability issues, where NGOs are an important actor that can influence the decision making of companies through different social activities such as campaigns, research, partnership, and lobbying (Doh and Guay 2006). Study 2 targeted individuals among the general public without ex ante experience or knowledge of sustainability and recruited the sample from North America.

Study 1: Family Business Credibility

Study 1 was a within-subject experiment designed to increase the numbers of observations and control for the effects of individual heterogeneity (Martin 2007, pp. 152–154). The sample was obtained from different NGOs in Europe, where NGOs are important external stakeholders of companies due to their influence on governments, regulations, and the general public (Keim 2003). The sample was extracted from the database of the United Nations' Integrated Civil Society Organizations System and the NGO's website if the NGO was not included in the database. The focus on European organizations avoided cross-cultural explanations of participants' perceptions of the value of assurance (Kolk and Perego 2010).

The initial sample included 1547 individuals working at 898 NGOs who were contacted via e-mail and phone calls. After excluding respondents who were not familiar with sustainability issues or reporting, the final sample comprised 167 valid responses, which confirmed the manipulation difference across conditions ex post. To understand the non-respondent bias, 382 non-respondents were contacted. Reasons included being too busy, no interest, a colleague from the same NGO had already agreed to participate, on vacation, or a language barrier (since the entire experiment was conducted in English).

In the final sample, first, most of the respondents worked on social issues (28.03%), environmental issues (25.48%), and other issues (16.56%), with an average of 8.11 years (SD = 8.22) of work experience. Second, most of the participants held a managerial position (68.57%). Third, 52.23% of the respondents were male, 63% of them were 25–34 years old, and the majority (83.33%) held a college degree or higher.

Procedures and Measures

After a respondent was contacted and had agreed to participate in the study, the respondent was sent an individualized link to an online questionnaire containing the experimental materials (see the “Appendix”). Once the respondent started the questionnaire, he/she was first briefed with the definition of sustainability reporting and then presented with a three-page summary of the sustainability information of a hypothetical pharmaceutical firm,

Company XYZ. The first half a page presented background information on the company, followed by two and half pages of environmental and social information, adapted from a real sustainability report. Afterward, the respondents read the information about the governance structure of the reporting company and a one-page assurance statement adapted from the format provided by the AA1000AS (AccountAbility 2008) and the ISAE 3000 (IFAC 2013), which depended on the experimental conditions.

There were six conditions to test H1, H2a, H3a, and H4a by focusing on the credibility gap of a family firm. The first two conditions tested H1 by comparing the credibility difference between reporting companies with different governance structures, namely, a family and a non-family business without any assurance service. The rest of the four conditions tested other hypotheses by focusing on a family business and assurance service factors (testing H2a regarding a family business with assurance), the *level of assurance* (limited or reasonable for H3a), and the *type of assurator* (professional accountant or specialist consultant for H4a). All six conditions were presented to the respondent, but in a randomized order to eliminate concerns about threats to the internal validity of a within-subject experiment, such as maturation, history, and selection by maturation (Judd et al. 1991; Martin 2007).

For each condition, the respondent read information about the governance structure of the reporting company. The non-family firm was described of having widely dispersed ownership and separation of management and ownership. The conditions for the family firm adopted the definition of Shanker and Astrachan (1996), with more than two family members holding more than 15% of total shares and having positions in the top management team, such as the chief executive officer and the chairperson of the board.

Meanwhile, the respondent also received information about the assurance service. Under conditions of no assurance, there was no assurance information. Under assurance conditions, the respondent received a one-page assurance statement adapted from the format provided by the AA1000AS (AccountAbility 2008) and the ISAE 3000 (IFAC 2013). The variations of conditions were mainly described in the introduction, methodology, conclusion, and signature paragraphs of the statement. For levels of assurance, under conditions of reasonable assurance, the manipulated information (see the “Appendix”) included the wording *reasonable assurance* in the introductory paragraph and presented more assurance procedures, such as third-party inquiries and checking the quantitative data, in the methodology paragraph. The conclusion was in a positive form: “The information stated, in all material respects, is fairly stated.” Under limited assurance conditions, the wording in the introductory paragraph was replaced with *limited assurance*, the methodology

paragraph limited the procedure to the analytical procedure, and the conclusion was in a negative form, namely “Nothing has come to our attention causing us to believe that XYZ does not adhere to the reporting principles.” Regarding the assurers, the information differed in the introduction and signature paragraphs, where an accounting firm or a consulting firm was presented as the responsible party for the assurance statement.

After the respondent finished reading the governance and assurance information for each condition, the respondent was asked to rate the credibility of the sustainability information he/she had read. The dependent variable *information credibility* was adapted from Newell and Goldsmith (2001) and has been used by other scholars to measure the dimensions of informativeness and the reliability of information credibility (Hodge et al. 2009; Romero et al. 2014). The respondent was asked to evaluate the questions “How confident are you that the report represents the sustainability performance of the reporting company?” and “How reliable do you think the information is in the report?” through a seven-point Likert scale. Cronbach’s alpha reliability coefficient was 0.98. Control variables included the demographic variables *gender*, *age*, *education*, *work tenure*, and *position*. Additional control variables included the respondents’ *pre disposition toward sustainability reporting* and *familiarity with sustainability issues and reporting* (Romero et al. 2014), with a seven-point Likert scale.

Results Table 2 presents the descriptive statistics of the experimental results. The significant correlation between the assurance service and perceived information credibility comprises preliminary evidence of the value of the assurance service. The significant correlation of the assurance service with the assurance level (but not with types of assurers) could indicate that the main effect is due to the assurance procedure. Other correlations are mostly small and non-significant. No issue of multicollinearity among these variables was found after examination of the tolerance and variance inflation statistics.

H1: Credibility gap of family businesses Figure 1 presents the respondents’ average perceptions of information credibility across different conditions. Table 3 presents the *t* test results by comparing the information credibility evaluated by respondents across conditions. The *t* value [$t(166) = -3.13$] of the comparison between the conditions under which both a family firm and a non-family firm have no assurance supports H1. As shown in Fig. 1, external stakeholders think that the same sustainability report from a non-family business (with mean 3.41) is more credible than one from a similarly competent family business (with mean 3.16), implying the more serious

credibility gap of the latter, controlling for expertise dimensions.

H2a, H3a, and H4a: Assurance for family businesses In the second row of Table 3, the results support H2a, with significant improvements of information credibility when a family business has adopted an assurance service to address the credibility gap of its sustainability report. The results also show that reasonable assurance leads to higher perceived information credibility than limited assurance does [$t(166) = 5.51$ and $t(166) = 5.24$ for assurance provided by specialist consultants and accountants, respectively], supporting H3a. However, the results do not show a significant difference between the types of assurers, for either limited assurance [$t(166) = -0.65$] or reasonable assurance [$t(166) = -1.35$]. External stakeholders do not perceive the information credibility differently between reports assured by specialist consultants or professional accountants. Therefore, H4a is not supported.

A factorial repeated measures analysis of variance (ANOVA) was further performed to examine the interaction effect of assurance levels and assurers on information credibility. As shown in Table 4, Model 1 presents the effect of assurance service per se for family businesses. Assurance service had a significantly positive effect ($F = 10.01$, $p < 0.001$) on information credibility, supporting H2a. Model 2 examined the assurance service factors and showed a significant effect of assurance levels ($F = 45.14$, $p < 0.001$). Reasonable assurance leads to greater perceived credibility than limited assurance does, supporting H3a. However, ANOVA did not show any significant main effect of the assurers ($F = 1.69$, $p = 0.195$) or its interaction with assurance levels ($F = 0.21$, $p = 0.649$), not supporting H4a. The results indicate that the type of assurer does not play a significant role in external stakeholders’ evaluation of the sustainability information of family businesses.

The overall results of Study 1 support H1, H2a, and H3a, in that a family business is likely to be subject to a greater credibility gap than a non-family business is and the former can mitigate the gap by adopting an assurance service, particularly a more thorough service. Given that sustainability information and business descriptions were the same across conditions, Study 1 excludes the credibility gap resulting from external stakeholders’ concerns about the expertise dimensions of the reporting company. It is probably due to the trustworthiness and goodwill dimensions of the source’s credibility. To address such a credibility gap, the reporting company can benefit from the credibility of external assurance, especially from the trustworthiness of different assurance levels, since different assurers could share similar extents of goodwill as independent parties.

Table 2 Study 1: means, standard deviations, and correlations

Variables (<i>N</i> = 167)	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Information credibility (all conditions)	4.20	1.16										
2. Effect of the assurance service ^a	1.48	1.25	0.25**									
3. Effect of assurance levels ^b	0.41	0.79	0.00	0.41***								
4. Effect of types of assurers ^c	-0.67	0.67	-0.02	0.02	-0.09							
5. Age	4.76	1.23	-0.05	-0.03	-0.03	0.01						
6. Education	2.86	0.81	-0.01	0.01	0.14 [†]	0.02	0.22**					
7. Manager	1.31	0.47	-0.03	0.07	0.05	-0.08	-0.30***	-0.13				
8. Years	8.11	8.22	-0.11	-0.04	0.02	0.03	0.67***	0.04	-0.18*			
9. Attitude toward sustainability reporting	6.41	1.15	0.08	0.10	0.02	-0.07	0.02	-0.05	0.10	0.04		
10. Experience in sustainability reports	0.63	0.49	-0.04	0.05	0.04	-0.05	0.12	0.05	0.07	0.03	0.15 [†]	
11. Experience in sustainability issues	0.71	0.46	0.02	-0.05	-0.10	0.19*	-0.01	0.01	-0.05	-0.03	-0.03	0.40***

[†] $p \leq 0.10$

* $p \leq 0.05$

** $p \leq 0.01$

*** $p \leq 0.001$

^a The average difference in perceived information credibility levels between assurance conditions and conditions without assurance

^b The average difference in perceived information credibility levels between reasonable and limited assurance conditions, controlling for assurers

^c The average difference in perceived information credibility levels between professional accountants and specialist consultants, controlling for assurance levels

However, Study 1 does not directly measure the source's credibility. Although a within-subject design can reduce the required numbers of responses and the potential bias of individual heterogeneity, potential fatigue effects could bias the responses when respondents go through all the experimental conditions (Martin 2007). This factor limits the length of the experimental design in Study 1, since it does not measure source credibility and also prevents the conditions from including non-family businesses with assurance to test H2b, H3b, and H4b. Study 2 addresses these issues with another experimental design.

Study 2: Comparison of Family and Non-Family Businesses

Study 2 replicated Study 1 with a between-subject experiment. The factorial design was 2 (family/non-family governance structure) \times 2 (assurance level – limited/reasonable) \times 2 (assurers – consultants/accountants) + 2 (family/non-family governance structure without assurance), with the latter two conditions as control conditions. A participant was randomly assigned to one of these 10

conditions, instead of experiencing all the conditions in a randomized order in a within-subject experiment as Study 1. This between-subject design of Study 2 should avoid the issues of Study 1, with a more balanced design to test all the hypotheses.

The sample was recruited from an online platform, with a general public living in North America. It provides a different perspective of external stakeholders from that of the NGO sample of Study 1. Unlike NGOs, the general public does not necessarily have professional knowledge of sustainability issues. This can further control the expertise dimension of source credibility when the information receivers lack professional knowledge to evaluate the expertise of the source, in addition to using the same report across conditions. After responses that failed the manipulation or attention checks were excluded, the sample comprised 335 effective responses. Male respondents accounted for 47.16% of the sample. More than 80% of participants held a bachelor's degree or higher and the average income was between \$40,000 and \$50,000. The distribution of industries varied, with professional services consisting of the highest percentage (18.21%).

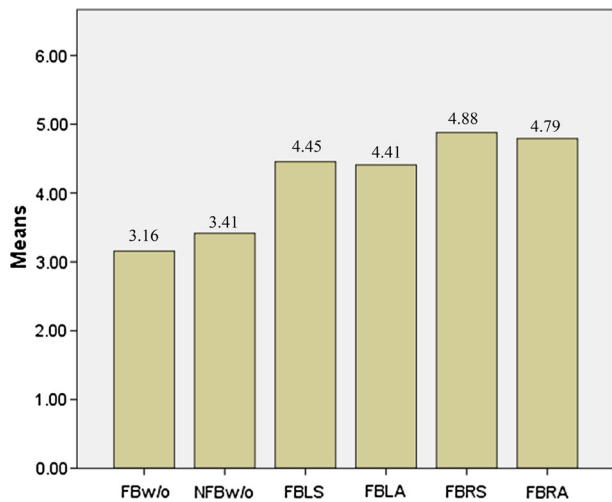


Fig. 1 Study 1: means of perceived information credibility under different conditions. The term *FBw/o* denotes a family firm without assurance, *NFBw/o* indicates a non-family firm without assurance, *FBLs* denotes a family firm with limited assurance provided by specialist consultants, *FBLA* represents a family firm with limited assurance provided by professional accountants, *FBRS* denotes a family firm with reasonable assurance provided by specialist consultants, and *FBRA* indicates a family firm with reasonable assurance provided by professional accountants

Procedures and Measures

A call for study participants was first posted on an online crowd-sourcing platform. When participants saw the post and agreed to participate in the study, they were provided with a link to an online questionnaire with the experimental materials. At the beginning of the questionnaire, the respondent read the definition of sustainability reporting. Afterward, the information was varied according to

randomly assigned experimental conditions. The respondent first read a short description of the reporting company, which is a publicly listed company producing household cleaning products. The governance structure differed by conditions, that is, a family or a non-family business, depending on whether more than 15% of ownership and key managerial positions are controlled by a few members of the same family (Shanker and Astrachan 1996). Then, the respondent read a one-page infographic of the sustainability report (shown in the “Appendix”) with the company’s main achievements in terms of product quality, environmental impact, and donations, along with the assurance information. The assurance information differed by conditions. Under control conditions, no assurance service was performed on the report, to examine H1 regarding the credibility gap directly caused by the governance structure of the reporting company. Under assurance conditions (for H2a and H2b), the respondent received information about the level of assurance service in terms of procedures (limited or reasonable level), the conclusion (positive or negative form for H3a and H3b), and the assurator, whether a consulting or an accounting firm (for H4a and H4b).

After reading the assurance information, the respondent was asked to evaluate the *credibility* of the *reporting company*, the *assuror* (in assurance conditions), and the *sustainability report*. The evaluation of the source’s credibility, that is, the reporting company and the assuror, included trustworthiness (direct item), honesty (alternative trustworthiness item), and sincerity (goodwill item; Connors et al. in press; Ohanian 1990). Cronbach’s alpha was 0.91 for the reporting company’s credibility and 0.90 for the assuror’s credibility. The measure of the information

Table 3 Study 1: *t* values from *t* tests on the mean differences in information credibility between conditions

	Family firm without assurance	Family firm with limited assurance by specialists	Family firm with limited assurance by accountants	Family firm with reasonable assurance by specialists	Family firm with reasonable assurance by accountants
Non-family firm without assurance	-3.13***	10.38***	9.45***	12.38***	11.51***
Family firm without assurance		13.67***	13.14***	14.98***	13.92***
Family firm with limited assurance by specialists			-0.65	5.51***	4.40***
Family firm with limited assurance by accountants				5.76***	5.24***
Family firm with reasonable assurance by specialists					-1.35

N = 167

*** *p* ≤ 0.001

Table 4 Study 1 and Study 2: *F* values from ANOVA^a and ANCOVA

Variables	Study 1		Study 2	
	Model 1	Model 2	Model 3	Model 4
Assurance service	10.01***		12.17***	
Assurance level		45.14***		5.24*
Assurors		1.69		2.25
Family business			7.12**	1.45
Interactions				
Family business * Assurance			4.54*	
Assurance level * Assurors		0.21		0.38
Assurance level * Family business				2.94 [†]
Assurors * Family business				0.31
Assurance level * Assurors * Familybusiness				0.18
<i>N</i>	167	167	335	238 ^b

[†] $p \leq 0.1$

* $p \leq 0.05$

** $p \leq 0.01$

*** $p \leq 0.001$

^a Pillai's trace statistics are reported due to their greater robustness than that of other test statistics if sampling assumptions are violated (Hair et al. 2013, pp. 366–367). Other test indices have the same *F* values as those of Pillai's trace

^b Analysis based on conditions with assurance service

credibility of the sustainability report used the scale of Connors et al. in press, adapted from previous scales (Hodge et al. 2009; MacKenzie and Lutz 1989). The respondent was asked to evaluate the sustainability report based on six attributes, whether the report was believable, convincing, truthful, realistic, credible, and reliable, with a Cronbach's alpha of 0.93. All these measures used a seven-point Likert scale. The control variables included the participants' age, education, and familiarity with sustainability reports. Their occupation was also controlled for, as each industry has different norms regarding corporate disclosure (Gibbins et al. 1990; Pflugrath et al. 2011).

Results The descriptive statistics are shown in Table 5. Information credibility is significantly correlated with the source credibility of the reporting company and the assurance service. Although a family business is not significantly and directly correlated with information credibility, it is correlated with source credibility. It could affect external stakeholders' evaluation of sustainability reporting through their evaluation of the reporting company. A similar situation occurs for the correlations between the assurance service variables and assessor credibility, which is analyzed under assurance conditions only ($n = 238$; details not presented here for brevity but available upon request). Assessor credibility is significantly correlated with information credibility, assurance level, and assurers. Although the assurance level is still significantly and directly correlated with information credibility, the type of assessor is not.

Given that information credibility is likely to be influenced by the source credibility of the reporting company and the assessor, the credibility measures of both parties were controlled in the analysis of covariance (ANCOVA), with the results being presented in Table 4.

H1: Family business credibility gap Figure 2 presents the means of the information credibility of sustainability reporting across all the conditions. It shows that a family business (with mean 4.43) suffers from a greater credibility gap than a non-family business (with mean 4.94) when there is no assurance service. This finding is further supported by the results from the ANCOVA in Table 4 (Model 3), which find a significant difference in information credibility between reporting companies with different governance structures ($F = 7.12, p < 0.01$). Hypothesis 1 is supported, in that the governance structure with a dominantly controlling family creates a more serious credibility gap in external stakeholders' perceptions, even if the reporting family firm has the same level of expertise in terms of resources and sustainability performance as a non-family firm.

H2a and H2b: Family and non-family businesses' assurance services As shown in Fig. 2, an assurance service can improve the information credibility of sustainability reports for both types of reporting companies. The results of the ANCOVA in Table 4 (Model 3) support the difference produced by the presence of the assurance service ($F = 12.17, p < 0.001$), supporting H2a, in that an assurance service can help address a reporting company's

Table 5 Study 2: means, standard deviations, and correlations

Variables (<i>N</i> = 335)	Mean	SD	1	2	3	4	5	6	7	8
1. Information credibility	5.08	1.18								
2. Reporting company's credibility	5.03	1.01	0.51***							
3. Family business	0.52	0.50	-0.03	-0.18***						
4. Assurance service	0.71	0.45	0.21***	-0.01	0.02					
5. Gender	1.53	0.50	0.02	0.11**	0.01	0.03				
6. Age	36.67	11.85	0.07	0.07	0.10 [†]	0.13	0.01			
7. Education	2.03	0.72	-0.10 [†]	-0.06	0.04	0.02	-0.12*	0.12*		
8. Work	6.27	4.10	-0.06	-0.02	-0.14**	0.12**	0.14**	0.01	-0.05	
9. Familiarity with sustainability	3.58	1.67	0.14**	0.24***	-0.08	-0.06	-0.03	0.09 [†]	0.02	-0.19***

[†] $p \leq 0.10$
 * $p \leq 0.05$
 ** $p \leq 0.01$
 *** $p \leq 0.001$

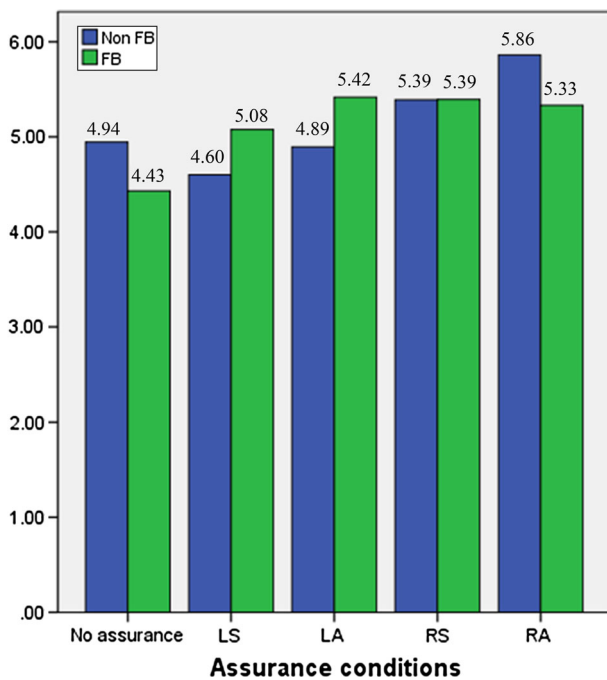


Fig. 2 Study 2: means of perceived information credibility under different conditions. The term *FB* denotes a family business and *Non FB* indicates a non-family business; *LS* denotes limited assurance provided by specialist consultants, *LA* represents limited assurance provided by professional accountants, *RS* denotes reasonable assurance provided by specialist consultants, and *RA* indicates reasonable assurance provided by professional accountants

credibility gap. The value of the assurance service is further found to differ by reporting company when ANCOVA shows a significant interaction between the presence of assurance and the reporting company's governance structure ($F = 4.54, p < 0.05$). Figure 2 further supports H2b,

that an assurance service has more consistent and positive value for a family business than for a non-family business, where the latter does not necessarily benefit from an assurance service, especially a limited service (with mean 4.60 from specialist consultants and mean 4.89 from professional accountants, all less than 4.94 when there is no assurance).

H3a, H3b, H4a, and 4b: Assurance service factors The ANCOVA in Table 4 (see Model 4, which tested the effects of assurance factors) shows significant differences by assurance level ($F = 5.24, p < 0.05$). Figure 2 shows that a family business can benefit more from reasonable assurance (with mean 5.39) than limited service (with mean 5.08) only when it is provided by specialist consultants, partially supporting H3a, that reasonable assurance has better credibility with more trustworthiness. ANCOVA also finds a marginal significant interaction between the assurance level and the reporting company's governance structure ($F = 2.94, p < 0.10$). It can be observed from Fig. 2 that reasonable assurance provides more consistent credibility to a family business than to a non-family business, supporting H3b. There is no significant difference due to assurers ($F = 2.25$) and the interaction with the reporting company's governance structure ($F = 0.31$). Study 2 does not support H4a or H4b. To address the credibility gap resulting from the reporting company's governance structure, such as that of a family business, adopting an assurance service per se could be sufficient. An additional voluntary action can be a signal to external stakeholders that the reporting company is committed to improving its credibility, regardless of which assessor provides the service, when they could have similar extents of goodwill as independent parties.

Table 6 Study 2: SEM: estimated effects on information credibility and z statistics of the comparison among effects across conditions

Estimated effects on information credibility					z statistics			
Assurance conditions					Comparison based on			
Experimental factors			Source credibility		Assurance level ^a		Assuror ^b	
Governance structure	Assurance level	Assurors	Reporting company's credibility	Assuror's credibility	Reporting company effect	Assuror effect	Reporting company effect	Assuror effect
Non-family business	Limited	Specialists	0.29	0.36**	0.76	-0.40	-0.69	0.70
	Limited	Accountants	0.01	0.57**	0.47	0.06	-0.69	0.70
	Reasonable	Specialists	0.47***	0.28**	0.76	-0.40	-0.98	1.31
	Reasonable	Accountants	0.21	0.58***	0.47	0.06	-0.98	1.31
Family business	Limited	Specialists	0.27*	0.69***	-0.44	-0.01	1.82*	-1.81*
	Limited	Accountants	0.70***	0.30*	-2.69***	2.08**	1.82*	-1.81*
	Reasonable	Specialists	0.18	0.69***	-0.44	-0.01	-0.63	0.63
	Reasonable	Accountants	0.21	0.58***	-2.69***	2.08**	-0.63	0.63

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

^a Varies by assurance level only. For instance, the difference between non-family businesses with limited and reasonable assurance services, all from accountants

^b Varies by the type of assuror only. For instance, the difference between non-family businesses with limited assurance by specialist consultants and accountants

Additional Analyses

Additional analyses examine how the difference in source credibility between the reporting company and assurers affects external stakeholders' perceived information credibility. Using t tests, the results support H1 regarding the difference in source credibility due to the governance structure of the reporting company. The credibility of a non-family business is significantly greater than that of a family business [$t(333) = 3.36$]. The credibility of an assuror with limited service is significantly lower than that of one with reasonable service [$t(236) = -2.83$], though there is no significant difference between types of assurers [$t(236) = 0.06$], consistent with the main findings.

Since source credibility is one of the main mechanisms for determining information credibility (Birnbaum and Stegner 1979; Swaen and Vanhamme 2005), another analysis is used to examine the direct effects of source credibility on the information credibility. The ANCOVA models in the main analyses indicated their important role by the significant improvement in explanatory power after inclusion of the source credibility measures (adjusted R^2 changes from 0.10 to 0.51). However, ANCOVA models could not clearly identify the interrelations between source credibility and information credibility. To better examine these relations, structural equation modeling (SEM) was performed with AMOS 20.0.

SEM involves a statistical model that examines the multiple dependent relations between variables to support a theoretically proposed model (Hair et al. 2013, pp. 610–611). Compared to traditional regression analysis, SEM can

control for potential measurement errors to obtain a systematic analysis of the a priori proposed relations, that is, the transfer of source credibility to address the credibility gap of reported information. The approach can more accurately estimate the effect sizes regarding the proposed dependence relations (Byrne 2013, pp. 3–4). The analysis is based on the model examining the relative contribution of each source's credibility, that is, the reporting company and the assuror, to the dependent variable, the information credibility of a sustainability report.

Table 6 presents the estimated effects of each source's credibility on information credibility under different conditions and the z statistics of the differences between these effects across conditions. The results show that the assuror's credibility is a significant determinant of information credibility under all conditions. The reporting company's credibility, on the other hand, does not have many significant effects under most conditions. This result supports H2a regarding the value of assurance service in addressing the credibility gap of a reporting company through reliance on the assuror's credibility. The effect size of a specialist assuror's credibility is always greater for a family business (with effect size 0.69 for both assurance levels) than for a non-family business (with effect size 0.36 for limited assurance and effect size 0.28 for reasonable assurance), partially supporting H2b.

Further analysis of the differences of the effects across conditions based on assurance factors indicates the particular value of assurance services for family businesses. Although an assurance service does not change the relative

effects of the sources for a non-family business, it does lead to significant differences for a family business. When the assurance service is provided by accountants, reasonable assurance can increase the effect of the assessor's credibility more than limited assurance can (with a z value of 2.08 compared to 0.06 for a non-family business), supporting H3a and H3b. The result supports the direction of H4b, that the type of assessor has significant effects only for a family business (with a z value of -1.81 , compared to 0.70 for a non-family business with limited assurance), but it supports the opposite of H4a. When a family business adopts a limited level of assurance, specialist consultants (with effect size 0.69) seem to have stronger assessor credibility than accountants (with effect size 0.30) do. This finding, accompanied by the non-significant results in the main analysis, could suggest the convergent quality of accountants and consultants when both appear to maintain similar goodwill as independent parties and the latter accumulate enough expertise and legitimacy to compete with the former in the assurance service of sustainability reporting (De Beelde and Tuybens 2015).

Summary

The findings of both Study 1 and Study 2 support H1, that a family firm suffers from a greater credibility gap as perceived by external stakeholders than a non-family firm does. The dominance of a single family in a company's ownership and management structure raises external stakeholders' concerns about the company's goodwill in communicating its full sustainability activities (Zientara *in press*), thus undermining its trustworthiness as well. They may perceive the sustainability report as being driven by the family's private interests (Ali et al. 2007; Chau and Gray 2002). Even if the controlling family has ability and good intentions regarding sustainability reporting, external stakeholders' concerns about potential agency problems negatively affect the evaluation of a family business's trustworthiness and goodwill.

Both studies support H2a, that such a credibility gap can be addressed through an assurance service. Study 2 further shows that assurance services have more consistent and positive value for a family business than for a non-family business, supporting H2b. Although a non-family business may be subject to less stakeholder skepticism than a family business *ex ante*, external stakeholders may hold higher expectations that a non-family business would employ more proactive efforts to improve its information credibility. If a non-family business chooses only a limited level of assurance, it can raise external stakeholders' concerns as to whether the service can truly improve the trustworthiness of the assured report or is merely a business transaction between the reporting company and the assessor with

undermined integrity to evaluate the transparency of the report (O'Dwyer et al. 2011). In contrast, external stakeholders do not hold too many expectations about a family business with a serious credibility gap upfront. The adoption of an assurance service itself is sufficient to improve their perception considerably.

These results also support H3a, that the value of an assurance service changes according to the level of assurance service. Both studies show that a family business has greater information credibility with reasonable assurance than with limited assurance. A reasonable level of assurance signals a more robust process in the examination of the trustworthiness of the disclosed information (Hasan et al. 2003), contributing to the credibility of the assessor (Manetti and Becatti 2009). Study 2 further supports H3b, that the value of reasonable assurance is greater for a family business than for a non-family business, by identifying the underlying mechanism through the assessor's high credibility to compensate for the low credibility of the reporting family firm. This result supports source credibility theory (Birnbaum and Stegner 1979; Hovland et al. 1953) regarding the role of credibility transfer from a more credible assessor to a less credible family firm in addressing the latter's greater credibility gap than that of a non-family firm.

There is no consistent result to support H4a or H4b regarding the difference between types of assessors, that is, professional accountants and specialist consultants, and the interaction with the reporting company's governance structure. There are no significant differences in the main findings regarding the credibility of the same sustainability report assured by different assessors for a family or a non-family firm. Instead, the additional analysis even presents the mixed finding that consultants provide stronger effects than accountants do when they provide limited services to a family firm. These results could indicate the converging quality of the assessors (De Beelde and Tuybens 2015). If consultants follow the same assurance guidelines and training as accountants, they also have the expertise and goodwill as independent parties, providing similar value to the reporting company and stakeholders (Simnett et al. 2009).

Discussion

This paper examines the credibility gap associated with the governance structure of the reporting company by focusing on the perception of external stakeholders. The results of two experimental studies reveal a more serious credibility gap with family firms than with non-family firms. Such a gap can be addressed with an external and independent assurance service. The service provides higher value to a reporting company when it is at a reasonable level, with more thorough procedures and a positive form of the assurance report, than at a limited level. The value is even higher when it targets a

family firm rather than a non-family firm. However, there is no significant difference in the service value provided by professional accountants or specialist consultants for both types of reporting companies.

Theoretical Implications

The focus of this paper on external stakeholders' evaluation of sustainability reports published by companies with different governance structures contributes to the literature on the corporate communication of corporate ethical behavior, sustainability assurance, and family businesses. The first contribution to corporate communication studies comes from a different perspective, examining the success of reporting a company's ethical behavior in addressing sustainability issues. Other studies tend to focus merely on the communicator's evaluation of its own sustainability reporting, such as the disclosure content and scope (e.g., De Beelde and Tuybens 2015; Perego and Kolk 2012; Sethi et al. in press). However, corporate communication is an interactive process between the communicator and information recipient and its success requires the latter's perspective as well. This paper examines this missing perspective by looking at the external stakeholders of corporate communication in sustainability reporting (Perloff 2010). The findings show that the success of communication, that is, information credibility, is jointly determined by the information recipients and the reporting company. For instance, the information recipients will evaluate the information credibility differently, depending on the reporting company's governance structure and assurance decision. This indicates that corporate communication studies should consider not only the perspective of the communicator, but also that of the information recipients to obtain a complete view of the evaluation of successful communication.

Second, differentiation of the assurance service value contributes to the sustainability assurance literature. Previous studies tend to focus on the value determined by the factors of the assurance service only, that is, levels and providers (e.g., O'Dwyer 2011; O'Dwyer and Owen 2005, 2007; Pflugrath et al. 2011). However, the assurance service value, that is, improving the information credibility of the assured company evaluated by the information recipients, is an interactive process that should consider those parties as well (Dando and Swift 2003). By examining external stakeholders' perceptions and incorporating the reporting company's governance structure with a focus on a family business setting, this paper provides an interactive view on the value of sustainability assurance such that it is determined by how external stakeholders perceive the credibility of both the reporting company and the assessor. The greater the difference in credibility between the two parties, the greater the value of the assurance. Assurance

service at a reasonable level has high trustworthiness and thus provides more consistent value for a family business than for a non-family business, because of the greater credibility difference between the assessor and the family business, whose governance structure raises a greater credibility gap than that of a non-family business. Furthermore, non-significant differences between types of assessors support recent, though limited, evidence that assurance providers start to have convergent value (De Beelde and Tuybens 2015; Martínez-Ferrero and García-Sánchez in press) when the maturation of assurance standards could result in the improved expertise and goodwill of different assessors. Studies on the value of sustainability assurance should consider the roles of not only assessors, focusing on the assurance level rather than the types of assessors, but also the assured company and the information recipients.

Third, the distinction of the credibility gap resulting from the governance structure with integrated ownership and management controlled by a few members of the same family challenges the existing view in the family business literature regarding sustainability reporting. Previous studies tend to hold the positive view that, once the controlling family voluntarily reports the firm's ethical behavior with sustainability activities, the firm can enjoy reputation gains (Campopiano and Massis 2015; Prado-Lorenzo et al. 2009). However, these studies neglect factors potentially undermining such reporting practices when external stakeholders are concerned about the agency problem of family firms. The family-first mindset and the family's dominance in the firm's governance structure could undermine its communication success when external stakeholders are uncertain about the firm's goodwill and trustworthiness regarding sustainability activities (Zientara in press). The findings identify a potential solution to these concerns. Employment of an external and independent assessor can sufficiently mitigate a family firm's vulnerability to external stakeholders' skepticism about its credibility. This challenges previous views on the limited value of assurance service to family businesses (Barako et al. 2006; Salvato and Moores 2010). The findings suggest that family business scholars examining corporate communication should relax their assumption to consider the potentially negative effect of information recipients' perceptions and the mitigating effect of external assurance.

Practical Implications

For practitioners, this paper first indicates the potential value of assurance services for managers, especially those with significant ownership, such as the controlling family in a family business. Although managers may question the value of assurance services because of their voluntary and diverse nature, this paper shows that assurance services can

benefit companies by improving the credibility perceived by external stakeholders. Managers can have an external and independent party endorse a company's voluntary disclosure, such as sustainability reporting, to increase the chances of persuading stakeholders with the communicated information. This can facilitate the company's stakeholder management, since stakeholders are more willing to interact with trustworthy companies.

Additionally, the findings suggest that assurance service providers may be able to benefit from working with companies of lower credibility. When a reporting company, such as a family business, is subject to a serious credibility gap, it is likely to place more value on assurance services to improve its credibility. This could allow assurance providers to charge an extra premium (Niemi 2004). However, assurance providers need to pay attention to maintaining their reputation as professional, trustworthy, and independent parties, given that their better credibility than the reporting company's is the main mechanism that helps improve the latter's credibility.

Future Research

There are several directions for future research. First, this paper focuses on the internal governance structure of the reporting company. It controls all the other factors in the experiments, such as the reporting company's size, financial performance, and industry, which can also affect information credibility (Ortas et al. 2015; Sethi et al. in press). Although the additional variables could complicate the experimental design and increase the difficulty of data interpretation, future research could examine how these factors interact and affect individuals' evaluation. Such research could include one additional variable at a time to avoid an over-complex experimental design. For example, does a family business in a sensitive industry, such as the mining or chemical industry, have a more serious credibility gap regarding its trustworthiness and goodwill? Can a family business still benefit from an assurance service when it has an extremely severe credibility gap in such an industry? Additionally, corporate size and financial performance can be a proxy of the expertise dimension for a possible examination of the interaction between all three credibility dimensions. Each dimension could lead to different types of credibility gaps. Future scholars could try to differentiate the processes and explore the boundary conditions of the credibility gaps.

Assurance service factors could be examined further. This study focuses on the assurance level and type of assessor. It controls for other factors, such as the assessor's size or history with the assured company. These other factors can also affect the expertise, trustworthiness, and goodwill dimensions of the assessor's credibility (Collison and Gray 1997), changing the value of assurance. Future studies could look at how long the assessors have been

working with the assured company or the exact time they spend on assurance procedures, which could influence the value of assurance. Additionally, these factors, as continuous variables, allow for the examination of the mediation process of assurance and information credibility. Although Study 2 has indicated the potentially mediating role of source credibility in the processes, the binary experimental variables in this paper limit the possibility for a meaningful mediation test (Hayes 2013).

Another direction for future research is the examination of other governance structures for the reporting companies. This paper focuses on one of the common family business structures in which the controlling family is involved in both the ownership and management structures (Shanker and Astrachan 1996; Sharma 2004) to examine if such a firm structure results in external stakeholders' concerns about potential agency problems (Morck and Yeung 2003; Schulze et al. 2001). Although the results show the emergence of credibility gaps because of the misalignment between the perceptions of outsiders and insiders regarding the trustworthiness and goodwill associated with family firms, such gaps can vary by the heterogeneity in family firm structures. Family businesses can have different governance structures, such as with pure family ownership, indirect control through a family foundation, or dispersed ownership across members of different generations, which can result in different extents of agency issues between members (Boyd and Solarino 2016). This could alter the extent of external stakeholder skepticism regarding family firms. Future research could further examine whether credibility gaps and assurance service value vary by differences in family firm structures.

Conclusion

This paper provides a complementary view of corporate communication and credibility from the perspective of the information recipients. It demonstrates that external stakeholders may be skeptical about the voluntary sustainability reports of companies with potential governance problems, such as family businesses, even if the latter have the ability and motivation to communicate. The paper shows that reporting companies can mitigate such skepticism by employing an external party with higher credibility. The greater the credibility difference between the external assurance and the reporting company, the more the reporting company can improve the credibility of its report. Future studies should consider the interactive nature of corporate communication between the reporting company and its audience. The perception gap between these parties can influence the success of corporate communication regarding the company's ethical behavior.

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Compliance with Ethical Standards

Conflict of interest The author declares no potential conflicts of interest with respect to the research and authorship of this article.

Appendix

Study 1: Experimental Materials

Background Information

Company XYZ is an international pharmaceutical chemical group that focuses its efforts on innovation and excellence in the health industry. It is a large, 50-year-old firm with 3000 employees and headquarters located in the Netherlands. It primarily operates in the U.S. and European markets and its products can be found in over 60 countries.

XYZ's mission is stated as *innovating to live better*. Thanks to its intensive research, international approach, and active policy of strategic alliances with other firms, XYZ has established itself as a leading business group in the health industry.

Extract from XYZ Company's Sustainability Report, 20XX² (Compiled According to AA1000 AccountAbility Principles³)

Company XYZ is committed to sustainable development principles in its activities and relationships with different interest groups. The board of directors drafts the overall sustainability strategy for the whole firm. By following the principal sustainability strategy and dialog with different stakeholders, the report aims to convey a balanced and reasonable view of XYZ's social and environmental performance.

In the reporting period, XYZ achieved its goals for several elements and is in compliance with regulations and its commitments. However, there are gaps in planning and management systems and in meeting objectives and measurable targets.

² A full sustainability report normally contains more detailed financial, environmental, and social information. The information in this survey was adapted from a real sustainability report with over 150 pages of information and is primarily focused on environmental and social aspects.

³ AA1000 AccountAbility is an international standard for an organization to identify, prioritize, and respond to its sustainability challenges. The principles include three major elements for the reporting organization: *inclusivity*, *materiality*, and *responsiveness*. Inclusivity indicates that the impacted stakeholders shall be involved, materiality represents influential issues, and responsiveness concerns an organization's responses to stakeholder issues.

Environmental Performance

XYZ follows the Greenhouse Gas (GHG) Protocol to reduce CO₂ emissions. In this reporting period, XYZ's total GHG emissions were 36,004 tons of CO₂ equivalent (37,959 tons last year). XYZ primarily focuses on overall reduction in consumption in the home country. Figure 3 shows the trend of consumption in raw materials, water, and energy.

XYZ will continue reducing energy consumption and increasing the use of renewable energy. Actions have also been implemented to offset emissions via a program in Sierra Gorda, Mexico, with a reduction of 214 tons of CO₂ this year.

XYZ's prevention and environment policy contains an environmental management model. All its research centers and production plants have been awarded ISO 14001:2004 environmental certification, except for Naucalpan (Mexico), and have passed annual follow-ups or recertification audits this year. XYZ intends to receive continued certification in all the countries in which it operates.

Social Performance

The firm promotes equal opportunity and encourages non-discrimination in its human resources policies in every country. During the reporting period, XYZ did not receive any complaints regarding discrimination and was not fined for any violations of labor laws in the countries in which it operates. XYZ's human resource policy emphasizes professional training and development. Table 7 shows the trend in training hours per employee.

The decrease this year is due to cost cutting and extensions of scope in all subsidiaries. However, training coverage remains relatively high, at 85.3% (compared to 94.6% last year). Three leadership programs are underway to promote working knowledge and skills.

To prevent occupational health and safety hazards, the firm has implemented integrated management systems for health and safety and environment management systems that are in line with the technical specification OHSAS 18001. All XYZ plants obtained OHSAS 18001 certification, except for the production plant in China, which is expected to secure it next year.

The accident rate was reduced from 1.7 to 1.4% this year and is below the average rate of the entire chemical industry in the home country. Although XYZ has not achieved the goal of a 10% reduction in accidents due to a lack of safe distance for its commercial vehicles, it aims to reduce the rate by 5% next year.

In terms of XYZ's social responsibility, the firm regularly works with a wide range of people and institutions to improve the health and well-being of human populations. In the reporting period, XYZ accepted 18 applications for drug donations, distributing a total of 5571 boxes of medicine to

Fig. 3 Trend of XYZ's consumption in raw materials, electricity, gas, and water

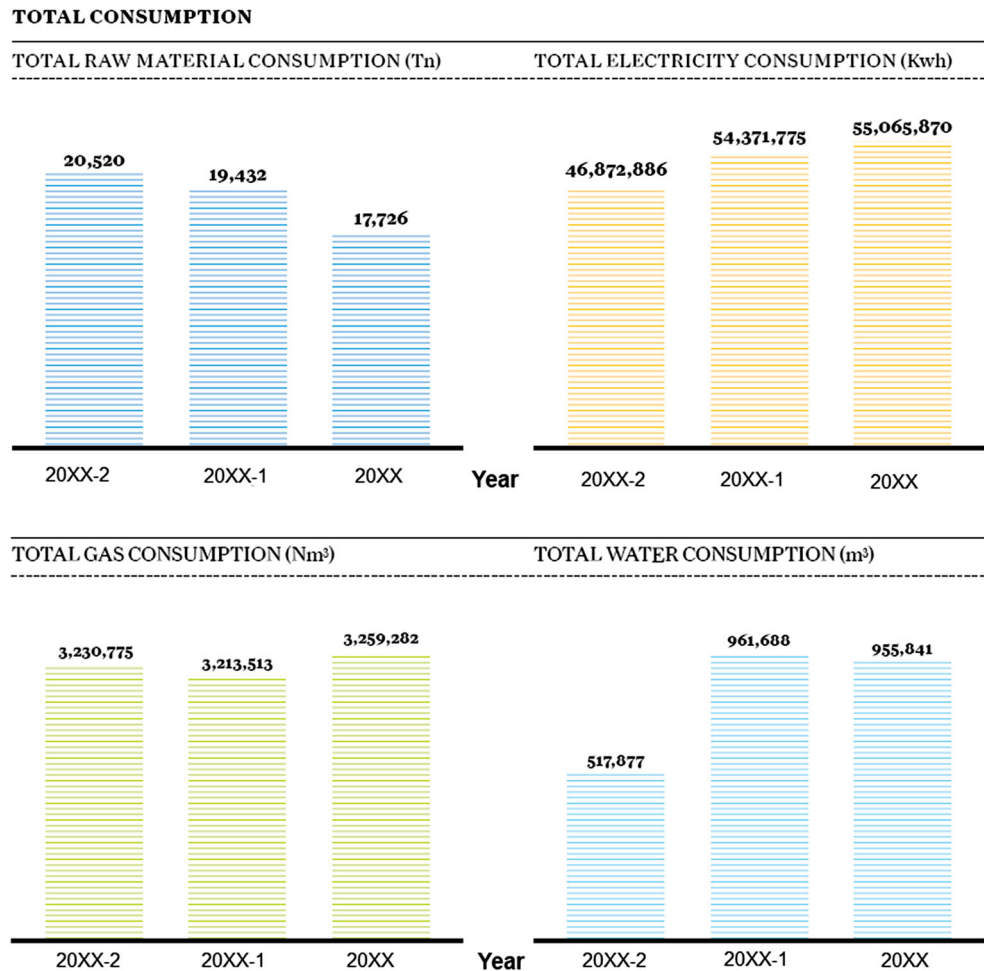


Table 7 Training hours for each XYZ employee

	Year		
	20XX-2	20XX-1	20XX
Training hours/employee	50.5%	57.5%	23.8%

universalize health in developing countries. XYZ will continue to work with NGOs to develop more accurate indicators and instruments to measure its impact on society and to collaborate with NGOs on societal projects.

Assurance Statement (Used Under the Condition of Reasonable Assurance Provided by Accountants)

We have been engaged by XYZ's management to provide reasonable assurance of whether XYZ adheres to AA1000 AccountAbility in the sections of environmental and social information of XYZ's 20XX Sustainability Report. Responsibility for the statements made in the report and adherence to AA1000 AccountAbility Principles lies exclusively with XYZ's management. Our responsibility is, on the basis of our work, to express a conclusion on the reliability of the environmental and social data in the report.

Our team of experts has competencies in assurance engagements related to environmental and social information and in assessing sustainability management systems. We have not performed any task or service for XYZ or other clients in 20XX that would have conflicted with our independence, nor have we been responsible for the preparation of any part of the sustainability report. Thus, we are independent, as defined in the AA1000 Assurance Standard, and we consider our team qualified to carry out this independent assurance engagement.

Scope, Standards, and Criteria

We have planned and performed our work in accordance with the International Standard on Assurance Engagements (ISAE) 3000 to obtain reasonable assurance regarding the nature and extent of XYZ's adherence to AA1000 AccountAbility Principles.

Methodology, Approach, Limitations, and Scope of Work

Our methodology includes procedures to obtain evidence of XYZ management's commitment to AA1000

AccountAbility Principles and of the implementation of systems and procedures in support of the principles. The procedures include assessing the risks of material data misstatements, reviewing the reasonableness of the procedures for collecting the information contained in the report, enquiring with and interviewing those who are responsible for the presentation of the report, examining evidence supporting the quantitative data presented in sampled tests, comparing information in the reports with supporting documents, and testing the accuracy of the calculations.

Conclusion

In our opinion, the environmental and social data in the 20XX Sustainability Report have been stated in accordance with the criteria mentioned and, based on our evaluation, the information stated, in all material respects, is fairly stated according to AA1000 AccountAbility Principles.

Signatures of ABC Partners

February 21, 20XX

Study 2: Experimental Material—Infographic of a Sustainability Report



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