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# Correlates of Sustainability Audits by Internal Auditors

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**Abstract**

An increasing number of organizations engage in sustainability activities. However, assurance of this activity is relatively new. In this study we investigate the presence of documented corporate governance guidance, risk assessment by internal auditors, industry, and internal audit function (IAF) age as correlates of organizations' engaging their IAFs in sustainability audits. Using data from a large sample of chief audit executives (CAEs) we find significant and positive associations between all of our test variables and sustainability audits by IAFs. Also organizations located in Anglo-Saxon countries are statistically significantly less likely to engage their IAF in sustainability auditing, while organizations that release reports on sustainability are significant more likely to have IAFS audit sustainability. Other control variables (organization size, IAF size, CAE experience, CAE environmental skills, and CAE education) have insignificant associations with sustainability audits by IAFs. These results have implications for practitioner benchmarking and training, as well as policy regarding combined assurance.

The authors gratefully acknowledge the Institute of Internal Auditors Research Foundation (IIARF) for permission to use its 2015 Common Body of Knowledge in Internal Auditing (CBOK 2015) database for this study. The paper has benefitted from comments on an earlier version of this paper by Mohammad Abdolmohammadi, Jean Bedard, Tony Buono, Jeff Cohen, Kathryn Jervis, Jay Thibodeau, and Ari Yezegel.

***Keywords:*** Sustainability audits, internal auditing, corporate governance, risk assessment

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## INTRODUCTION

The United Nations Global Compact (UNGC) states that *"Corporate sustainability starts with a company's value system and a principled approach to doing business. This means operating in ways that, at a minimum, meet fundamental responsibilities in the areas of human rights, labour, environment and anti-corruption*" (UNGC, 2016). Research indicates that organizations engage in sustainability activity and reporting to increase transparency, enhance brand value, improve reputation and legitimacy, signal competitiveness, motivate employees, and support control processes (Herzig and Schaltegger, 2006). Such activity is increasingly recognized as an important contributing factor to corporate sustainability (Lozano and Huisingh, 2011). Additionally, the UNGC (2012) indicates that sustainability reporting is gaining momentum as a key component of organizations' reporting practices globally.[1]

While the growth sustainability activity is documented in the literature (e.g., Hahn and Kühnen, 2013) and by NGOs (GRI, 2017), assurance of sustainability is in its infancy (GRI, 2013; KPMG, 2015), despite an increase in demand for assurance to enhance credibility therein (Ridley et al., 2011; Soh and Martinov-Bennie, 2015). Prior studies suggest that many executives expect internal auditors to assure sustainability to reduce the risk of legal liabilities for environmental malfeasance and negative public reaction to non-sustainable practices (Nitkin, Brooks, 1998; Coyne, 2006). There is also growing recognition that sustainability assurance adds value to sustainability management and reporting systems by driving internal organizational change and

[1] For example, the membership of the UN Global Compact (which requires annual reporting on progress toward the Compact's Ten universally accepted principles on human rights, labor, the environment and anti-corruption) has grown to over 9,000 public companies since its inception in 2000 (https://www.unglobalcompact.org/). In addition, more than 5,000 organizations have a profile on the Global Reporting Initiative (GRI) Website. The GRI is a non-profit organization that works toward a sustainable global economy by providing sustainability reporting guidance (https://www.globalreporting.org/Pages/default.aspx).

improvement (Bae & Seol, 2006; Mock et al., 2007), and promoting external transparency (Gray *et al*., 2014; Simnett *et al*., 2009; Cohen and Simnett, 2014). The Institute of Internal Auditors (The IIA, 2010) states that internal audit functions (IAFs) can provide value to their organization through improved risk management and better understanding of emerging issues (Zadek *et al*., 2004), such as sustainability.

The primary objective of the current study is to investigate if the documented corporate governance guidance, risk assessment by internal auditors, industry, and IAF age are associated with IAF involvement with sustainability audits.[2] The study is important because prior research (e.g., Mijatovic and Stokic, 2010) acknowledges the importance of auditing sustainability activity and reporting and focuses on external assurance and organization attributes (Cho *et al.*, 2014; Cohen and Simnett, 2014; Perego and Kolk, 2012). However, research is limited in its consideration of corporate internal contextual attributes that lead to voluntary assurance of sustainability strategies, programs, and reporting (Ridley et al., 2011) and whether IAFs are involved with the audit of their organizations' sustainability strategies and reports (O'Dwyer and Owen, 2005; Simnett *et al*., 2009; Trotman and Trotman, 2015). Some qualitative research has examined the internal context more thoroughly, but is limited in other ways, such as country (e.g., Cohen *et al*., 2004; Darnall, *et al*., 2009; Gray *et al*., 2014; Nieuwlands, 2006; O'Dwyer *et al*., 2011; Soh and Martinov-Bennie, 2015). This is despite Adams' (2002) call for additional research to empirically examine internal organization factors that are associated with sustainability activity. This investigation includes corporate attributes (e.g., code of ethics, size and industry), general

[2] We use the terms assurance and audit interchangeably. Also, our dependent variable is whether the IAF is involved in "environmental sustainability audits," which may include audits of activities and/or reporting therein. We use the term sustainability audits throughout the paper to describe this.

contextual factors (e.g., risk assessment by the IAF), and CAE attributes, such as experience (Adams, 2002).

Our study also answers calls for research to examine factors that influence voluntary sustainability assurance by organizations' IAFs (Carcello *et al.,* 2011; Cohen *et al.,* 2008; Cohen *et al*., 2014). This is an important issue because research finds that sustainability assurance activity is driven by stakeholder demand (O'Dwyer *et al*., 2011) and that assurance costs can be high. Additionally, The IIA (2013) stresses that IAFs should perform value-added activities, such as sustainability audits. The IIA (2013) also stresses that internal assurance may be a substitute for external assurance, creating an opportunity for IAFs to add value through cost reduction of sustainability assurance.[3] This is validated by research that finds internal stakeholders perceive internal assurance of sustainability adequate and that some actually prefer sustainability to be assured by IAFs (Jones and Solomon, 2010). Other research acknowledges that internal audit can improve the reliability of this sustainability information (IIRC, 2013). Finally, prior research finds a positive association between presence of sustainability assurance and; investor stock valuations (Brown-Liburd *et al*., 2012; Cheng *et al*., 2014), lower cost of equity capital, and lower analyst forecast errors and dispersion (Casey and Grenier, 2014).

Our study also adds to previous research regarding factors that enhance the role internal auditors to improve organization sustainability management systems (Nieuwlands, 2006; Darnall, *et al*., 2009). This is an important issue as many commentators highlight that the identification of these factors can increase the organizational relevance of the IAF through a more intensive role

[3] We acknowledge that there are multiple alternative parties that can perform sustainability audits (Simnett *et al*., 2009; Trotman and Trotman, 2015). Our focus in this paper is on IAFs as a source of sustainability audits in organizations.

both as a consultant and as an assurer for sustainability initiatives the organization promotes for its long-term success.

The source of data for our study is the Common Body of Knowledge in Internal Auditing (CBOK, 2015) database developed by the Institute of Internal Auditors Research Foundation (IIARF) in 2015. Specifically, we analyze responses from a sample of 2,048 chief audit executives (CAEs) of organizations of varying size and industry. Our sample includes both organizations that release a report on sustainability and those that do not for two main reasons. First, sustainability assurance may include reporting and/or activity so it is not present only when a report is released. Thus, sustainability assurance includes sustainability policies and strategies, plan, risk management, operations and reporting (Nieuwland, 2007). Second, within many organizations there is space to improve the sustainability management system and internal auditors are in position to help develop a sustainability communication plan to report to the external stakeholders the results and progress made on the organization's economic, environmental, and social responsibilities.

Our results indicate that the presence of documented corporate governance guidance and IAF involvement in risk assessment program are positively and significantly associated with sustainability audits by IAFs. We also find that organizations in environmentally sensitive industries and those with older IAFs are more likely to engage their IAFs in sustainability auditing. Our research is useful for practitioners, the IIA, and policy makers. Our findings enable practitioners to benchmark their activities against the reported results. The results suggest the future importance of the IAF's role in sustainability assurance can assist the IIA as it plans future training offerings and develop guidelines and position papers to assist practitioners in performing

sustainability auditing. Finally, our results can add to the policy debate regarding a combined assurance model for integrated reporting.

The research background leading to our hypotheses are presented in the next section, followed by our research method and statistical analysis. The study's discussion and conclusions are presented in the final section.

## BACKGROUND AND HYPOTHESES

Widespread sustainability activity and reporting began in the 1990s (Cormier and Magnan, 1999; Holder-Webb *et al*., 2009) with a dramatic increase in the 2000s (Dhaliwal *et al*., 2011; Dhaliwal *et al*., 2012; Tschopp, 2012). More than 16,000 companies produced sustainability reports in 2017, which is twenty-five times the number in 1998 (Corporateregister.com, 2017). Following prior research, we consider sustainability as an organization's performance related to the inclusion of social, economic, and environmental concerns in business operations and in interactions with stakeholders (Cohen and Simnett, 2014; Dahlsrud, 2008; Hahn and Kühnen, 2013; Montiel, 2008; Van Marrewijk, 2003).[4] Much of the reporting on sustainability is voluntary, where Non-Government Organizations (NGOs) have generally defined sustainability reporting and have provided sustainability reporting guidelines (Tschopp, 2012).[5]

With the increased sustainability activity since the 1990s, has come increased stakeholder interest for sustainability assurance. Research indicates that companies voluntarily disclose sustainability information to mitigate agency conflicts (Allegrini and Greco, 2013). The rationale

[4] This definition is consistent with that of the Global Reporting Initiative (2017). CBOK (2015) defines sustainability as the ability of the organization and its environment (social, economic, and natural) to survive in the long-term.

[5] Some of the more prevalent sustainability and sustainability reporting guidelines are: the UN's Global Reporting Initiative (United Nations Global Compact, 2011), Organization for Economic Co-operation and Development Guidelines for Multinational Enterprises (OECD, 2011), International Organization for Standardization (2014), AccountAbility AA1000 (2008), and SA8000 (Social Accountability International, 2014).

for audits is the notion that individuals must be held accountable for their actions and this accountability should be verified (Power, 1997). With an emphasis of an objective review, sustainability audits by the IAF are designed to assist organizations to achieve managerial commitment and control of their sustainability activities, to comply with environmental regulations, and to conform to organization policies around sustainability (Darnall *et al*., 2009). Despite this sustainability activity, reporting practices, assurance, and regulation vary widely worldwide.[6] Prior research finds that 60 percent of companies that issue environmental reports use some form of internal assurance (Darnall *et al*., 2009) and that IAF assurance of sustainability activity is expected to increase over time (Allegrini *et al*., 2011). This is important as organizational IAFs often have the industry and organizational expertise to properly assure sustainability reports/activity where regulation and benchmarks may be missing.

Research suggests that IAF assurance adds credibility to sustainability activity and reporting by identifying areas of improvement (Soh and Martinov-Bennie, 2015). In a 2014 qualitative study, audit committee members, senior accountants, CAEs, and external audit partners from a Big-4 audit firm acknowledge that the IAF plays, or should play, a role in the auditing of sustainability. Interviewees state that IAF involvement aids in risk management, as the costs of misreporting can be high (Trotman and Trotman, 2015). These costs include penalties against the CEO and the board as well as damage to reporting reputation. In addition, professional guidance stresses the importance of the assurance of sustainability reporting, and specifically the IAF's role (The IIA, 2010).

[6] While there are some specific mandatory sustainability reporting instruments across the world, there are few regulations around sustainability reporting and virtually none regarding sustainability assurance (Cuadrado-Ballesteros *et al*., 2017; Gürtürk *et al*., 2016; Huggins *et al*., 2011; Hummel *et al*., 2017). For a more complete list, see https://www.carrotsandsticks.net/.

Prior research suggests that the current audit culture relies heavily on external auditors to measure performance against pre-selected corporate social performance indicators (Kemp *et al*., 2012). Relying heavily on checklists and accounts that justify corporate actions, this process often makes operational personnel become subjects rather than participants in the discussion of sustainability (Kemp *et al*. 2012). Internal auditors are in a unique position in that they understand both the audit process (specifically what is necessary to achieve compliance with external benchmarks) and the operational knowledge to engage all levels of the organization to better improve sustainability efforts (Kemp *et al*., 2012; Pickett, 2010). Thus, IAFs are less likely to rely on isomophoric processes that external auditors use (Gürtürk and Hahn, 2016), with a potential to add value to the process.

Internal audits of sustainability are much like internal financial audits in that internal auditors evaluate controls over reporting and suggest corrective action through communication with management and the audit committee (Darnall *et al*., 2009). But, they also have a long-term focus by continually assessing sustainability progress toward achieving desired outcomes (Darnall *et al*., 2009). By engaging the IAF in sustainability audits, organizations create processes and procedures aimed at improving sustainability activities, and also increase the probability of discovering sustainability issues before they become significant, reducing various risks[7] (Stanwick and Stanwick, 2001). As such, IAFs are in a unique position to add value to the sustainability process (Nieuwlands, 2006), and play a significant role in the corporate governance process (Cohen, *et al*. 2004).

Understanding the correlates of IAF involvement with sustainability assurance is important given the trend toward reliance by stakeholders in the monitoring and measuring of sustainability

[7] Risks included are legal, regulatory, lost business, environmental crises, increased costs, and reputational.

reporting (Trotman and Trotman, 2015) and professional guidance therein (KPMG, 2008; The IIA, 2010). Trotman and Trotman (2015) find that audit committees, senior accountants, and internal auditors feel that IAFs should play a key role in sustainability assurance.

**Research Hypotheses**

The literature generally argues in favor of detailed and comprehensive documentation of what is expected of people within organizations. For example, research finds organizational benefits from documentation related to corporate governance (Rittenberg and Miller, 2005; Wagner and Dittmar, 2006) and formal strategy (Pearce *et al*., 1987). Regarding corporate governance/sustainability, organizations may have multiple forms of documentation/oversight to guide management and set expectations. These include board/supervisory committee charters, corporate governance codes, corporate ethics policies/codes of ethics/codes of conduct, long-term strategic plans, and AC charters. While many studies focus on the code of ethics, research finds that a code of ethics is just one piece of the puzzle for promoting sustainability (Svensson and Wood, 2008), and is merely a starting point for an integrated program (Wood, 2002).

Stakeholders often hold substantial influence over organizations by the threat of boycotts and publicity. According to the conflict-resolution explanation[8] of sustainability activity, many shareholders ask organizations to institutionalize stakeholder protection, rather than leave it in the hands of the CEO. Thus, they demand that organizations link value, corporate governance, and sustainability (Cespa and Cestone, 2007) to reduce conflicts between stakeholders and organizations . We posit that organization incentives to accept sustainability audits are stronger

[8] The conflict resolution theory of sustainability activity states that firms use sustainability activities to reduce conflict of interest between managers, investing, and non-investing stakeholders.

when corporate control is more contestable (i.e. corporate governance is stronger[9]) (Jensen, 2002). Thus, organizations demonstrate their commitment to conflict resolution through their documented corporate governance guidance, and put this in action by engaging their IAFs in sustainability auditing.

Additionally, Institutional Theory suggests that the normative pressure from stakeholders for sustainability activity/reporting makes it more likely that organizations will take sustainability seriously and utilize assurance services therein, rather than greenwashing. This is because sustainability may be defined by how the forms, outcomes, and dynamics of organizations are influenced and shaped by other social institutions (Brammer et al., 2012). Institutions are usually defined by formal or informal rules that constrain and enable behaviour (Morgan *et al.,* 2010), for which CGGuidance is a proxy.

Conversely, following the over-investment theory of Gompers *et al*., (2003), organizations with stronger corporate governance may not engage their IAFs in sustainability audits as they are less likely to have an agency problem (Harjoto and Jo, 2011). More specifically managers are less likely to over-invest in sustainability activities for personal gain (reputation building), such as IAF involvement in sustainability audits (Harjoto and Jo, 2011; Jo and Harjoto, 2012).

Finally, according to the legitimacy theory perspective (Suchman, 1995), organizations should promote and realize actions that are desirable, proper or appropriate within some socially constructed system of norms, values, believe and definitions. IAF sustainability auditing one these actions as this helps organizations to stay within the boundaries of what is deemed acceptable by the stakeholders. Particularly, IAF sustainability auditing improves activities to manage

[9] Here we use the existence of internal documentation as a signal of corporate governance.

environmental and social risks that threaten the organization's legitimacy, maintain the compliance with the applicable environmental and social laws, and avoid malpractices and sanctions. It is more likely that internal auditors perform sustainability audits when they work in an environment where other initiatives have been adopted to promote external legitimacy as in this way IAF can conform to other organizational processes and be more aligned with organizational aims and priorities. Thus, our first hypothesis is:

> *H1: The presence of documented corporate governance guidance is positively associated with sustainability audits by IAFs.*

Trotman and Trotman (2015) find that the risk management approach promotes IAFs to provide assurance on greenhouse gas emissions. Their survey respondents indicate that the role of IAFs in sustainability audits will grow in years to come as the use of enterprise risk management (ERM) grows. Thus, IAFs expect to spend more time on corporate governance, enterprise risk management, strategic reviews, social and sustainability audits, and ethics audits and less time on compliance audits (Allegrini *et al*., 2011). The increasing importance and engagement of IAFs in ESG areas is also evidenced by the proliferation of ESG-related practice guides issued by the Institute of Internal Auditors (IIA) in recent years, including Evaluating Corporate Social Responsibility/Sustainable Development and several other specific subject-matter guides.

When stakeholders ask internal auditors to provide assurance on risk management as a whole, the IAF should ensure that all relevant risks, including those related to the sustainability aspects, are included in organization's risk management system. In their assurance role, internal auditors perform sustainability audits to verify whether management has identified, evaluated and implemented risk management activities and controls that address risks associated with the sustainable development of organization' business. In this way internal auditors can provide

additional assurance to the board, audit committee, and management that line managers have considered and effectively managed the relevant risks associated with sustainability. When internal auditors are required to provide advice and consulting on the entire risk management portfolio they help develop a 'triple bottom line' awareness of organizational risks by identifying, assessing and management the risks associated with the social and the environmental dimensions of business and not limiting their analysis to the economic dimension. Additionally, they can assist managers in design and implement the best actions to mitigate these sustainability risks.

Prior research suggests that IAFs involved in enterprise risk management are indeed likely to identify sustainability as a key risk (Bebbington *et al*., 2014). Ballou *et al*. (2012) find evidence that internal audit uses its risk management expertise (Knechel *et al*. 2007) to promote integration of sustainability issues into overall business risks. They do so by identifying social impacts of the organization's competitive context and value chain. In this regard IAFs are able to measure the impacts of these risks and help design controls to mitigate them. Finally, research finds that firms often use the internal audit as a substitute for external audit of sustainability reporting (Peters and Romi, 2015).

Research also suggests that IAFs help improve sustainability governance and reporting as organizations recognize and respond to risks associated with nonfinancial disclosures (Cascone *et al.*, 2010). IAFs are uniquely positioned within the organization and can undertake a more strategic approach than external auditors. Thus, IAF's can play an important role in the move towards integrated reporting (Druckman, 2013) and management believes IAFs can help improve the reliability of sustainability information (IIRC, 2013).

Therefore, we posit that when IAFs are involved in the risk management process they are likely to identify sustainability as a major risk area, and the organization's management is more likely to enlist the IAF to provide assurance therein. Thus,

*H2: IAFs that are involved in the risk management process are more likely to engage in sustainability audits.*

Research highlights several factors that influence the decisions of organizations working in an environmentally sensitive industry (e.g. oil and gas, power utilities, waste management, agriculture) to perform sustainability audits. First, in these industries, there is a greater external pressure on organizations to adopt sustainable practices from stakeholders (Darnall et al., 2009). These include regulators, environmental authorities, industry associations, consumers, and local communities. In order to address these expectations, organizations enlist IAFs to perform sustainability audits. The scope of these auditing activities varies based on the diverse expectations of each stakeholders ranging from compliance with environmental regulations and ISO standards to the assurance of sustainability reporting.

Second, within environmental sensitive industries, environmental audits (part of sustainability audits) are vital to reinforce the organizational risk management system as firms are exposed to greater environmental risks (e.g., environmental disasters). IAF assurance activities increase the organization's ability to prevent environmental disasters and avoid costly litigation, fines, and protect corporate reputation (Gilbert, 1999). Finally, stakeholders of organizations in environmentally sensitive industries ask IAFs to perform environmental auditing to enhance the value of the significant investments the organization makes to manage environmental issues.

Prior research documents an association between environmental and social risks of varying industries and the level of environmental and social disclosure (Adams, 1998; Patten, 2002) and assurance (Cho *et al*., 2014; Kolk and Perego, 2010; KPMG, 2015; Simnett *et al*., 2009). Organizations in industries with greater social and/or environmental impact are more exposed to risks therein, and are thus more likely to utilize resources for sustainability assurance to manage this risk (Simnett *et al*., 2009). Simnett *et al.,* (2009) also find that organizations with higher social footprints (mining, utilities, and finance) are more likely to have sustainability reports assured. Thus we posit that:

*H3: Organizations that operate in environmentally sensitive industries are more likely to engage their IAFs in sustainability audits.*

Sarens *et al*., (2011) indicate that advanced IAF activities (such as sustainability auditing) are performed more often by older IAFs. Related research supports this and finds that older IAFs are more likely to engage in IT audits (Abdolmohammadi and Boss, 2010). This is because younger IAFs generally limit their agenda to the more traditional IAF activities, as they do not have the resources or expertise to partake in more advanced activities. The authors suggest that as the more the organization benefits from the services of its IAF then key stakeholders support an expansion of the IAF services into more advanced activities. Additionally, it is likely that older IAFs have developed a deeper knowledge of business activities helping them to better gauge the environmental and social risks associated with organization business processes. This idea is supported by the IIA, which released a report in 2009 that proposed a tool termed the "internal audit capability model" for assessing the level of maturity of the IAF (sophistication and experience) to help promote growth of IAF capabilities in the public sector (The IIA, 2009).

Additionally, CAE's of older IAFs are more likely aware of the need to remain relevant to their organizations and steps to ensure relevance therein. Thus, CAEs of older IAFs likely align IAF activities with strategic risks of their parent organizations, which likely include sustainability. Thus,

*H4: The older the IAF the more likely it will be involved in sustainability auditing.*

## RESEARCH METHOD

The IIARF regularly conducts surveys of IIA members. In 2015 the IIARF conducted a survey of the common body of knowledge in internal auditing (CBOK, 2015). The survey has detailed questions about various issues ranging from characteristics of participating organizations and their IAFs, to the strategic and codes of ethics/conduct. It also includes questions regarding practice issues, such as use of The IIA's standards and attributes of practicing internal auditors (e.g., education, experience, and continuing professional education). We gained permission from the IIARF to use the CBOK (2015) database as the source of our data.

CBOK (2015) has 14,518 useable responses from IIA members in over 160 countries. We filtered the data base by professional rank (CAEs only). The reason for this filtering is that CAEs are the most knowledgeable about their IAFs involvement with sustainability audits by IAFs, and only CAE's were asked to respond to some of the questions which are included in our analyses. Using this filter, our sample contains 2,048 observations.

**Independent Variables**

*Corporate Governance Guidance.* CBOK (2015) asks "Which organizational governance documents exist in your organization?" Five items relate to documentation of corporate governance items as listed below.

1. Corporate governance code
2. Corporate ethics policy/code of ethics/code of conduct
3. Board/supervisory committee charter
4. Long-term strategic plan for the organization
5. Audit committee charter

We use a linear composite of these five corporate governance guidance (*CGGuidance*)[10] Given the 1/0 coding of each of the five guidance items, the CGGuidance variable will have a range of 0-5 for our analysis.

*IAFInvolveRiskMgt*. CBOK (2015) asks "What areas of responsibility does internal audit have related to risk at your organization? (Choose all that apply)" and lists "Provide assurance on risk management as a whole" and "Provide advice and consulting on risk management activities". We code responses as 1 for those that checked these items and 0 otherwise.

*ORGindustry.* CBOK (2015) asked participants to denote the "primary industry classification(s) of the organization for which you work (or your primary client if you are a service provider)." Following prior research (e.g., Kolk, 2010; Simnett *et al.,* 2009), we control for industry by separating responses into environmentally sensitive industries (agriculture, forestry, fishing and hunting, waste management, as well as mining, quarrying, and oil and gas extraction) which we code as 1, and all other industries coded as 0.

[10] Because evidence is missing in the extant literature to guide differential weighing of these items, we assume their association with IAF sustainability audits is linear and additive.

*IAFage. CBOK (2015)* asked participants "Approximately how many years has the internal audit department been in place at your organization?" We use responses as a numerical variable in our analyses to control for IAF age.

**Control Variables**

*OrgReleaseSustainRpt.* As mentioned earlier our sample includes both organizations that do and do not release a report on sustainability, but sustainability assurance is more than the assurance of sustainability report as it involves activities concerning the organizational sustainability management systems (SMS) as a whole. CBOK (2015) asks "Does your organization plan to release a report on sustainability?" and gives the following choices:

1. Yes, this year
2. Yes, at some point in the next 2 to 3 years
3. Yes, at an unspecified point in the future
4. No
5. I am not familiar with the Integrated Reporting (< IR >) Framework.
6. I don't know

We created a binary variable (1/0) for yes (number 1) versus other (numbers 1- 6) to control for whether an organization releases a report on sustainability. We include responses four to six as our dependent variable *SustainabilityAudit* may include assurance of either reporting or activity, or both. Thus, there are cases where CAE responses to this question are four to six , and their IAF still engaged in sustainability auditing.

*ORGsize.* Prior studies find that organization size is positively associated with the presence of sustainability reporting (Adams *et al*., 1998; Cowen *et al*., 1987; Dhaliwal *et al*., 2011; Holder-Webb *et al*., 2009). This is generally seen as a result of the increased attention from the general public and increased pressure to act in a socially responsible manner (Cowen *et al*., 1987). Larger firms interact with a greater number and variety of stakeholders, with likely

increase in complexity of sustainability efforts (Hart & Sharma, 2004) and the need/demand for assurance. In addition, larger firms likely possess resources (financial and human) required for sustainability initiatives (Gallo and Christensen, 2011). Thus, larger firms can devote time and attention to sustainability related items and assurance (Gallo and Christensen, 2011). Conversely, Peters and Romi (2015) find a negative relationship between organization size and sustainability due to lagging development and institutional expectations surrounding sustainability. Therefore, it is likely that only large companies expend the resources necessary to engage their IAFs in sustainability assurance. We investigate organization size as a control variable. We classify large organizations with 1,000 or fewer full-time equivalent employees as small (coded as 0) and those with 1,001 or more full time equivalent employees as large (coded as 1).

*Organization type (ORGtype).* Listed companies STEVE TO ADD TEXT HERE.

CBOK (2010) asked CAEs to indicate "the type(s) of organization for which you currently work" and listed the following options:

1. Privately held (non-listed) company
2. Publicly-traded (listed) company
3. Public sector/government
4. Not-for-profit organization/non-government organization
5. Other

We code publicly-traded (listed) company as 1 and the remainder as 0.

*OrgRiskMgtDeveloped.* Organizations have varying levels of development of risk management processes and procedures (from none to fully developed strategic plans and departments). CBOK (2015) asks "What is your organization's level of development for its risk management processes." We consider responses of "formal risk management processes and procedures are in place" and "the organization has a formal enterprise risk management (ERM)

process with a chief risk officer or equivalent" as a developed risk management process and code as 1. We code all other responses as 0.

*IAFsize.* Following prior research (e.g., Sarens and Abdolmohammadi, 2011, Sarens *et al.* 2011) we control for IAF size as participation in advanced auditing activities such as sustainability reporting may be a resource allocation decision. Specifically, larger IAFs are more likely to engage in sustainability auditing as they have the necessary resources therein. We use the number of full-time equivalent employees in the IAF as a control variable.

*CAEEnvExperience.* CAE's with environmentally auditing experience gained that experience in their current or a past role. Thus, CAEs with this experience are more likely to engage their IAFs in sustainability auditing as they either gained this experience in their current role, or are able to do so in their current role due to prior experience. CBOK (2015) asks *"In addition to performing general internal audit activities, do you have an area of technical specialization for which you have had formal training AND in which you spend a majority of your time working?* of which environmental auditing is a choice. We code those CAEs with environmental auditing experience as 1 and all others as 0.

*CAEeducation.* More educated CAEs are more likely to be able to engage their IAFs in more advanced activities, such as sustainability auditing. This is likely as their experience leads to a more skilled IAF and they are likely more aware of the need to engage in such activities to remain relevant. CBOK (2015) asked participants about "Your highest level of formal education (not certification)" completed and listed the following to select from:

1. Secondary/high school education
2. Undergraduate diploma or associate degree (less than four years),
3. Bachelors/diploma
4. Masters/graduate degree/diploma,
5. Doctoral degree (PhD or higher)
6. None of the above

We created a binary variable (1/0) for graduate (numbers 4 and 5) versus other (numbers 1-3 and 6) degrees.

*Anglo-Saxon.* As prior research indicates that IAF development is more advanced in Anglo-Saxon countries and the IIA's influence ofer IAFs in such countries is likely greater due to the longer history therein (Sarens and Abdolmohammadi, 2011), we control for organizations located in Anglo-Saxon countries. Thus, it is likely that IAFs in these areas are able to engage in more advanced activities, such as sustainability auditing, and the IAF is able to promote participation therein, in part to promote IAF relevance. We code organizations located in Anglo-Saxon countries as 1 and all others as 0 and expect a positive relationship with our dependent variable.

**Model Specification**

Table 1 provides variables used in the study and their definitions. The associations between the dependent and independent variables as identified above are used to specify our binary logistic regression as follows:

$$SustainabilityAudit = \alpha + \beta_1 CGGuidance + \beta_2 IAFInvolveRiskMgt + \beta_3 ORGindustry + \beta_4 IAFage + \beta_5 OrgReleaseSustainRpt + \beta_6 ORGsize + \beta_7 IAFsize + \beta_8 CAEexperience + \beta_9 CAEEnvexperience + \beta_{10} CAEeducation + \beta_{11} Anglo\text{-}Saxon + e$$

## RESULTS

**Descriptive Statistics**

Table 2 provides descriptive statistics on independent variables crossed by the dependent variable, sustainability (Does the IAF Perform sustainability audits?). Independent variables are

listed in column 1, followed by their summary statistics by sustainability audits (yes/no) in the second and third columns. The last two columns provide statistical tests, where significant differences are highlighted. Given the direction of the variables as discussed earlier, we use the one-tailed significance for reporting the results.

[Insert Table 2 Here]

Overall, 45% of CAEs indicated that their IAFs currently perform sustainability audits. Regarding our independent variables, organizations with more documented corporate governance guidance were statistically ($p<0.01$) more likely to engage in sustainability audits. For IAFs involved with the risk management process, 27% perform sustainability audits. This is significantly greater ($p<0.01$) than IAFs that are not involved with the risk management process (18%) Also, organizations that operate in environmentally sensitive industries (7%) are significantly more likely ($p<.01$) to engage in sustainability auditing than organizations outside those industries (3%). Finally older IAFs are significantly more likely to perform sustainability audits ($p<0.01$).

Regarding control variables we find that organizations that operate in Anglo-Saxon countries (32%) are significantly less likely ($p<.01$)to engage their IAFs in sustainability auditing than those inside Anglo-Saxon countries (14%) and larger IAFs are more likely to perform sustainability audits ($p=.08$).

**Correlation Matrix**

Table 3 presents bivariate Pearson correlations between the independent variables in Model 1, where all significant (at $p=0.05$ or less) correlation coefficients are highlighted.

Coefficients of 0.50 or higher pose a serious threat for multicollinearity, but as Table 3 shows, none of the coefficients is near the 0.50 critical level.

[Insert Table 3 Here]

**Multiple Regression Analysis**

Table 4 presents the results of an estimated Logit regression, where the coefficient (β) is provided for each variable, along with its related Wald statistic and statistical significance. Also provided is the overall $\chi^2$ statistic for the model, its related classification accuracy and the pseudo $R^2$. As shown in the table, the overall $\chi^2$ is highly significant ($p<0.01$) for the model, with classification accuracy of 62.4 percent and a pseudo $R^2$ of 12.8 percent.

[Insert Table 4 Here]

These results provide evidence that both the existence of documented corporate governance guidance (B=0.099, p< 0.01) and IAF involvement in risk management (B=0.415, p< 0.01) are both positively and significantly associated with sustainability audits by IAFs, thus providing support for both H1 and H2. Results also indicate positive and significant relationships between *ORGIndustry*, (sensitive industries vs. others at B=0.717, p< 0.01) and sustainability audits by IAFs, supporting H3. Finally, *IAFAge* has a positive and significant (B=.008, P<.01) relationship with IAF sustainability auditing, providing support for H4. For control variables, Anglo-Saxon has a significant relationship (B=-1.109, p<.01) with sustainability auditing by IAFs, indicating that organizations located in Anglo-Saxon countries are less likely to engage IAFs in such audits. Also, organizations that release a report on sustainability are significantly more likely to engage

their IAFs in sustainability auditing (B=0.803, p<.01). The remaining control variables have insignificant relationships with sustainability auditing by IAFs.

## DISCUSSION AND CONCLUSIONS

Our CBOK (2015) based sample of 2,048 chief audit executives (CAEs) of various organizations world-wide reveals that existence documented corporate governance guidance and IAF involvement in risk assessment are significantly and positively associated with the IAF conducting audits of sustainability. Results also indicate that IAFs whose organizations operate in environmentally sensitive and larger IAFs are significantly more likely to engage in sustainability auditing. Of the control variables, organizations based within Anglo-Saxon countries are significantly less likely to engage their IAFs in sustainability auditing.

Our findings are useful for practitioners, the IIA, and policy makers. Results enable practitioners to benchmark their activities against the reported results. Also, our research adds to the policy debate regarding a combined assurance model for integrated reporting by demonstrating that many companies already possess the internal resources to provide assurance therein. Finally, all stakeholders may benefit from this research as it indicates internal attributes that may improve sustainability activity/reporting through promotion of assurance and consulting therein.

Like other survey-based research, our study has a number of limitations, consideration of which provides avenues for additional research. For example, while practitioner survey responses are highly valuable in the sense that these professionals are highly knowledgeable and insightful about internal audit issues in their organizations, the data they provide may represent their perceptions, not necessarily reality. Future qualitative study of a small sample of organizations

may be helpful in finding the exact nature of sustainability audits by IAFs. As large as the sample of CAEs is in the current study, it is still too limited to conduct a country-specific analysis. Future studies may benefit from analysis of specific countries/world regions. Such studies will require an analysis of cultural dimensions, legal/regulatory characteristics, and economic variables in various countries.

Finally, while our findings indicate an association between corporate governance guidance and risk assessment and sustainability audits by IAFs, we acknowledge that such relationships are not necessarily causal in nature. However, we believe that our results are informative in highlighting some previously unexamined internal conditions under which organizations engage their IAFs in sustainability assurance. Future qualitative interviews with CAEs, audit committees, and management may help disentangle the determinants of IAF engagement in sustainability auditing. Studies can examine additional organization-specific variables.

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Table 1
Variables Definitions

| **Variable** | **Definition** |
|---|---|
| SustainabilityAudit (DV) | 1 if internal auditors audit sustainability, 0 otherwise |
| CGGuidance (H1) | linear composite of 0-5 based on presence of following documentation in organization: *organizational level ethics policy, AC charter, board or supervisory committee charter, organizational governance code, long-term strategic plan for the organization* |
| IAFInvolveRiskMgt (H2) | 1 if IAF performs continuous risk assessment, 0 otherwise |
| ORGindustry (H3) | 1 if sustainability sensitive (Agriculture, Forestry, Fishing and Hunting, Mining, Quarrying, Oil and Gas Extraction), 0 otherwise |
| IAFAge (H4) | Age of IAF (number of years) |
| OrgReleaseSustainRpt | 1 if company releases report on Sustainability (Sustainability is defined as the ability of the organization and its environment (social, economic, and natural) to survive in the long-term, 0 otherwise |
| ORGsize | Number of full-time equivalent employees for the organization |
| IAFSize | Size of IAF (number of full time equivalent employees) |
| CAEexperience | CAE experience (number of years) |
| CAEEnvExperience | CAE has training and spends time in environmental auditing |
| CAEeducation | 1 if graduate, 0 otherwise |
| Anglo-Saxon | 1 if Anglo-Saxon, 0 otherwise |

Table 2
Descriptive Statistics of Variables in the Logit Model
DV: Does the Internal Audit Function (IAF) Perform Sustainability Audits?

| **SustainabilityAudit by IAF? (DV)** | **Overall: 2,048** | **No: 1,122 (55%)** | **Yes: 926 (45%)** | **Statistic** | **Sig.*** |
|---|---|---|---|---|---|
| CGGuidance (H1) Mean (Std.Dev) | | 3.11 (1.36) | 3.26 (1.43) | T =2.736 | **<0.01** |
| IAFInvolveRiskMgt (H2) Yes<br>No | 506 (22%)<br>1,797 (78%) | 226 (18%)<br>1,041 (82%) | 280 (27%)<br>756 (73%) | $\chi^2$=28.08 | **<0.01** |
| ORGindustry Sensitive<br>Other | 119 (5%)<br>2,225 (95%) | 43 (3%)<br>1,226 (97%) | 76 (7%)<br>989 (93%) | $\chi^2$=18.29 | **<0.01** |
| IAFage | | 14.50 (13.90) | 16.77 (17.10) | T=3.40 | **<0.01** |
| OrgReleaseSustainRpt Yes<br>No | 483 (20%)<br>1,891 (80%) | 169 (13%)<br>1,140 (87%) | 314 (29%)<br>751 (71%) | $\chi^2$=99.53 | **<0.01** |
| ORGsize Small (<1,000 fte)<br>Large (1,001+ fte) | 1,214 (51%)<br>1,160 (49%) | 678 (52%)<br>631 (48%) | 536 (50%)<br>529 (50%) | $\chi^2$=0.506 | 0.24 |
| IAFsize Mean (StdDev) | | 40.27 (350.79) | 255.30 (255.29) | T=1.41 | **0.08** |
| CAEexperience Mean (Std.Dev) | | 13.63 (9.18) | 13.72 (9.80) | T=0.23 | 0.41 |
| CAEEnvExperience Yes<br>No | 9 (0%)<br>2,365 (100%) | 3 (0%)<br>1,306 (100%) | 6 (1%)<br>1,059 (99%) | $\chi^2$=1.74 | 0.094 |
| CAEeducation Graduate<br>Other | 1,315 (55%)<br>1,059 (45%) | 713 (54%)<br>596 (46%) | 602 (57%)<br>463 (43%) | $\chi^2$=1.01 | 0.16 |
| Anglo-Saxon Anglo-Saxon<br>Other | 559 (24%)<br>1,815 (76%) | 415 (32%)<br>894 (68%) | 144 (14%)<br>921 (86%) | $\chi^2$=107.84 | **<0.01** |

See Table 1 for variables definitions
*One-tailed

Table 3
Pearson Correlation Matrix

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CGGuidance (H1) | 1.00 | | | | | | | | | | |
| Risk Assessment (H2) | -.002 | 1.00 | | | | | | | | | |
| ORGindustry (H3) | .009 | .009 | 1.00 | | | | | | | | |
| IAFAge (H4) | **.172** | .010 | **-.044** | 1.00 | | | | | | | |
| OrgReleaseSustainRpt | **.175** | .025 | **.060** | **.117** | 1.00 | | | | | | |
| ORGsize | **.122** | **-.047** | **.043** | **.164** | **.164** | 1.00 | | | | | |
| IAFSize | .019 | .031 | -.004 | .010 | -.002 | .033 | 1.00 | | | | |
| CAEexperience | **.106** | **.037** | .012 | **.238** | .015 | **.078** | -.014 | 1.00 | | | |
| CAEEnvExperience | -.009 | -.007 | -.013 | .012 | .033 | -.022 | -.002 | .001 | 1.00 | | |
| CAEeducation | .029 | .005 | .007 | .001 | **.063** | .021 | -.014 | .025 | .010 | 1.00 | |
| Anglo-Saxon | **.135** | **-.091** | -.016 | .086 | **-.088** | **.137** | -.017 | **.229** | -.004 | -.12 | 1.00 |

See Table 1 for variables definitions.

**Table 4**

Binary Logistic Regression Model

DV: Does the Internal Audit Function (IAF) Perform Sustainability audits?

| Variable | Expected Sign | β | Wald | Sig.* |
|---|---|---|---|---|
| CGGuidance (H1) | + | .099 | 7.762 | **<.01** |
| Risk Assessment (H2) | + | .415 | 13.540 | **<.01** |
| ORGindustry (H3) | + | .767 | 120.022 | **<.01** |
| IAFAge (H4) | + | .008 | 6.280 | **<.01** |
| OrgReleaseSustainabilityReport | + | .803 | 43.633 | **<.01** |
| ORGsize | + | .007 | 0.006 | 0.47 |
| IAFSize | + | .000 | 0.670 | 0.21 |
| CAEexperience | + | .005 | 0.730 | 0.19 |
| CAEEnvExperience | + | .755 | 1.037 | 0.15 |
| CAEeducation | + | -.109 | 1.302 | 0.13 |
| Anglo-Saxon | + | -1.109 | 75.226 | **<.01** |
| Constant | | -.718 | 24.813 | **<.01** |
| Chi-Square (Significance) | | **207.951 (<.01)** | | |
| Classification accuracy | | 62.4% | | |
| Nagelkerke Pseudo $R^2$ | | 12.9% | | |

See Table 1 for variables definitions

*One-tailed