

WHAT DOES IT MEAN TO BE “SUSTAINABLE”?

AN EMPIRICAL INVESTIGATION OF CORPORATE SUSTAINABILITY POLICIES

ABSTRACT

The phrase “corporate sustainability” is increasingly prevalent in both the industry press and management journals (Engardio, 2007; Montiel, 2008). However, a consensus definition has not been achieved, and empirical studies on how managers are defining and enacting the construct are lacking. In an effort to link theory to practice, we use a survey methodology to investigate the definitions-in-use and the drivers of sustainability-related policies. In a large sample (n = 1,187) study of accounting executives at U.S.-based firms, we find evidence for the influence of corporate control mechanisms, organizational size, and ownership on the prevalence of sustainability policy and reporting. Additionally, qualitative data collected in the form of open-ended questions provided insight into the differences between practitioners’ and academics’ understanding of sustainability.

“Corporate sustainability” is a phrase increasingly prevalent in both the industry press and business journals (Engardio, 2007; Montiel, 2008). Despite the fact that research on the topic has increased, a consensus definition across the academic and practitioner boundary has not developed. The term “sustainability” was originally used in management research in reference to organizational survival. Thus, the term was primarily understood in financial terms (Baumol, Bailey, & Willig, 1977; Dierickx & Cool, 1989). Over time, strategic management principles of sustained competitive advantage converged with organizational research on corporate social responsibility (CSR), ecological economics, and environmental management to evolve a new understanding of sustainability—one that incorporates more than continued financial success (Gladwin, Kennelly, & Krause, 1995; Sharma & Henriques, 2005; Starik & Rands, 1995). Specifically, newer definitions encompass the idea that organizations must address financial, social, and environmental impacts of their actions in order to strive for true “sustainability.” This newer understanding of the term sustainability is used both in management research (Montiel, 2008) and management practice (DJSI, 2009).

While researchers contributing to the management literature have studied the motivations and consequences of actions that scholars define as sustainable (Bansal, 2005; Sharma & Henriques, 2005) there has been little investigation into the prevalence or drivers of sustainability policy and less work on how *managers* define sustainability. Prior research has studied the drivers of corporate social responsibility (CSR) (Hemingway & MacLagan, 2004), environmental behavior (Williamson, Lynch-Wood, & Ramsay, 2006) and corporate social reporting (Adams, 2002); all of which could be considered components of sustainability. However, sustainability is not merely an aggregation of disparate CSR and environmental health and safety (EH&S) policies; but rather a concept that incorporates the principles of social,

environmental, and financial management into a unified policy which acknowledges the interdependencies among these three dimensions. Therefore, studying how managers are interpreting the concept of sustainability and the drivers promoting firms into adopting full sustainability policies, as opposed to rebranding CSR and EH&S efforts, would make a significant contribution to the strategy and organizational behavior literatures. We conducted such a study here.

In pursuing these issues, we attempted a slightly different approach than that taken by others interested in this sustainability topic. The bulk of previous research on this topic has been based on academic definitions of sustainability where researchers sought to discover how well individual and corporate behaviors confirmed or disconfirmed those definitions. In contrast, this work begins by investigating managers' sustainability definitions, and analyzes what such definitions imply about current academic definitions and how well they integrate with management theories. After the qualitative part of the study, we do settle on a single academic definition of sustainability to quantitatively investigate the organizational factors which drive the adoption of sustainability policy.

More specifically, for this research project we used a survey methodology to understand definitions of sustainability as used in practice. We also investigated how sustainability policies are formalized among a large sample of firms to gain insight into the detail and distribution of firms' heterogeneous sustainability policies. The study unfolds as follows: first, we provide background on extant sustainability definitions and the measures that may capture sustainability policy as defined by organizations. The next section presents hypotheses, motivated by existing theory, on organizational predictors of sustainability policies. In our methodology section we

introduce our data sample, discuss our econometric tools, and present results. We close with a discussion of our results and implications for future research.

Theory and Hypotheses

The term “sustainability” is most generally understood as the potential for a process or condition to be maintained indefinitely (Holdren, Daily, & Ehrlich, 1995). In the strategic management literature the word was often used in reference to corporations and their day-to-day evolutionary struggles to survive. This interpretation is best exemplified by the Resource Based View of the firm with its premise that the goal of a firm is to attain *sustained* competitive advantage (Barney, 1991; Peteraf, 1993). More recently, the term has been adopted in the management literature to describe corporate agendas which integrate a variety of extra-financial goals including: social responsibility, environmental preservation, poverty alleviation, and stakeholder engagement. Though the use of the term “sustainability” to address these magnanimous corporate goals is more recent, the idea that firms carry a certain responsibility for the public good is long standing in the management literature. (Learned, Christensen, Andrews, & Guth, 1965)

For example, in their collection of classic case studies (1965), Learned and his colleagues presented a four point framework for strategy formulation. The final point of this framework called for the manager to identify and accept “the social responsibilities of the firm.” Their chapter on relating corporate strategy to moral values contains many ideas which have since become integral to the study of corporate social responsibility. Even in the earliest years of the environmental movement, the authors realized that “...new emphasis on the conservation of natural resources, the purification of waterways and atmosphere...” would significantly impact

firm strategies and their impact on society (Learned et al., 1965). Therefore, there is evidence that as early as 1965 there existed an argument for firm strategies to take into account impacts on social and environmental welfare.

The social responsibility of the firm espoused by Learned and colleagues was later supplanted by academic interest in corporate ethics and corporate social responsibility. Over time, as the impacts of firm activities on natural systems became more noticeable and environmental regulations were enacted, an additional research stream in environmental management emerged. These distinct fields have made tremendous contributions to the management literature, but now a new integrative phrase in the form of “sustainability” has emerged (Engardio, 2007; Montiel, 2008). Some representative examples of definitions of sustainability include: The Brundtland definition from *Our Common Future* (WCED, 1987) and the Triple Bottom Line (Elkington, 1994, , 2004).

The Brundtland definition states: “sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” This definition is one the most often quoted definition of sustainability in the management literature (Hart, 1995; Marshall & Toffel, 2005). Most citations of the definition focus on the first sentence of the Brundtland definition (above), with its emphasis on the concept of intergenerational equity. Cites rarely address the concepts of environmental limits and poverty alleviation which dominate the remaining text of the document. A closer look at the Brundtland definition reveals both a clarification that the term “needs” is primarily focused on the needs of the world’s poor and an emphasis on the limits set by the environment’s carrying capacity (WCED, 1987). The additional concepts inherent in the full Brundtland definition, make it clear

that sustainability can be considered multidimensional; incorporating economic development, social welfare, and environmental limits with a goal towards intergenerational equity.

Unlike the Brundtland definition, which was developed for a broad audience of policymakers, the Triple Bottom Line definition was developed specifically for a corporate environment. The phrase was coined by John Elkington in the mid-1990s. In simplest terms, the triple bottom line perspective focuses corporations' attention on the social and environmental costs and benefits of their actions, not just the economic (Elkington, 2004). This perspective does not, however, demand that social and environmental consequences be tabulated into fully objective measures that can be aggregated with corporate financial results as suggested by some critics (Norman & MacDonald, 2004). Advocates of the triple bottom line approach, generally, do not support the idea that social welfare and environmental fitness can be measured by single numbers. In fact, the core thought behind the triple bottom line perspective is that no individual number, such as net income, can accurately capture all of corporate performance (Pava, 2007). Therefore, while efforts to improve financial, environmental and social accounting are part of improving corporate sustainability, the motivation for these improvements is the added value of knowledge and increased accountability—not the creation of an aggregate measure by which to judge firm performance. However, both proponents and critics of the triple bottom line focus too much on the notion of quantifying the measures of economic, environmental, and social performance (Jensen, 2001). The triple bottom line perspective is best understood as a framework aimed at helping firms achieve economic value creation while improving or sustaining social and environmental welfare.

While these two definitions may be the more common ones available, they do compete with a variety of definitions from fields as divergent as biology, ecology, environmental

economics, public policy and development. The diversity of definitions is only natural considering the multi-disciplinary evolution of the concept. A full discussion of the various definitions and continuing debates is beyond the scope of this work. For our purposes, the two definitions introduced here provide a useful foundation for the investigation of firms' assimilation of the sustainability concept. Both the triple bottom line and the Bruntland definition conceive of sustainability as incorporating up to three key dimensions (economic, social, and environmental), with the Bruntland definition incorporating issues of poverty alleviation and intergenerational equity.

Organizational Adoption of Sustainability Principles

Despite (or because of) the fact that no single definition of sustainability has emerged, evidence suggests that firms are increasingly reporting a commitment to sustainability principles. A joint report of KPMG and the United Nations Environment Program (UNEP) revealed that in 2006 over half of the Fortune 250 produced sustainability reports (Dittrick, 2007). In 2008, over 966 firms filed G3-compliant reports with the Global Reporting Initiative; a multi-stakeholder network organization working to advance sustainability through transparency (GRI, 2009). These indicators suggest that the popularity of the sustainability concept is clearly growing amongst organizations.

Management literature has produced strong research focused on various CSR (Margolis & Walsh, 2003; Orlitzky, Schmidt, & Rynes, 2003; Scholtens, 2006) or environmental management practices (Bansal & Hunter, 2003; Christmann, 2004; Delmas & Montiel, 2008; Sharma, Pablo, & Vredenburg, 1999). This research has been and will continue to be important, however previous studies mostly explore these components in isolation and the studies don't

capture the integrative and interdependent nature of the sustainability definition. While some scholars do seem to incorporate environmental responsibility as a subset of CSR (Margolis & Walsh, 2003), this in itself does not mean sustainability is a new label for CSR. Sustainability does incorporate both social and environmental responsibility; however the definitions discussed above also include elements of financial success, poverty alleviation, and intergenerational equity. If sustainability is to make a contribution to the management literature then it must be a separate construct from CSR, if not the term merely represents a proliferation of labels. This proliferation is evident in the literature where some studies use the terms CSR and sustainability interchangeably (Epstein & Roy, 2001).

Despite the need to distinguish between traditional CSR and sustainability, there is relatively little research that incorporates a fully multi-dimensional definition of sustainability. Much of the research that addresses corporate sustainability has relied on qualitative case study samples (see www.wbcsd.org). Where empirical studies of sustainability have been undertaken, they have usually focused on single industries (Bansal, 2005) or environmental strategy (Sharma & Vredenburg, 1998). Unlike previous research, we study the drivers of corporate sustainability policies that incorporate multiple dimensions of the definition and do so in a multi-industry sample.

More specifically, our study has two parts. Given the tremendous noise surrounding the concept of sustainability, we start by collecting data from a large sample of executive officers to understand their sustainability definitions. This part of the study focuses on how organizational messages regarding sustainability were interpreted and expressed by managers. The second part of the study focuses on organizational commitments to sustainability policies consistent with the multi-dimensional definition. Finally, we use the results to determine if some basic

organizational characteristics might predict the presence of these multi-dimensional formal policies.

Formal Sustainability Policies

We define sustainability policy very broadly with the intent of capturing and accepting the mottos, corporate slogans, mission statements, voluntary management systems, and externally audited reporting commitments that companies may adopt in response to the ideas of sustainability. Our study will not investigate how these policies are catalyzed into particular actions or behaviors, but rather we focus on companies' commitment to sustainability, as expressed by senior executives. We intentionally confine ourselves to the study of the state and complexity of the practice, and we plan future research to discover whether the mechanisms by which organizations adopt commitments are hollow or not, and whether policies translate into measurable action.

While we purposefully have expanded the definition of "policy" to include a range of formal and informal activities and beliefs, we do distinguish between policies that are unidimensional versus those that are multidimensional. For example, a unidimensional motto/policy would be: "we are in the business of saving our one and only planet"(WWF, 2009). This motto or "policy" clearly shows a focus on the ecological/environmental aspects of sustainability, but it does not explicitly embrace or include the social or economic. Also, it only loosely implies intergenerational concerns. A slight difference is found in the Procter and Gamble slogan/policy which states: "Sustainability- improving lives now and for generations to come"(P&G, 2009). This policy is slightly more multi-dimensional than the first because it explicitly covers social aspects *and* intergenerational aspects. In stark contrast to both of these,

consider the example of a fully multidimensional policy in the following vision statement from the Interface carpet manufacturing company: “Our vision is to be the first company that, by its deeds, show the entire industrial world what sustainability represents in all its dimensions: people, process, product, place and profits- by 2020- and in doing so we will become restorative through the power of influence”(Interface, 2009).

This last vision/policy represents a potential outlier in the category of multi-dimensionality of policies. Because of the possible range of responses represented in this sample of real-world policies, we determined it vital to distinguish between the presence of a policy and its dimensionality. Therefore, we intend to study both formal sustainability policies (multi-dimensional, CSR, environmental, and/or ethics) and the numbers of these policies that actually incorporate the economic, social, and environmental dimensions of sustainability explicitly.

Sustainability Reporting

Our study also investigates the sustainability *reporting* behaviors of firms. Arguably, reporting is a component of a formal sustainability policy. However, reporting behaviors are commonly studied in the literature (Adams, 2002) and our study provides the opportunity to determine if the drivers and prevalence of sustainability reporting are different than for environmental or social reporting. While reporting is not an explicit component of the sustainability definitions we have discussed, both government regulations and the standards of autonomous voluntary reporting authorities have emerged as significant institutional drivers of corporate reporting activities related to sustainability. With the very real legitimacy benefits that companies can accrue through voluntary transparency efforts, it is possible that sustainability reporting behavior provides an excellent opportunity for studying mechanism of mimetic,

coercive, or normative isomorphism (DiMaggio & Powell, 1983). Thus, we found the study of the presence or absence of formal reporting policies as a variable of merit in its own right.

Hypotheses

While we approached this project as an exploratory investigation of individual perceptions of firm behaviors, our work was informed by extant theory in the strategy and organizational behavior field. Besides being interested in actual definitions in use, we were interested in three measurable dependent variables. Specifically, we were interested in 1) the existence of formal sustainability policies, 2) whether or not the formal policy was multidimensional and 3) whether the firm engaged in sustainability reporting. Theory-driven research on organizational size, legitimacy, control mechanisms, and stakeholder engagement informed our hypotheses about these dependent variables.

Organizational Size and Sustainability Policies

Organizational size is a very common variable in more mature strategy research. Previous work with a construct of corporate sustainable development has also used organizational size as a control variable citing appropriately that the resource based and institutional processes they were studying work through firm size (Bansal, 2005). For our exploratory study it would be premature to consider size as a control variable until it is consistently shown to have a relationship with the dependent variables. Instead, we need to explore if and why size has direct effects on our dependent variables.

One reason that size should affect sustainability policies relates to increases in bureaucracy with firm size. As firms grow they become ever more challenging to manage and

ad-hoc management practices are typically replaced by formalized routines and bureaucracy (Watson, 1980). Therefore, since larger firms tend to increase in formality and complexity, we would expect that they would be more likely than smaller firms to institute a formal sustainability policy.

Additionally, larger firms are by nature much more visible organizations and therefore attract the attention and scrutiny of a greater number of stakeholders. These larger firms interact with a greater number and variety of stakeholders, which would influence the complexity and multidimensionality of any formalized sustainability policy. Finally, the same argument regarding the attention and scrutiny of a wider scope of stakeholders would suggest that larger firms would be more likely to engage in sustainability reporting to help communicate their sustainability policies to the greater number of constituents interested in and affected by their operations (Freeman, 1984; Donaldson & Lee, 1995; Hart & Sharma, 2004). Given this background, we suggest the following:

Hypothesis 1a: Firms of greater size are more likely to have formal sustainability policies.

Hypothesis 1b: Firms of greater size are more likely to have multiple dimensions incorporated into their formal sustainability policy.

Hypothesis 1c: Firms of greater size are more likely to produce sustainability reports.

Organizational Ownership and Sustainability Policies

Previous work in the implementation of environmental management systems (EMS) has found that publicly traded firms have greater complementary capabilities than private firms—a fact which allows for lower implementation costs (Darnall & Edwards, 2006). These findings in EMS implementation, which represents a major component of a sustainability policy at many firms, suggest that lower implementation costs increase the likelihood that publicly owned firms

adopt formal sustainability policies. Publicly traded firms are subject to greater regulatory oversight than private firms from a wide range of institutional actors including the government, banks, stock exchanges and shareholder activist groups. This oversight and interaction with addition stakeholders would likely expose public firms to a greater variety of perspectives which would then likely influence the complexity and multidimensionality of their formal sustainability policy. Finally, public firms have greater requirements for mandatory public disclosure and legitimacy incentives to provide additional transparency. This suggests that public firms would be more likely than private firms to engage in sustainability reporting. Taken together and presented in parallel order to previous hypotheses, this logic suggests the following:

Hypothesis 2a: Publicly traded firms are more likely than private firms to have formal sustainability policies.

Hypothesis 2b: Publicly traded firms are more likely than private firms to have multiple dimensions incorporated into their formal sustainability policy.

Hypothesis 2c: Publicly traded firms are more likely than private firms to produce sustainability reports.

Organizational Control Mechanisms and Sustainability Policies

Early work in the design of organizational control mechanisms posited that the appropriate choice of control mechanism was contingent on the knowledge of the transformation process to be controlled and the ability to measure the outputs of the process (Ouchi, 1979). Ouchi's work suggested that the "Clan" control mechanism was best suited for situations of imperfect knowledge of the transformation process and low ability to measure results. We consider the transformation process toward corporate sustainability to be one characterized by imperfect knowledge (e.g. it is unknown how large the CO2 issue is) and an ability to measure outputs of the process (e.g. firms can measure their own CO2 output). Further, the issues and

challenges that sustainability policies address are complicated and interrelated, which suggests that it would be challenging to have more than imperfect knowledge of the processes involved in enacting a full sustainability policy. Additionally, sustainability is comprised of three separate dimensions (economic, social, and environmental) monitored in hard-to-calibrate units of measure. This suggests that organizations with a strong culture (ritual and ceremony) regarding sustainability would be more likely to enact a formal sustainability policy and a multidimensional sustainability policy. Organizations with a strong culture supporting the principles of sustainability would be likely to more fully embrace the principles behind sustainability-- which include the promotion of transparency. Overall, this suggests the following:

Hypothesis 3a: An organizational culture that incorporates sustainability principles is more likely than one that does not to have a formal sustainability policy.

Hypothesis 3b: An organizational culture that incorporates sustainability principles is more likely than one that does not to have multiple dimensions incorporated into their formal sustainability policy.

Hypothesis 3c: An organizational culture that incorporates sustainability principles is more likely than one that does not to engage in sustainability reporting.

The bureaucratic mechanism of corporate control is the preferred method of control if market control is too costly and the social conditions required for clan control are impossible to achieve (Ouchi, 1979). Examples of bureaucracy include the creation and enactment of formal rules and codes of conduct. Since the benefits of sustainability policies are often hard to quantify, particularly in the short term, the profit focus of most firms makes it unlikely that the cost of market control will be justified by management. Instead, there arises a need to manage control internally. In situations where it is not possible to sustain a strong sustainability culture, firms will likely turn to bureaucratic mechanisms such as written rules and codes of conduct.

Therefore, we should find that firms that utilize formal codes of conduct to address sustainability principles will be more likely to enact formal sustainability policies and formal multidimensional sustainability policies. Because of the need to monitor behavior and output to make a bureaucratic control mechanism operate smoothly, firms will be inclined to record behavior and output, thereby lowering the barriers to enacting sustainability reporting. The low cost associated with reporting information that is already being collected under bureaucracy; in conjunction with the reputational benefits of reporting suggest these bureaucratic firms would be more likely to engage in reporting. Accordingly, we suggest the following regarding codes of conduct around sustainability:

Hypothesis 4a: A firm with a “code of conduct” incorporating sustainability principles is more likely than one without such a code to have a formal sustainability policy.

Hypothesis 4b: A firm with a “code of conduct” incorporating sustainability principles is more likely than one without such a code to have multiple dimensions incorporated into their formal sustainability policy.

Hypothesis 4c: A firm with a “code of conduct” incorporating sustainability principles is more likely than without such a code to engage in sustainability reporting.

Joint Relations among Control Mechanisms

The control mechanism literature suggests that firms will rarely engage in exclusively one of the three major control mechanism (Ouchi, 1979). Recent simulation work also found evidence that firms get better control benefits from utilizing multiple control mechanisms and targets (Long, Burton, & Cardinal, 2002) These finding suggests that joint relations (interactions) may exist between the two organizational control mechanisms tested in Hypotheses 3 and 4. It is logical that a strong cultural orientation towards sustainability principles would make any code of conduct regarding sustainability more salient to the organization and increase the likelihood of

enacting a formal sustainability policy, a formal multidimensional sustainability policy and sustainability reporting. Therefore, we suggest:

Hypothesis 5a: An organization with both a culture and “code of conduct” that incorporate sustainability principles is more likely than one without both to have a formal sustainability policy.

Hypothesis 5b: An organization with both a culture and “code of conduct” that incorporate sustainability principles is more likely than one without both to have multiple dimensions incorporated into their formal sustainability policy.

Hypothesis 5c: An organization with both a culture and “code of conduct” that incorporate sustainability principles is more likely than one without both to engage in sustainability reporting.

Data and Methods

Sample

We were given access to the quarterly survey carried out by the American Institute of Certified Public Accountants (AICPA). Our questions were included in the survey conducted of AICPA Business & Industry members between July 22, 2008 and August 5, 2008. We had 1186 qualified respondents. Our sample was mostly comprised of upper management, as over half of the respondents (55%) were CFOs, 5% were CEOs or COOs, and 29% were Controllers. Privately owned entities comprised 64% of all responses with 16% from public companies, 13% from government, education and not-for-profits, and 6% from foreign owned companies. Ten percent came from organizations with annual revenues of 1 billion or more, 22% from organizations with \$100 million to under \$1 billion in annual revenues, 49% from organizations with \$10 million to \$100 million and 18% from organizations with under \$10 million in revenues.

The majority of the survey is devoted to questions regarding the economic outlook of the companies and the markets. Towards the end of the survey we were able to add four questions. The first question consisted of a short definition of sustainability, based on the triple bottom line concept, followed by specific questions about their firm's policies and definitions (if they had any). The definition provided was the following:

A broad definition of sustainability encompasses the pursuit of 1) economic vitality, 2) ecological integrity, and 3) social welfare-- often referred to as the "triple-bottom-line."

They were asked the type of sustainability policy in place at their firm; as well as additional questions regarding the extent to which sustainability principles were formalized in a code of conduct or engrained in the culture of the firm. They were asked to use the definition of sustainability provided when answering all three questions (specific questions are described below and the original instrument is available from the authors). Answers from those questions were used to test our hypotheses, the results of which are in the results section below. We also gathered qualitative data about firm specific sustainability definitions among the respondent companies, as understood and reported by the senior executives questioned. We chose to report that data here, as it explains more about the sample and the data does not relate to the hypotheses.

Specifically, the survey also included an open-ended question asking respondents to provide their company's definition of sustainability. Nearly half of all respondents (n =525) took the time to record an answer to the open-ended question. These answers provide insight about both how financial executives understand the concept of sustainability and the degree to which management definitions in use differ from academic definitions. Using principles of grounded theory (Glaser, 1992) we coded the open responses into ten categories. These definitional

categories included: None/Trivial, Humorous/Hostile, Economic, Environmental, Social, Economic and Environmental, Economic and Social, Social and Environmental, Triple Bottom Line and Intergenerational Equity.

Each author coded the full set of responses in isolation and the two separate sets of codes were found to be in 93% agreement. The 7% of codes where researchers did not agree were handled through a face-face discussion to reach consensus. Samples of the types of definitions and their coding are found in Appendix A. The results of the coding are presented in Figure 1.

Insert Figure 1 about here

Inspection of the first column in Figure 1 reveals that 43% expended the effort to *write in* that their company has no sustainability policy. Respondents were presented with the open ended question after they answered the questions about formal policy, meaning they had already been exposed to the definition provided by the authors. That definition included financial, environmental, and social dimensions. Thus, respondents that wrote in a no answer failed to recognize the financially-motivated definition of sustainability. This finding indicates a possible dramatic change in the business conceptions of “sustainability.” Despite the fact that the financial definition of sustainability was the primary definition in the managerial literature for many years, the tremendous changes in the meaning of the term are such that some don’t think of financial sustainability as part of “sustainability.” This phenomenon was also evident in the responses that report environmental-only, social-only and environmental-and social- only. These respondents may feel that the financial component is a “given”, however this type of assumption undermines a crucial component of the principle. The three dimensions that comprise sustainability are highly interrelated and the challenge is to keep in mind the impacts on all three

of one's business decisions. The relatively small number of respondents (77 of 525) that mentioned more than a single dimension suggests that the interdependencies amongst the dimensions of sustainability are not well understood in practice.

Another interesting outcome from the coding of the open-ended responses is the relatively small number of respondents (less than 1%) that report a sustainability definition that includes the intergenerational aspect so integral to the Bruntland definition commonly quoted in academic circles. This suggests a potential, yet unsurprising, division between the academic definitions and those of practitioners.

The definition provided by these AICPA member executives in comparison to the example provided in the questionnaire allow for an interesting look at the way these highly analytic executives interpret the ideas of sustainability. The data reveals a considerable amount regarding the dissonance between the ideas of sustainability and how practitioners define the term. We now turn to the data that relates directly to our hypotheses recorded above.

Dependent Variables

Formal Sustainability Policy. In order to measure the presence of a formal sustainability policy, respondents were asked to choose a statement which best described their organization's current approach to sustainability. Four statements were provided which represented 1) no policy, 2) ad hoc efforts, 3) formal policy focused on environment, and 4) formal "triple-bottom-line" policy. The variable "Formal Sustainability Policy" was coded 1 for all respondents that chose either formal policy focused on environment or formal "triple-bottom-line" policy. The variable was coded zero otherwise.

Formal Multidimensional Sustainability Policy. The variable “Formal Multidimensional Sustainability Policy” was coded 1 for all respondents that chose formal “triple-bottom-line” policy. The variable was coded zero otherwise.

Sustainability Reporting. Respondents were also asked to what extent their company engaged in sustainability reporting. Responses were recorded on a 5 point Likert scale from 1 = “not at all” to 5 = “a great extent”. As scale labels are not calibrated, we dichotomized the results for analysis. From examination of the data it was clear that there was a significant inflection between the second and third levels of the scale. The variable “Sustainability Reporting” was coded 1 for all respondents that chose either the third, fourth or fifth level of the likert scale. The variable was recorded 0 for those that chose levels one or two.

Independent Variables

Organization Size. Revenues were collected in four categories, as mentioned in the description of the sample. Three dummy variables were coded to capture the four levels of revenue. The “Medium” variable was coded as “1” for all responses reporting revenue between \$10 million and \$100 million; zero otherwise. The “Large” variable was coded “1” for all responses reporting revenue between \$100 million and \$1 billion; zero otherwise. The “Huge” variable was coded “1” for all responses reporting revenue of \$1 billion or more; zero otherwise. The omitted variable in our analysis is “Small” which represents the \$0 to under \$10 million category.

Organizational Ownership. Organization ownership structures were reported in five categories, but were condensed to four by combining the Government and Other categories. Three dummy variables were created to capture the four ownership categories. The “Public”

variable was coded “1” for all responses reporting U.S. Public Company, zero otherwise. The “Private” variable was coded “1” for all responses reporting U.S. Privately Owned Entity, zero otherwise. The “Foreign” variable was coded “1” for all responses reporting Foreign Owned, zero otherwise. The omitted variable in our analysis is “Government/Other” which represents the consolidation of the Government, Education, Association, Not-for-Profit and Other categories.

Culture. Respondents were asked “to what extent does the culture of your organization support sustainability as an expected part of employee jobs?” Responses were recorded on a 5 point likert scale from “not at all” to “a great extent”; we chose to dichotomize the results. From examination of the data it was clear that there was a significant inflection between the second and third levels of the scale. The variable “Culture” was coded “1” for all respondents that chose either the third, fourth or fifth level of the likert scale. The variable was recorded 0 for those that chose levels one or two.

Code of Conduct. Respondents were asked “to what extent does your organization establish a “code of conduct” or behavioral expectations with respect to sustainability?” Responses were recorded on a 5 point likert scale from “not at all” to “a great extent”. From examination of the data it was clear that there was a significant inflection between the second and third levels of the scale. The variable “Rules” was coded “1” for all respondents that chose either the third, fourth or fifth level of the likert scale. The variable was recorded 0 for those that chose levels one or two.

Data Analysis

The final data sample consisted of 1,118 surveys, after accounting for surveys with missing data. We used logistic regression with maximum likelihood estimators to model the

three dichotomous dependent variables (Formal Sustainability Policy, Multidimensional Sustainability Policy, and Sustainability Reporting) we used to test our hypotheses. Two of our independent variables are measured as polytomous categorical variables. In order to study the effects of the polytomous independent variables on our models; it is necessary to follow the procedure for testing the proportion of variance accounted for by a given categorical variable in non-orthogonal and non-experimental research designs as outlined by previous researchers (Pedhazur, 1982). This procedure requires testing the proportion of variance due to a given polytomous categorical variable when it is entered last into the model. For our logistic regression analysis this is accomplished by using the chi-square difference test between the full and restricted model where the degrees of freedom is calculated by subtracting the number of vectors in each model. The 9.0 version of the STATA software package was used to test the models.

Results

The sample size, means, standard deviations and correlations for the dependent and independent variables are provided in Table 1.

Insert Table 1 about here

A review of table 1 indicates that most of the pairwise correlations are within acceptable ranges. There are some high correlations between two of the vectors representing categorical variables. Specifically, the correlation between “Formal” and “Multidimensional” is 0.75, however this is expected as the Multidimensional variable represents a subset of the Formal variable. The two variables are not used in the same model so the correlation should not be a problem. Finally, there is some cause for concern regarding the 0.60 correlation between

“Culture” and “Rules” so we take this high correlation into account when discussing the model results. This will be addressed again in the limitations section of the paper.

We address the hypotheses using a total of 15 models, five for each of the three dependent variables tested in the study. Table 2 reports the results from models one through five which test the following hypotheses: 1a, 2a, 3a, 4a, 5a. Model 1 starts with a logistic regression of the two dichotomous independent variables on the dependent variable “Formal Sustainability Policy.” Model 2 incorporates the three vectors representing the polytomous categorical independent variable “Ownership” and Model 3 does the same with the independent variable “Size”. The addition of each of these categorical variables provides a significant increase in the total variance explained by the model as measured by the Likelihood-ratio chi-square test ($p < 0.001$). The full model is represented in Model 4 which includes all four independent variables. The Likelihood-ratio chi square test is run between Model 4 and Model 2 to determine if the additional variance explained by including the “Size” variable is significant. Similarly, the test is run between Model 4 and Model 3 to determine if the variance explained by the “Ownership” variable is significant. The tests reveal that the additional variance explained by each categorical variable is significant, with $p < 0.001$ for “Size” and $p < 0.01$ for the “Ownership” variable. Model 4 is therefore the full model and the coefficients from this model are used to test the hypotheses.

Before we provide a detailed explanation of the results of the 15 hypotheses tests, we provide an overview of the results to provide context. For example, there was support for H1a and H1b but not H1c. There was no support for H2a and H2b but full support for H2c. There was full support for H3A-H3C and H4A-H4C. There was no support for H5A-H5C. Table 5 also reports a summary of findings.

Moving to specifics, model 4 reveals that the significant and positive coefficients for the Large and Huge variables (two of the three dummy variables representing the “Size” variable) demonstrate that the hypothetical population average probabilities of these two groups is significantly greater than those of the small and medium groups. These results are consistent with the prediction of Hypothesis 1a that larger firms will be more likely to have formal sustainability policies. The non-significant coefficients on the Public and Private dummy variables (two of the three dummy variables representing the “Ownership” variable) demonstrate that the hypothetical population average probabilities for these two groups may not be different from those of the omitted Government group, nor for that matter from each other.

These results are not consistent with the prediction of Hypothesis 2a, that public firms are more likely than private firms to have formal sustainability policies. The positive and significant coefficients for the Culture and Rules variables demonstrate that the hypothetical population average probabilities for these two groups is greater than those not in these groups. These results provide support for Hypothesis 3a and 4a. Finally, Model 5 incorporates the joint relation (referred to as interaction in experimental research designs) (Pedhazur, 1982) between the Culture and Rules variables. The joint relation does not increase the variance explained by a significant amount as measured by the Likelihood-ratio chi-square test. Therefore, there is no support for Hypothesis 5a that organizations with a code of conduct and culture that incorporate sustainability principles are more likely, than those that don’t have both, to have a formal sustainability policy. This non-finding for the joint relation between “Culture” and “Rules” may be a consequence of the high (0.60) correlation between these two dichotomous variables, suggesting that future research into this relationship should attempt to use more sophisticated measures of organizational control.

Insert Table 2 about here

The same process, outlined above for Models 1-5, is repeated in Models 6-10 with the dependent variable “Formal Multidimensional Sustainability Policy” and reported in Table 3. Model 9 is the full model and the results are very similar to those of Model 4. One important exception is that the coefficient on the “Large” dummy variable is still positive but not significant. Therefore, only the hypothetical population average probability for the “Huge” group is greater than the probabilities for the “Small”, “Medium” and “Large” group. While this does still provide support for Hypothesis 1b, it suggests that only some of the very largest companies have incorporated a more sophisticated multidimensional definition of sustainability into their corporate policies. The remaining results in Model 9 provide no support for Hypothesis 2b, while the predictions of Hypothesis 3b and 4b are supported. Finally, the joint relation between “Culture” and “Rules” is tested in Model 10, and once again the model does not provide a significant increase in proportion of variance explained. Therefore, Hypothesis 5b is not supported.

Insert Table 3 about here

Insert Table 4 about here

Table 4 reports the results of Models 11-15 which represent the maximum-likelihood logistic regression for the dependent variable “Sustainability Reporting.” The results from these models are different from the previous ten. The likelihood-ratio chi-square test does not support that the categorical “Size” variable significantly increases the proportion of variance explained,

therefore Model 12 is the full model and Hypothesis 1c is not supported. In Model 12 the significant and negative coefficient on the “Private” dummy variable (one of three dummy variables representing the “Ownership” variable) suggests that the hypothetical population average probability for the “Private” group using sustainability reporting is less than that of the “Public” group. This is consistent with the predictions of Hypothesis 2c that public firms are more likely to engage in sustainability reporting than private firms. The coefficients on the “Culture” and “Rules” variables are positive and significant; providing support for Hypotheses 3c and 4c respectively. Finally, the joint relation between “Culture” and “Rules” does not significantly increase the proportion of variance explained; and thus Hypothesis 5c is not supported. A summary of the Hypotheses testing results is provided in Table 5.

Insert Table 5 about here

Discussion and Conclusion

This study explored organizational commitment to sustainability as defined by managers and as operationalized in the form of policies and reporting (or the lack thereof). We discussed the tremendous variety of perspectives on sustainability arising from a number of disciplines, and suggested that the lack of a unified understanding of sustainability might lead to dissonance between managers’ understanding of the concepts and the definitions that populate the management literature. The qualitative data from the open-ended definitional question reveals the presence of such dissonance. The data also reveal the wide range of extant definitions of sustainability currently in use.

The data on the presence of formal sustainability policies revealed that a majority of firms have no sustainability policy whatsoever, and only a small fraction (7%) have policies that incorporate the three main dimensions of sustainability. Next we studied which organizational characteristics may be drivers of formal sustainability policies.

We selected variables based upon prior research on organizational control mechanisms, legitimacy seeking, and organizational visibility in order to predict the prevalence and multi-dimensionality of corporate sustainability policies and reporting behaviors. As predicted, the study confirmed that control mechanisms were positively related to the three dependent variables (the prevalence of a formal policy, the incorporation of multiple dimensions in that formal policy, and the prevalence of sustainability reporting). The cross-sectional nature of our exploratory sample does not allow us to determine the direction of causality; therefore we don't know if a sustainability policy promotes a strong culture focused on sustainable practice within the firm or if the strong culture leads to the adoption of the policy. Future longitudinal research is necessary to answer that question fully.

Our predictions of a significant relationship between the joint relation of the organizational control variables (operationalized in the form of "culture" and "code of conduct") was not born out. While one explanation for this is that our operationalization of these variables was too general to capture the concepts, an alternative explanation is that we identified new boundary conditions (the implementation of non-market strategies) for previous findings on the use of multiple control mechanisms (Long et al., 2002).

Tests on the relationships between organizational size and the formality and complexity of sustainability policies measures were supported, but size was not a significant predictor of the

use of sustainability reports. This suggests that the assumption that larger firms get more formal may be correct, but that formality does not translate into increased transparency. We found that public ownership was a significant predictor of the propensity to file sustainability reports, however there was no relationship with either the presence of a formal sustainability policy, nor the dimensionality of a sustainability policy. In this case, it appears that the spreading of ownership over large number of shareholders promotes transparency in the context of sustainability, but does not drive the adoption of formal sustainability policies.

In addition to the observed categorical variables that were used to test the fifteen hypotheses, the survey instrument included an open ended question that provided qualitative results on what managers understand about sustainability principles. One of the interesting results from these qualitative responses is the large number of respondents who either omitted the economic dimension, or who potentially assumed it was implicit, when providing a definition of sustainability. The tone of several of the hostile responses, a few of which suggested that the ideals of sustainability are the vestiges of socialism, reveals that at least this smaller number of managers do not accept the three dimensional conceptualization of sustainability which explicitly incorporates financial performance.

Aggregating all responses that explicitly mention the social dimension and comparing these results to the aggregation of those mentioning the environmental dimension shows that the environmental dimension is capturing greater mindshare. This result is consistent with previous work that suggests that the social component of sustainability has been more slowly incorporated into definitions of what is “sustainable” (Bansal, 2005). This finding about firm’s favoring one (environmental) aspect of sustainability has minimal implications for firms that may view sustainability as part of an environmental strategy while still maintaining separate CSR policies

and a focus on their social corporate performance. An example of this would be the Tyco Corporation which has a “Responsibility to the Community” principle that includes a section on “environmental sustainability” (TYCO, 2009). Other firms, however, may simply be re-branding their EH&S with the language of sustainability and this could lead to neglect of the social impacts of firm behavior. Therefore, these firms might believe they have adopted the tenets of sustainability, leading to a false sense of security given the potential for a stakeholder backlash.

Limitations

As mentioned at the outset, this was an exploratory and opportunistic study with some attendant limitations. First, the non-random data sample makes it impossible to generalize the findings. Second, due to the time and space constraints involved in getting our mini-survey embedded within the Economic Outlook Survey we were unable to incorporate more robust survey items. Finally, because of the exploratory nature of our investigation, it is possible that we have omitted variables beyond those identified in our survey which could have explained more of the variance in our dependent variables.

Future Research and Conclusion

The results of this research suggest several possibilities for the study of corporate sustainability as interpreted by the managers and organizations that enact the concept. On a more macro level, there remains a need to identify and rationalize the theoretical bases behind the myriad definitions of sustainability the management literature has adopted from multiple disciplines. On a more micro level, our study found some interesting differences between predictors of sustainability policy and sustainability reporting that suggests an opportunity for future study. Since sustainability reporting is a type of policy it may be that more sophisticated data collection would allow the identification of a more nuanced relationship between these

variables. Finally, definitions are most helpful if they lead to actions, and a study of how corporate sustainability policies do or do not translate into desired action would be a logical next step.

The study of sustainability practices as defined by management scholars will remain an important area of research, as it provides prescriptive knowledge as well as the potential to refine and inform theory. This study has contributed to an understanding of corporate interpretations of sustainability and the organizational drivers of those interpretations. Analyses of organizational conceptions of sustainability, such as this one, further clarify how this multi-disciplinary concept can promote a more just, inclusive, and restorative business world.

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TABLE 1
Descriptive Statistics and Pairwise Correlations

Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9	10
Public	0.16	0.36										
Private	0.65	0.48	-0.59									
Foreign	0.06	0.24	-0.11	-0.35								
Medium	0.49	0.50	-0.17	0.14	-0.06							
Large	0.23	0.42	0.07	-0.03	0.02	-0.53						
Huge	0.10	0.30	0.35	-0.30	0.12	-0.33	-0.18					
Formal	0.11	0.31	0.18	-0.21	0.15	-0.12	0.02	0.30				
Multidimensional	0.07	0.25	0.15	-0.18	0.14	-0.10	-0.01	0.27	0.75			
Culture	0.47	0.50	0.08	-0.12	0.05	-0.03	-0.02	0.13	0.31	0.25		
Rules	0.53	0.50	0.10	-0.15	0.06	-0.06	0.03	0.11	0.25	0.22	0.60	
Reporting	0.14	0.35	0.12	-0.19	0.12	-0.10	0.02	0.17	0.41	0.39	0.35	0.30

n=1118

All correlations greater than 0.10 are significant at $p < 0.01$

TABLE 2
Logistic Regression Analysis for Formal Sustainability Policy DV

Variables	Model 1		Model 2		Model 3		Model 4		Model 5	
Public			1.1	**			0.5		0.5	
Private			-0.33				-0.26		-0.26	
Foreign			1.38	**			1.03	*	1.02	*
Medium					0.48		0.35		0.35	
Large					1.14	**	0.89	*	0.89	*
Huge					2.49	***	1.99	***	2	***
Culture	2.20	***	2.24	***	2.16	***	2.18	***	2.02	***
Rules	0.90	**	0.77	*	0.95	**	0.86	**	0.66	
Culture X Rules									0.27	
Constant	-4.28	***	-4.43	***	-5.26	***	-5.07	***	-4.98	***
n	1118		1118		1118		1118		1118	
Pseudo R ²	0.1708		0.2305		0.2552		0.2741		0.2743	
Likelihood-ratio chi-square	133.06		179.55		198.74		213.55		213.69	

† p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001

TABLE 3
Logistic Regression Analysis for Formal Multidimensional Sustainability Policy DV

Variables	Model 6	Model 7	Model 8	Model 9	Model 10
Public		1.03 *		0.46	0.46
Private		-0.43		-0.37	-0.37
Foreign		1.39 **		1.06 *	1.05 *
Medium			0.32	0.17	0.17
Large			0.7	0.39	0.39
Huge			2.23 ***	1.67 **	1.68 **
Culture	2.06 ***	2.05 ***	2.00 ***	2.00 ***	1.44
Rules	1.79 **	1.65 **	1.84 **	1.74 **	1.26
Culture X Rules					0.75
Constant	-5.57 ***	-5.66 ***	-6.37 ***	-6.08 ***	-5.77 ***
n	1118	1118	1118	1118	1118
Pseudo R ²	0.1742	0.2359	0.2503	0.2732	0.2739
Likelihood-ratio chi-square	94.91	128.54	136.38	148.86	149.25

† p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001

TABLE 4
Logistic Regression Analysis for Sustainability Reporting DV

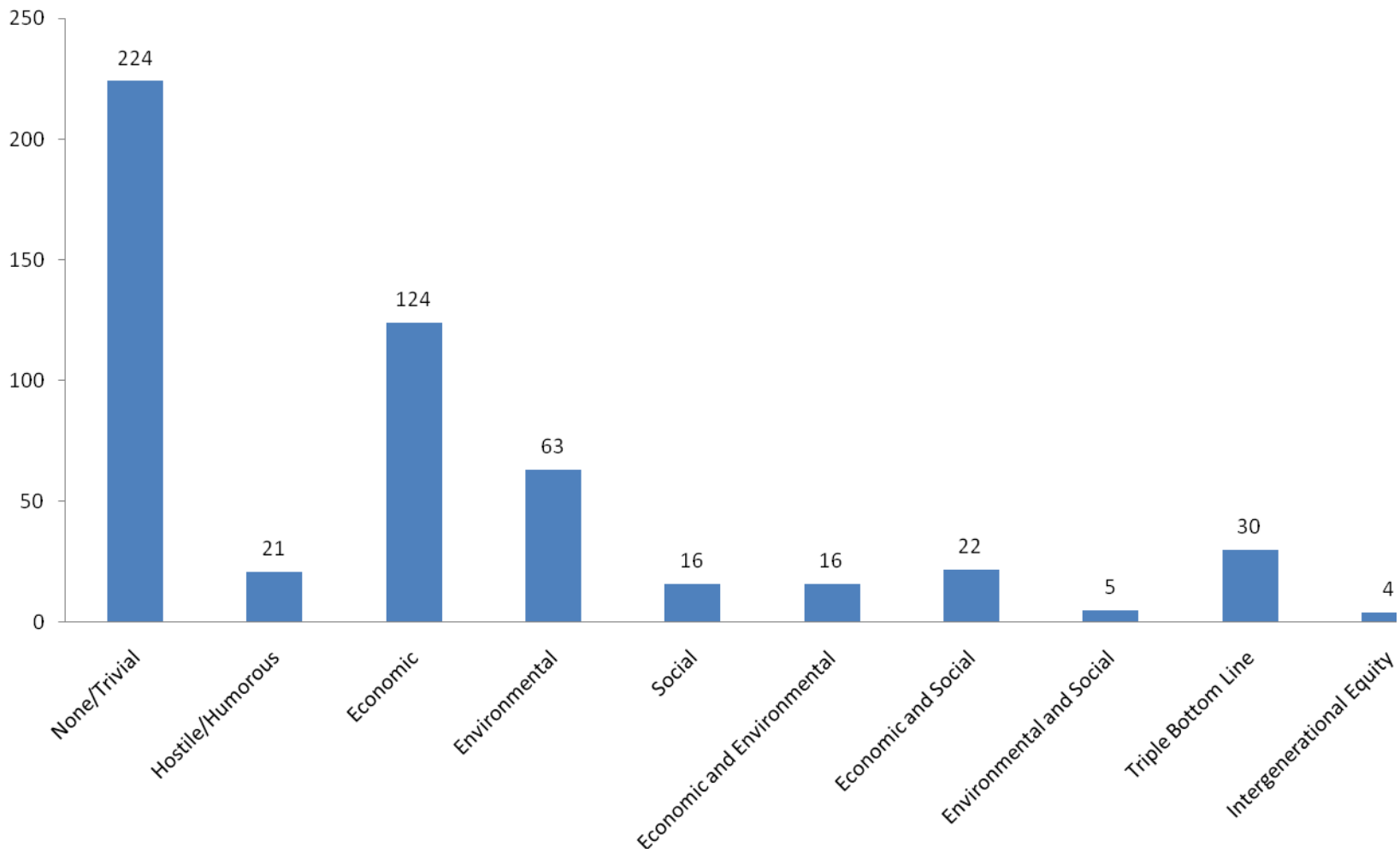
Variables	Model 11	Model 12	Model 13	Model 14	Model 15
Public		0.29		0.05	0.29
Private		-0.65 *		-0.62 *	-0.65 *
Foreign		0.69 †		0.57	0.69 †
Medium			-0.21	-0.29	
Large			0.29	0.11	
Huge			0.91 **	0.49	
Culture	2.04 ***	2.05 ***	2.02 ***	2.03 ***	2.09 ***
Rules	1.24 ***	1.14 ***	1.24 ***	1.16 ***	1.18 *
Culture X Rules					-0.06
Constant	-4.12 ***	-3.81 ***	-4.23 ***	-3.74 ***	-3.83 ***
n	1118	1118	1118	1118	1118
Pseudo R ²	0.1938	0.2232	0.2138	0.2316	0.2232
Likelihood-ratio chi-square	175.84	202.47	193.96	210.1	202.48

† p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001

TABLE 5
Hypotheses Testing Results

Hypothesis 1a	+Size + formal sustainability policy	Supported
Hypothesis 1b	+Size +formal multidimensional sustainability policy	Supported
Hypothesis 1c	+Size +sustainability reporting	Not Supported
Hypothesis 2a	Public > Private +formal sustainability policy	Not Supported
Hypothesis 2b	Public > Private +formal multidimensional sustainab	Not Supported
Hypothesis 2c	Public > Private + sustainability reporting	Supported
Hypothesis 3a	+Culture + formal sustainability policy	Supported
Hypothesis 3b	+Culture +formal multidimensional sustainability policy	Supported
Hypothesis 3c	+Culture + sustainability reporting	Supported
Hypothesis 4a	+Code of Cconduct + formal sustainability policy	Supported
Hypothesis 4b	+Code of Conduct +formal multidimensional sustainability poli	Supported
Hypothesis 4c	+Code of Conduct + sustainability reporting	Supported
Hypothesis 5a	+Joint Relation + formal sustainability policy	Not Supported
Hypothesis 5b	+Joint Relation +formal multidimensional sustainability policy	Not Supported
Hypothesis 5c	+Joint Relation + sustainability reporting	Not Supported

FIGURE 1
Sustainability Definitions Provided by Financial Executives (n=525)



APPENDIX A
Sample Responses and Coding Examples for Open Ended Sustainability Definition Question

NAME	CODE	SAMPLE RESPONSE
None/Trivial	0	We do not define it.
Humorous/Hostile	1	- Free enterprise; free markets; and American capitalism - not socialist; communist government control and political correctness (Hollywood style). - Unfortunately, “economic vitality” is not part of our definition
Economic	2	Ability to incrementally increase revenue and profitability year-over-year through careful monthly and quarterly attention to planned vs. actual revenues; employee utilization and receivable collections.
Environmental	3	to limit our carbon footprint and be a good steward of the lands and other resources we are responsible for
Social	4	- Responsible citizenship, improve the well being of our communities. - We focus primarily on community involvement of time and money for charities
Economic and Environmental	5	Creating a long-term business plan that focuses on preserving capital, growing capital and paying some dividends while being good stewards of the environment.
Economic and Social	6	not vocalized; latent effort is on social welfare and economic vitality
Environmental and Social	7	Being a good corporate citizen that gives back to the community and is aware of the environment
Triple Bottom Line	8	Economic growth is the major factor with the conditions of operating in a manner that is environmentally and socially responsible.
Intergenerational Equity	9	Developing product and fulfilling the goals of the company responsibly, without hampering the ability of future generations to achieve the same due to our actions today.