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ANALYSIS

Outcomes of interaction between organizational characteristics and management accounting practice on corporate sustainability: the global management accounting principles (GMAP) approach

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ABSTRACT

This study examined the outcomes of interaction between organizational characteristics and robustness of management accounting practice on corporate sustainability from the standpoint of the Global Management Accounting Principles (GMAP). The GMAP framework, developed and endorsed by The American Institute of Certified Public Accountants (AICPA) and The Chartered Institute of Management Accountants (CIMA) in 2014, reflects the paradigm shift in the roles of management accountants in recent times from traditional management accountants to strategic partners aware of business imperatives. Using a structured-questionnaire, the views of senior accounting/finance officers from 131 firms based in Nigeria were gathered and analyzed using descriptive and inferential statistical tools (One-way MANCOVA, OLS regression and moderated regression analysis). It was observed that although management accounting activities were generally performed frequently, certain activities requiring review and modification of already prepared cost and revenue estimates appear to be performed less-frequently. Further, organizational characteristics such as size, organization lifecycle, presence of specialist skills, affiliation to foreign entity and ownership structure significantly affect the robustness of management accounting practice. Whilst detecting that robust management accounting practice elevates corporate sustainability, organizational characteristics such as size, organization lifecycle and presence of specialist skills may determine the extent to which such benefit is realized. Seeing that the presence of specialist skills was the strongest moderator of the relationship between management accounting practice and corporate sustainability, the study advocates for the existence of a standalone management accounting unit/department to improve the realization of the benefits embedded in implementing contemporary management accounting practice.

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KEYWORDS
Contingency theory; global management accounting principles; management accounting practice; organizational characteristics; sustainability

1. Introduction

Happenings in the business world of today such as high competition, product diversity, sophisticated customers, and complex cost structure are putting pressure on organizations to reinvigorate their business strategies to align with environmental trends and market

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sentiments. In the light of management accounting role in providing qualitative and quantitative information useful for decision-making, the dynamic nature of the business environment also connotes that management accounting practices must undergo refinements from time to time if they are to effectively support management.

In the past, traditional roles of management accounting involved producing routine, operational reports enmeshed in accounting numbers such as: annual statutory report, budgets and forecasts, product profitability reports, cash flow reports, capital investment appraisal reports, standard costs and variance analysis reports (Friedman and Lyne 1995; CIMA 2008, 2013; Kaplan 2013). The unawareness of management accountants back then about the supposed deficiencies of such reports, which were heavily-laden with financial information that were inward-looking and not strategy-orientated, resulted in management accountants being labeled *bean-counters, storekeepers, score-keepers,* and *information gate-keepers*. There is now a re-awakening among management accountants that providing management information for strategic decision-making is an important element of the management accounting endeavor. Today, with the application of contemporary management accounting practices, management accountants provide information for the strategic deployment of resources for the purpose of creating value (Ittner and Larcker 2001; Al-Khadash and Feridun 2006; CIMA 2012; Alao 2014). Management accountants' roles are expanded to include participation in the strategic management process (Scott and Tiessen 1999; Nyamori, Perera, and Lawrence 2001; Cadez and Guilding 2008). The metamorphosis in the management accounting function, as documented in the stages of management accounting evolution (see IFAC 1998; Al-Khadash and Feridun 2006; Kim, Hatcher, and Newton 2012), reflects the realization that the dynamic environment is shaping management accounting practice and expanding the roles of management accountants from cost determination and financial control to creation of value that ensures sustainability.

The debate on sustainability appears to be far from over considering that there have been pressures on organizations to broaden the scope of performance beyond narrowly-defined financial indicators (Weber and Banks 2012; Schramade 2016; Ajibolade and Oyewo 2017a, 2017b). Noting that stakeholders are growingly holding organizations to account on the impact of their operations on the environment and people, it is not surprising that literature on sustainability has been burgeoning (see Eccles 2011; de Klerk and de Villiers 2012; Dragu and Tiron-Tudor 2013; GRI 2013a, 2013b; Ajide and Aderemi 2014; Wiek and Weber 2014; Barakat, Pérez, and Ariza 2015; Weber, Hoque, and Islam 2015; Ferreira et al. 2016). Meanwhile, considering that organizations are entrenching sustainability dimensions into their business practices (Deegan 2002; Gonçalves et al. 2013; Wiek and Weber 2014; Oyewo, Iredele, and Azuh 2018), management accounting techniques have been redesigned to enhance corporate sustainability (see Weber, Hoque, and Islam 2015; Schramade 2016; Iredele, Ogunleye, and Okpala 2017). As competitor information and customer information are vital elements of the sustainability of businesses (Auzair et al. 2013; Oyewo and Isa 2017), modern management accounting practices have crucial bearing with sustainability and sustainability accounting.

The subject of management accounting practice has been examined in various contexts such as factors influencing adoption and usage (Al-Omiri and Drury 2007; Abdel-Kader and Luther 2008; Albu and Albu 2012; Ahmad and Zabri 2015); impact of use on organizational performance (Adler, Everett, and Waldron 2000; Yap et al. 2013) and challenges

of adoption (Adler, Everett, and Waldron 2000; Sulaiman, Ahmad, and Alwi 2004; Yap et al. 2013). Sustainability issues have also been investigated under varying subthemes, including but not limited to: sustainability and investment decisions (Hope and Fowler 2007; Huang, Pepper, and Bowrey 2014; Schramade 2016); organizational factors affecting sustainability practice (Oyewo and Badejo 2014; Nwobu 2015; Jensen and Berg 2012; Barakat, Pérez, and Ariza 2015); impact of sustainability practice on organizational performance (de Klerk and de Villiers 2012; Khaled and Fares 2012; Uwuigbe and Egbide 2012; Dragu and Tiron-Tudor 2013; Duke and Kankpang 2013; Iqbal et al. 2014; Weber and Banks 2012); the nexus between sustainability practice and value of quoted firms (Fodio, Abu-Abdissamad, and Oba 2013), amongst others. Whereas organizational factors affect the usage of management accounting techniques on one hand (Khandwalla 1972; Chenhall 2003; Ahid and Augustine 2012; Oyewo 2017), and management accounting practices having a leaning towards sustainability have evolved on the other hand (see Egbunike, Ogbodo, and Onyali 2014; Auzair et al. 2013; Oyewo and Isa 2017), it appears studies exploring the nexus between organizational characteristics, management accounting practice and corporate sustainability are scanty. In the meantime, investigation into the contributions of management accounting practice to corporate sustainability in the context of organizational characteristics is too important to be ignored in this era of neo-liberalism because stakeholders are taking keener interests in how organizations are being managed to contribute to sustainability (see Weber and Banks 2012; Emerton and Jones 2019).

An examination of the impact of management accounting practice on corporate sustainability from the Global Management Accounting Principles (GMAP) perspective is considered crucial because the GMAP framework reflects the paradigm shift in the roles of management accountants in recent times from traditional management accountants preoccupied with *bean-counting* to strategic partners aware of business imperatives. The GMAP was jointly developed and endorsed by The American Institute of Certified Public Accountants (AICPA) and The Chartered Institute of Management Accountants (CIMA) in 2014 for the purpose of elevating and building recognition of the management accounting profession. The GMAP framework underwent a procedure similar for developing accounting standards such as the publication of discussion paper, exposure draft and final draft whilst engaging with stakeholders in the entire process (Deloitte 2011; Melville 2011). The global consultation program lasted a 90-day, starting from 10 February and closed on 10 May 2014 (CGMA 2014). Feedbacks from the consultation process were used to refine the consultation draft, and the GMAP framework was subsequently launched in the third quarter of 2014. The principles were developed to support Chief Executives, Boards of Directors and Chief Finance Officers to benchmark and improve their management accounting practices and processes to ensure effectiveness and efficiency in management accounting function. The GMAP framework reflects the paradigm of Chief Executive Officers (CEOs), Chief Finance Officers (CFOs), Academics and other professionals across five continents on modern MAP (CGMA 2015).

With these thoughts in mind, the study examined the outcomes of interaction between organizational characteristics, robustness of management accounting practice and corporate sustainability from the standpoint of the Global Management Accounting Principles (GMAP). The research objectives were to: (i) appraise the frequency of performing critical management accounting activities; (ii) examine the influence of organizational

characteristics on the robustness of management accounting practice; (iii) evaluate the impact of management accounting practice on corporate sustainability, and; (iv) investigate extent to which organizational characteristics moderate the relationship between management accounting practice and corporate sustainability.

Responses obtained from informers in 131 firms based in Nigeria were analyzed using descriptive and inferential statistical tools (One-way MANCOVA, OLS regression and moderated regression analysis). It was observed that although management accounting activities were generally performed frequently, certain activities requiring review and modification of already prepared cost and revenue estimates appear to be performed less-frequently. Further, organizational characteristics such as size, organization lifecycle, presence of specialist skills, affiliation to foreign entity and ownership structure significantly affect the robustness of management accounting practice. Whilst detecting that robust management accounting practice elevates corporate sustainability, organizational characteristics such as size, organization lifecycle and presence of specialist skills may determine the extent to which such a benefit is realized.

The rest of the paper is divided into five parts (Sections 2–6). After literature review and development of hypotheses in Section 2, Section 3 explains the research methods. Sections 4 and 5 cover analysis of results and discussion of findings respectively. The paper is concluded in Section 6.

2. Literature review and hypotheses development

2.1. Management accounting practice and the global management accounting principles (GMAP) framework

Management accounting provides financial and non-financial information that supports management at strategic, tactical and operational levels (CIMA 2013; Kaplan 2013). Financial information is important for management because many objectives of organizations, especially profit-making ones, are stated in financial terms such as profitability, liquidity, and solvency. Non-financial information is equally important, especially at the strategic level where management may need to know about developments in their markets, new technology, activities of competitors, future demand for products, and new product development. At the tactical level, non-financial information on product or service quality, speed of handling customer complaints, customer satisfaction levels, employee skills level and employee morale are important. At operational level, management may want to know about the number of rejects per machine, the lead time for delivery of materials and the number of labor and machine hours available (Kaplan 2013).

To adequately assist management at all levels, management accounting techniques applicable to any nature of decision, either routine or unstructured, have developed over the period (Table 1). The traditional operational task performed by the management accounting function covers: costing of activities, pricing of products and services, analysis of the profitability of revenue-generating activities, effective allocation of resources by means of budgeting and investment appraisal techniques (CIMA 2009). At the tactical or managerial level, there are performance measurement tools, performance management tools and reward system (CIMA 2008, 2009). Strategic management accounting deals with how profit and performance are reported to senior management to support strategic

Table 1. Panoply of management accounting techniques supporting management at operational, tactical and strategic levels.

Level	Management accounting techniques
Operational	(i) Costing Tools: Total quality management (TQM), benchmarking, customer relationship management (CRM), linear programming, activity based costing (ABC), overhead allocation, integrated cost and financial accounts, throughput accounting, variable or marginal costing, variance analysis, standard costing, kaizen costing, life cycle costing, target costing, quality costing, full (absorption) costing, costing for jobs, batches, processes or contracts (ii) Pricing tools: Cost-plus pricing, market sensitive pricing, price skimming, penetration pricing, penetration pricing, transfer pricing between business units. (iii) Budgeting tools: Cash forecasts, zero based budgeting, flexible budgeting, beyond budgeting, rolling forecasts, activity based budgeting (ABB), incremental budgeting, and financial year forecasts. (iv) Profitability analysis tools: Product/service profitability analysis, relevant costing for decisions, customer profitability analysis, breakeven (CVP) analysis and economic value to customer. (v) Investment decision-making tools: Accounting rate of return, payback, discounted payback, internal rate of return, net present value, sensitivity analysis, CAPM (beta analysis), real options, post completion audits and qualitative, non-financial issues in decision-making. (vi) Other operational management accounting tools: Throughput accounting (underpinned by Theory of constraints, TOC), 360-degree reviews, learning curves, value chain analysis, functional analysis and decision tree analysis
Tactical/ Managerial	(i) Performance measurement tools: Return on capital Employed (ROCE), cash flow return on investment, residual income, economic value added, profit before tax (PBT). (ii) Performance management tools: Balanced scorecard, value based management, business process re-engineering, six-sigma, activity based management (ABM), value mapping, total performance scorecard, and performance prism. (iii) Reward system tools: Profit-sharing schemes, share options, executive incentive schemes (for senior directors) and management incentive schemes (for managerial roles)
Strategic	(i) Strategic performance reporting tools: Value added reporting, contribution after variable costs, gross-margin after full cost of sales, segmental contribution after attributable costs, and net profit margin after allocation of overhead. (ii) Strategic management accounting tools: Strategy mapping, core competencies analysis, CIMA strategic scorecard, long-range and business planning, risk management, environmental impact assessment, value for money audits, value engineering or value analysis, competitor analysis, SWOT analysis, Boston Consulting Group (BCG) matrix, and environmental management accounting

Source: Author's Compilation (2019).

decision-making and (often as key performance indicators or KPIs) to external stakeholders (Johnson and Kaplan 1987; Roslender and Hart 2003; Forde, Burnett, and Devonish 2007). The use of the tools is however not confined to each level but cuts across the hierarchies of management.

Management accounting functions have also been tailored to the roles of management, which include planning, controlling, measurement and decision-making (Ahl 1999). In performing the *planning* role, management accountants use budgeting for short-term, medium-term and long-term. The management accountant's role of *controlling* includes performance evaluation using financial and non-financial performance measures. In the *measurement* role, management accountants attempt to measure cost, variances and profit, as well as overheads (factory burdens) allocation and apportionment (Ahl 1999). In executing *decision-making* role, management accountants provide information that enhance the quality of decision of management at operational, tactical and strategic levels. In expounding on the supportive roles that management accounting provides for management, Simons (1951) identified three attributes of what is now called management accounting to be *score-keeping* (to see how the organization is doing overall), *attention-*

directing (to indicate area that need to be investigated) and *problem-solving* (entails providing information for decision-making with inclusion of recommendations). Management accounting practice generally extends to three areas of: strategic management, performance management, and risk management (CIMA 2008, 2014). The strategic management accounting practice emphasizes the roles of the management accountant as a strategic partner (Roslender and Hart 2003; Hyvonen 2005; Akenbor and Okoye 2012; Al-Mawali 2015). The performance management practice is concerned about developing practice of business decision-making and managing the performance of the organization. The risk management focuses on identifying, measuring, managing and reporting risks to the achievement of the organizational objectives.

The GMAP, which aptly captures the contemporary functions of management accounting, postulates that the application of innovative management accounting practice helps organization accomplish business imperatives. According to the framework (GMAP), there are four elements of an effective management accounting function including; people, principles, practice areas, and performance. The practice areas refer to the activities of the management accounting function (management accounting practices) which permeate all levels of management, thematically grouped into fourteen critical areas, including; cost transformation & management; external reporting; financial strategy; internal control; investment appraisal; management & budgetary control; price, discount and product decisions; project management; regulatory adherence & compliance; resource management; risk management; strategic tax management; treasury & cash management; and internal audit (CGMA 2014, 2015). The reconstruction in the roles of management accountants from information-providing to decision-supporting, strategy-formulating and task-implementing is evidenced by the emergence of contemporary and strategy-driven management accounting practices (Horngren et al. 2003; Naranjo-Gil and Hartmann 2006).

2.2. Factors affecting management accounting practice

Drawing from the contingency theory, scholars have argued that both internal (organizational age, size, growth, degree of centralization, geographic dispersion, culture present within the organization, technology usage and dependency, business strategy …) and external (including structure of the environment and environmental conditions like competition, economy, markets) contextual factors affect management accounting practice. The contingency theory, which stems from the contingency or situational approach to management (Boddy 2012; Mullins and Christy 2013), supposes that management accounting practices will be influenced by internal and external factors, which varies from one organizational setting to the other.

There is a body of literature suggesting that organizational characteristics (i.e. internal contingencies) influence management accounting practice (Khandwalla 1972; Gordon and Miller 1976; Otley 1980; Hofstede 1983; Reid and Smith 2000; Chenhall 2003; Granlund and Lukka 1998; Järvenpää 2007; CIMA 2009; Ahid and Augustine 2012; Ajibolade 2013a; Ajibolade 2013b; Ajibolade and Oyewo 2017a; Oyewo 2017). Although numerous organizational variables affecting management accounting systems have been investigated, this study focused on five closely-connected organizational factors affecting management accounting practice, including organization size, lifecycle, availability of specialist skills, affiliation to foreign entity and ownership structure. As organizations advance in size,

they pass through different stages of lifecycle (*introduction, growth, maturity* and *decline*). Organizational characteristics such as size and maturity may affect the availability of resources; large and matured firms may have the resources to hire specialists. Also, large and matured organizations may also have the means to go public and/or may realize the need to expand business by enlisting on the stock exchange to diversify ownership base.

In comparison to small firms, the management accounting practice of large organizations may be anticipatorily more robust (Cadez and Guilding 2008; CIMA 2009; Cuzdriorean 2017) because they have the resources to implement advanced management accounting techniques. Also, such firms will require sophisticated accounting information to cope with the complexities imbued in running the organization. Matured firms are likely to be trailed by advanced management accounting practice perhaps because of the recognition gained by accounting information in supporting the organization over its lifecycle and the resultant importance placed on the management accounting function. Matured firms may also be more experienced in implementing management accounting system during various stages of their organizational lifecycle. As organizations may be expected to grow in size as they age (Mullins and Christy 2013), large-sized and matured firms may need sophisticated management accounting techniques to deal with intricacies within their organizations. Robust management accounting practice is therefore likely to be adopted by large-sized and matured firms due to their complicatedness (Innes and Mitchell 1995; Haldma and Laats 2002; Cadez and Guilding 2008; CIMA 2009; Ahmad and Zabri 2015; Albu and Albu 2012). Publicly-quoted companies with well-diversified ownership structure should have a more active management accounting system because of the implementation of corporate governance codes, as well as regulations by capital market authorities targeted at institutionalizing best practices. Besides, publicly-quoted firms with well-diversified ownership structure (which are also predominantly large and matured firms) have the resources to hire specialists, including well-versed management accountants. Hence, the management accounting activities characterizing such organizations should resultantly be robust.

Human factor has been a recurring problem in the adoption of modern management accounting techniques (Sulaiman, Ahmad, and Alwi 2004). This is because the implementation of sophisticated management accounting techniques requires proficiency in this area. The GMAP framework included people as one of the elements of an effective management accounting function, thus reiterating the relevance of skilled personnel to the buoyancy of management accounting practice. A CIMA (2009) survey observed that the availability of suitability qualified finance personnel in finance and other departments affects the intensity of applying management accounting tools among firms across different sizes, industry, and location. Thus, the presence of specialist skills may be contributory to the vibrancy of management accounting practice (Granlund and Lukka 1998; Al-Omiri 2003; Sousa, Aspinwall, and Rodrigues 2006; Ismail and King 2007; Maelah et al. 2017) because the level of competence of management accountant(s) may reflect in the effectiveness of the management accounting function. Firms with skilled management accountants should conceivably be marked by efficient management accounting activities.

Firms affiliated to foreign entities, especially subsidiaries of multinational companies, may be affected by the organizational culture of their parent companies, including their accounting practices (see Hofstede 1990; Ahl 1999; Järvenpää 2007; Ajibolade 2013a). As

organizations borrow management concepts from other cultures to become more successful (Ahl 1999), companies operating internationally may have imbibed the culture of adopting sophisticated accounting systems to cope with the competition at the international scene (Quesado and Rodrigues 2009; Quesado, Aibar-Guzmán, and Rodrigues 2016). The implementation of the modern management accounting techniques may therefore be associated with the internationalization of organizations, as firms operating transnationally operate in more competitive markets and face greater competitive pressure. The management accounting function of foreign companies' subsidiaries may therefore be characterized by sophisticated management accounting practice because of the influence of the parent company culture (Yazdifar and Askarany 2010; Pitcher 2015).

Overall, the robustness of management accounting practice may be expected to vary from one entity to the other owing to organization-level contextual factors (Granlund and Lukka 1998; Ahid and Augustine 2012; Ajibolade 2013a; CGMA 2015). Consistent with Granlund and Lukka's (1998) contention that environment and organization structure influence the work carried out by management accountants and the impact they (management accountants) have on decision-making, Ahid and Augustine (2012) submitted that the roles of management accountants vary from one organization to the next depending on size, industry, and culture, amongst other factors. Ajibolade's (2013a) study of the factors influencing the choice of management accounting system designs by manufacturing firms found that organizational variables influence the choice of management accounting practice. Based on these discussions, it is hypothesized that:

> H1: Organizational characteristics have significant influence over the robustness of management accounting practice.

2.3. Management accounting practice, sustainability accounting and corporate sustainability

To the extent that management accounting techniques are applied to create value for stakeholders, the contributions of management accounting practice in enhancing corporate sustainability is conceivable. The entrenchment of sustainability in accounting has given rise to the concept of sustainability accounting. According to Schaltegger and Buritt (2010, 377), sustainability accounting is:

> … the term used to describe new information management and accounting methods that attempt to create and provide high quality, relevant information to support corporations in relation to their sustainable development.

Scholars (for example, Egbunike, Ogbodo, and Onyali 2014; Agu, Nweze, and Enekwe 2016) have argued that management accounting techniques belong to the panoply of accounting methods designated as sustainability accounting. Agu, Nweze, and Enekwe (2016) submitted that the use of management accounting techniques is capable of providing managers with information on sustainability in corporate governance. Also, Egbunike, Ogbodo, and Onyali (2014) considered the utilization of management accounting practice for sustainability performance measurement across product-sector organizations, concluding that management accounting techniques can capture information from diverse areas of corporate environmental and social performance.

Sustainability practices are conventionally discussed under three dimensions – environmental, economic, and social (Maguire 2011; Hindley and Buys 2012; Oyewo and Isa 2017). While environmental sustainability focuses on the impact of an entity's endeavors on living and non-living natural systems including land, water, air and ecosystem (GRI 2013a, 2013b), the concern of economic sustainability is the impact of an organization on the economic conditions, economic system, and flow of capital of its stakeholders in the environment where the organization carries on business (Eccles 2011; GRI 2013a, 2013b). The social sustainability perspective deals with an entity's impact on the social systems within which it operates (GRI 2013a, 2013b). According to the Global Reporting Initiative (GRI) G4 framework, which is increasingly becoming the de factor standard on sustainability reporting across the world (Maguire 2011; Hindley and Buys 2012), there are four subcategories of social sustainability, namely: labor practices & decent work, human rights, society, and product responsibility. Literature suggests that organizations are entrenching these dimensions of sustainability into their business practices (see Deegan 2002; Gonçalves et al. 2013), and the deployment of management accounting practice can drive sustainability through the value it adds to an organization.

According to CGMA (2014, 2015), management accounting practice can enhance the long-term value and sustainability of an entity in the way of improved customer satisfaction, more efficient allocation of scarce capital resources, better balancing of capital requirements with expectations of owners and other stakeholders, prioritization of opportunities for funding that generate value for stakeholders, improved evaluation of performance against target to take informed action, enhanced profitability of products and services, better product positioning within target markets, continuous improvement in process and products/services, improved liquidity, efficient management of financial risks arising from exposures to currency fluctuations, and adequate control of non-financial risks (including reputational, environmental and social risks), amongst others. For instance, Cost Transformation & Management, and Price, Discount & Product Decisions techniques can be applied to engender social sustainability dimensions such as product responsibility through customer satisfaction, product positioning, and enhanced profitability of products. Investment Appraisal techniques can be applied to prioritize opportunities for funding that generate value for stakeholders and avoid projects which are likely to erode value; Management & Budgetary control is undertaken to ensure allocation of scarce capital resources among the competing opportunities to optimize value for Shareholders/ Owners; Financial strategy is implemented to balance an entity's capital requirements with expectations of Owners and other stakeholders; while Treasury & Cash Management should ensure sufficient cash is available to meet obligations to Financiers, in addition to managing financial risks arising from exposures to currency fluctuations, thus contributing to economic sustainability. The firm's long-term value can also be protected on account of implementing risk management practice (economic sustainability). Implementation of Internal control measures should help to ensure compliance with environmental regulation (environmental sustainability), as well as diminish key non-financial risks, including reputational, environmental and social risks (environmental/ social sustainability).

Empirical studies documenting the benefits ensuing from the application of management accounting practice thrive. For example, scholars such as Bourguignon (2005), Sulaiman, Ahmad, and Alwi (2004), and Abdullah and Said (2015) maintained that organizations embracing best practice in management accounting can create value which leads to business

excellence. Value-creation has also been found to positively impact on organizational sustainability (Fuller 2001; Gholami 2011; Kraaijenbrink and Spender 2011). Adler, Everett, and Waldron (2000) reported that advanced management accounting techniques were perceived by accountants as most effective in achieving dimensions of organizational sustainability such as improved product profitability, cost reduction, and improved product quality. Product profitability improvement, for example, was best achieved through life cycle costing in study organizations. This was corroborated by Agasisti, Arnaboldi, and Azzone's (2008) study that strategy-driven management accounting practices assist in allocation of financial resources. From the study of large Slovenian companies, Cadez and Guilding (2008) observed a significant positive association between strategic management accounting usage and firm performance. Alsoboa et al. (2015) found that management accounting practice such as Activity Based Costing (ABC) and strategic decision-making techniques contribute positively and significantly to the sustainability of an organization.

However, some studies have contested the benefits which the deployment of management accounting practice bring. While some scholars have documented low benefits from the application of management accounting practices (see Hyvonen 2005; Angelakis, Theriou, and Floropoulos 2010), others have noted no relationship between management accounting practice and improvement in organizational performance (for example, Ittner, Larcker, and Randall 2003), and even a negative association between the use of accounting information and organizational performance (see, Ittner and Larcker 1997; Perrera, Harrison, and Poole 1997; Agbejule 2005). Hyvonen (2005) and Angelakis, Theriou, and Floropoulos (2010) observed that modern management accounting practice such as product life cycle analysis, shareholder value analysis, and value chain analysis were accorded low benefits by their respondents. Another study of Malaysian firms by Yap et al. (2013) found that techniques like balanced scorecard, product life cycle analysis and benchmarking have relatively low benefits. Perrera, Harrison, and Poole (1997) found no evidence of a connection between use of strategy-orientated, non-financial performance management accounting techniques and sustainable organizational performance; Ittner and Larcker (1997) reported a negative association between several strategic control practices and corporate performance. Also, Agbejule (2005) observed that sophisticated management accounting system has a negative effect on performance when perceived environmental uncertainty is low. A CIMA (2009) survey observed that although larger organizations are more likely to use management accounting tools, there were some areas where organization size did not seem to influence usage of strategic tools and, to a lesser extent, budgeting tools (CIMA 2009). Based on this discussion, it is hypothesized that:

> H2: Management accounting practice has a significant positive impact on corporate sustainability.

There are three forms of fit relating to structural contingency theory such as the selection, interaction, and systems approaches (Chenhall and Chapman 2006; Al-Omiri and Drury 2007). The interaction approach explains variations in organizational performance from the fit between contextual variables and organization structure. Interaction fit contingency theory posits that a good fit between management accounting practice and context (organizational characteristics) leads to enhanced firm performance (i.e. corporate sustainability in the context of this study), while poor fit implies diminished performance (Govindarajan 1988; Chenhall 2003; Abdel Al and McLellan 2013). Abdel Al and

McLellan (2013) opined that if an organization has a good alignment between management accounting practices and strategy employed, the fit could have both a positive and significant effect on operational performance. On the whole, since organizational factors affect the degree of management accounting practice sophistication, organizational characteristics may as well exert on the extent to which management accounting practice contributes to corporate sustainability. Therefore:

H3: Organizational characteristics significantly moderate the relationship between management accounting practice and corporate sustainability.

2.4. Conceptual framework

The interaction between organizational characteristics, management accounting practice, and corporate sustainability is depicted in Figure 1.

The influence of the selected organizational factors (size, organization lifecycle, presence of specialist skills, affiliation to foreign entity and ownership structure) on management accounting practice, underpinned by the contingency theory, is delineated by the arrow flowing from *Organizational Characteristics* to *Management Accounting Practice* (as conjectured in H1). The arrow flowing from *Management Accounting Practice* to *Corporate sustainability* illustrates the influence of Management Accounting Practice on Corporate sustainability (as hypothesized in H2). The arrow moving from *Management Accounting Practice* to *Corporate Sustainability*, interposed by the arrow flowing from *Organizational Characteristics*, demonstrates the moderating influence of organizational characteristics on the relationship between management accounting practice and corporate sustainability (hypothesized in H3).

3. Research methods

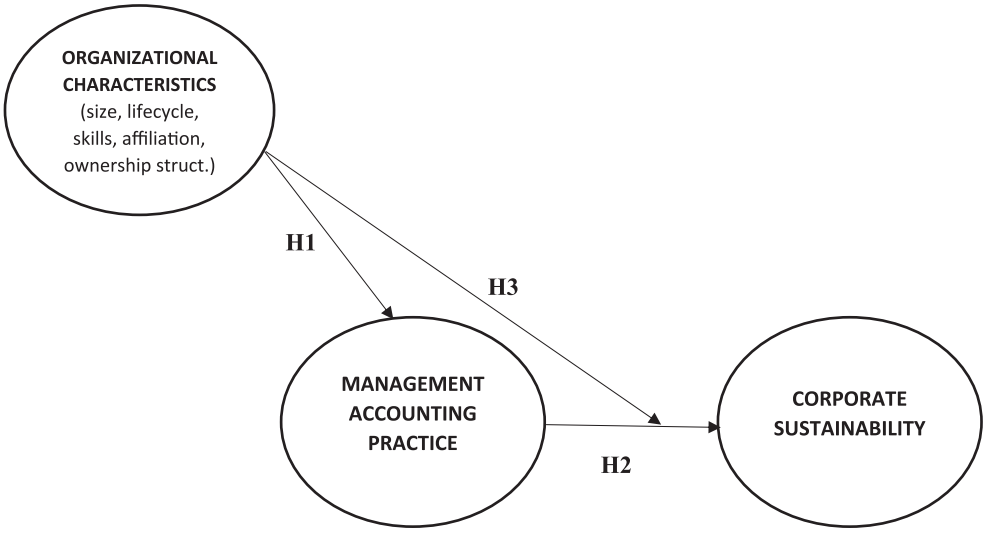
3.1. Research design

The sampling frame comprised of registered companies in Lagos. The number of registered companies in Lagos was triangulated, using the statistics gleaned from three online sources: (i) the first source (https://www.6000profiles.com/States/Lagos%20State.htm) listed approximately 4700 firms; (ii) the second source (https://www.lagoslocation.com/business_directory.html) contained roughly 4850 firms; (iii) the third source (https://www.finelib.com/cities/lagos/business) featured about 4950 firms. The number of firms was rounded up to 5000. A sample of 5% of the firms was randomly selected, making a total number of two hundred (250) firms targeted. Prior related studies have used this approach in the selection of samples (for example, Soobaroyen and Poorundersing 2008; Subasinge and Fonseka 2009; Ajibolade 2013a).

3.2. Measurement of variables

3.2.1. Organizational characteristics

Organizational Characteristics measured were – size, organization lifecycle, presence of specialist skills, affiliation to foreign entity and Ownership structure. *Size* was proxied by number of employees as advocated in other studies (CIMA 2009; Adejuyigbe,



Source: Author's Conceptualization (2019)

Figure 1. Conceptualization of the relationship between organizational characteristics, management accounting practice and corporate sustainability. Source: Author's Conceptualization (2019).

Mogaji, and Adesida 2013; Sunarni 2013). *Organization lifecycle* was operationalized by adapting the categorization of firm age from a CIMA (2009) management accounting survey in the strata of: start-up firms (Up to 5 years), young firms (6–10 years), middle-aged firms (11–20 years), matured firms (21–30 years) and very matured firms (Over 30 years). *Presence of specialist skills* was measured by requesting respondents to indicate the existence of a separate management accounting unit/department within the Accounting/Finance Department. *Affiliation of the firm to foreign entity* was operationalized by requesting respondents to indicate where their firm is headquartered (within or outside Nigeria). *Ownership structure* was measured by requesting whether the company is listed on the Nigerian Stock Exchange (NSE) or not. Companies listed on the NSE have a well-diversified ownership structure since their ordinary shares are held by members of the investing public, while unlisted companies have a less-diversified ownership structure as their shares are not well spread nor publicly-traded.

3.2.2. Management accounting practice

Robustness of management accounting practice (MAP), in the context of this study, is the frequency of performing critical management accounting activities as suggested by the GMAP framework. This was measured with twenty-three (23) items adapted from the GMAP framework, categorized into seven (7) major practice areas, including – (i) Cost transformation and management (items 1,2,3); (ii) Financial Strategy (items 4, 5, 6); (iii) Internal Control (items 7, 8); (iv) Investment Appraisal (items 9, 10, 11); (v) Management and Budgetary Control (items 12, 13, 14,15); (vi) Price, Discount and Product Decisions (items 16, 17, 18,19); and (vii) Treasury and Cash Management (items 20, 21, 22,23). Responses were elicited on a 5-point scale ranging from 1 ('never') to 5

('always'). The Mean of the 23 items were combined and averaged to obtain a composite mean representing management accounting practice robustness for each firm.

3.2.3. Corporate sustainability

Corporate Sustainability (CS) was measured with twelve (12) items, adapted from the GMAP framework. Respondents were requested to rate on a scale of 1 (poor) to 5 (very good) the extent to which their firms have prospered in twelve (12) critical areas of business sustainability relating to customers & market position, resource allocation, risk management and financial performance. The Mean of the 12 items were aggregated and averaged to obtain an overall Mean representing corporate sustainability index for each firm.

3.3. Validity and reliability

To ensure validity, initial draft of the questionnaire was submitted to three experts (one academic and two management accounting practitioners) for critiquing. Feedbacks obtained were used to improve quality. Reliability assessment was triangulated using three techniques – Cronbach's Alpha, Guttman Split-Half Coefficient, and Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (Table 2). Results show that coefficients were above the acceptable minimum level of 0.60 (Nunnally 1978; Qingping 2009), thus confirming internal consistency.

3.4. Response rate

Two hundred and fifty (250) copies of the questionnaire were administered but 136 copies were retrieved, representing a response rate of 54.4%; five (5) copies were unfit for use because of incomplete response to some questionnaire items. One hundred and thirty-one (131) copies were found suitable and processed for analysis, thus representing an effective response rate of 52.4%. This response rate is considered adequate to perform statistical analysis in comparison to the response rate achieved in some other related studies (for example, Gul and Chia 1994; Chia 1995; Chong and Chong 1997).

3.5. Data analysis techniques

Descriptive statistical tools [frequency count, percentage, range, mean (*M*), standard deviation (*SD*)], and inferential statistical techniques [One-way Multivariate Analysis of Covariance (MANCOVA), correlation and moderated regression analysis] were used for

Table 2. Reliability test results.

		Reliability statistics		
Variable	Number of item	Cronbach's alpha	Guttman split-half coefficient	Kaiser-Meyer-Olkin measure of sampling adequacy.
Management Accounting Practice	23	.904	.841	.818**
Corporate Sustainability	12	.849	.823	.752**

**Significant at 5%.

analysis. To examine the influence of organizational characteristics on management accounting practice, the One-way MANCOVA was used. MANCOVA is a technique applied in assessing the impact of a categorical independent variable(s) on a number of dependent variables after controlling for covariates. The main purpose of running a one-way MANCOVA is to establish whether the groups of the independent variable are significantly different on the dependent variables collectively. MANCOVA helps to exert stricter experimental control by taking account of confounding variables (covariates) to get a purer measure of effect of experimental manipulation (Field 2009). In applying the MANCOVA, the independent variables are the five organizational characteristics under consideration including: size, lifecycle, presence of specialist skills, affiliation to foreign entity and ownership structure which were measured using nominal scale; the dependent variables are the twenty-three items measuring management accounting activities; and the covariate is the line of business because the industry sector where a firm operates may affect the management accounting practice. As the industry sector is not an organizational factor of interest, but considering that it may influence management accounting activities, its influence was taken out to see a purer effect that the five organizational variables under investigation exert on management accounting practice. Ordinary Least Square (OLS) regression analysis was performed to examine the impact of management accounting practice on corporate sustainability.

Moderated regression analysis was applied to assess the extent to which the five organizational characteristics (the moderating variables) – size (*SIZE*), organization lifecycle (*LFCYCLE*), presence of specialist skills (*SKILLS*), affiliation to foreign entity (*AFFILIATN*) and Ownership structure (*STRUCTURE*) – moderate the relationship between Management Accounting Practice (*MAP*: independent variable) and Corporate Sustainability (*CS*: dependent variable).

4. Results and analysis

4.1. Organizational characteristics

The distribution of firms across various attributes (size; age; line of business; existence/non-existence of a separate management accounting unit; affiliation to foreign entity; and ownership structure) confirms the heterogeneity in firm characteristics: this provides a good basis to examine organizational issues bearing on management accounting practice (Table 3).

Respondents varied in their job titles, including (in descending order of appearance); Finance Manager (47, 35.9%), Financial Controller (34, 26.0%), Management Accountant (30, 22.9%), Chief Finance Officer (5, 3.8%), and Financial Director (1, 0.8%). 14 (10.7%) respondents bore other titles such as Chief Operating Officer, Chief Risk Officer, Risk manager and Accountant. These diverse job titles underscores the multifaceted nature of management accounting activities. The eliciting of opinion from respondents with varying job titles not only underscores the multifaceted nature of management accounting activities, but also signals the expectation that respondents should be knowledgeable about the management accounting function in their respective organizations. Many of the firms surveyed operate in the financial service sector ($n = 63$, 48.1%); followed by manufacturing concerns ($n = 34$, 26.0%) and Oil & Gas firms ($n = 18$, 13.7%); the remaining firms were

Table 3. Attributes of study firms/ respondents' profile.

Variable	Category	Freq.	%	Total
Size (No. of Employees)	Up to 50	24	18.3	
	51–200	17	13.0	
	201–500	19	14.5	
	501–1,000	4	3.1	
	Above 1,000	67	51.1	131
Firm Age (In years)	Up to 5 years	18	13.7	
	6–10 years	6	4.6	
	11–20 years	29	22.1	
	21–30 years	37	28.2	
	Over 30 years	41	31.3	131
Line of Business	Manufacturing	34	26.0	
	Financial Service (Bank & non-bank)	63	48.1	
	Telecommunications	7	5.3	
	Oil and Gas	18	13.7	
	Trading	5	3.8	
	Others	4	3.1	131
Job Title	Financial Director	1	0.8	
	Chief Finance Officer	5	3.8	
	Financial Controller	34	26.0	
	Management Accountant	30	22.9	
	Finance Manager	47	35.9	
	Others	14	10.7	131
Management Accounting Unit/Dept.	Existence	115	87.8	
	Non-existence	16	12.2	131
Location of Head-Office/ Parent company	Within Nigeria	109	83.2	
	Outside Nigeria	22	16.8	131
Ownership Structure	Well-diversified (Quoted)	80	61.1	
	Less-diversified (Unquoted)	51	38.9	131

from Telecommunications ($n = 7$, 5.3%), Trading ($n = 5$, 3.8%), and other line of business ($n = 4$, 3.1%). Almost all the firms ($n = 115$, 87.8%) admitted to having a Management Accounting unit/department within the finance function firms, while a few ($n = 16$, 12.2%) have no such unit/department.

4.2. Robustness of management accounting practice

Result from the analysis of the frequency of performing critical management accounting activities is presented in Table 4.

With respect to cost transformation and management, result suggests that although this activity has an overall mean of 4.09, a closer look at the items making up the activity (discussion and development of cost targets in conjunction with colleagues and business partners [$M = 3.89$]; and development and refinement of performance measures for drivers of costs across the components of the business model [$M = 3.98$]) reveals that this practice area appears to be executed less-frequently (Table 4). The overall mean was bolstered by the result from the ascertainment and comparison of costs from previous years at aggregate, departmental/functional and product level over the period [$M = 4.89$, $SD = .760$], which is an activity done more frequently; this item also has the highest mean score and the lowest *SD*.

For financial strategy, aside the understanding and documentation of nature, and evaluation of extent and impact of financial risks faced by the organization which is done more frequently ($M = 4.20$, $SD = .738$) [this item also ranged from *2 to 5*], other activities –

assessment of the impact of decisions on shareholder value ($M = 4.05$); and sourcing of long-term capital (Debt and equity) at lowest possible cost ($M = 3.76$) – seem to be done less frequently, as responses ranged from '*1*' (never) to '*5*' (always).

Internal control activities appear to be undertaken more frequently (overall $M = 4.32$) with a very strong consensus amongst respondents ($SD = .74$). Both items under this activity have a high mean score, including assigning of responsibility for financial control ($M = 4.37$); and identification and evaluation of physical and financial processes that pose the most risk to the organization ($M = 4.27$).

Investment appraisal activities appears to be undertaken also more frequently (overall $M = 4.20$). Two items under this activity have high mean score, including presentation of investment appraisal calculations to decision-makers ($M = 4.33$) and the evaluation of investment based on quality information ($M = 4.31$). The consideration of non-financial information during investment decision is less frequent ($M = 3.95$).

Management and Budgetary control activities such as performance trend analysis, benchmarking and continuous improvement ($M = 4.13$); transparency and consultation in budgeting process ($M = 4.08$) and the devolvement of measures and targets for activities ($M = 4.08$) are carried out more frequently. Scenarios on projections of volumes, prices and cost structures to analyze the risks of associated activities and targets are performed less frequently. The overall mean for Management and Budgetary control activities is however 4.07, implying the activities are performed most times.

Amongst the Price, Discount & Product Decisions activities [overall mean of 4.00 ($SD = 0.97$)], the tasks carried out more frequently are: the standardization and institutionalization of the pricing process across the organization ($M = 4.16$); and the involvement of accountants in the early stages of new product/service development ($M = 4.03$). Other tasks such as the capturing of key pricing data centrally and its availability to relevant employees in the form of a pricing tool ($M = 3.97$) and the performance of sensitivity analysis ($M = 3.85$) are actioned less frequently.

Items measuring Treasury & Cash Management activities generally assumed high-ranking mean scores above 4.00 [except conducting early discussion with auditors, corporate advisers and lenders about credit facilities with Mean (SD) of 3.85 (.946)], thus culminating to an overall mean score of 4.10, implying a high frequency of occurrence of Treasury & Cash Management activities.

To sum up, the overall mean score of each of the seven (7) management accounting activities is a minimum of 4.00 (most times). As activities generally assumed overall mean score between 4 (mostly) and 5 (always), it is construed that firms frequently carryout critical management accounting activities (research objective one). The high mean score on frequency of occurrence of the management accounting activities across the seven (7) areas also draws attention to the omnibus nature of the management accounting function.

In sum, from the results in Table 4, the ordering of the regularity of performing the management accounting activities are as follows – Internal Control ($M = 4.32$); Investment Appraisal ($M = 4.20$); Treasury & Cash Management ($M = 4.10$); Cost Transformation & Management ($M = 4.09$); Management and Budgetary Control ($M = 4.07$); Financial Strategy ($M = 4.00$); Price, Discount & Product Decisions ($M = 4.00$) [research objective one]. The emergence of Internal control activities as the practice area with the highest frequency of occurrence may be credited to the existence of internal control unit/department in many private-sector organizations.

Table 4. Frequency of performing critical management accounting activities.

S/N	Item	Potential range	Actual range	Mean	*SD*
	Cost Transformation & Management				
1	Cost targets are discussed and developed in conjunction with colleagues and business Partnerships to gain buy-in. They are refined over time	1–5	2–5	3.89	.917
2	Costs from previous years at aggregate, departmental/functional and product level are ascertained and compared over the period	1–5	2–5	4.39	.760
3	Performance measures for drivers of costs are developed or refined across the components of the business model.	1–5	1–5	3.98	.940
	Cluster Mean			4.09	.87
	Financial Strategy				
4	The impact of decisions on shareholder value are assessed using measures such as customer satisfaction, market share and profitability	1–5	1–5	4.05	1.040
5	Debt and equity capital are sourced at lowest possible cost in the capital markets	1–5	1–5	3.76	.910
6	Nature, extent and impact of financial risks that the organization face is understood and documented	1–5	2–5	4.20	.738
	Cluster Mean			4.00	0.89
	Internal Control				
7	Responsibility for financial controls is assigned to appropriate levels of employees.	1–5	2–5	4.37	.748
8	The physical and financial processes that pose the most risk to the organization are identified and evaluated	1–5	2–5	4.27	.734
	Cluster Mean			4.32	.74
	Investment Appraisal				
9	The results of investment appraisal calculations are presented to decision-makers in a simple and transparent format before the investment decision	1–5	2–5	4.33	.706
10	Investment appraisals are based on cash flow information, which is relevant, accurate, reliable, consistent, complete and timely	1–5	3–5	4.31	.669
11	Due consideration is given to non-financial information in investment decisions	1–5	2–5	3.95	.893
	Cluster Mean			4.20	0.76
	Management and Budgetary control				
12	Budgeting processes are transparent and consultative	1–5	2–5	4.08	.810
13	Measures and targets for activities are cascaded to all levels in the organizations to help people understand how their success contributes to organizational success	1–5	2–5	4.08	.810
14	Performance trends for inputs, outputs and outcomes and relevant benchmarks are tracked to ensure targeted results are competitive and continuously improve	1–5	2–5	4.13	.727
15	Scenarios on projections of volumes, prices and cost structures are performed to analyze the risks of associated activities and targets.	1–5	1–5	3.98	.836
	Cluster Mean	1–5		4.07	.79
	Price, Discount & Product Decisions				
16	Key pricing data is captured centrally and made available in the form of a pricing tool to relevant employees	1–5	1–5	3.97	.992
17	Management accountants are involved in the early stages of new product/service development, to evaluate cost/ benefit	1–5	1–5	4.02	1.030
18	Pricing processes are standardized and institutionalized across the organization	1–5	2–5	4.16	.875
19	Sensitivity analysis is performed on projects	1–5	1–5	3.85	1.009
	Cluster Mean			4.00	.97
	Treasury & Cash Management				
20	The organization conducts early discussions with auditors, corporate advisers and lenders about uncommitted facilities, facilities that are up for renewal and any forecast breaches of covenants	1–5	1–5	3.85	.946
21	An efficient cash management system is established that contemplates future growth of the enterprise, and minimizes idle cash balances	1–5	1–5	4.27	.753
22	Robust credit management processes for controlling and collecting payments are carefully followed	1–5	2–5	4.24	.692
23	The organization's exposure to fluctuations in exchange and interest rates is calculated and proactively managed	1–5	1–5	4.06	.951
	Cluster Mean			4.10	.86

4.3. Influence of organizational characteristics on robustness of management accounting practice

The different multivariate statistics (Pillai's Trace, Wilks' Lambda, Hotelling's Trace and Roy's Largest Root), assessing the influence of organizational characteristics on management accounting practice, establish that the one-way MANCOVA is significant after controlling for line of business (highlighted in Appendix 1). Specifically, (i) firm size [F (92, 299) = 2.015, p = .000 < .01, Wilks' λ = .148]; (ii) organization lifecycle [F (92, 299) = 2.668, p = .000 < .01, Wilks' λ = .093]; (iii) presence of specialist skills [F (23, 75) = 1.552, p = .080 < .10, Wilks' λ = .678]; (iv) affiliation to foreign entity [F (23, 75) = 4.930, p = .000 < .01, Wilks' λ = .398]; and (v) ownership structure, [F (23, 75) = 1.552, p = .048 < .05, Wilks' λ = .660] significantly affect the intensity of management accounting activities. A closer examination of the result in Appendix 1 reveals that although the impact of firm size, organization lifecycle, and affiliation to foreign entity respectively is significant at 1%, however, organization lifecycle exerts the most on management accounting activities with the lowest Wilks' λ coefficient of .093. The Wilks' λ measures the percent variance in dependent variables not explained by differences in levels of the independent variable; the closer to zero the statistic is, the more the variable in question contributes to the model (Nath and Pavur 1985).

The result generated also shows the interaction effect of some organizational characteristics on management accounting practices (Appendix 1). The interaction between (i) firm size and organization lifecycle [F (92, 299) = 2.995, p = .000 < .01, Wilks' λ = .076]; (ii) firm size and affiliation to foreign entity [F (23, 75) = 2.309, p = .004 < .01, Wilks' λ = .585]; (iii) firm size and ownership structure [F (23, 75) = 1.847, p = .025 < .01, Wilks' λ = .638]; (iv) organization lifecycle and affiliation to foreign entity [F (46, 150) = 3.080, p = .000 < .01, Wilks' λ = .264]; and (v) presence of specialist skills and ownership structure [F (23, 75) = 2.979, p = .000 < .01, Wilks' λ = .523] significantly affects management accounting practice. The interaction between the other organizational characteristics did not evince any significant result. With a Wilks' λ = .076 and 1% level of significance, the interaction between firm size and organization lifecycle exerts the most on management accounting practice. Whilst noting that these two attributes individually exerted the most on management accounting activities, it may not be unexpected that they would jointly exert the most on the management accounting activities. Based on these results, it is concluded that organizational characteristics have a significant influence on the robustness of management accounting practice (research objective two).

4.4. Management accounting practice and corporate sustainability

4.4.1. Dimensions of corporate sustainability affected by management accounting practice

Result on the analysis of value added by management accounting practice to corporate sustainability is presented in Table 5.

Management accounting practice has been most beneficial to firms in terms of budgeting (M = 4.33, SD = .728); this may be unsurprising because budgeting is a classical theme and activity in management accounting research and practice (Nouri and Parker 1998; Maitland 2000; Rasmussen 2003; Oyewo and Adeyeye 2018). Firms seem to have also

Table 5. Dimensions of corporate sustainability affected by management accounting practice.

S/N	Items	Potential range	Actual range	Mean	*SD*
1	The customer satisfaction indicator has improved over the period	1–5	1–5	3.91	.789
2	The allocation of scarce capital resources among the competing opportunities has caused the value of the organization to be optimized for owners and other stakeholders	1–5	2–5	4.09	.574
3	The organization has been able to balance its capital requirements with expectations of owners and other stakeholders as a result of the implementation of its financial strategy.	1–5	1–5	4.01	.718
4	The application of investment appraisal techniques has enabled the firm to prioritize opportunities for funding that generate value for stakeholders and avoid those which are likely to erode value	1–5	2–5	4.09	.650
5	The existence of budgetary control system has helped the firm to evaluate performance against targets and take improvement actions	1–5	1–5	4.33	.728
6	The application of cost and management accounting techniques has enhanced profitability of products and services	1–5	1–5	3.93	.905
7	The application of cost and management accounting techniques has helped the organization position its products and services within its target market	1–5	1–5	3.91	.836
8	The management accounting practices have helped the organization to continuously improve its processes and products/services	1–5	1–5	3.98	.794
9	The organization has sufficient cash to meet its obligations and fund prioritized opportunities	1–5	1–5	3.99	.799
10	The organization has been able to manage its financial risks arising from exposures to currency fluctuations	1–5	2–5	3.95	.803
11	Key non-financial risks, including reputational, environmental and social risks, are being adequately controlled by the organization	1–5	2–5	4.05	.672
12	The firm's long-term value has been protected due to the risk management practice implemented.	1–5	3–5	4.18	.508
	Cluster Mean			4.04	0.73

reaped more benefits from performing of management accounting activities in connection with protection of firm's long-term value ($M = 4.18$);optimal allocation of scare resources leading to value-optimization for owners and other stakeholders ($M = 4.09$); prioritization of opportunities for funding that generate value for stakeholders ($M = 4.09$); adequate control of key non-financial risks, including reputational, environmental and social risks ($M = 4.05$); and the ability to balance capital requirements with expectations of owners and other stakeholders ($M = 4.01$).

Other benefits to corporate sustainability flowing from the execution of management accounting activities include: the sufficiency of cash to meet firm's obligations and fund prioritized opportunities ($M = 3.99$); continuous product, service and process improvement ($M = 3.98$); and management of financial risks ($M = 3.95$). Low ranking items, having a mean score below 3.95 (Table 4), include the enhancement of products and services profitability ($M = 3.93$) and the positioning of firm's products and services within its target market ($M = 3.91$). With a cluster mean of 4.04 for all the twelve (12) items in Table 5, and a minimal variation in view in this respect ($SD = 0.73$), it is concluded that to a large extent, the execution of essential management accounting activities enhances corporate sustainability.

4.4.2. Impact of management accounting practice on corporate sustainability

Result on the impact of Management Accounting Practice on Corporate Sustainability is presented in Tables 6 and 7.

Table 6. Model summary on the impact of management accounting practice (MAP) on corporate sustainability (CS).

R	*R* square	Adjusted *R* square	Std. Error of the estimate	Result from model ANOVA test
.430[a]	.185	.178	.44422	*F* ratio (*p* value) = 29.209 (.000)

Table 7. Regression result on the impact of management accounting practice (MAP) on corporate sustainability (CS).

Variables	Unstandardized coefficients		Standardized coefficients		
	B	Std. Error	Beta	*t*	Sig.
(Constant)	2.360	.306		7.708	.000
Management Accounting Practice	.401	.074	.430	5.405	.000

The correlation coefficient (*R*) of .430 in Table 6 shows that the nature of the relationship between management accounting practice and corporate sustainability is positive and strong at 43%. The coefficient of determination (*R* Square) of .185 implies that the robustness of Management Accounting Practice accounts for 18.5% of Corporate Sustainability. The ANOVA *p* value of .000 (*F* ratio = 29.209) implies a statistically significant relationship between Management Accounting Practice and Corporate Sustainability. From the result in Table 7, the unstandardized beta coefficient of the independent variable (Management Accounting Practice) at .401 ($p = .000$) suggests that the nature of the relationship between management accounting practice and corporate sustainability is positive, strong (40.1%) and statistically-significant ($r = .401$, $p = .000 < .01$). In other words, the more frequent the management accounting activities are carried out, the greater the propensity to engender corporate sustainability. Based on these results, it is concluded that Management accounting practice has a significant positive impact on corporate sustainability (research objective three).

4.5. Organizational characteristics moderating the interaction between management accounting practice and corporate sustainability

Results on the moderating influence of organizational factors on the relationship between management accounting practice and corporate sustainability are presented in Tables 8–17.

4.5.1. Moderating influence of organizational size on the relationship between management accounting practice and corporate sustainability

See Tables 8 and 9.

4.5.2. Moderating influence of organization lifecycle on the relationship between management accounting practice and corporate sustainability

See Tables 10 and 11.

Table 8. Model 1 summary[c].

Model	R	R square	Adjusted R square	Std. Error of the estimate	Change statistics: R square change	Change statistics: F change	Change statistics: df1	Change statistics: df2	Change statistics: Sig. F change	ANOVA: Sig.
1.1	.458[a]	.210	.198	.43893	.210	17.024	2	128	.000	.000
1.2	.483[b]	.233	.215	.43418	.023	3.814	1	127	.053	.000

[a]Predictors: (Constant), SIZE, MAP.
[b]Predictors: (Constant), SIZE, MAP, MAP*SIZE.
[c]Dependent Variable: CS.

Table 9. Model 1 coefficients[a]

Model		Unstandardized coefficients: B	Unstandardized coefficients: Std. Error	Standardized coefficients: Beta	t	Sig.
1.1	(Constant)	2.323	.303		7.664	.000
	MAP	.367	.075	.393	4.885	.000
	SIZE	.049	.024	.164	2.032	.044
1.2	(Constant)	.776	.847		.915	.362
	MAP	.752	.211	.806	3.570	.001
	SIZE	.478	.221	1.587	2.165	.032
	MAP*SIZE	−.105	.054	−1.575	−1.953	.053

[a]Dependent Variable: CS.

4.5.3. Moderating influence of specialist skills on the relationship between management accounting practice and corporate sustainability

See Tables 12 and 13.

4.5.4. Moderating influence of affiliation to foreign entity on the relationship between management accounting practice and corporate sustainability

See Tables 14 and 15.

4.5.5. Moderating influence of ownership structure on the relationship between management accounting practice and corporate sustainability

See Tables 16 and 17.

A summary of results from moderated regression analysis is presented in Table 18.

From Table 18, three out of the five variables, including firm size ($p = .053 < .10$), organization lifecycle ($p = .067 < .10$), and presence of specialist skills ($p = .021 < .05$) significantly moderate the interaction between management accounting practice and

Table 10. Model 2 summary[c].

Model	R	R square	Adjusted R square	Std. Error of the estimate	Change statistics: R square change	Change statistics: F change	Change statistics: df1	Change statistics: df2	Change statistics: Sig. F change	ANOVA: Sig.
2.1	.456[a]	.208	.196	.43941	.208	16.847	2	128	.000	.000
2.2	.479[b]	.229	.211	.43532	.021	3.412	1	127	.067	.000

[a]Predictors: (Constant), LFCYCLE, MAP.
[b]Predictors: (Constant), LFCYCLE, MAP, MAP*LFCYCLE.
[c]Dependent Variable: CS.

Table 11. Model 2 coefficients[a].

Model		Unstandardized coefficients		Standardized coefficients		
		B	Std. Error	Beta	*t*	Sig.
2.1	(Constant)	2.282	.306		7.468	.000
	MAP	.370	.075	.396	4.921	.000
	LFCYCLE	.058	.029	.158	1.960	.052
2.2	(Constant)	3.671	.811		4.528	.000
	MAP	.030	.198	.032	.150	.881
	LFCYCLE	−.343	.219	−.939	−1.567	.119
	MAP* LFCYCLE	.097	.053	1.235	1.847	.067

[a]Dependent Variable: CS.

Table 12. Model 3 summary[c].

Model	*R*	*R* square	Adjusted *R* square	Std. Error of the estimate	Change statistics					ANOVA
					R square change	F change	df1	df2	Sig. *F* change	Sig.
3.1	.441[a]	.194	.182	.44334	.194	15.419	2	128	.000	.000
3.2	.477[b]	.228	.209	.43576	.033	5.489	1	127	.021	.000

[a]Predictors: (Constant), SKILLS, MAP.
[b]Predictors: (Constant), SKILLS, MAP, MAP*SKILLS.
[c]Dependent Variable: CS.

Table 13. Model 3 coefficients[a].

Model		Unstandardized coefficients		Standardized coefficients		
		B	Std. Error	Beta	*t*	Sig.
3.1	(Constant)	2.641	.382		6.921	.000
	MAP	.374	.077	.401	4.840	.000
	SKILLS	−.152	.123	−.102	−1.230	.221
3.2	(Constant)	5.631	1.330		4.234	.000
	MAP	−.424	.349	−.455	−1.216	.226
	SKILLS	−2.956	1.203	−1.983	−2.457	.015
	MAP*SKILLS	.754	.322	1.840	2.343	.021

[a]Dependent Variable: CS.

Table 14. Model 4 summary[c].

Model	*R*	*R* Square	Adjusted *R* square	Std. Error of the estimate	Change statistics					ANOVA
					R square change	*F* change	df1	df2	Sig. *F* change	Sig.
4.1	.447[a]	.200	.187	.44183	.200	15.965	2	128	.000	.000
4.2	.465[b]	.217	.198	.43883	.017	2.752	1	127	.100	.000

[a]Predictors: (Constant), AFFILIATN, MAP.
[b]Predictors: (Constant), AFFILIATN, MAP, MAP*AFFILIATN.
[c]Dependent Variable: CS.

corporate sustainability. The presence of specialist skills witnessed the highest magnitude of *R* square change of 3.3% from 19.4% to 22.8% which was also the most statistically-significant movement (significant at 5%). Next is firm size with *R* square change from 21.0% to 23.3% by 2.3%, significant at 10%; followed by organization lifecycle with *R* square coefficient changing from 20.8% to 22.9%, representing a 2.1% increase, which also evinces statistical significance at 10%. The change in *R* square for affiliation to foreign

Table 15. Model 4 coefficients[a].

Model		Unstandardized coefficients		Standardized coefficients		
		B	Std. Error	Beta	*t*	Sig.
4.1	(Constant)	2.516	.321		7.845	.000
	MAP	.409	.074	.438	5.526	.000
	AFFILIATN	−.160	.104	−.123	−1.550	.124
4.2	(Constant)	.602	1.197		.503	.616
	MAP	.869	.287	.931	3.027	.003
	AFFILIATN	1.595	1.064	1.222	1.500	.136
	MAP*AFFILIATN	−.422	.254	−1.469	−1.659	.100

[a]Dependent Variable: CS.

Table 16. Model 5 summary[c].

Model	*R*	*R* square	Adjusted *R* square	Std. Error of the estimate	Change statistics					ANOVA
					R square change	*F* change	df1	df2	Sig. *F* change	Sig.
5.1	.458[a]	.209	.197	.43910	.209	16.960	2	128	.000	.000
5.2	.461[b]	.213	.194	.43991	.003	.528	1	127	.469	.000

[a]Predictors: (Constant), STRUCTURE, MAP.
[b]Predictors: (Constant), STRUCTURE, MAP, MAP*STRUCTURE.
[c]Dependent Variable: CS.

Table 17. Model 5 coefficients[a].

Model		Unstandardized coefficients		Standardized coefficients		
		B	Std. Error	Beta	*t*	Sig.
5.1	(Constant)	2.784	.369		7.543	.000
	MAP	.354	.077	.379	4.592	.000
	STRUCTURE	−.166	.083	−.166	−2.007	.047
5.2	(Constant)	2.122	.983		2.160	.033
	MAP	.515	.236	.552	2.187	.031
	STRUCTURE	.291	.635	.291	.459	.647
	MAP*STRUCTURE	−.113	.156	−.440	−.726	.469

[a]Dependent Variable: CS.

entity was not only low (up by 1.7% from 20.0% to 21.7%) but was also not statistically significant ($p = .100$). Ownership structure both had the lowest magnitude of *R* square change and the highest level of non-statistical significance ($p = .469$).

It is concluded, therefore, that organizational characteristics such as firm size, organization lifecycle, and presence of specialist skills significantly moderate the interaction between management accounting practice and corporate sustainability, but presence of specialist skills moderates the relationship the most. In other words, the larger the organization, the more intense the management accounting practice is likely to be as to make certain that corporate sustainability is enhanced; the more matured the organization, the more vigorous the management accounting practice should be as to make sure value is added to corporate sustainability; finally, the presence of specialist skills should cause management accounting practice to be more vibrant as to contribute to corporate sustainability (research objective four).

Table 18. Summary of results on moderated regression analysis.

Model No.	Moderating variable	*R* square change (From old to new *R* square)	*p* value of R square change
1	Firm size	2.3% (From 21.0% to 23.3%)	.053*
2	Organization Life-cycle	2.1% (From 20.8% to 22.9%)	.067*
3	Presence of Specialist skills	3.3% (From 19.4% to 22.8%)	.021**
4	Affiliation. to Foreign Entity	1.7% (From 20.0% to 21.7%)	.100
5	Ownership structure	0.3% (From 20.9% to 21.3%)	.469

**Significant at 5%, *Significant at 10%.

4.6. Test of hypotheses

In Appendix 1, the omnibus p values generated from an assessment of the influence of each of the five contingent variables on management accounting practice, including size ($p = .000 < .01$), organization lifecycle ($p = .000 < .01$), presence of specialist skills ($p = .080 < .10$), affiliation to foreign entity ($p = .000 < .01$), and ownership structure ($p = .048 < .05$) are all statistically significant. Furthermore, the effects of the interaction of some organizational characteristics on management accounting practice are significant (Appendix 1). This leads to the acceptance of the overarching hypothesis H1 that *organizational characteristics have significant influence over the robustness of management accounting practice*.

In Table 6, the relationship between management accounting practice and corporate sustainability is positive, strong and statistically significant ($r = .430$, $p = .000 < .01$). From the result in Table 7, the unstandardized beta coefficient of the independent variable (Management Accounting Practice) at .401 ($p = .000$) suggests that the nature of the relationship between management accounting practice and corporate sustainability is positive, strong (40.1%) and statistically-significant ($r = .401$, $p = .000 < .01$). H2 is therefore accepted that *management accounting practice has a significant positive impact on corporate sustainability*.

In Table 18, the *R* square change for firm size ($p = .053 < .10$), organization lifecycle ($p = .067 < .10$), and presence of specialist skills ($p = .021 < .05$) is significant. This implies that these three variables significantly moderate the interaction between management accounting practice and corporate sustainability. Since three out of five organizational characteristics have statistically significant *R* square change, the overarching hypothesis H3 is accepted and it is concluded *that organizational characteristics significantly moderate the relationship between management accounting practice and corporate sustainability* (Table 19).

5. Discussion

It was observed that although management accounting activities were generally performed frequently, certain activities (with mean score below 4.0 in Table 4) requiring review and modification of already prepared cost and revenue estimates appear to be performed less-frequently – especially discussion and refinement of cost targets ($M = 3.89$); refinement of

Table 19. Summary of hypothesis-testing results.

Hypo. No.	Supposition	Strength*/ Decision
H1	**Organizational characteristics have significant influence over the robustness of management accounting practice**	ACCEPT
$H_{1,1}$	*Firm size has significant influence over the robustness of management accounting practice*	Very strong/ Accept
$H_{1,2}$	*Organization lifecycle has significant influence over the robustness of management accounting practice*	Very strong/ Accept
$H_{1,3}$	*Presence of specialist skills has significant influence over the robustness of management accounting practice*	Semi-strong/ Accept
$H_{1,4}$	*Affiliation to foreign entity has significant influence over the robustness of management accounting practice*	Very strong/ Accept
$H_{1,5}$	*Ownership structure has significant influence over the robustness of management accounting practice*	Strong/Accept
H2	**Management accounting practice has a significant positive impact on corporate sustainability.**	ACCEPT
H3	**Organizational characteristics significantly moderate the relationship between management accounting practice and corporate sustainability**	ACCEPT
$H_{3,1}$	*Firm size significantly moderates the relationship between management accounting practice and the corporate sustainability*	Semi-strong/ Accept
$H_{3,2}$	*Organization lifecycle significantly moderates the relationship between management accounting practice and the corporate sustainability*	Semi-strong/ Accept
$H_{3,3}$	*Presence of specialist skills significantly moderates the relationship between management accounting practice and the corporate sustainability*	Strong/Accept
$H_{3,4}$	*Affiliation to foreign entity significantly moderates the relationship between management accounting practice and the corporate sustainability*	Reject
$H_{3,5}$	*Ownership structure significantly moderates the relationship between management accounting practice and the corporate sustainability*	Reject

*Strength: Very strong (p sig at 1%) Strong (p sig at 5%) Semi-strong (p sig at 10%).

performance measures for cost drivers ($M = 3.98$); variation of projections of volumes, prices and cost structures in line with scenarios and associated risks ($M = 3.98$); and performance of sensitivity analysis on project ($M = 3.85$) [research objective one]. These activities could be carried out more frequently if aided with the deployment of technology. Technology has generally been discussed in literature as a driver of management accounting activities (see, Khandwalla 1977; Chenhall 2006; Ajibolade 2013a).

It was also observed that the five organizational attributes (though differ in the degree of statistical significance) have significant influence over management accounting practice (research objective two), thus leading to the retention of H1. This result extends studies on contingency theory positing the influence of organizational factors on the design of management accounting systems (see Albu and Albu 2012; Al-Mawali 2015; Ahmad and Zabri 2015; Oyewo 2017).

The robustness of management accounting practice positively, strongly and significantly affects corporate sustainability (Tables 6 and 7) [research objective three], while organizational factors such as size, organization lifecycle and presence of specialist skills significantly moderate the interaction between management accounting practice and corporate sustainability (research objective four), leading to acceptance of H2 (Table 18). The observation that firm size and organization lifecycle are among the three variables that moderate the interaction between management accounting practice and corporate sustainability may not be unconnected to the significant influence both variables exert on management accounting practice. An inspection of the regressor coefficients shows that the relationship between management accounting practice and corporate sustainability is positive; this is true for all the five models (Tables 8–17), including the models with

moderating variables that are not statistically significant (specifically, models 4 and 5). This suggests that although the execution of management accounting activities should ordinarily contributes to corporate sustainability, the extent to which an organization benefits from performing crucial management accounting activities may vary, depending on firm size, organization lifecycle and presence of specialist management accounting skills. To elaborate, large organizations may have the means to deploy the resources to implement a robust management accounting function, including the hiring of specialist in order to fully realize the benefits (Al-Omiri and Drury 2007; Abdel-Kader and Luther 2008), but small organizations may not have the means to comprehensively implement certain management accounting practice (especially activities that are strategy-orientated, externally-focused and future-oriented, requiring heavy investment in technology) which thereby restricts the benefits such firms may realize from implementing the management accounting practices. As organizations may be expected to simultaneously grow in size and age (Boddy 2012; Kaplan 2013), matured firms may have supposedly acknowledged the importance of the management accounting function over organization lifecycle, and/or may be more experienced in the implementation of management accounting systems; and as such organizations may anticipatorily be more resourceful, it may not be unexpected that organization lifecycle should influence the extent to which organizations garner the benefits of operating a management accounting system. Further, matured organizations may also be expected to reap more benefits from the execution of management accounting activities because as an organization grows, the need for decentralization abounds (Mullins and Christy 2013), and with increased level of decentralization, the propensity for reliance on management accounting information waxes – the intensity of management accounting practice may be more in that context. To this end, matured organizations may amass more benefits from management accounting practice because of the increased reliance and demand for accounting information on account of the level of decentralization. Studies suggest that level of decentralization positively influences the intensity of use of management accounting information (see, Gul and Chia 1994; Abdel-Kader and Luther 2008; Agasisti, Arnaboldi, and Azzone 2008).

The significant positive relationship observed between management accounting practice and corporate sustainability (Tables 6 and 7) aligns with some prior studies (Adler, Everett, and Waldron 2000; Bourguignon 2005; Sulaiman, Ahmad, and Alwi 2004; Agasisti, Arnaboldi, and Azzone 2008; Abdullah and Said 2015) but also refutes the findings of other researchers (such as Ittner and Larcker 1997; Ittner, Larcker, and Randall 2003; Agbejule 2005; Hyvonen 2005; Angelakis, Theriou, and Floropoulos 2010). The finding that organizational variables significantly moderate the relationship between management accounting practice and corporate sustainability (Tables 8–17) extends studies on interaction fit contingency theory (e.g. Chenhall 2003; Abdel Al and McLellan 2013).

6. Conclusion

This study investigated the association between organizational characteristics, robustness of management accounting practice, and corporate sustainability from the standpoint of the Global Management Accounting Principles (GMAP) framework. It was observed that whereas management accounting activities were generally performed frequently,

certain activities requiring review and modification of already prepared cost and revenue estimates appear to be performed less-frequently. Further, organizational characteristics including size, organization lifecycle, presence of specialist skills, affiliation to foreign entity and ownership structure significantly affect the intensity of management accounting practice. Whilst detecting that robust management accounting practice elevates corporate sustainability, organizational characteristics such as size, organization lifecycle and presence of specialist skills may determine the extent to which such benefit is realized.

Seeing on one hand that value-addition by management accounting practice in the way of enhancement of corporate sustainability is directly related to the robustness of management accounting practice, and on the other hand that firms having a separate management accounting unit may benefit more from the value-addition by management accounting practice, it is recommended that the management accounting function should not be subsumed within the general accounting or finance function. The existence of such a standalone management accounting department, which should also pave way for the deliberate recruitment of seasoned management accountants, may increase the intensity of performing management accounting activities. This is expected to improve the realization of the benefits embedded in implementing contemporary management accounting practice. The observation that the presence of specialist skills was the strongest moderator of the interaction between management accounting practice and corporate sustainability only bolsters the case for the attraction of *accountants in business* versed in implementing contemporary management accounting techniques into any goal-driven organization.

There are some limitations to this study which calls for caution in interpreting findings. The number of firms sampled were limited due to restricted access to organizations – thus, its results cannot be easily interpreted to cover all sectors and jurisdictions. Future studies may consider enlarging the sample size. As the study did not focus on any particular sector, but limited samples drawn from some sectors, results may have been different if the study was sector-specific. The limitations of the study should provoke future research on the subject. Considering that most management accounting research are frequently carried out in manufacturing concerns, perhaps because cost and management accounting is typically discussed in the context of manufacturing firms, more management accounting research in non-manufacturing settings should be undertaken to dispel the preoccupation that management accounting is exclusively applicable to manufacturing concerns.

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References

Abdel Al, S. F., and J. D. McLellan. 2013. "Strategy and Management Accounting Practices Alignment and Its Effect on Organizational Performance." *Journal of Accounting – Business & Management* 20 (1): 1–27.

Abdel-Kader, M., and R. Luther. 2008. "The Impact of Firm Characteristics on Management Accounting Practices: A UK-Based Empirical Analysis." *The British Accounting Review* 40 (1): 2–27.

Abdullah, N. H., and J. Said. 2015. "Enhancing the Governance of Government Linked Companies via Strategic Management Accounting Practices and Value Creation." *Procedia Economics and Finance* 28: 222–229.

Adejuyigbe, S. B., P. B. Mogaji, and V. K. Adesida. 2013. "Effective Management Accounting System in Food and Drinks Industries in Lagos State, Nigeria." *Journal of Emerging Trends in Economics and Management Sciences* 4 (6): 501–511.

Adler, R., A. M. Everett, and M. Waldron. 2000. "Advanced Management Accounting Techniques in Manufacturing: Utilization, Benefits, and Barriers to Implementation." *Accounting Forum* 24 (1): 131–150.

Agasisti, T., M. Arnaboldi, and G. Azzone. 2008. "Strategic Management Accounting in Universities: The Italian Experience." *Higher Education* 55: 1–15. doi:10.1007/s10734-006-9032-6.

Agbejule, A. 2005. "The Relationship Between Management Accounting Systems and Perceived Environmental Uncertainty on Managerial Performance: A Research Note." *Accounting and Business Research* 35 (4): 295–305.

Agu, C. A., A. U. Nweze, and C. I. Enekwe. 2016. "The Use of Strategic Management Accounting Techniques in Sustainability Performance Measurement for Corporate Governance in Nigeria." *International Journal of Academic Research in Accounting, Finance and Management Sciences* 6 (3): 262–271.

Ahid, M., and A. Augustine. 2012. "The Roles and Responsibilities of Management Accountants in the Era of Globalization." *Global Journal of Management and Business Research* 12 (15): 43–53.

Ahl, E. B. 1999. "An Investigation of the Influence of Culture on Management Accounting." Master of Commerce Thesis. Department of Accounting and Finance, University of Wollongong. https://ro.uow.edu.au/theses/2266.

Ahmad, K., and S. M. Zabri. 2015. "Factors Explaining the Use of Management Accounting Practices in Malaysian Medium-Sized Firms." *Journal of Small Business and Enterprise Development* 22 (4): 762–781.

Ajibolade, S. O. 2013a. "Management Accounting Systems Design and Company Performance in Nigerian Manufacturing Companies: A Contingency Theory Perspective." *British Journal of Arts and Social Sciences* 14 (2): 228–244.

Ajibolade, S. O. 2013b. "Drivers of Choice of Management Accounting System Designs in Nigerian Manufacturing Companies." *International Journal of Business and Social Research* 3 (9): 45–57.

Ajibolade, S. O., and B. Oyewo. 2017a. "Firm Characteristics and Performance Disclosure in Annual Reports of Nigerian Banks Using the Balanced Scorecard." *EuroEconomica* 36 (1): 94–112. https://journals.univ-danubius.ro/index.php/euroeconomica/article/view/3872/4004.

Ajibolade, S. O., and B. M. Oyewo. 2017b. "Evaluation of Multi-Perspective Performance Reporting in Nigerian Banks Using the Balanced Scorecard Model." *International Accounting & Finance Research Journal* 6 (1): 43–63.

Ajide, F. M., and A. A. Aderemi. 2014. "The Effects of Corporate Social Responsibility Activity Disclosure on Corporate Profitability: Empirical Evidence from Nigerian Commercial Banks." *Journal of Economics and Finance* 2 (6): 17–25.

Akenbor, C. O., and E. I. Okoye. 2012. "The Adoption of Strategic Management Accounting in Nigerian Manufacturing Firms." *International Journal of Arts and Humanities* 1 (3): 270–287.

Alao, E. M. 2014. "A Review of the Management Accountant's Role in the Effective Utilization of Organization's Resources: Implication for Developing Countries." *Journal of Economics and Finance* 5 (5): 16–22.

Albu, N., and C. N. Albu. 2012. "Factors Associated with the Adoption and Use of Management Accounting Techniques in Developing Countries: The Case of Romania." *Journal of International Management & Accounting* 23 (3): 245–276.

Al-Khadash, H. A., and M. Feridun. 2006. "Impact of Strategic Initiatives in Management Accounting on Corporate Financial: Evidence from Amman Stock Exchange." *Managing Global Transition* 4 (4): 299–312.

Al-Mawali, H. 2015. "Contingent Factors of Strategic Management Accounting." *Research Journal of Finance and Accounting* 6 (11): 130–137.

Al-Omiri, M. 2003. "The Diffusion of Management Accounting Innovations: A Study of the Factors Influencing the Adoption, Implementation Levels and Success of ABC in UK Companies." PhD Thesis. University of Huddersfield, UK.
Al-Omiri, M., and C. Drury. 2007. "A Survey of Factors Influencing the Choice of Product Costing Systems in UK Organizations." *Management Accounting Research* 18 (4): 399–424.
Alsoboa, S. S., M. E. Nawaiseh, B. A. Karaki, and S. A. Al Khattab. 2015. "The Impact of Usage of Strategic Decision-Making Techniques on Jordanian Hotels' Performance." *International Journal of Applied Science and Technology* 5 (1): 154–163.
Angelakis, G., N. Theriou, and I. Floropoulos. 2010. "Adoption and Benefits of Management Accounting Practices: Evidence from Greece and Finland." *Advances in Accounting, Incorporating Advances in International Accounting* 26: 87–96.
Auzair, S., R. Amiruddin, A. Majid, and R. Maelah. 2013. "Linking Business Strategy to Management Accounting: A Study in Malaysian Service Organizations." *Jurnal Pengurusan* 37: 45–52.
Barakat, F. S., M. V. L. Pérez, and L. R. Ariza. 2015. "Corporate Social Responsibility Disclosure (CSRD) Determinants of Listed Companies in Palestine (PXE) and Jordan (ASE)." *Review of Managerial Science* 9 (4): 681–702.
Boddy, D. 2012. *Essentials of Management: A Concise Introduction*. Essex, England: Pearson Education Limited.
Bourguignon, A. 2005. "Management Accounting and Value Creation: The Profit and Loss of Reification." *Critical Perspectives on Accounting* 16: 353–389.
Cadez, S., and C. Guilding. 2008. "An Exploratory Investigation of an Integrated Contingency Model of Strategic Management Accounting." *Accounting, Organizations and Society* 33: 836–863.
CGMA (Chartered Global Management Accountant). 2014. *Consultation Draft: Global Management Accounting Principles*. The Chartered Global Management Accountants. Website: https://www.cgma.org.
CGMA (Chartered Global Management Accountant). 2015. *Global Management Accounting Principles*. The Chartered Global Management Accountants. Website: https://www.cgma.org.
Chenhall, R. H. 2003. "Management Control Systems Design Within Its Organizational Context: Findings from Contingency-Based Research and Directions for the Future." *Accounting, Organization and Society* 28 (2): 127–168.
Chenhall, R. H. 2006. "The Contingent Design of Performance Measures." In *Contemporary Issues in Management Accounting*, edited by A. Bhimani, 92–111. Oxford: Oxford University Press.
Chenhall, R., and C. S. Chapman. 2006. "Theorising and Testing fit in Contingency Research in Management Control Systems." In *Methodological Issues in Accounting Research: Theories and Methods*, edited by Z. Hoque, 35–54.
Chia, Y. M. 1995. "Decentralisation, Management Accounting System Information Characteristics and Their Interaction Effects on Managerial Performance: A Singapore Study." *Journal of Business Finance and Accounting* 22 (6): 811–830.
Chong, V. K., and K. M. Chong. 1997. "Strategic Choices, Environmental Uncertainty and SBU Performance: A Note on the Intervening Role of Management Accounting Systems." *Accounting & Business Research* 27 (4): 268–276.
CIMA (Chartered Institute of Management Accountants). 2008. *Managerial Paper 2: Management Accounting – Decision Making*. London: BPP Learning Media.
CIMA (Chartered Institute of Management Accountants). 2009. *Management Accounting Tools for Today and Tomorrow*. The Chartered Institute of Management Accountants. Website: https://www.cimaglobal.com/ma.
CIMA (Chartered Institute of Management Accountants). 2012. *From Ledgers to Leadership: A Journey Through the Finance Function*. https://www.cgma.org/resources/reports/ledgers-to-leadership.html.
CIMA (Chartered Institute of Management Accountants). 2013. *Paper P3: Performance Strategy Study Text*. Berkshire, UK: Kaplan Publishing.

CIMA (Chartered Institute of Management Accountants). 2014. *Paper F3 Financial Strategy Official Study Text*. Berkshire, UK: Kaplan Publishing.
Cuzdriorean, D. D. 2017. "The Use of Management Accounting Practices by Romanian Small and Medium-Sized Enterprises: A Field Study." *Accounting and Management Information Systems* 16 (2): 291–312.
Deegan, C. 2002. "Introduction the Legitimising Effect of Social and Environmental Disclosures: A Theoretical Foundation." *Accounting, Auditing and Accountability Journal* 15 (3): 282–311.
de Klerk, M., and C. de Villiers. 2012. "The Value Relevance of Corporate Responsibility Reporting: South African Evidence." *Meditari Accountancy Research* 20 (1): 21–38.
Deloitte. 2011. *iGAAP 2012: A Guide to IFRS Reporting Volume A, Part 1*. 3rd ed. London: LexisNexis.
Dragu, I.-M., and A. Tiron-Tudor. 2013. "GRI Compliance and Prerequisites of Integrated Reporting for Asian-Pacific Companies." *Annales Universitatis Apulensis Series Oeconomica* 15 (2): 432–442.
Duke, J., and K. Kankpang. 2013. "Implications of Corporate Social Responsibility for the Performance of Nigerian Firms." *Advances in Management & Applied Economics* 3 (5): 73–87.
Eccles, R. G. 2011. *Integrated Reporting for a Sustainable Strategy*. Luxembourg Green Business Summit, March 2011. https://ns360712.ovh.net/~greenwor/images/stories/users/robert_eccles.pdf.
Egbunike, F. C., O. C. Ogbodo, and C. I. Onyali. 2014. "Utilizing Strategic Management Accounting Techniques (SMATs) for Sustainability Performance Measurement." *Research Journal of Finance and Accounting* 5 (13): 140–153.
Emerton, P., and A. Jones. 2019. "Perceptions of the Efficacy of Sustainability-Related Performance Conditions in Executive pay Schemes." *Journal of Sustainable Finance & Investment* 9 (1): 1–16.
Ferreira, M., V. Sobreiro, H. Kimura, and F. Barboza. 2016. "A Systematic Review of Literature about Finance and Sustainability." *Journal of Sustainable Finance & Investment* 6 (2): 112–147.
Field, A. P. 2009. *Discovering Statistics Using SPSS*. London, England: SAGE.
Fodio, M. I., A. M. Abu-Abdissamad, and V. C. Oba. 2013. "Corporate Social Responsibility and Firm Value in Quoted Nigerian Financial Services." *International Journal of Finance and Accounting* 2 (7): 331–340.
Forde, E. D., J. Burnett, and D. Devonish. 2007. "A Preliminary Survey of Management Accounting Practices in Barbados." *Journal of Eastern Caribbean Studies* 32: 50–72.
Friedman, A. L., and S. R. Lyne. 1995. *Activity Based Techniques: The Real Life Consequences*. London: The Chartered Institute of Management Accountants.
Fuller, D. N. 2001. *Value Creation: Theory and Practice*. Retrieved from Value Incorporated: http://www.valueinc.com/Press/files/ValueCreation-TheoryandPractice.pdf.
Gholami, S. 2011. "Value Creation Model Through Corporate Social Responsibility (CSR)." *International Journal of Business and Management* 6 (9): 148–154.
Gonçalves, R., O. Medeiros, J. Niyama, and E. Weffort. 2013. "Social Disclosure and Cost of Equity in Public Companies in Brazil." *R. Cont. Fin. – USP, São Paulo* 24 (62): 113–124.
Gordon, L. A., and D. Miller. 1976. "A Contingency Framework for the Design of Accounting Information Systems." *Accounting, Organization and Society* 1 (1): 59–69.
Govindarajan, V. 1988. "A Contingency Approach to Strategy Implementation at a Business-Unit Level: Integrating Administrative Mechanism with Strategy." *Academy of Management Journal* 31 (12): 28–55.
Granlund, M., and K. Lukka. 1998. "Towards Increasing Business Orientation: Finnish Management Accountants in a Changing Cultural Context." *Management Accounting Research* 9: 185–211.
GRI (Global Reporting Initiative). 2013a. *G4 sector disclosure for financial services*. https://www.globalreporting.org/resourcelibrary/GRI-G4-Financial-Services-Sector-Disclosures.pdf.
GRI (Global Reporting Initiative). 2013b. *G4 Sustainability reporting guidelines*. https://www.globalreporting.org/resourcelibrary/GRIG4-Part1-Reporting-Principles-and-Standard-Disclosures.pdf.

Gul, F. A., and Y. M. Chia. 1994. "The Effects of Management Accounting Systems, Perceived Environmental Uncertainty and Decentralization on Managerial Performance: A Test of Three-way Interaction." *Accounting, Organizations and Society* 19 (4/5): 413–426.
Haldma, T., and K. Laats. 2002. "Contingencies Influencing the Management Accounting Practices of Estonian Manufacturing Companies." *Management Accounting Research* 13: 379–400.
Hindley, T., and P. W. Buys. 2012. "Integrated Reporting Compliance with the Global Reporting Initiative Framework: An Analysis of the South African Mining Industry." *International Business & Economics Research Journal* 11 (11): 1249–1260. https://www.cluteinstitute.com/ojs/index.php/IBER/article/view/7372/7440.
Hofstede, G. H. 1983. "The Cultural Relativity of Organizational Practices and Theories." *Journal of International Business Studies* 14 (2): 75–89.
Hofstede, G. 1990. "The Cultural Relativity of Organizational Practices and Theories." In *Managing Organizations: Text, Readings and Cases*, edited by D. C. Wilson and R. H. Rosenfeld. London: McGraw Hill.
Hope, C., and S. J. Fowler. 2007. "A Critical Review of Sustainable Business Indices and their Impact." *Journal of Business Ethics* 76: 243–252.
Horngren, C., T. Datar, M. S, and G. Foster. 2003. *Cost Accounting: A Managerial Emphasis*. 11th ed. London: Prentice Hall Publishing.
Huang, T., M. Pepper, and G. Bowrey. 2014. "Implementing a Sustainability Balanced Scorecard to Contribute to the Process of Organisational Legitimacy Assessment." *Australasian Accounting, Business and Finance Journal* 8 (2): 15–34.
Hyvonen, J. 2005. "Adoption and Benefits of Management Accounting Systems: Evidence from Finland and Australia." *Advances in International Accounting* 18: 97–120.
IFAC (International Federation of Accountants). 1998. *International Management Accounting Practice Statement: Management Accounting Concepts*. New York, USA: International Federation of Accountants.
Innes, J., and F. Mitchell. 1995. "A Survey of Activity-Based Costing in the UK's Largest Companies." *Management Accounting Research* June: 137–153.
Iqbal, N., N. Ahmad, N. Hamad, S. Bashir, and W. Sattar. 2014. "Corporate Social Responsibility and Its Possible Impact on Firm's Financial Performance in Banking Sector of Pakistan." *Arabian Journal of Business and Management Review* 3 (12): 150–155.
Iredele, O. O., O. O. Ogunleye, and O. P. Okpala. 2017. "Determining the Business Case for Environmental Management Accounting (EMA) Practices among Listed Firms in Nigeria: The Stewardship Approach." *EuroEconomica* 36 (2): 195–210.
Ismail, N. A., and M. King. 2007. "Factors Influencing the Alignment of Accounting Information Systems in Small and Medium Sized Malaysian Manufacturing Firms." *Journal of Information Systems and Small Business* 1 (1/2): 1–20.
Ittner, C. D., and D. F. Larcker. 1997. "Quality Strategy, Strategic Control Systems, and Organizational Performance." *Accounting, Organizations and Society* 22: 293–314.
Ittner, C., and D. Larcker. 2001. "Assessing Empirical Research in Managerial Accounting: A Value-Based Management Perspective." *Journal of Accounting and Economics* 32: 349–410.
Ittner, C. D., D. F. Larcker, and T. Randall. 2003. "Performance Implications of Strategic Performance Measurement in Financial Services Firms." *Accounting, Organizations and Society* 28: 715–741.
Järvenpää, M. 2007. "Making Business Partners: A Case Study on How Management Accounting Culture was Changed." *European Accounting Review* 16 (1): 99–142.
Jensen, J. C., and N. Berg. 2012. "Determinants of Traditional Sustainability Reporting Versus Integrated Reporting: An Institutionalist Approach." *Business Strategy and the Environment* 21 (5): 299–316.
Johnson, H. T., and R. S. Kaplan. 1987. *Relevance Lost: The Rise and Fall of Management Accounting*. Massachusetts: Harvard Business School Press.
Kaplan. 2013. *ACCA Paper F2: Management Accounting*. Berkshire, UK: Kaplan Publishing Limited.

Khaled, A., and J. Fares. 2012. "Corporate Social Responsibility Associated with Customer Satisfaction and Financial Performance: A Case Study with Housing Banks in Jordan." *International Journal of Humanities and Social Science* 2 (15): 102–115. https://www.ijhssnet.com/journals/Vol_2_No_15_August_2012/13.pdf.

Khandwalla, P. N. 1972. "The Effect of Different Types of Competition on the Use of Management Controls." *Journal of Accounting Research* 10 (2): 275–285.

Khandwalla, P. N. 1977. *The Design of Organizations*. New York: Harcourt Brace Jovanovich.

Kim, J., C. Hatcher, and C. Newton. 2012. "Professional Identity of Management Accountants: Leadership in Changing Environments." *CIMA Research Executive Summary Series* 8 (1): 1–20.

Kraaijenbrink, J., and J. C. Spender. 2011. "Theories of the Firm and Their Value Creation Assumptions." Annual International Conference of the Strategic Management Society, 6–9 November, Miami, USA.

Maelah, R., S. Auzair, A. Amir, and A. Ahmad. 2017. "Implementation Process and Lessons Learned in the Determination of Educational Cost Using Modified Activity-Based Costing (ABC)." *Social and Management Research Journal* 14 (1): 1–32.

Maguire, M. 2011. *The Future of Corporate Social Responsibility Reporting*. Frederick S. Pardee Center for the Study of the Longer-Range Future. https://www.bu.edu/pardee/files/2011/01/PardeeIIB-019-Jan-2011.pdf.

Maitland, I. 2000. *Budgeting for non-Financial Managers: how to Master and Maintain Effective Budgets*. Englewood Cliffs, NJ: Prentice Hall.

Melville, A. 2011. *International Financial Reporting*. 3rd ed. England: Pearson Education.

Mullins, L. J., and G. Christy. 2013. *Management and Organizational Behaviour*. London: Financial Times Publishing International.

Naranjo-Gil, D., and F. Hartmann. 2006. "How Top Management Teams Use Management Accounting Systems to Implement Strategy." *Journal of Management Accounting Research* 18: 21–53.

Nath, R., and R. Pavur. 1985. "A New Statistic in the One-Way Multivariate Analysis of Variance." *Computational Statistics and Data Analysis* 2: 297–315.

Nouri, H., and R. J. Parker. 1998. "The Relationship Between Budget Participation and Job Performance: The Roles of Budget Adequacy and Organizational Commitment." *Accounting, Organization and Society* 23 (5): 467–483.

Nunnally, J. 1978. *Psychometric Theory*. New York: McGraw-Hill.

Nwobu, O. 2015. "The Relationship Between Corporate Sustainability Reporting and Profitability and Shareholders Fund in Nigerian Banks." *Journal of Accounting and Management* 5 (3): 1–12.

Nyamori, R. O., M. H. B. Perera, and S. R. Lawrence. 2001. "Concept of Strategic Change and Implications for Management Accounting Research." *Journal of Accounting Literature* 20: 62–83.

Otley, D. T. 1980. "The Contingency Theory of Management Accounting: Achievement and Prognosis." *Accounting, Organizations and Society* 5 (4): 413–428.

Oyewo, B. 2017. "Predictors of the Effectiveness of Management Accounting Function in Nigerian Firms." *Scientific Annals of Economics and Business* 64 (4): 487–512.

Oyewo, B., and G. Adeyeye. 2018. "Budgetary Participation and Managerial Performance in Public Sector Organisations: A Study from Nigeria." *Annals of Spiru Haret University: Economic Series* 2018 (1): 47–76.

Oyewo, B., and S. O. Badejo. 2014. "Sustainable Development Reporting Practices by Nigerian Banks." *Mediterranean Journal of Social Sciences* 5 (23): 2535–2544.

Oyewo, B., O. Iredele, and A. Azuh. 2018. "Social Sustainability Business Practices and Organisational Performance in Nigerian Banks." *Journal of Human Resource Management* 21 (1): 43–57.

Oyewo, B., and R. Isa. 2017. "Improving Corporate Sustainability Reporting Through the Adoption of Integrated Reporting: A Study of Nigerian and South African Firms." *African Accounting and Finance Journal* 1 (1): 52–94.

Perrera, S., G. Harrison, and M. Poole. 1997. "Customer-Focused Manufacturing Strategy and the Use of Operations Based non-Financial Performance Measures: A Research Note." *Accounting, Organizations and Society* 22: 557–572.

Pitcher, G. S. 2015. "Management Accounting in Support of the Strategic Management Process." *CIMA Executive Summary Report* 11 (1): 1–20. https://www.cimaglobal.com/Research–Insight/Management-accounting-in-support-of-the-strategic-management-process/.

Qingping, H. 2009. *Estimating the Reliability of Composite Scores*. Office of Qualifications and Examinations Regulation (OFQUAL). https://www.dera.ioe.ac.uk.

Quesado, P. R., B. Aibar-Guzmán, and L. L. Rodrigues. 2016. "Extrinsic and Intrinsic Factors in the Balanced Scorecard Adoption: An Empirical Study in Portuguese Organizations." *European Journal of Management and Business Economics* 25: 47–55.

Quesado, P., and L. Rodrigues. 2009. "Factors Determining the Implementation of Balanced Scorecard in Portuguese Organizations." *Revista Universo Contábil* 5 (4): 94–115.

Rasmussen, N. 2003. *Process Improvement for Effective Budgeting and Financial Reporting*. Hoboken, NJ: Wiley.

Reid, G. C., and J. A. Smith. 2000. "The Impact of Contingencies on Management Accounting System Development." *Management Accounting Research* 11: 427–450.

Roslender, R., and S. J. Hart. 2003. "In Search of Strategic Management Accounting: Theoretical and Field Study Perspectives." *Management Accounting Research* 14 (1): 255–279.

Schaltegger, S., and R. L. Buritt. 2010. "Sustainability Accounting for Companies: Catchphrase or Decision Support for Business Leaders?" *Journal of World Business* 45: 375–384.

Schramade, W. 2016. "Integrating ESG Into Valuation Models and Investment Decisions: The Value-Driver Adjustment Approach." *Journal of Sustainable Finance & Investment* 6 (2): 95–111.

Scott, T. W., and P. Tiessen. 1999. "Performance Measurement and Managerial Teams." *Accounting, Organizations and Society* 24: 263–285.

Soobaroyen, T., and B. Poorundersing. 2008. "The Effectiveness of Management Accounting Systems: Evidence from Functional Managers in a Developing Country." *Managerial Auditing Journal* 23 (2): 187–219.

Sousa, S. D., E. M. Aspinwall, and A. G. Rodrigues. 2006. "Performance Measures in English Small and Medium Enterprises: Survey Results." *Benchmarking: An International Journal* 13 (1/2): 120–134.

Subasinge, J., and A. Fonseka. 2009. "Factors Affecting the Low Adoption of Management Accounting Practices in Sri Lankan Business Organizations." *Sri Lankan Journal of Management* 14 (2): 95–114.

Sulaiman, M., N. Ahmad, and N. Alwi. 2004. "Management Accounting Practices in Selected Asian Countries: A Review of the Literature." *Managerial Auditing Journal* 9 (4): 493–508.

Sunarni, C. W. 2013. "Management Accounting Practices and the Role of Management Accountant: Evidence from Manufacturing Companies Throughout Yogyakarta, Indonesia." *Society of Interdisciplinary Business Research* 2 (2): 616–626.

Uwuigbe, U., and B. Egbide. 2012. "Corporate Social Responsibility Disclosures in Nigeria: A Study of Listed Financial and non-Financial Firms." *Journal of Management and Sustainability* 2 (1): 160–169.

Weber, O., and Y. Banks. 2012. "Corporate Sustainability Assessment in Financing the Extractive Sector." *Journal of Sustainable Finance & Investment* 2 (1): 64–81.

Weber, O., A. Hoque, and M. Islam. 2015. "Incorporating Environmental Criteria Into Credit Risk Management in Bangladeshi Banks." *Journal of Sustainable Finance & Investment* 5 (1–2): 1–15.

Wiek, A., and O. Weber. 2014. "Sustainability Challenges and the Ambivalent Role of the Financial Sector." *Journal of Sustainable Finance & Investment* 4 (1): 9–20.

Yap, K. H. A., T. H. Lee, J. Said, and S. T. Yap. 2013. "Adoption, Benefits and Challenges of Strategic Management Accounting Practices: Evidence from Emerging Market." *Asia Pacific Management Accounting Journal* 8 (2): 27–45.

Yazdifar, H., and D. Askarany. 2010. "A Comparative Investigation Into the Diffusion of Management Accounting Innovations in the UK, Australia and New Zealand." *CIMA Research Executive Summaries Series* 5 (9): 1–11. https://www.cimaglobal.com/Documents/Thought_leadership_docs/R163%20-FINAL%20PDF.pdf.

Appendix 1. Result from multivariate analysis of co-variance (MANCOVA) on impact of organizational characteristics on management accounting practice

Effect		Value	*F*	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.904	30.633[b]	23.000	75.000	.000
	Wilks' Lambda	.096	30.633[b]	23.000	75.000	.000
	Hotelling's Trace	9.394	30.633[b]	23.000	75.000	.000
	Roy's Largest Root	9.394	30.633[b]	23.000	75.000	.000
LINE OF BUSINESS (Covariate controlled for)	Pillai's Trace	.395	2.132[b]	23.000	75.000	.008
	Wilks' Lambda	.605	2.132[b]	23.000	75.000	.008
	Hotelling's Trace	.654	2.132[b]	23.000	75.000	.008
	Roy's Largest Root	.654	2.132[b]	23.000	75.000	.008
SIZE	Pillai's Trace	1.438	1.903	92.000	312.000	.000
	Wilks' Lambda	.148	2.015	92.000	299.356	.000
	Hotelling's Trace	2.676	2.138	92.000	294.000	.000
	Roy's Largest Root	1.439	4.880[c]	23.000	78.000	.000
LFCYCLE	Pillai's Trace	1.753	2.647	92.000	312.000	.000
	Wilks' Lambda	.093	2.668	92.000	299.356	.000
	Hotelling's Trace	3.353	2.679	92.000	294.000	.000
	Roy's Largest Root	1.348	4.572[c]	23.000	78.000	.000
SKILLS	Pillai's Trace	.322	1.552[b]	23.000	75.000	.080
	Wilks' Lambda	.678	1.552[b]	23.000	75.000	.080
	Hotelling's Trace	.476	1.552[b]	23.000	75.000	.080
	Roy's Largest Root	.476	1.552[b]	23.000	75.000	.080
AFFILIATN	Pillai's Trace	.602	4.930[b]	23.000	75.000	.000
	Wilks' Lambda	.398	4.930[b]	23.000	75.000	.000
	Hotelling's Trace	1.512	4.930[b]	23.000	75.000	.000
	Roy's Largest Root	1.512	4.930[b]	23.000	75.000	.000
STRUCTURE	Pillai's Trace	.340	1.684[b]	23.000	75.000	.048
	Wilks' Lambda	.660	1.684[b]	23.000	75.000	.048
	Hotelling's Trace	.516	1.684[b]	23.000	75.000	.048
	Roy's Largest Root	.516	1.684[b]	23.000	75.000	.048
SIZE * LFCYCLE	Pillai's Trace	1.811	2.806	92.000	312.000	.000
	Wilks' Lambda	.076	2.995	92.000	299.356	.000
	Hotelling's Trace	4.030	3.220	92.000	294.000	.000
	Roy's Largest Root	2.175	7.377[c]	23.000	78.000	.000
SIZE * SKILLS	Pillai's Trace	.000	.[b]	.000	.000	.
	Wilks' Lambda	1.000	.[b]	.000	86.000	.
	Hotelling's Trace	.000	.[b]	.000	2.000	.
	Roy's Largest Root	.000	.000[b]	23.000	74.000	1.000
SIZE * AFFILIATN	Pillai's Trace	.415	2.309[b]	23.000	75.000	.004
	Wilks' Lambda	.585	2.309[b]	23.000	75.000	.004
	Hotelling's Trace	.708	2.309[b]	23.000	75.000	.004
	Roy's Largest Root	.708	2.309[b]	23.000	75.000	.004
SIZE * STRUCTURE	Pillai's Trace	.362	1.847[b]	23.000	75.000	.025
	Wilks' Lambda	.638	1.847[b]	23.000	75.000	.025
	Hotelling's Trace	.566	1.847[b]	23.000	75.000	.025
	Roy's Largest Root	.566	1.847[b]	23.000	75.000	.025
LFCYCLE * SKILLS	Pillai's Trace	.000	.[b]	.000	.000	.
	Wilks' Lambda	1.000	.[b]	.000	86.000	.
	Hotelling's Trace	.000	.[b]	.000	2.000	.
	Roy's Largest Root	.000	.000[b]	23.000	74.000	1.000
LFCYCLE * AFFILIATN	Pillai's Trace	.954	3.016	46.000	152.000	.000
	Wilks' Lambda	.264	3.080[b]	46.000	150.000	.000
	Hotelling's Trace	1.954	3.143	46.000	148.000	.000
	Roy's Largest Root	1.333	4.405[c]	23.000	76.000	.000
LFCYCLE * STRUCTURE	Pillai's Trace	.000	.[b]	.000	.000	.
	Wilks' Lambda	1.000	.[b]	.000	86.000	.

(*Continued*)

Continued.

Effect		Value	*F*	Hypothesis df	Error df	Sig.
	Hotelling's Trace	.000	.[b]	.000	2.000	.
	Roy's Largest Root	.000	.000[b]	23.000	74.000	1.000
SKILLS * AFFILIATN	Pillai's Trace	.000	.[b]	.000	.000	.
	Wilks' Lambda	1.000	.[b]	.000	86.000	.
	Hotelling's Trace	.000	.[b]	.000	2.000	.
	Roy's Largest Root	.000	.000[b]	23.000	74.000	1.000
SKILLS * STRUCTURE	Pillai's Trace	.477	2.979[b]	23.000	75.000	.000
	Wilks' Lambda	.523	2.979[b]	23.000	75.000	.000
	Hotelling's Trace	.914	2.979[b]	23.000	75.000	.000
	Roy's Largest Root	.914	2.979[b]	23.000	75.000	.000
AFFILIATN * STRUCTURE	Pillai's Trace	.000	.[b]	.000	.000	.
	Wilks' Lambda	1.000	.[b]	.000	86.000	.
	Hotelling's Trace	.000	.[b]	.000	2.000	.
	Roy's Largest Root	.000	.000[b]	23.000	74.000	1.000