Sustainability assurance: an emerging market for the accounting profession

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Abstract

Purpose – The purpose of this study is to examine firm-specific characteristics that influence firms' choice of assurance provider in sustainability assurance. The market for sustainability assurance consists of three types: accounting firms (particularly the Big 4 firms), non-accounting specialist consulting firms (that specialise only in sustainability issues) and non-accounting general consulting firms (that provide general advisory/consulting services).

Design/methodology/approach – Using a sample selected from the top 100 publicly listed companies in the UK and USA that published a sustainability report in 2010 and 2011, respectively, for which assurance was obtained, a multinomial logistic regression model is applied by regressing the three types of assurance providers on firm size, leverage, profit, liquidity, percentage of strategic shareholding and two control variables – country and year.

Findings – The results indicate that the choice of sustainability assurance provider is related to firm size, profitability, liquidity and country.

Research limitations/implications – There may be relevant variables omitted from the empirical analysis; results of this study may not be able to be generalized beyond the sample selected; and the sample size is relatively small.

Practical implications – Sustainability assurance is a viable assurance service that the accounting profession can provide.

Originality/value – This study helps in identifying the types of firms that are likely to demand assurance services provided by accounting firms.

Keywords Sustainability reporting, Emerging market, Accounting profession, Audit firms, Sustainability assurance

Paper type Research paper

1. Introduction

Over the past decade, the advent of a new "sustainability era" of business practice has increased firms' accountability for their social and environmental impact. New business concepts and issues have emerged from this including: carbon credits, emissions trading schemes, responsible disposal of unused assets and eradicating child labour (Pflugrath *et al.*, 2011; Simnett *et al.*, 2009). As such, stakeholders are becoming increasingly interested in sustainability information, including investors whose investments face additional business risk because of these issues (Dando and Swift, 2003; de Villiers and van Staden, 2010a; Kolk and Perego, 2010; Moroney *et al.*, 2012). Furthermore, there has been growing concern that financial reporting alone is insufficient in capturing true

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corporate value in today's business environment. This has resulted in demand for new non-financial information about company value, such as sustainability reporting (KPMG, 2011; Simnett *et al.*, 2009).

The adoption of sustainability reporting is growing amongst firms in response to these concerns, with many firms choosing to undertake assurance of their sustainability reports if these are produced. From the accounting profession's point of view, this represents an emerging assurance market to pursue. In the market for sustainability assurance, the main participants can be categorised as one of three types:

(1) accounting firms;

(2) non-accounting firms consisting of consultants specialising only in sustainability issues (who we refer to hereafter as "non-accounting specialist consulting firms"); and

(3) non-accounting firms consisting of consultants providing general advisory services (who we refer to hereafter as "non-accounting general consulting firms") (Kolk and Perego, 2010; O'Dwyer, 2011; Perego, 2009; Simnett *et al.*, 2009).

Hence, the purpose of our study is to examine the choice of an assurance provider in sustainability assurance markets. In particular, the study investigates the firm-specific characteristics that influence the decision to engage accountants in sustainability assurance. The goal is to identify the types of firms that are likely to demand assurance services provided by accounting firms (as opposed to non-accounting firms, either specialist consulting firms or general consulting firms) and to offer insights into the viability of sustainability assurance as a service for the accounting profession to provide, given competition from non-accountants in this emerging market.

There are two motivations for our study. First, the choice of assurance provider is an issue that has been raised in practice (Deegan *et al.*, 2006; Delfgaauw, 2000; Wallage, 2000), but limited research has been conducted in this area – specifically, there is a lack of evidence attesting to whether the accounting profession should be involved in this assurance market. Second, the literature on sustainability assurance is diverse and widespread. Prior research investigates various issues including: the demand for sustainability assurance (Kolk and Perego, 2010; Perego, 2009; Simnett *et al.*, 2009); the legitimisation of assurance practices (Dillard, 2011; O'Dwyer, 2011; O'Dwyer *et al.*, 2011); the current practices of sustainability assurance, including the contents of assurance statements (Deegan *et al.*, 2006; Fonseca, 2010; Gillet, 2012; Manetti and Becatti, 2009; Manetti and Toccafondi, 2012; Mock *et al.*, 2007; O'Dwyer and Owen, 2005, 2007; Park and Brorson, 2005; Perez and Sanchez, 2009; Smith *et al.*, 2011); and whether assurance is necessary (Jones and Solomon, 2010; Kuruppu and Milne, 2010). However, there is limited coverage of the choice of assurance provider; thus, our study aims to fill this gap in the literature.

Our study contributes to the literature by concentrating exclusively on the choice of the assurance provider. In particular, we examine firm-specific characteristics that influence this decision to determine whether there is demand for sustainability assurance provided by a particular provider, the accounting profession. In contrast, other studies (Kolk and Perego, 2010; Perego, 2009; Simnett *et al.*, 2009) focus mainly on country-level factors that determine the choice of assurance provider. Our study also presents implications for the accounting profession. For example, the study could assist

accounting firms in identifying viable, future assurance markets as part of their strategic planning and business growth.

For our analysis, we study a sample selected from the top 100 companies from the UK and the USA, respectively, that were publicly listed on the FTSE 100 and NYSE 100 in 2010 and 2011. The UK and US settings are of interest because both countries have a high rate of sustainability reporting (KPMG, 2011). However, only firms that obtained assurance on their sustainability reports are included in the sample, as only these firms have to make a decision on the assurance provider. This results in a sample of 80 sustainability reports for which assurance was obtained (61 from the UK, 19 from the USA). A multinomial logistic regression analysis is applied to these 80 reports to test the effect of various firm-specific characteristics on firms' choice of assurance provider (i.e. one of three types: accounting firms, non-accounting specialist consulting firms and non-accounting general consulting firms). We find that large, profitable and liquid firms from the UK are more likely to engage accountants in sustainability assurance. Thus, these results highlight that firm size, profitability, liquidity and country have an influence in the choice of assurance provider in sustainability assurance.

The remainder of the study is organised as follows. In Section 2, we review the existing literature on sustainability reporting. Section 3 develops the study's hypotheses. Section 4 describes the study's methodology, while Section 5 discusses the results of our analysis. Finally, in Section 6, we make some concluding remarks, including consideration of the study's implications, limitations and areas for future research.

2. Literature review

2.1 Sustainability reporting

Sustainability is an issue currently at the forefront of public attention, with calls for greater accountability and transparency from firms with regard to their sustainable business practices. As such, the adoption of sustainability reporting has expanded over the past decade. In 2002, 45 per cent of G250 companies produced a sustainability report, increasing to 52 per cent in 2005, 79 per cent in 2008 and 95 per cent in 2011 (KPMG, 2008, 2011; O'Dwyer and Owen, 2005). This highlights the growing significance of sustainability and sustainability reporting for firms today. In this section, we explore the literature that examines the purposes of sustainability reporting and the state of current practice.

The separation of ownership and management typified by firms today implies that shareholders do not have first-hand knowledge of firms' operations. This results in an agency problem characterised by information asymmetry between shareholders and managers (Chow, 1982; de Villiers and van Staden, 2010a; Ho and Taylor, 2007; Jensen and Meckling, 1976). To alleviate this information asymmetry, firms generally disclose information to the public, enabling the principal to verify the actions of the agent (Chow, 1982; de Villiers and van Staden, 2010a; Ho and Taylor, 2007). In the case of sustainability reporting, there is information asymmetry between the public (stakeholders) and the firm. Therefore, stakeholders must rely on management disclosure to mitigate this information asymmetry, resulting in the demand for sustainability reporting (de Villiers and van Staden, 2010a; Simnett *et al.*, 2009). In particular, de Villiers and van Staden (2010a, 2010b) find that shareholders demand such information for investment decision-making and to impose accountability on the

firm. Sustainability issues create additional business risk and investors require information on these issues to minimise their risk exposure. Similarly, shareholders also want to hold the firm (and management) accountable for its environmental and social impact (de Villiers and van Staden, 2010a, 2010b; Kolk and Perego, 2010).

The literature also acknowledges the positive effect on corporate reputation that sustainability reporting can have (de Villiers and van Staden, 2010a; Simnett *et al.*, 2009). The disclosure of sustainability information reduces information asymmetry and enhances accountability, resulting in greater transparency from firms. This mitigates public scrutiny of firms' practices and reduces the political cost experienced by firms, which subsequently enhances corporate reputation (Ho and Taylor, 2007; Watts and Zimmerman, 1978). Moreover, Berthelot *et al.* (2012) find that the shares of Canadian firms that publish sustainability reports are traded at a premium. Therefore, the commitment of effort and resources towards this voluntary report signals credible and valid sustainability practices to capital markets.

Overall, sustainability reporting communicates valuable information to stakeholders, particularly investors, as demonstrated by the effect on their decision-making. However, the literature reports the existence of major issues in current practices that threaten the integrity and value of sustainability reporting. First, sustainability reporting is largely a voluntary exercise with significant discretion available to managers over the content and presentation of reports (Deegan *et al.*, 2006; Gillet, 2012; Manetti and Toccafondi, 2012; O'Dwyer and Owen, 2005). This discretion presents management with significant control over the reporting process, which results in a management capture problem – only information that enhances corporate reputation will be disseminated in the reports. Thus, managers may behave opportunistically by reporting in such a way so as to protect corporate reputation at the expense of accountability to stakeholders (Jones and Solomon, 2010; O'Dwyer and Owen, 2005, 2007; Smith *et al.*, 2011).

Furthermore, the lack of a generally accepted framework for reporting, and the existence of multiple reporting frameworks (including those developed by AccountAbility, the Federation des Experts Comptables Europens, the Global Reporting Initiative and the Royal NIVRA), has created significant variation in the content and presentation of sustainability reports (Deegan *et al.*, 2006; Manetti and Becatti, 2009; Manetti and Toccafondi, 2012; O'Dwyer and Owen, 2005, 2007). This variation in reporting diminishes the comparability of reports across firms and across time (Deegan *et al.*, 2006; Manetti and Becatti, 2009), reducing the value and information content of sustainability reporting for stakeholder decision-making. Similarly, the reporting process is characterised by underdeveloped processes and inadequate information systems for collecting the required information (Dando and Swift, 2003; Jones and Solomon, 2010; Manetti and Toccafondi, 2012). Thus, this renders reporting an arduous and complex undertaking that can be difficult to perform effectively, resulting in further inconsistency in the reporting process. Overall, these issues compromise the credibility of sustainability reports and erode the usefulness and relevance of these reports for decision-making.

The literature also suggests that sustainability reporting alone is insufficient in providing useful information for stakeholder decision-making. As such, this epitomises the calls for external assurance over these reports to add credibility to the information disclosed (KPMG, 2011). This is exemplified by O'Dwyer (2011), who asserts that current reporting practices are inadequate in enhancing the transparency and

accountability of firms for their social and environmental impact. This argument is reiterated by O'Dwyer and Owen (2005), where management capture is isolated as a significant impediment to effective reporting. O'Dwyer (2011) and O'Dwyer and Owen (2005) advocate the use of independent assurance to enhance the confidence of users in these reports.

2.2 Sustainability assurance

The market for assurance services provided for sustainability reports has grown extensively over the past decade. The G250 companies are increasingly engaging assurance for their sustainability reports, with 29 per cent including a formal assurance statement in 2002, increasing to 30 per cent in 2005, 40 per cent in 2008 and 46 per cent in 2011 (KPMG, 2008, 2011; O'Dwyer and Owen, 2005). This section examines the literature that assesses the purpose of assurance and the state of current assurance practices.

Chow (1982) argues that firms engage auditing services as a result of agency costs that derive from the separation of ownership and management. This separation enables managers to opportunistically protect their own interests at the expense of shareholders' interests, resulting in information asymmetry between shareholders and managers (Jensen and Meckling, 1976). Furthermore, Abdel-Khalik (1993) asserts that external audits are adopted to compensate for organisational loss of control resulting from the delegation and separation of duties. The lack of observability of subordinates (resulting in opportunism and moral hazard), distortion of information and potential miscommunication between hierarchies create information asymmetry between managers and subordinates.

The agency framework depicts external assurance as a means to minimise information asymmetry by verifying the information provided by the agent to the principal (Abdel-Khalik, 1993; Chow, 1982). This adds credibility and reliability to the information disclosed, thereby increasing user confidence. This argument is echoed in the sustainability assurance literature where studies agree that the primary purpose of sustainability assurance is to enhance credibility, reliability and user confidence in sustainability reports (Dando and Swift, 2003; de Villiers and van Staden, 2010a, 2010b; Fonseca, 2010; Gillet, 2012; Jones and Solomon, 2010; Kolk and Perego, 2010; Manetti and Toccafondi, 2012; Moroney *et al.*, 2012; O'Dwyer and Owen, 2005; Park and Brorson, 2005; Perego, 2009; Pflugrath *et al.*, 2011; Simnett *et al.*, 2009).

Despite the advocated benefits of assurance, prior studies indicate several issues in current practices that may erode the value of assurance. First, the voluntary nature of assurance implies that assurance could be used merely to give the impression of legitimacy to stakeholders with limited concern for the completeness and reliability of the information disclosed (Gillet, 2012; Manetti and Toccafondi, 2012; Park and Brorson, 2005; Smith *et al.*, 2011). Multiple studies (Dando and Swift, 2003; Deegan *et al.*, 2006; Fonseca, 2010; Jones and Solomon, 2010; O'Dwyer and Owen, 2005, 2007) also document that assurance statements are typically addressed to management (as opposed to a particular stakeholder group). While this may appear trivial, this indicates that assurers are reporting to management and are concerned with management's needs, thus highlighting management's control over the process. This suggests that the level of materiality chosen is based on the assumption that the management is the end user, rather than stakeholders.

Consequently, materiality will not reflect the information needs of the "true" end user (O'Dwyer and Owen, 2005, 2007). In addition, limited stakeholder engagement in the assurance process further emphasises the lack of focus on stakeholders' information needs (Darnall *et al.*, 2009; Fonseca, 2010; Jones and Solomon, 2010; Manetti and Toccafondi, 2012; O'Dwyer and Owen, 2005, 2007).

These issues highlight the complexity and challenges facing sustainability assurance in practice, which potentially diminish the value that users derive from assurance statements because the integrity of the conclusions from assurance is in question. However, the presence of different assurance providers in the sustainability assurance market must be considered because their differences may influence the extent of these issues.

2.3 Choice of assurance provider in sustainability assurance

The market for sustainability assurance consists of two main groups: members of the accounting profession and non-accounting firms (which can be either specialist consulting firms or general consulting firms) (O'Dwyer, 2011; Perego, 2009; Pflugrath *et al.*, 2011; Simnett *et al.*, 2009). The market is largely dominated by the Big 4 firms, and their market share has increased from 58 per cent of G250 companies in 2005 to 70 per cent in both 2008 and 2011 (KPMG, 2008, 2011; O'Dwyer, 2011).

The extant literature identifies two major differences between accounting and non-accounting assurance providers: expertise and approach. First, non-accounting firms are typically considered to have greater subject matter expertise in sustainability assurance (Perego, 2009; Pflugrath *et al.*, 2011; Simnett *et al.*, 2009). Delfgaauw (2000) believes that accounting firms do not have the requisite competence to provide sustainability assurance and highlights the need for their expertise to expand. However, accounting firms today can engage external subject-matter experts or expert stakeholder groups to gain the expertise necessary (with procedures in place governing the use of experts) (Gillet, 2012; Manetti and Becatti, 2009; O'Dwyer, 2011; Pflugrath *et al.*, 2011; Simnett *et al.*, 2009). This is reinforced by the assurance standards that govern accounting firms, which specify that an engagement should only be accepted when the engagement team has sufficient expertise (Pflugrath *et al.*, 2011; Simnett *et al.*, 2009). The growth in accounting firms' expertise is epitomised by Gillet (2012) where international audit firms are viewed to be competent in such engagements, but the assurance statements examined still indicate some concerns regarding their "real" expertise. As such, this highlights a general acceptance of the expertise and competence of the accounting profession in providing sustainability assurance, but some uncertainty is still apparent.

Second, accounting and non-accounting firms appear to have different approaches to sustainability assurance. Specifically, accounting firms tend to take a cautious approach by applying procedures developed in financial audit practices to their sustainability assurance engagements. Consequently, their primary focus is on the consistency of the information appearing in the report with the underlying data sets. There is particular emphasis on the accuracy of the data, but limited consideration for the completeness of the information reported (Dillard, 2011; O'Dwyer and Owen, 2005, 2007). In contrast, non-accounting firms adopt an evaluative approach to conducting sustainability assurance. For example, they typically explore various avenues for achieving a particular objective without being restricted to established procedures (Dillard, 2011;

Manetti and Toccafondi, 2012; O'Dwyer and Owen, 2005). Non-accounting firms view their role as more than simply a verifier – they endeavour to modify business practices to render them more sustainable by reviewing weaknesses in their clients' systems, reporting and performance. Thus, they focus on the completeness and fairness of the reporting and the overall balance of their opinions (Dillard, 2011; Manetti and Toccafondi, 2012; O'Dwyer and Owen, 2005, 2007). While this approach provides greater insight, it is widely criticised because it compromises the independence of the assurer (Dillard, 2011; O'Dwyer and Owen, 2007).

This underlines the considerable differences between accounting and non-accounting assurance providers. Their differences signify an important question: Why do some firms engage accounting firms, while others engage non-accounting firms to conduct the assurance of their sustainability reports? There may be exogenous factors that influence the choice of assurance provider given the preference of firms for one assurer over the other. The existing research in this area is limited and the findings fail to agree. For example, Simnett *et al.* (2009) find a positive relationship between firms in stakeholder-oriented countries and the engagement of the accounting profession, while Kolk and Perego (2010) find a negative relationship. In addition, Simnett *et al.* (2009) do not find evidence of a legal environment effect on choice of assurance provider, but Kolk and Perego (2010) and Perego (2009) find that firms domiciled in countries with weak legal environments are more likely to engage accountants. Finally, Simnett *et al.* (2009) do not find that a firm's industry affects its choice of assurance provider, but Kolk and Perego (2010) find evidence that being in the finance industry increases the likelihood of engaging an accounting firm. Thus, prior research in this area is diverse and currently lacks cohesion.

2.4 Assurance quality in sustainability assurance

The differences between assurance providers suggest that the choice of assurance provider will inherently affect the quality of assurance provided and therefore the credibility of the report (Delfgaauw, 2000; Mock *et al.*, 2007). Simnett *et al.* (2009) and Perego (2009) consider members of the accounting profession to be of higher quality than non-accounting assurance providers (no matter whether they are specialist consulting firms or general consulting firms). This corroborates with Pflugrath *et al.* (2011), who find that financial analysts perceive assurance provided by accountants to be of higher quality in aspects of trustworthiness, expertise and overall credibility compared to assurance provided by non-accountants.

The existing research generally recognises differential audit quality by distinguishing between Big N and non-Big N auditors (DeAngelo, 1981; Francis, 2004). The primary argument is that Big N auditors experience scale economies due to their size, enabling them to deliver higher audit quality. First, a large auditor has incentives to provide higher audit quality because it risks suffering significant losses if the provision of lower audit quality than expected is discovered. For example, it risks losing its entire clientele and significant damage to its reputation (compared to a small auditor who may only lose a small number of clients) (DeAngelo, 1981; Francis, 2004; Perego, 2009; Simnett *et al.*, 2009). Furthermore, large auditors invest significantly in reputation and so have incentives to protect that reputation by providing higher audit quality (Francis, 2004; Perego, 2009; Simnett *et al.*, 2009). Similarly, large auditors also have

greater capacity to invest in new audit technologies and quality control mechanisms that translate into higher audit quality (Francis, 2004; Perego, 2009; Simnett *et al.*, 2009).

The differentiation between Big N and non-Big N auditors is logical within the financial audit domain given that laws dictate that the financial statement audit is reserved exclusively for the accounting profession. There is no such regulation in sustainability assurance, but it can be argued that members of the accounting profession are of higher quality than non-accountants on the basis that accounting firms generally operate on a larger scale than non-accounting firms (Simnett *et al.*, 2009). This should result in higher audit quality because of scale economies that can be achieved. In addition, the accounting profession has a well-established body of global standards, ethics and independence requirements, which provide reassurances of higher audit quality (Perego, 2009; Pflugrath *et al.*, 2011; Simnett *et al.*, 2009). Thus, these factors provide justification that accounting firms are higher quality assurance providers than the non-accounting assurance providers. Empirical findings also support this view. Mock *et al.* (2007) suggest that larger accounting firms have a higher level of expertise in non-financial assurance than other types of assurance providers. More directly, Perogo and Kolk (2012) demonstrate that the quality of assurance provided by accountants is the highest among different types of sustainability assurors.

3. Hypotheses

The objective of our study is to identify the firm-specific characteristics that influence the engagement of the accounting profession in sustainability assurance. We consider assurance provided by the accounting profession to be of higher quality and adding greater credibility to sustainability reports than assurance provided by non-accountants. This is consistent with the approach adopted by previous studies, including Kolk and Perego (2010); Perego (2009) and Simnett *et al.* (2009). Therefore, it is expected that the firm-specific characteristics that create a greater need to enhance the credibility of sustainability reports should increase the likelihood that the accounting profession is engaged in sustainability assurance. The following sections develop hypotheses for five firm-specific characteristics that are considered.

3.1 Firm size

The separation of ownership and management (Chow, 1982; Jensen and Meckling, 1976) and organisational loss of control (Abdel-Khalik, 1993) create an information asymmetry problem for firms. The extent of information asymmetry is exacerbated as firm size increases. Chow (1982) finds evidence of a size effect on the demand for auditing and Abdel-Khalik (1993) asserts that loss of control (and the demand for auditing) increases as the number of hierarchies in an organisation (i.e. size) increases. Therefore, as firm size increases, there is a greater need to enhance the credibility of the sustainability report because of growing information asymmetry. Similarly, political cost theory suggests that larger firms are more visible to the public and so have incentives to signal greater credibility in their sustainability reports to minimise scrutiny of their practices (Watts and Zimmerman, 1978). This leads to our first hypothesis:

H1. Large firms are more likely to engage the accounting profession in sustainability assurance.

3.2 Leverage

Chow (1982) provides a framework for the relationship between agency costs and the demand for auditing. Firms with a large amount of debt have incentives to behave opportunistically by undertaking activities that maximise shareholder wealth, at the expense of that of the bondholder (Chow, 1982; Jensen and Meckling, 1976). For example, firms can dilute existing debt claims by acquiring new debt with the same or higher priority as existing debt. Consequently, an information asymmetry problem emerges between shareholders and bondholders. As sustainability issues present business risk (de Villiers and van Staden, 2010a; Kolk and Perego, 2010), bondholders will be interested in firms' sustainability disclosure to assess the risk exposure of debt. This implies that as leverage increases, firms have a greater need to enhance the credibility of the sustainability report to alleviate the information asymmetry with bondholders. This leads to our second hypothesis:

H2. Highly levered firms are more likely to engage the accounting profession in sustainability assurance.

3.3 Profitability and liquidity

Firms that are profitable and liquid desire this to translate into greater firm value. To achieve this, consideration of sustainability is necessary given the business risks that sustainability issues pose and the effect that this may have on corporate value (de Villiers and van Staden, 2010a; Kolk and Perego, 2010). Therefore, financial reporting alone is insufficient in communicating true corporate value in today's environment, highlighting the need for sustainability reporting (Simnett *et al.*, 2009). In other words, for superior performance (in terms of profitability and liquidity) to translate into superior corporate value, sustainability performance must also be communicated. However, the value of sustainability reports is contingent on the perceived credibility of the information disclosed (Simnett *et al.*, 2009). This implies a greater need to enhance the credibility of sustainability reports with higher levels of profitability and liquidity to communicate true corporate value to stakeholders. This leads to our third and fourth hypotheses:

H3. Profitable firms are more likely to engage the accounting profession in sustainability assurance.

H4. Liquid firms are more likely to engage the accounting profession in sustainability assurance.

3.4 Institutional ownership

Because of the financially sensitive nature and large size of their shareholding, institutional investors closely monitor firms' activities and act as mechanism for good governance (Larcker *et al.*, 2007). As such, they have a significant influence over management and generally do not rely on public disclosures (such as sustainability reports) for decision-making. Instead, such investors utilise their influence over management to acquire additional private information beyond the information available publicly (de Villiers and van Staden, 2010a, 2010b). This suggests that institutional investors are not interested in sustainability reports because they have alternative access to information on sustainability performance. This implies that firms with high institutional ownership have less need to enhance the credibility of

sustainability reports, as such information is less valuable to the decision-making of institutional investors. This leads to our fifth and final hypothesis:

H5. Firms with high institutional ownership are less likely to engage the accounting profession in sustainability assurance.

4. Research methodology

4.1 Sample selection and data

The sample consists of 80 sustainability reports that were published in the UK and the USA in 2010 and 2011 from companies listed on the FTSE 100 and NYSE 100 indexes, respectively. The UK and US settings are of interest because both countries have a high rate of sustainability reporting (KPMG, 2011). Thus, this setting provides an appropriate reporting landscape for analysis due to the extent and importance of sustainability reporting and the resulting level of public attention sustainability issues receive[1]. In contrast, the sustainability assurance practices in the UK and the USA are considerably different from each other. In 2011, 53 per cent of UK firms engaged in assurance compared to only 13 per cent of US firms (KPMG, 2011), highlighting a possible country effect in sustainability assurance practices.

Of the 80 reports examined in our analysis, 61 (76 per cent) come from the UK and 19 (24 per cent) from the USA, while 37 (46 per cent) engage the accounting profession for assurance (all Big 4 firms) and 43 (54 per cent) engage non-accountants (either specialist consulting firms or general consulting firms). These sustainability reports were hand-collected from individual company websites, which were obtained by consulting the London Stock Exchange and New York Stock Exchange websites.

Consistent with Simnett *et al.* (2009), only stand-alone sustainability reports are included in the sample, even though firms are increasingly integrating sustainability and financial information in their annual reports (KPMG, 2011). "Integrated reporting" clouds the assurance decision because a separate assurance statement is not generally provided for sustainability information (two assurance statements in the annual report may confuse users). Therefore, this would not isolate the choice of assurance provider decision by firms (Simnett *et al.*, 2009). Reports were considered "stand-alone" if they were clearly and sufficiently separate from the annual report, including online reports, provided that a separate section of the company's website was dedicated to sustainability reporting.

The sample only includes sustainability reports for which external assurance was obtained, consistent with Simnett *et al.* (2009), because it is only these firms that have a decision on choice of assurance provider to make. Assurance providers are coded as "accounting" if they are an accounting firm providing business-related assurance, advisory or consulting services; otherwise, they are coded as "non-accounting" and classified further into two categories, namely, specialist consulting and general consulting, where specialist consulting firms specialise only in sustainability issues, while general consulting firms provide general advisory/consulting services. A recent study by Perego and Kolk (2012) categorises assurance providers into four types, i.e. general consulting is further split into certification bodies and non-governmental organisations. While a more comprehensive classification can provide more insights, we are unable to follow this approach mainly because there are only 11 observations in the general consulting group in our sample and further grouping may not produce meaningful statistical results.

Independent variable data on firm characteristics are collected using a combination of databases and hand collection. Data on firm size, leverage, profitability and strategic shareholding are collected from Datastream. There are no missing data from these sources. Data on liquidity are collected from Datastream in the first instance, with missing observations subsequently obtained from Mergent. The remaining missing liquidity data are hand-collected from company annual reports obtained from Mergent. All financial data are collected in US dollar, with data for UK firms being converted to US dollar using the function available on these databases.

4.2 Variables and model specification

We use a multinomial logistic regression analysis on the sample of 80 sustainability reports for which assurance was obtained because the dependent variable is measured categorically using a three-point scale (see below). This approach allows the relationship between firm characteristics and the choice of assurance provider to be empirically tested. To test the effect of these firm characteristics on firms' decision to engage the accounting profession rather than non-accountants, the following model has been developed:

$$ACCTG_{it} = \beta_0 + \beta_1 LN\_SIZE_{it} + \beta_2 LEVERAGE_{it} + \beta_3 PROFIT_{it} + \beta_4 LIQUID_{it} + \beta_5 STRAT_{it} + \beta_6 COUNTRY_{it} + \beta_7 YEAR_{it} + \varepsilon_{it}$$

where, for each sustainability report i in the sample:

- *ACCTG* = 0 if a non-accounting specialist consulting firm; 1 if an accounting firm; or 2 if a non-accounting general consulting firm, is engaged to provide sustainability assurance.
- *LN_SIZE* = Firm size measured as the natural log of total assets.
- *LEVERAGE* = Leverage measured as the debt:total assets ratio.
- *PROFIT* = Profitability measured as the return on assets ratio.
- *LIQUID* = Liquidity measured as the current ratio.
- *STRAT* = Percentage of strategic shareholding.
- *COUNTRY* = 1 if the firm is from the UK (FTSE 100); 0 if the firm is from the USA (NYSE 100).
- *YEAR* = 1 if the sustainability report relates to the year ending in 2011; 0 if 2010.

ACCTG is the dependent variable to be used in the model, where the accounting firms are used as the reference group in the multinomial logit regression analysis. *LN_SIZE*, *LEVERAGE*, *PROFIT*, *LIQUID* and *STRAT* are the independent variables of interest in the study and represent each of the hypothesized firm-specific characteristics, as discussed in Section 3, to be tested. Two control variables are also included in the model:

(1) *COUNTRY*, because prior research suggests there is variation in the adoption of sustainability reporting and assurance across the US and UK settings (KPMG, 2008, 2011; Kolk and Perego, 2010; de Villiers and van Staden, 2010a).

(2) *YEAR*, so as to control for any variation that may occur in any particular year in which the data come from.

5. Results

5.1 Summary statistics and correlations

Summary statistics relating to the firms in the sample are provided in Table I. Panel A presents descriptive statistics for the continuous variables used in the study's model. The firms in the sample are large with a mean (median) total assets and total liabilities of US$189,253,410 (US$30,951,233) and US$159,641,696 (US$17,190,828), respectively. The firms are highly levered with a debt:total assets ratio of 60 per cent on average. The firms in the sample are also profitable with a mean (median) earnings before interest and taxes of US$5,954,098 (US$3,046,500) and a mean return on assets ratio of 11 per cent.

Variable	Mean	Median	Minimum	Maximum	SD
Panel A: Descriptive statistics (Continuous variables)					
TOTAL ASSETS	189,253,410	30,951,233	1,565,869	2,380,218,852	513,921,776
TOTAL LIABILITIES	159,641,696	17,190,828	13,590	2,235,263,125	483,798,229
EBIT	5,954,098	3,046,500	−8,692,425	42,541,000	8,369,189
LN_SIZE	17.404	17.248	14.264	21.591	1.635
LEVERAGE	0.602	0.599	0.009	1.099	0.204
PROFIT	0.108	0.099	−0.058	0.324	0.080
LIQUID	1.334	1.180	0.000	6.383	0.828
STRAT	12.210	5.000	0.000	96.000	20.140

Variable		Frequency	(%)
Panel B: Frequencies (Categorical variables)			
ACCTG			
= 0	Non-accounting specialist consulting firms	32	40.00
= 1	Accounting firms	37	46.25
= 2	Non-accounting general consulting firms	11	13.75
COUNTRY			
= 0	USA	19	23.75
= 1	UK	61	76.25
YEAR			
= 0	2010	59	73.75
= 1	2011	21	26.25

Notes: n = 80; the data are for the top 100 publicly listed companies with sustainability reports published and assured in the UK and the USA in 2010 and 2011, respectively; all variables are defined as follows: TOTAL ASSETS–total assets for listed company (i) in fiscal year (t) in US dollars; TOTAL LIABILITIES–total liabilities for listed company (i) in fiscal year (t) in US dollars; EBIT–earnings before interest and tax for listed company (i) in fiscal year (t) in US dollars; LN_SIZE–firm size measured as the natural log of total assets; LEVERAGE–leverage measured as the debt:total assets ratio; LIQUID–liquidity measured as the current ratio; STRAT–percentage of strategic shareholding; ACCTG–0 if a non-accounting specialist consulting firm is engaged to provide sustainability assurance, 1 if an accounting firm is engaged to provide sustainability assurance, or 2 if a non-accounting general consulting firm is engaged to provide sustainability assurance; COUNTRY–1 if the listed firm (i) is from the UK (FTSE 100) or 0 if the listed firm (i) is from the US (NYSE 100); YEAR–1 if the sustainability report relates to the year ending in 2011 or 0 if 2010

Table I. Summary statistics for key variables

They are also reasonably liquid with a mean current ratio of 1.33 and there appears to be low strategic shareholding in these firms of only 12.21 per cent on average.

Panel B shows frequencies for the categorical variables used in the study. In particular, it highlights that the sample of 80 sustainability reports is composed of 37 reports (46.2 per cent) that obtained assurance from the accounting profession (all Big 4 firms), 32 reports (40 per cent) that engaged with non-accounting specialist consulting firms and the remaining 11 reports (13.8 per cent) are assured by non-accounting general consulting firms[2]. Panel B also emphasises that the majority of reports are from the UK (61 reports; 76 per cent) with the remainder from the USA (19 reports; 24 per cent). This is consistent with the empirical findings in the studies by Kolk and Perego (2010) and Perogo and Kolk (2012) that sustainability reports with an assurance statement are significantly lower for the USA compared with that for the UK. There is also a notable difference in the number of reports between the two years; 59 reports (74 per cent) relate to 2010 and, given that the reports were hand-collected in March 2012, only 21 (26 per cent) relate to 2011.

Table II presents the correlation matrix for the independent variables in the study's model. The table indicates statistically significant correlations between several independent variables. For example, there are significant correlations for *LN_SIZE* with *LEVERAGE* (positive) and *PROFIT* (negative). Overall, the correlations presented in Table II have the potential to bias the results of the study. Nonetheless, it is essential to note that the majority of the correlation coefficients are less than 0.4. Therefore, the magnitude of these correlations mitigates any serious concerns about multicollinearity in the regression analysis, although caution should still be observed in interpreting the results.

5.2 Multinomial logistic regression results

Table III presents the results of the multinomial logistic regression analysis, signifying the firm characteristics that influence the engagement of a member of the accounting profession. Panel A reports the results by comparing non-accounting specialist consulting firms to accounting firms, while Panel B shows the results by comparing non-accounting general consulting firms to the accounting firms. In the multinomial logistic regression, we use accounting firms as a reference. In other words, the event is when the assurer is a non-accounting specialist consulting firm in Panel A whereas the event is when the assurer is non-accounting general consulting firm in Panel B. In either case, because the non-event (being accounting firms) measures higher quality, we expect the coefficients for *LN_SIZE*, *LEVERAGE*, *PROFIT*, *LIQUID* to be negative and the coefficient for *STRAT* to be positive.

In testing *H1*, *LN_SIZE* has a negative coefficient of −0.361 that is statistically significant at the 5 per cent level using a one-tailed test (*p-value* = 0.050) when comparing non-accounting specialist consulting firms to the accounting firms. This suggests that the odds for a firm to choose a non-accounting specialist consulting firm as their sustainability assurer over the accounting profession decrease as firm size increases, while holding all other variables in the model constant. In other words, large firms are more likely to engage an accounting firm in sustainability assurance compared to small firms, consistent with *H1*. However, when comparing non-accounting general consulting firms to the accounting firms, the coefficient 0.041of *LN_SIZE* is not significant using a one-tailed test (*p-value* = 0.563), indicating that there is no size effect in choosing an assurance provider between non-accounting general consulting firms and the accounting profession. Overall, these results provide only partial support for *H1*.

Variable	LN_SIZE	LEVERAGE	PROFIT	LIQUID	STRAT	COUNTRY	YEAR
LN_SIZE		0.398*** *(0.000)*	−0.297*** *(0.007)*	−0.095 *(0.401)*	−0.029 *(0.798)*	−0.161 *(0.155)*	−0.100 *(0.380)*
LEVERAGE	0.256** *(0.022)*		−0.103 *(0.365)*	−0.109 *(0.334)*	0.016 *(0.885)*	−0.041 *(0.716)*	−0.018 *(0.872)*
PROFIT	−0.204 *(0.069)*	−0.181 *(0.107)*		0.184 *(0.102)*	−0.011 *(0.924)*	−0.191 *(0.090)*	0.160 *(0.157)*
LIQUID	0.009 *(0.939)*	−0.015 *(0.892)*	0.256** *(0.022)*		0.057 *(0.616)*	−0.230** *(0.040)*	−0.195 *(0.084)*
STRAT	−0.185 *(0.101)*	0.053 *(0.644)*	−0.020 *(0.859)*	−0.042 *(0.713)*		0.106 *(0.350)*	−0.057 *(0.613)*
COUNTRY	−0.213 *(0.058)*	−0.059 *(0.602)*	−0.209 *(0.062)*	−0.356*** *(0.001)*	0.068 *(0.546)*		0.199 *(0.076)*
YEAR	−0.046 *(0.684)*	−0.010 *(0.927)*	0.135 *(0.233)*	−0.186 *(0.098)*	−0.053 *(0.638)*	0.199 *(0.076)*	

Notes: $n = 80$; significant at: ** $p < 0.05$ and *** $p < 0.01$ levels; p-values are shown in parentheses; the correlation coefficients appearing in the top right (above the diagonal) are Pearson correlation coefficients, while those appearing in the bottom left (below the diagonal) are Spearman correlation coefficients; variable definitions that appear in Table I

Table II.
Correlation matrix

Assurance provider	Variable	Sign	Coefficient
Panel A: Comparison between non-accounting specialist consulting firms and accounting firms			
0 (Specialist consulting firms)	CONSTANT		6.645 *(0.077)*
	LN_SIZE	−	−0.361** *(0.050)*
	LEVERAGE	−	0.314 *(0.579)*
	PROFIT	−	−8.906** *(0.022)*
	LIQUID	−	0.345 *(0.834)*
	STRAT	+	0.000 *(0.489)*
	COUNTRY = 0	?	3.560*** *(0.000)*
	YEAR = 0	+	−1.410** *(0.040)*
Panel B: Comparison between non-accounting general consulting firms and accounting firms			
2 (General consulting firms)	CONSTANT		−0.744 *(0.871)*
	LN_SIZE	−	0.041 *(0.563)*
	LEVERAGE	−	0.574 *(0.622)*
	PROFIT	−	3.422 *(0.714)*
	LIQUID	−	−2.284** *(0.016)*
	STRAT	+	−0.014 *(0.696)*
	COUNTRY = 0	?	2.747** *(0.021)*
	YEAR = 0	+	0.338 *(0.721)*
Panel C			
χ^2			34.242*** *(0.002)*
Cox & Snell R^2			0.348
Nagelkerke R^2			0.403

Table III.
Multinomial logistic regression results

Notes: $n = 80$; $^{**}p < 0.05$ and $^{***}p < 0.01$ levels; p-values are shown below coefficients in parentheses; the dependent variable is ACCTG and the reference category is 1 (accounting firms); variable definitions appear in Table I

In testing *H2*, the two coefficients for *LEVERAGE* are both insignificant using a one-tailed test, when comparing non-accounting specialist consulting firms to the accounting firms and general consulting firms to the accounting firms. This implies that there is no association between the level of leverage and the choice of sustainability assurer between the accounting profession and non-accounting specialist/general consulting firms. Hence, the results do not support *H2*.

In testing *H3*, when looking at non-accounting specialist consulting firms versus the accounting firms, the *PROFIT* variable has a significantly negative coefficient of −8.906 at the 5 per cent level using a one-tailed test (*p-value* = 0.022). This indicates that as profitability increases, the odds for a firm to choose a non-accounting specialist consulting firm as sustainability assurance provider over an accounting firm decrease. That is, profitable firms are significantly more likely to engage an accounting firm than less profitable firms, which is consistent with *H3*. In contrast, the *PROFIT* variable is insignificant when comparing non-accounting general consulting firms with the accounting firms (*p-value* = 0.714), implying that there is no relation between the level of profitability and the choice of assurer. As such, the evidence provides only some support for *H3*.

In respect of *H4*, *LIQUID* has an insignificant coefficient of 0.345 with a *p-value* of 0.834 using a one-tailed test when comparing non-accounting specialist consulting firms

with the accounting firms. This indicates a lack of evidence of a liquidity effect as suggested by *H4*. Conversely, in the comparison of assurance providers between non-accounting general consulting firms and accounting firms, *LIQUID* has a negative and significant coefficient of −2.284 at the 5 per cent level (*p-value* = 0.016). This suggests that a firm is more likely to choose a non-accounting general consulting firm over an accounting firm as liquidity decreases, which is consistent with *H4*. Thus, the results partially support *H4*.

Regarding *H5*, the two coefficients associated with the *STRAT* variable are not statistically significant using a one-tailed test, when looking at non-accounting specialist consulting firms versus the accounting firms and non-accounting general consulting firms versus the accounting firms. This suggests that there is no association between institutional ownership and the choice of sustainability assurer. Hence, the evidence does not support *H5*.

The control variable, *COUNTRY*, is positive and statistically significant when comparing either the non-accounting specialist consulting firms or the general consulting firms to the accounting firms. This implies that US firms, compared to UK firms, are more likely to choose non-accountants (i.e. specialist consulting firms or general consulting firms) to be the assurer instead of the accounting profession. This evidence adds to the existing literature on the effect of country-level factors on sustainability and assurance. Kolk and Perego (2010) and Perogo and Kolk (2012) show that US firms, compared to UK firms, are associated with a higher number of sustainability reports but a lower number of sustainability assurance reports. More related to our finding, Perogo and Kolk (2012) demonstrate that the assurance quality is relatively higher for UK firms (with a mean score of 13.86) than for US firms (with a mean score of 9.83) and the quality of assurance provided by accountants is the highest than that by other assurors. These findings are consistent with our finding of UK firms using more accountants as the assuror than US firms. Note that Perogo and Kolk (2012) did not test whether the differences in assurance quality are statistically significant. Our findings are supported by statistical analysis and provide empirical evidence suggesting the country effect in the choice of assurance provider as implicitly suggested in the prior literature.

Furthermore, the coefficient on *YEAR* is significantly negative when looking at non-accounting specialist consulting firms relative to the accounting firms, but insignificant when comparing non-accounting general consulting firms to the accounting firms. This suggests that reports published in 2010, in comparison to those in 2011, are less likely to be assured by a non-accounting specialist consulting firm and are more likely to be assured by an accounting firm. This contradicts the intuition provided by the literature, which indicates that more recent reports are subject to increasing pressure to communicate greater credibility in the information disclosed. However, it is important to note that 59 (74 per cent of) reports examined in the study (see Panel B of Table I) were published in 2010 and only 21 (26 per cent of) reports were published in 2011. The small number of 2011 reports may largely explain this abnormal result.

Finally, the probability of the model chi-square 34.242 has a statistical significance of 0.002, which means that in the null hypothesis, there is no difference between the model without independent variables and the model with independent variables was rejected. In other words, the existence of a relationship between the dependent variable and independent variables is supported. Further encouragement can be gained from the Cox & Snell and

Nagelkerke R^2s, which reveal that between 34.8 and 40.3 per cent of the variation in the *ACCTG* dependent variable is explained by the independent variables in the model. Overall, this implies that the model used for this test has a reasonable explanatory power.

5.3 Further analyses

Given that the results from Table III lack consistency between Panel A (non-accounting specialist vs accounting firms) and Panel B (non-accounting general consulting vs accounting firms), we combine specialist and general consulting firms into one group and reclassify the assurance provider into two classifications: accounting firms (*NEWACCTG* = 1) and non-accounting firms (*NEWACCTG* = 0). As we have found the country effect on the choice of assurance provider, we focus on the UK sample firms in the following analyses[3].

First, we estimate a binary logistic regression with *NEWACCTG* as the dependent variable and the same independent variables as in our previous multinomial logistic regression, except for *Country*. Because *NEWACCTG* is coded 1 if the provider is an accounting firm, we expect the coefficients for *LN_SIZE*, *LEVERAGE*, *PROFIT* and *LIQUID* to be positive and the coefficient for *STRAT* to be negative.

Next, we consider the industry effect. Different rates of sustainability assurance are observed across different industries in practice. In particular, the mining and utilities industries had the highest rates of assurance in 2011 with 51 and 46 per cent, respectively, while other industries appear to lag behind (KPMG, 2011). This observation can be explained using political cost theory. Prior studies (Fonseca, 2010; Kolk and Perego, 2010; Mock *et al.*, 2007; Pflugrath *et al.*, 2011; Simnett *et al.*, 2009) indicate that firms in the mining, manufacturing, transport and utilities and financial industries have a larger, more visible social and environmental impact than firms in other industries. As such, we include four industries as additional control variables in the binary logistic regression and expect the coefficients to be positive.

We also draw on the auditor choice literature and further include additional firm-specific variables: *LOSS* (coded as 1 if the firm reports a loss), *STACCR* (short-term accruals, calculated using the change in current assets and current liabilities based on Hribar and Collins (2002) and *LTACCR* (non-operating accruals, calculated as total accruals minus short-term accruals). *STACCR* and *LTACCR*, both scaled by average total assets, are used to measure transparency of accounting information. Prior literature has found that using high-quality auditors (Big 4) is negatively associated with loss firms and less transparent firms (Guedhami *et al.*, 2014). Following the same logic, we expect the choice of high-quality sustainability assurance provider is negatively associated with loss firms and accruals.

Table IV reports the results for further analyses. Column (1) reports results from the basic model. The coefficients for both *LN_SIZE* and *PROFIT* are positive and significant at the 5 per cent level, consistent with our findings from Panel A of Table III. This means that larger and more profitable firms are likely to choose accounting firms. Column (2) shows that after controlling for industry, size and profitability are still significant. While three industry effects are not significant, we find that firms in the transportation industry are more likely to choose accounting firms, consistent with prior literature.

Column (3) shows that *LOSS* and *LTACCR* are significantly negatively associated with *NEWACCT*, indicating that loss firms and less transparent firms are unlikely to choose accounting firms, consistent with our expectation. It also shows that the results on size and profitability are robust after incorporating the additional variables.

Variable	Sign	(1) Coefficient	(2) Coefficient	(3) Coefficient
CONSTANT		−4.080 (0.243)	4.820 (0.224)	−8.491** (0.035)
LN_SIZE	+	0.327** (0.043)	0.356* (0.057)	0.599** (0.014)
LEVERAGE	+	−3.979 (0.161)	−2.540 (0.216)	−1.653 (0.329)
PROFIT	+	1.579** (0.042)	1.943** (0.043)	1.885* (0.059)
LIQUID	+	−0.312 (0.431)	−0.427 (0.216)	−0.726 (0.169)
STRAT	−	−0.005 (0.216)	−0.000 (0.492)	−0.003 (0.430)
MINING	+		0.452 (0.325)	0.252 (0.413)
TRANSPORT	+		1.569* (0.079)	2.393** (0.024)
MANUFACTURING	+		0.166 (0.422)	−0.234 (0.404)
FINANCIAL	+		−0.226 (0.430)	−0.003 (0.499)
LOSS	−			−2.712** (0.044)
STACCR	−			9.536 (0.224)
LTACCR	−			−17.966*** (0.016)
YEAR = 0	−	−0.622 (0.176)	0.997 (0.103)	−0.663 (0.201)
Max-rescaled R^2		0.213	0.272	0.397

Notes: $n = 80$; $*p < 0.10$; $**p < 0.05$ and $***p < 0.01$ levels; p-values are shown in parentheses; the dependent variable is NEWACCTG, coded as 1 for accounting firms and 0 otherwise; LOSS is coded as 1 if the firm reports a loss and 0 otherwise; STACCR is short-term accruals, calculated using the change in current assets and current liabilities, based on Hribar and Collins (2002); LTACCR is non-operating accruals, calculated as total accruals minus short-term accruals. Other variable definitions appear in Table I

Table IV.
Binary logistic regression results for UK firms

Lastly, we use a bootstrapping method using 1,000 iterations in estimating the regressions to address the small sample issue. Our untabulated results are qualitatively unchanged.

6. Concluding remarks

Sustainability reporting and assurance are emerging practices that are reshaping today's business environment. Firms are increasingly seeking assurance from both accounting firms (particularly the Big 4 firms) and non-accountants (i.e. specialist consulting firms or general consulting firms) to add credibility to their sustainability reports. The preference of firms for one assurance provider over another suggests that different firm-specific characteristics induce firms to engage different assurance providers. Our analysis of this provides five key findings:

(1) There is a size effect in the choice of a higher-quality assurance provider. Specifically, larger firms require higher quality assurance and are more likely to choose an accounting firm as an assurance provider to add credibility to their sustainability reports because of information asymmetry caused by the separation of ownership and management and organisational loss of control, as well as to political costs from having greater visibility in the public.

(2) There is a profitability effect in the choice of a higher-quality assurance provider. Profitable firms demand higher-quality assurance and prefer accounting firms to assure their sustainability reports to communicate greater credibility, which may lead to enhanced corporate value.

(3) There is some evidence suggesting a liquidity effect in the choice of a higher-quality

assurance provider. More liquid firms are more likely to engage accounting firms to signal greater credibility of sustainability reports to translate their superior performance into superior corporate value.

(4) There is a significant country effect in the choice of a higher-quality assurance provider. Specifically, UK firms are more likely to engage an accounting firm to assure their sustainability reports. This corroborates the notion that firms from the UK face greater institutional pressure towards corporate sustainability because of social norms and expectations. Therefore, UK firms engage in higher-quality assurance to meet the information needs of stakeholders.

(5) In additional analyses focusing on the UK sample firms, we find loss firms and less transparent firms are less likely to engage a higher-quality assurance provider.

The key implication of our findings is that certain types of firms have a preference for the accounting profession over non-accounting assurance providers (i.e. specialist consulting firms/general consulting firms) in sustainability assurance. This represents the niche within the sustainability assurance market in which the accounting profession can viably operate and derive economic rents. For example, accounting firms can target larger, profitable, liquid and more transparent firms from the UK in marketing sustainability assurance. Hence, sustainability assurance is a viable assurance service that the accounting profession can provide, which benefits the strategic planning and business growth of accounting firms.

The study must be considered in light of several limitations. The first limitation is the potential that relevant variables have been excluded from the empirical analysis (e.g. fees paid to assurance providers, sustainability reporting experience, scale of operation and specific stakeholder demand, executives' background and personal traits, the need for finance and the auditor), which could potentially weaken the results of the study, especially given that sustainability reporting and assurance are emerging areas of practice and research and there are significant unknowns and uncertainties in this area of knowledge. The second limitation relates to the study's generalizability, as the sample is selected only from the top 100 publicly listed firms from the UK and US. Therefore, the findings are only directly applicable to large, publicly listed firms that operate in the UK and USA. The final limitation of the study is its sample size of 80 sustainability reports, which is relatively small and can potentially influence the robustness of the statistical results. We also acknowledge that our key findings are only partially supported in some tests, which might be because of the small sample size issue. However, data collection was particularly challenging in this study given that database access to sustainability reports was limited, with sustainability reports having to be hand-collected for each company from their website and which precluded a larger sample from being obtained.

These limitations highlight several opportunities for future research. First, replication of the study using a larger sample and different setting would enhance our understanding of the relationship by validating the findings of this study. For example, a large sample covering countries with relatively high voluntary assurance rate produces a higher statistical power and allows for a more comprehensive classification of assurance providers. A large sample can also afford to contain more explanatory variables. Second, we find the existence of a significant country effect in the choice of assurance provider, which future research could investigate in more detail by examining country level factors, such as the legal environment, investor protection laws, environmental laws or other governance mechanisms to see the effect these factors could have on the choice of assurance provider.

And third, future research could investigate the usefulness of sustainability reporting and assurance, and therefore whether these practices are actually necessary, by examining the capital market reaction to the publication of sustainability reports and the inclusion of an assurance statement using event study methodologies.

In conclusion, this study contributes to the social accounting literature by examining the emerging research area of sustainability assurance, which is also an emerging area of practice. The literature on sustainability assurance is still developing and represents an area of research with potential to progress into a significant body of the literature. This study contributes to the growth of this literature by providing an investigation into the firm characteristics that induce firms to engage in higher quality assurance. Thus, the study provides a foundation for further research in sustainability assurance and the choice of assurance provider.

Notes

1. Other settings, including Japan and South Africa, were also considered, because of the high rates of sustainability reporting observed in these countries. However, because of limitations in data availability (for example, obtaining sustainability reports for Japanese firms in English), these countries were excluded from the analysis.
2. Ernst & Young and PricewaterhouseCoopers assured the highest number of reports amongst the accounting firms with 12 reports each (15%), while Lloyd's Register Quality Assurance (LRQA) assured the most amongst the non-accounting general consulting firms with nine reports (11%) and Corporate Citizenship was the largest amongst the non-accounting specialist consulting firms, assuring seven reports (9%) in the sample.
3. We thank the anonymous reviewers for suggesting these analyses.

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