A Framework to Enhance Audit Committee Effectiveness in Ghana's Public Sector

by

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## Declaration

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I declare that the above thesis is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

Honveticolo

8<sup>th</sup> May 2024

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#### Abstract

The purpose of this work was to construct a framework, proposing to enhance the effectiveness of Audit Committees (ACs) in Ghana's public sector institutions (referred to as "covered entities" [CEs]). This was predicated on the perennial pervasiveness of financial management infractions and irregularities in Ghana's public sector, as reported annually by the Auditor-General. The Agency theory and Institutional theory were the underpinning concepts applied in an initial literature review. The Interactive Qualitative Analysis method was utilised in conduct focus groups sessions and analyses of the information collected. Knowledge of the factors that influenced the effectiveness of ACs was obtained from AC members and key stakeholders of ACs in CEs. The knowledge acquired was further enhanced by enquiry into the factors identified by AC members and the stakeholders, through a further literature exploration and examination of international best practices. Contribution was also sought from available and willing key stakeholders, concerning the applicability as well as comprehensiveness of the proposed frameworks constructed, which lead to filtering of the final output (the frameworks). In summary, the findings identified include seventy-two subaffinities, grouped into twenty-five affinities, that influence AC effectiveness in CEs. These affinities were consolidated into five themes, that guided the subsequent stages of the study, that included further literature examination. The five themes were (1) Governance and policies; (2) Stakeholder engagement; (3) Status of the AC; (4) Quality management; and (5) AC financing/funding. The interpretation of the findings resulted in the development of two draft frameworks; one for ACs and another for managers of CEs. To achieve the primary objective and obtain validity, these two draft frameworks were subjected a survey questionnaire administered to purposefully selected respondents. The findings indicate that there are two main frameworks for enhancing the effectiveness of ACs in Ghana's public sector: one for ACs and the other for management of CEs.

The summary of the main recommendations was for ACs and management of CEs to adopt the tenets of these frameworks towards enhancing the effectiveness of ACs.

**Keywords:** audit committee effectiveness; Interactive Qualitative Analysis; focus groups; public sector; Agency theory; Institutional theory

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# **Definition of Terms and Abbreviations**

| Key terms/abbreviations | Definitions   |
|-------------------------|---|
| AC                      | Audit committee   |
| ACCA                    | Association of Chartered Certified Accountants                |
| ANAO                    | Australian National Audit Office                              |
| ARIC                    | Audit Report Implementation Committee                         |
| ASA                     | Audit Service Act 584 of 2000                                 |
| BoD                     | Board of Directors  |
| CE                      | Covered Entity  |
| CEO                     | Chief Executive Officer                                       |
| COSO                    | Committee of Sponsoring Organizations of the                  |
|                         | Treadway Commission   |
| Covered Entities (CEs)  | The Public Financial Management Act 921 of 2016, s 102,       |
|                         | defines "covered entities" as including the Executive,        |
|                         | Legislature and Judiciary; constitutional bodies; Ministries, |
|                         | Departments, Agencies and local government authorities; the   |
|                         | public service; autonomous agencies; and statutory bodies     |
|                         | (ROG 2016).   |
| CSR                     | Corporate Social Responsibility                               |
| DART                    | Detailed Affinity Relationship Table                          |
| DoF                     | Directors of Finance  |
| EOCO                    | Economic and Organised Crime Office                           |
| FG                      | Focus Group   |

| FRC             | Financial Reporting Council                              |  |
|-----------------|--|--|
| GAS             | Ghana Audit Service                                      |  |
| Guidelines      | Guidelines for Effective Functioning of Audit Committees |  |
| IA              | Internal Audit   |  |
| IAA             | Internal Audit Agency Act 658 of 2003                    |  |
| IAF             | Internal audit function                                  |  |
| ICAG            | Institute of Chartered Accountants, Ghana                |  |
| ІСРАК           | The Institute of Certified Public Accountants of Kenya   |  |
| IIA             | Institute of Internal Auditors                           |  |
| IoDSA           | Institute of Directors in Southern Africa                |  |
| IQA             | Interactive Qualitative Analysis                         |  |
| IRD             | Interrelationship Diagram                                |  |
| KAM             | Key Audit Matters  |  |
| MDAs            | Ministries, Departments and Agencies                     |  |
| MMDAs           | Metropolitan, Municipal, and District Assemblies         |  |
| MOF             | Ministry of Finance                                      |  |
| OSP             | Office of the Special Prosecutor                         |  |
| PAC             | Public Accounts Committee                                |  |
| РАН             | Principal Account Holder                                 |  |
| PFMA            | Public Financial Management Act 921 of 2016              |  |
| PFM Regulations | Public Financial Management Regulations, 2019            |  |

| PSO                       | Principal Spending Officer                                      |  |
|---------------------------|---|--|
| ROG                       | Republic of Ghana   |  |
| SEC                       | Securities and Exchange Commission                              |  |
| SID                       | Systems Influence Diagram                                       |  |
| SOX                       | Sarbanes-Oxley  |  |
|                           |   |  |
| Treadway Commission       | The National Commission on Fraudulent Financial                 |  |
| Treadway Commission       | The National Commission on Fraudulent Financial Reporting, 1987 |  |
| Treadway Commission<br>UK |   |  |
|                           | Reporting, 1987   |  |

#### Chapter 1

### Introduction

#### **1.1 Background to the Study**

Over the years, Ghana has implemented various policies or programmes, at times, through legislation, and otherwise via the intervention of international agencies, such as the World Bank and the International Monetary Fund (Alawattage & Azure 2021:1; Tetteh, Agyenim-Boateng, Simpson & Susuawu 2021:692; Betley, Bird & Ghartey 2012:10). This was meant to regulate and improve on public sector financial management within a macroeconomic and fiscal framework (Republic of Ghana [ROG] 2016:5). Examples of these policies and programmes include the Ghana Integrated Financial Management Information Systems (GIFMIS) (Ahinsah-Wobil 2023:3, 2021:2; Tetteh et al. 2021:692) and Medium Term Expenditure Framework [MTEF] (Betley et al. 2012:10). These policies or programmes were meant to deal with perceived or actual mismanagement or misappropriation of public financial resources, as evidenced in the annual reports of the Auditor-General (AG), in respect of Ministries, Departments and Agencies (MDAs), and Metropolitan, Municipal and District Assemblies (MMDAs) [Ghana Audit Service (GAS) 2021a, 2021b:11], that repeatedly highlighted financial and internal control infractions. A number of those programs or policies were also implemented to eliminate or minimise corruption at all levels of the public sector governance system, towards improvement of the wellbeing of the citizenry (Ahinsah-Wobil 2021:6), e.g., the Public Financial Management Reform Programme, 2001–2010 (Betley et al. 2012:2). Betley et al. (2012:10) noted that the success rate of some of these financial management reform policies or programmes has been, largely, abysmal. They further claimed that the most significant progress resulted from a stronger legislative base. A study of these financial reforms, legislations, policies, and programmes revealed that none of them

recognised the concept of the importance of audit committees (ACs) as a governance mechanism in public financial management. This was inconsistent with current international best practices and governance research (Thomas & Purcell 2019; Financial Reporting Council [FRC] 2018; Hegazy & Stafford 2016; Institute of Directors in Southern Africa [IoDSA] 2016; Contessotto & Moroney 2014; Magrane & Malthus 2010; Beasley, Carcello, Hermanson & Neal 2009).

However, that trend has changed in the new millennium, and ACs now feature prominently in Ghana's public sector corporate governance system, via specific legislative requirements (ROG 2016; ROG 2000). Thus, as part of the actions to improve the public financial management system, legislation now provides for the establishment of an AC for public entities. For instance, s 30 of the Audit Service Act 584 of 2000 [ASA] (ROG 2000) provides for the establishment and functions of an Audit Report Implementation Committee (ARIC) in all public entities. These entities include MDAs and MMDAs, that are subject to audit by the AG. In addition, the Internal Audit Agency Act 658 of 2003 [IAA] (ROG 2003a) provides for an ARIC in terms of s 16(8). This requires that the ARIC be responsible for implementing the recommendations of internal audit reports in public entities. These legal and regulatory requirements and guidelines led to the establishment of ARICs, in almost all MDAs/MMDAs, across the country. The ARICs operated until the enactment of the Public Financial Management Act 921 of 2016 [PFMA] (ROG 2016) and its complementing Public Financial Management Regulations of 2019 [the PFM Regulations] (ROG 2019), that replaced the ARICs with differently composed ACs, enshrouded in new characteristics and broader responsibilities. Specifically, s 86 of the PFMA (ROG 2016) required all CEs to establish ACs, to perform functions as prescribed by the regulations and guidelines (ROG 2019; ROG 2017a; ROG 2016).

In addition to the PFMA (ROG 2016) and the PFM Regulations (ROG 2019), that specifically prescribed the functions of ACs as a governance mechanism in dealing with public sector financial

management, other laws and statutory bodies were established with similar, if not superior, objectives, in respect of which ACs were established. For example, at a higher national level, the Public Accounts Committee (PAC) was established by Order 151(2) of the Standing Orders of the Parliament of Ghana, in accordance with Article 103 of the Constitution of the Republic of Ghana 1992 (hereinafter, "the Constitution") [ROG 1992]. The main function was to examine the audited accounts of government, revealing sums granted by Parliament to meet public expenditure, and such other accounts presented to Parliament (Parliamentry Centre 2009:5). Also, several statutory bodies are enacting primary laws in order to prevent, detect, investigate and prosecute cases of public sector fraud, corruption and financial mismanagement. For instance, the objective of the IAA (ROG 2003a), is for the Internal Audit Agency to be the co-ordinator, facilitator and provider of quality assurance for internal audit activities, within MDAs/MMDAs. The Agency's functions, inter alia, are to ensure that financial, managerial and operating information reported internally and externally, are accurate, reliable and timely (ROG 2003a:2-3). Another example of the financial oversight of public entities, is the Economic and Organised Crime Office (EOCO), established by the EOCO Act 804 of 2010 (ROG 2010). The EOCO is an independent corporate body, intended to prevent and detect organised crime and facilitate the confiscation of the proceeds of such crime (ROG 2010:1). Its functions include the investigation and prosecution of serious offences that involve financial or economic loss to the Republic of Ghana, or any public entity or institution in which the State holds a financial interest. A further example of an anti-corruption and preventive mechanism is the Office of the Special Prosecutor Act 959 of 2017 (ROG 2017b), that created the Office of the Special Prosecutor [OSP] (Asante 2019; ROG 2017b). The OSP is mandated to investigate and prosecute cases of alleged or suspected corruption and corruptionrelated offences, to recover the proceeds of corruption and corruption-related offences, and to take steps to prevent corruption (ROG 2017b:1-2). These and many more legal or policy interventions

provide the public sector financial management and anti-corruption environment, within which ACs find themselves.

Under all these circumstances, the importance and peculiar roles of the ACs in providing effective and efficient public sector financial management oversight, that transcend all levels of the public sector governance structure, were considered. It should be emphasised that AC financial oversight responsibilities are rooted in the institutions where all original financial transactions take place, as compared to other anti-corruption activities, where oversight originates from the national level. This is done in response to consolidated and historical, institutional, audited reports or matters, requiring special investigations. Therefore, the aim of this study was to investigate whether AC performance could be enhanced to effectively function within the already heavilylegislated environment of the public sector financial management oversight system. The study, thus, sought to highlight the important role of the AC and endeavoured to construct suitable frameworks in order to enhance the effective functioning of ACs in Ghana's public sector. The need for the effectiveness of ACs has been extensively discussed in the academic and nonacademic, professional literature (PwC 2023; Oussii, Klibi & Ouertani 2019; Kachelmeier, Rasmussen & Schmidt 2016), especially in private, corporate governance terms, when compared to public sector governance. Chapter 2 of this study mainly examines literature relating to ACs, its importance and effectiveness, and the theoretical and contextual issues underpinning the study.

#### **1.2. Problem Statement**

It is common cause that effective public sector ACs can be promoters of better governance in organisations, since it supports such entities to transform into efficient, effective and economic institutions, by promoting accountability, integrity and transparency (Queensland Audit Office 2020). The need for ACs in Ghana's public sector financial management system was first legislated via s30 of the ASA, and later in terms of s16(8) of the Internal Audit Service Act 658 of 2003. In

both of these statutes, the terminology used referred to the "Audit Report Implementation Committee" (ARIC). Recently, the PFMA (ROG 2016), in terms of ss 86-88, provided an improved version of the ASA and the Internal Audit Service Act, that also mandated the establishment, composition and functions of ACs in all CEs. The Guidelines for Effective Functioning of Audit Committees (ROG 2017a) [hereinafter "the Guidelines"], in reference to the PFMA, emphasised that the responsibility of the ACs was to ensure that Internal Audit Functions (IAFs) are effective. ACs were also tasked to ensure that the heads of CEs pursue the implementation of recommendations contained in both external and internal audit reports, Parliament's decisions on the AG's reports, as well as Internal Monitoring Units. It was in fulfillment of this legislation and guidelines that ACs were established and inaugurated for most CEs, and have since become part of the public sector governance system in Ghana. However, over time and consistently, notwithstanding the establishment and existence of ACs in the various CEs, the AG had cause to report on several infractions and irregularities in public financial management, by public institutions, such as MDAs/MMDAs (GAS 2021b). These irregularities were generally summarised and listed by the AG as relating to cash, procurement and store, contract, payroll, statutory tax and pension deductions, and indebtedness/loans/advances irregularities (GAS 2021a, 2021b). Thus, these infractions, to a critical mind, exposed a level of poor quality performance by the ACs, that may contribute to the ineffectiveness and inefficiencies in managing financial resources at the various CEs, i.e., the MDAs/MMDAs.

Comparatively, the requirements for the establishment, composition and functioning of ACs in the PFMA are similar to that of international AC best practices (FRC 2018; Ellwood & Garcia; Lacalle 2016; IoDSA 2016; KPMG 2013; Vakkur, McAfee & Kipperman 2010; Van der Nest, Thornhill & de Jager 2008). For example, s 77 of the South African Public Finance Management Act 1 of 1999 (RSA 1999), as amended, prescribes the establishment of ACs in public service departments. Similarly, s C3 of the United Kingdom (UK) Corporate Governance Code (FRC 2018) recognises the need to establish an AC, in similar details as those of ss 86–88 of Ghana's PFMA (ROG 2016). Deloitte (2015:10) indicated that the European Union's (EU) legislation on audit matters contains several provisions intended to enhance the AC of EU public interest entities. These are to provide additional transparency of the activities of the AC and the statutory audit, that are now enshrined in law, in most affected countries (Deloitte 2015:10). In the US, the enactment of the Sarbanes-Oxley Act of 2002 (hereinafter, the "SOX Act") emerged as the most significant and recent milestone in the establishment of AC's by codifying, under federal law, the requirement for public companies to establish ACs consisting solely of independent members (The Institute of Certified Public Accountants of Kenya [ICPAK] 2015; Malik 2014; Matkin 2010a; Vakkur et al. 2010). For these experiences, in developing countries such as Ghana, there is the need to facilitate effective establishment and operation of ACs at every level of governance, especially in the public sector, to achieve its desired developmental agenda.

As already indicated, most CEs have established ACs as required by the PFMA, and subsequently by the PFM Regulations (ROG 2019; ROG 2016). The issue, however, appears to be a lack of an established framework by which the effectiveness of these ACs could be evaluated and enhanced, with regard to performing its roles and responsibilities. Ika and Ghazali (2012) observed that, in a jurisdiction where ACestablishment is legislated, the mere existence of ACs should not be assumed to be sufficient evidence of its effectiveness. For instance, the grave financial infractions and irregularities of monumental amounts, reported by the AG annually, question the existence and effectiveness of ACs in performing its statutory roles and responsibilities in the CEs. Thus, the current situation demands that an investigation should be conducted, by soliciting the inputs of key stakeholders, regarding the factors that could contribute to the enhancement of the effectiveness of ACs in the CEs. The result of such an investigation

could be used to construct a framework, by which the effectiveness of ACs in Ghana's public sector institutions could be enhanced.

Taking into consideration the background established thus far, the research problem is formulated as:

The AG's annual reports of MDAs/MMDAs have, over the years, identified the pervasiveness of and persistent infractions and irregularities in Ghana's public sector financial management systems. This was the case, notwithstanding the existence of ACs in those institutions mandated to ensure that its management pursues the implementation of any recommendation contained in an internal audit report; Parliament's decision on the AG's reports; the AG's Management Letters; and the reports of an Internal Monitoring Unit in the institution concerned, particularly in relation to financial matters raised.

This study investigated factors that impact Ghana's public sector AC effectiveness from the perspectives of the Agency theory and Institutional theory.

## **1.3 Research Objectives**

In line with the research problem, presented in section 1.2, the researcher interacted with members and stakeholders of ACs in selected public sector institutions, during a focus group session (refer to chapter 4) and elicited their opinions on what they considered as factors that influence the effectiveness of ACs in Ghana. The views of the members and stakeholders formed the basis for developing a proposed framework, subsequent to subjecting those views to a further literature review. The following was the primary research objective for the study:

**RO:** To construct and propose frameworks for enhancing the effectiveness of ACs in Ghana's public sector.

The primary research objective was supported by the following secondary research objectives:

 $RO^{1}$ : To interact with AC members and stakeholders of CEs, in order to obtain an understanding of the perceptions and experiences of the factors influencing the effective functioning of ACs in Ghana's public sector (refer to chapter 3, 4 & 6).

**RO**<sup>2</sup>: To establish and theorise, via a literature review, the determinants of AC effectiveness that could be applied to Ghana's public sector (refer to chapters 2 and 5).

**RO<sup>3</sup>:** To construct a draft framework that could be used to enhance the effectiveness of ACs in *Ghana's public sector* (refer to chapter 5).

 $RO^4$ : To obtain validation from key public sector stakeholders regarding the appropriateness of the proposed framework, constructed in terms of  $RO^3$  (refer to chapter 6).

## **1.4. Research Questions**

To achieve the objectives set out in Section 1.3 above, the following research questions were asked:

The main research question, namely

**RQ:** Will a framework focusing on the establishment and operations of an AC assist in enhancing the effectiveness of ACs in Ghana's public sector?

The sub-questions to address the main research questions, namely

**RQ<sup>1</sup>**: What are the perceptions and experiences of AC members and stakeholders comcerning the factors that influence AC effectiveness in Ghana's public sector?

**RQ<sup>2</sup>:** What are the determinants of AC effectiveness in existing literature?

 $RQ^3$ : Can a framework be used to enhance the effectiveness of ACs in Ghana's public sector?

**RQ<sup>4</sup>:** To what extent will AC members and stakeholders agree with the proposed framework

that has been constructed as appropriate to enhance ACs effectiveness in Ghana's public

sector?

#### 1.5. Thesis Statement

A framework for AC effectiveness may enhance the effective functioning of Ghana's public sector ACs, given the absence of such guidance instrument.

#### 1.6. Research Design

According to the University of Southern California's Research Guides (USC Libraries 2019), "research design" is the overall strategy, selected by the researcher, to integrate the components of the study coherently and logically, in order to ensure the effective investigation of the research problem. It creates the blueprint for data collection, measurement, and analysis (refer to section 3.2 for further discussion of the research design).

The main research objective of this study was to construct proposed frameworks towards enhancing the effectiveness of ACs in Ghana's public sector. To achieve this overall objective, the specific research objectives and related questions were approached as discussed below.

The first secondary research objective (RO<sup>1</sup>) was aimed at interacting with AC members and stakeholders, involved with CEs, to understand their perceptions and experiences of those factors that influence the effective functioning of ACs in Ghana's public sector. This was achieved via two focus groups sessions (refer to section 3.5), using the Interactive Qualitative Analysis (IQA) method (Bargate 2014; Northcutt & McCoy 2004). The second research objective (RO<sup>2</sup>), was pursued through an extensive review of legal and regulatory documents in Ghana, that address the subject matter of ACs. A further extensive literature review of other countries' AC best practices and legal frameworks was conducted, so as to broaden the understanding of the topic and aid in constructing an effective framework for Ghana's public sector. The knowledge acquired here, together with the data collected from the focus group sessions, was synchronised to establish and theorise the relationship between determinants of AC effectiveness in Ghana's public sector. The third research objective (RO<sup>3</sup>), was aimed at constructing the suggested framework that is capable of enhancing the usefulness of Ghana's public sector ACs. This was achieved via an analysis of the synchronised data obtained in respect of RO<sup>2,</sup> to construct a workable AC effectiveness framework, for use by ACs in Ghana's public sector. The fourth research objective (RO<sup>4</sup>), was to obtain validation from AC members and stakeholders in the public sector, regarding the appropriateness of the framework constructed in terms of RO<sup>3</sup>. This, was achieved through semistructured questionnaires.

The research was designed following the constructivist or interpretivist paradigm, as it is consistent with the research objectives and the adopted methodology. As mentioned, the research method for the focus groups was IQA, introduced by Northcutt and McCoy (2004). This method allowed participants to construct their meanings (affinities) to a phenomenon (in this case, AC effectiveness) and the role of the researcher was reduced to that of an observer, with an independent facilitator moderating the sessions. It is believed that "truth" is not universal, but is socially constructed given a particular circumstance. The ontological idea is that knowledge and power are mostly dependent. Therefore, participants were selected based on their knowledge and power concerning the phenomenon under investigation, and their membership of ACs (Bargate 2014). Epistemologically, Bargate (2014) explained that deduction and induction are necessary to investigate a phenomenon, such as AC effectiveness. In this regard, participants constructed their meaning with regard to the phenomenon, and then deductively explored the relationship between constructs.

#### 1.7. Scope and Limitations of the Study

The study focused on purposefully selected CEs, mainly MDAs/MMDAs in Ghana. The themes that were explored were restricted to those constructed through the focus group outcomes and the

literature research. A qualitative research methodology was used. The total number who participated in the focus groups sessions and survey questionnaire may be deemed insignificant, compared to the size of AC members and stakeholders and the numerous CEs in Ghana. However, in the context of the standard practice of focus group approach (refer to 3.6) in data collection, the number of participants were sufficient and appropriate, in the sense that they provided substantial and persuasive as well as authoritative information which helped achieve the goals of the work (refer to 3.7 and 3.8).

#### 1.8. Significance of the Study

The study is significant, as it highlighted those factors that could assist to enhance the effectiveness of ACs, for the attention of members and stakeholders, including nominating and appointing authorities of ACs, in Ghana's public sector. Additionally, the study constructed a framework to ascertain and enhance AC's effectiveness in Ghana, and beyond. This study's results have the potential to:

- i. Inform the Ministry of Finance to consider modifying statutory requirements, in order to enhance the oversight responsibilities of Ghanaian ACs.
- ii. Influence statutory bodies concerned with ACs (the Ghana Audit Service, the Internal Audit Agency and covered entities with ACs) directly, to align its guidance so as to enhance the oversight responsibilities of public sector ACs.
- iii. Assist management and AC members of public sector entities in Ghana, to benchmark their processes accordingly and implement best practices for effective ACs.
- iv. Assist professional bodies with members associated with ACs (such as external and internal auditors) to adapt their regulations (standards) accordingly.

v. Provide significant insights into the gap in the literature with regard to theorising and enhancing the effectiveness of AC processes and governance structures.

## **1.9 Ethical Considerations**

The researcher upheld high ethical standards in conducting the research and applied and obtained ethical clearance from the University of South Africa [UNISA] (refer to annexure 1), before the commencement of any empirical data collection phases. Where participating institutions required institutional ethical clearance, the researcher complied. As a core principle, ethical issues were considered as a serious matter, in undertaking this study. Thus, all sources of information have been duly referenced and acknowledged. At the data collection stage, permission was sought from all parcipating stakeholders and their consent was received prior to involving them in the sample size for the focus group sessions and interview stage. Refer to para. 3.9 for further consideration.

## **1.10. Organisation of Chapters**

The overview of the chapters for this study is tabled as follows:

## **Table 1.1 Overview of the chapters**

| Chapter | Title                            | Content   |
|---------|----------------------------------|---|
| 1       | Introduction                     | This chapter is the introduction to the<br>study. Its contents include a background<br>statement, a statement of the problem,<br>research objectives and questions, and the<br>significance of the study. Then the study's<br>limitations and delineations are discussed. |
|         | Literature Review:               | In this chapter, a general review of  |
| 2       | Contextualising Audit            | empirical and theoretical literature on the   |
|         | Committees                       | AC and AC effectiveness, is reported.   |
|         | Methodology                      | This chapter describes the research<br>methodology and methods adopted for this<br>study. The research paradigm is discussed  |
| 3       |                                  | first, followed by research design,   |
|         |                                  | methodology, methods, and sampling.   |
|         | Focus Groups Data Analysis and   | In this chapter, information collected  |
| 4       | Interpretation                   | from two separate focus group sessions is analysed and interpreted.   |
|         | Focused Literature Review of     |   |
| 5       |                                  | This chapter reports on further reviewed, specific literature, relating to  |
| 5       | Focus Group Themes               | aspects recognised at the focus group   |
|         |                                  | sessions and the themes generated from  |
|         |                                  | chapter four, contributing to AC  |
|         |                                  | effectiveness.  |
|         | Presentation and Analysis of the | This chapter aims to confirm and  |
| 6       | Survey Data: Validating and      | improve the drafted frameworks developed  |
| U U     | Refining the Frameworks          | in chapter five, through analysis and   |
|         |                                  | interpretation of the information gathered  |
|         |                                  | by way of questionnaire.  |
|         | Conclusions and                  | This chapter summarises the research  |
| 7       | Recommendations                  | findings and conclusions, and outlines  |
|         |                                  | recommendations and the AC effectiveness  |
|         |                                  | framework.  |

(Source: Own Construction)

# **1.11 Chapter Summary**

This chapter provided the background statement of the study, to orientate the reader towards the direction of the study, enabling proper appreciation of the issue under investigation. This was followed by the statement of the problem, that dealt with the importance of ACs in Ghana's public sector governance system and the reasons why its effectiveness is important to protection of the public interest. The research objectives were then delineated, following which the corresponding research questions were posed, so as to place the study objective in perspective. Following that, the research design was introduced, relating the study's design towards achievement of the objectives. The delineation of the study was discussed, followed by the scope and limitations of the study, the significance of the study, and the ethical considerations.

#### Chapter 2

#### Literature Review: Contextualising Audit Committees

#### **2.1 Introduction**

This chapter contextualises the study, by reviewing existing literature on ACs and AC effectiveness, and considering the theoretical perspectives underpinning the study. AC literature related to the private sector was primarily reviewed as the basis for disaggregating towards a focus on public sector ACs in developing countries, specifically Ghana. Prior reviews by scholars, such as DeZoort, Hermanson, Archambeault & Reed (2002), Ghafran and O'Sullivan (2013), Jacobs (2013), and Turley and Zaman (2004), synthesising AC literature and related theories, were relied on for a comprehensive analysis.

Therefore, to achieve the research objectives and questions presented in chapter one, this literature review firstly provides a background to the prior review of AC literature, followed by the theoretical frame of the study, namely Agency and Institutional theory. Following that, the concept of the AC, its origin and meaning, are discussed. Thereafter, the multiple duties and responsibilities of ACs are assigned particular perspectives. Then, the position of the AC in the governance architecture of an organisation is considered. Subsequently, AC effectiveness is contemplated, linking it to AC characteristics and how these characteristics contribute to corporate governance effectiveness and AC effectiveness. Continuing, a brief overview of the corporate governance system within which ACs operate in the public sector is presented, followed by a discussion of the nature of public sector audit in Ghana's legal requirements.

#### 2.2 Background to the Review

Literature on ACs and AC effectiveness present diverse and volumous empirical research, professional reports, regulations or governance codes, and committee works. In this regard, several work and publications are notable, i.e., Deloitte (2015), DeZoort et al. (2002), FRC (2018), Hassan, Hijazi and Naser (2017), IoDSA (2016), KPMG (2017a), ROG (2016), and Sulaiman (2017). However, the corpus of AC literature relates mainly to corporate governance in the private sector, e.g., Collier and Zaman (2005), DeZoort et al. (2002), Goodwin (2003), Ika and Ghazali (2012), Lisic, Neal, Zhang and Zhang (2016), Oussii et al. (2019), and PwC (2023). The dexterity in private sector AC research output is in sharp contrast to the limited AC literature on the public sector governance system, especially with regard to empirical research works, e.g., Ellwood and Garcia-Lacalle (2016), the Institute of Internal Auditors [IIA] (2014), Hegazy and Stafford (2016), Magrane and Malthus (2010), and Thomas and Purcell (2019). However, irrespective of the magnitude of literature available on a particular sector, Ghafran and O'Sullivan (2013) observed that, ever since the recommendations of the Cadbury Committee (established in the UK in 1991 to examine the financial aspects of corporate governance), the AC has been identified as a powerful source of improvement in corporate governance. This realisation led to a great number of studies examining the association between different dimensions of AC inputs and financial reporting outputs, although a comprehension of and evidence on AC effectiveness remain inconclusive (Wu, Habib & Weil 2014). Nevertheless, Ellwood and Garcia-Lacalle (2016) recognised that corporate governance becomes enhanced by the "existence and proper functioning" of ACs, be it in the private sector or the public sector. The private sector AC literature's edge over that of the public sector is probably attributable to the fact that the concept of the AC originated and was identified as an effective corporate governance mechanism, by which the interest of shareholders could be protected from corporate scandals that threaten the existence of listed corporations across the globe

(ICPAK 2015; Vakkur et al. 2010). The original purpose of the concept of the AC as a best practice corporate governance mechanism was, and is still, to address the principal and agent relationship, where the agent is suspected to be perpetually acting in personal and selfish interest, to the detriment of the principal (Fama & Jensen 1983; Jensen & Meckling 1976). However, the objective of solving the agency problem via the AC concept, has evolved into what has now become a best practice AC template. Thus, this form of AC template has been adopted and implemented by many organisations and countries, by institutionalising AC practices, either through mimetic, coercive or normative isomorphism. This is done by way of governance codes, legislation or practice (Hegazy & Stafford 2016; Scott 2014; Jacobs 2013; Beasley et al. 2009; Frumkin & Galaskiewicz 2004; DiMaggio & Powell 1983), supporting the tenets of the Institutional theory. For example, prior AC literature synthesis, such as the work of DeZoort et al. (2002), posited four dimensions of the AC, that fundamentally determine AC effectiveness, i.e., composition, authority, resources and diligence. Consequently, the authors of the fast growing academic AC literature concentrated on investigating these and other aspects of the governance role of ACs (Ghafran & O'Sullivan 2013), relative to the public and private sectors, using these four parameters to measure AC effectiveness.

As for the private sector context, ACs were originally conceived as an effective governance mechanism, to mitigate the agency information asymmetry problem (Kalbers & Fogarty 1998). However, in the public sector, the citizenry (taxpayers) represent the principal and the public servants (including the membership of the AC) are deemed the agents. Therefore, copying from the private sector (by applying the New Public Management doctrine), governments of various countries have adopted the establishment and operational principles of AC best practices, a form of mimetic isomorphism (Hegazy & Stafford 2016; Scott 2014; Frumkin & Galaskiewicz 2004; Dimaggio & Powell 1983). This was to address deficiencies in public sector accountability and

assurance delivery systems (ICPAK 2015; IIA 2014; Jacobs 2013; Beasley et al. 2009). The supposition is that ACs can assist organisations in meeting the taxpayers' (principal's) increasing demands for transparency and accountability, by providing oversight of management practices in key governance areas. These areas include values and ethics, governance structure, risk management, and internal control framework. In addition, the AC engages in audit activity, external assurance provision, management action plans, financial statements, and public accountability reporting (IIA 2014). The remainder of this chapter perches on this pedestal, to investigate the importance of the AC and how AC effectiveness could be achieved, in order to propose a framework in terms of which AC effectiveness could be enhanced, in Ghana's public sector governance system.

#### **2.3 Theoretical Perspectives**

This section reviews the theoretical perspective, namely the Agency theory and the Institutional theory. The selection of these two theories was informed by Jacobs' (2013:5) analysis of theories applied in published public sector accounting research, where it was established that Institutional theory and Economic theory (i.e., Transaction Cost and Agency theory) were the top two utilised theories, in order of significance and popularity. Therefore this study considered and used a combination of the two theoriew as very appropriate for explaining the research problems. Perhaps more important to this study, is the observation by Jacobs (2013:8) that it was generally conceded that a great number of the public sector reform mechanisms opted for Agency and Transaction Cost theoretical perspectives, as the basis and foundation of implementation.

#### 2.3.1 The Agency theory.

The application of Agency theory (Fama & Jensen 1983; Jensen & Meckling 1976) to explain the importance of the AC concept in corporate governance, is not new (Jacobs 2013). Ben-Ner, Ren and Paulson (2011:612) summarised "Agency theory", in its most basic understanding, in the following words: "An agency relationship exists between a people or a group-principal, who has the right to set the terms of the relationship and another person or group-agent, employed to carry out the principal's wishes."

Literature classified Agency theory into two broad streams, i.e., positive (positivist) and agency (Kivistö 2007; Eisenhardt 1989). According to Eisenhardt (1989:59), these two streams are similar in its unit of analysis, namely, "the contract between the principal and the agent." The other area of similarity is its common assumption "about people, organisation and information". It was explained that the positivist stream is where the principal and agent are perceived as having conflicting interests, thus monitoring mechanisms are implemented to limit the agent's self-interest tendencies. The Agency theory concerns the general theory of the relationship between the principal and agent, in the sense of careful specification of assumptions in line with "logical deductions and mathematical proof" (Eisenhardt 1989:60). In this work, though the researcher leaned a little towards the positivist stream, no actual distinction was made, as it was agreed, in line with extant literature, that there is a thin line that separates the two streams.

Further explanations in literature noted that agency relationships could be reciprocal, as in the patient-doctor relationship, or coercive, e.g., in the master-slave relationship. However, agency relationships have been considered contractual relationships, traditionally. It is a broad phenomenon that exists in the private sector and the market environment, but it can also be found in the public sector and hierarchical environments (Kivistö 2007:12; Fama & Jensen 1983; Jensen & Meckling 1976). Kivistö (2007:12) again alluded to agency relationships that could range from a simple single-principal-single-agent relationships. Nyman, Nilsson and Rapp (2005:124) provided a vivid description of how complex and important the agency relationship could be in both public and private organisations:

In major companies, as in municipal, county, and regional government, there are several links in the chain of delegation, and when so-called "soft" values are reviewed, there is a substantial risk that information will be concealed, both intentionally and unintentionally.

In the following subsections, the applicability of the Agency theory, in its various forms, was explained, in both the private sector and public sector contexts, so as to reflect its different levels.

#### 2.3.1.1 Basic exposition of the Agency theory.

In its simplest or basic form, the importance of the Agency theory stems from the relationship that is created between the owner of an enterprise (the principal) and the management of the enterprise (the agent) in relation to economic resources entrusted to the agent, e.g., the singleprincipal-single-agent relationship. In such a relationship, there is the expectation of the principal by the agent to make decisions that would allow the principal to derive maximum utility from the resources made available to it. A problem, however, arises, owing to the inability of the principal to directly monitor the operations of the agent, and the possibility that the agent may be acting in their own interest, to the detriment of that of the principal (Jensen & Meckling 1976), that eventually increases agency cost. Agency costs involve the costs of structuring, monitoring and bonding a set of contracts regarding agents with conflicting interests, and the value of output lost on account of the costs of complete execution of contracts that exceed the benefit (Fama & Jensen 1983: 304). Akwenye, Chata and Benedict (2016:284) posited that the agency problem arises from a permutation of asymmetric information and differences in sensitivity to firm-specific risk. Here, they explained that "sensitivity to firm-specific risk" refers to how a decision-maker ranks alternative choices in preference to its uncertainties. To mitigate the resultant effect that emanates from the mutual suspicious dispositions, both the principal and the agent are incentivised to invest in various information systems and control devices (Kalbers & Fogarty 1998; Fama & Jensen 1983), in order to enhance the quality of information that is generated for the sustainability of the

relationship. One such information and control device that is deemed appropriate by the principal, represented by the Board of Directors (BoD) acting in a fiduciary capacity for shareholders/taxpayers, is the AC mechanism. The establishment of an AC serves as a critical instrument in the decision control mechanism, by which the BoD improve internal monitoring. It is considered that the utilisation of the various information systems and control devices, such as the AC, are potent mechanisms to produce Pareto optimality (where both parties obtain maximum benefits), to compensate for the level of investments made in the relevant endeavour (Kalbers & Fogarty 1998). There is the need to reiterate, at this point, that the AC is a committee of the BoD and so, in this context, the AC is a proxy for the board in the governance structure within this exploration.

In advocating for the use of the Agency theory, Akwenye et al. (2016:284) argued that the theory could be deployed to explore the relationship between an organisation's ownership and management structure. In a conflict situation, the Agency model could be used to align the interests of the management with that of the owners. In this regard, Barka and Legendre (2017) examined the association between independent directors, the AC, and firm performance, considering the influence of the Chief Executive Officer's (CEO) powers and block shareholders, in the context of the agency relationship. They concluded that, in order to remove the inequity between ownership (shareholders) and power (top management), independent directors should be elected by the shareholders to monitor managers, and increase and protect shareholder value. Therefore, an independent director, especially a member of the AC, must protect small shareholders from CEOs' opportunism. However, Lisic et al. (2016:1-2) assumed a contrary position to that of Barka and Legendre (2017), by arguing that, from a managerial hegemony perspective, AC restructurings might have been over concentrated on form, rather than on substance. This is because it is understood that top management is an important component of the corporate governance structure

that could adversely influence the effectiveness of ACs. Lisic et al. (2016:2) supported this argument by asserting that the oversight supremacy of the AC may become impaired when the CEO assumes more power, as evidence abounds that directors are less diligent in monitoring the actions of management when CEO-power is greater. Hence, they postulated that a powerful CEO can undesirably influence the AC, through channels other than directly selecting the BoD. This stance by Lisic et al. (2016) appears practical rather than theoretical, as it is likely that AC members themselves, driven by financial and non-finanial incentives, may succumb to top management "mischiefs".

# 2.3.1.2 How Agency theory is positioned in the public sector.

Ellwood and Garcia-Lacalle (2016) distinguished how Agency theory applies to the private and public sectors. They explained that private sector corporate governance is premised on Agency theory, where shareholders are the principal and the BoD is the representatives of the principal. In this case, the BoD is accountable to the shareholders, by ensuring that the shareholder's wealth is maximized, through oversight of management actions. The governance of public sector institutions involves a wider range of stakeholders, e.g., the citizenry, taxpayers, multinational investors, and donors as principals, at the same time as agents, in some cases, rather than only having shareholders as principals. Thus, the application of Agency theory in the public sector features the typical characteristics of what may be described as *multiple-principal-multiple-agent* relationships, where "principals and agents may have dual roles in a way that principals can act simultaneously as some other principals' agents, and agents as some other agents' principals" (Kivistö 2007:12). A conceptual description of how the agency relationship works in Ghana's public sector, is illustrated in Figure 2.1.

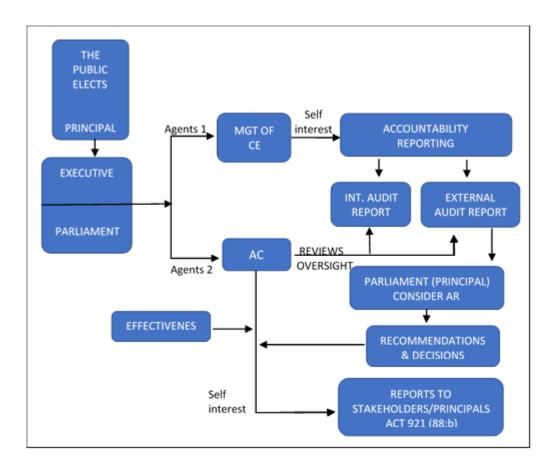


Figure 2.1 The agency relationship in Ghana's public sector (Source: Own construction)

Figure 2.1 demonstrates the agency matrix regarding the role of ACs in Ghana's public sector environment. It shows that the public, as principal (at the top, left hand side of the flowchart), elect members of Parliament and the Executive (in the box below the public) as its principal representatives, to manage state resources. Parliament enacts laws to regulate public sector financial management and create public institutions (Agent 1 entities). The Executive, in compliance with the Constitution (ROG 1992) and the acts of Parliament, appoints management and staff of public institutions (in this case, CEs) as agents (Agent 1), to act on its behalf, in the public interest. Agent 1 is entrusted with resources to be used and accounted for in the public interest. In performing its duties, an asymmetric and inherent risk remain, that Agent 1 may use the resources entrusted to it for self-gain, at the expense of the public interest. To mitigate this selfinterest risk by Agent 1, the PFMA created the AC (Agent 2) to exercise preventive and monitoring responsibilities over Agent 1. These responsibilities are exercised through oversight of the accountability process, by reviewing internal and external audit processes. The accountability reports of Agent 1 are audited by the AG in accordance with the ASA (ROG 2000), and an audit report is issued in respect of Agent 1 stewardship. The AG's report is submitted to Parliament for consideration and action. A governance mechanism, in the form of the AC, is then instituted to ensure that any recommendations and decisions by Parliament on the AG's report, are implemented. The AC is also required to report on its (the AC's) activities, to the public, via various stakeholders listed in s 88b of the PFMA. In executing its duties, the AC is expected to be effective and avoid self-interest.

It is observed that the objectives of public sector institutions, within which ACs are situated, are not only financially directed but also focused on efficiency and value-added public service delivery in multiple dimensions, that render Agency theory application a complex endeavour (Hegazy & Stafford 2016; Ben-Ner et al. 2011). In effect, public sector expectations are largely concerned with the impact of its policies on the community or society, in terms of policy outcomes or value for public money (Ellwood & Garcia-Lacalle 2016:2–3). Therefore, the chain of the agency relationship in the public sector appears to be an issue of *multiple-principal-multiple-agent* relationships, where the citizenry has a contractual principal relationship (Kivistö 2007; Fama & Jensen 1983; Jensen & Meckling 1976) with elected public officers, as agents, who themselves are citizens and who act as a first level agency, monitoring other citizens appointed as agent-principals in capacities as public officers that manage public institutions. Nyman et al. (2005) noted that the chain of accountability, an effective mechanism to mitigate the agency problem, that the auditors are charged with reviewing, consists of several agency relationships, as well as relationships involving several principals. Ben-Ner et al. (2011:614) noted that, owing to the apparent

complexities in the locus of ultimate control, public sector organisations are prone to experience extensive, more challenging agency problems than its private sector counterparts, in one way or another. One of such key attributes is that the objectives of public sector organisations are:

...multifaceted, complex, difficult to articulate, and hard to quantify, as well as partly unobservable, as compared to the profit goal. Accountability for the attainment of multiple, less measurable and partly unobservable goals is hard to establish. This leaves room for management and key employees in these organisations to attain greater control over their organisations and run them according to their own interest. (Ben-Ner et al. 2011:614)

Akwenye et al. (2016) argued that the public sector official plays the role of the principal's (public) agent, in which case it is expected that the public official should periodically account to the public as to how they (the officials) used the resources entrusted to them to accomplish the public objective, during the period of their stewardship. Meanwhile, Nyman et al. (2005), in a survey, analysed the chain of accountability by the use of Agency theory in Swedish local government, and concluded that Agency theory was appropriate for understanding and structuring of the complex accountability situation, and aided in the identification of important weaknesses in the public sector system. Given that understanding, they reported the need for the public to monitor the actions of public servants via governance mechanisms, such as an effective and independent AC, of which the members can also be deemed the agent.

# 2.3.2 Institutional theory.

Earlier Institutional theory studies, e.g., Dimaggio and Powell (1983), and Meyer and Rowan (1977) have been referenced by many scholars, even in contemporary times (Aksom & Tymchenko 2020; Lammers & Garcia 2017; Martínez-Ferrero & García-Sánchez 2017; Hegazy & Stafford 2016; Jacobs 2013), in order to explain the susceptibility of organisations in adapting to its environmental best practices in the quest to become efficient like others, only to end up

becoming similar to each other in nature, to a large extent. In espousing the tenets of Institutional theory, Meyer and Rowan (1977:340–341) argued that the formal structures of many organisations radically replicate the myths of its institutional environments, rather than of the requirements of its work mandate. In other words, organisations are compelled to integrate the practices and procedures defined by prevailing rationalised concepts of organisational work, that are institutionalised within its environment. By doing so, it enhances its legitimacy and its survival predictions, independent of the immediate efficacy of the acquired practices, and procedures are also improved. Building on similar propositions, Dimaggio and Powell (1983:148) set out to find reasons for the astounding homogeneity of organisational fields display considerable diversity in approach and form. Once a field becomes well established, however, there is an inexorable push towards homogenization."

The AC concept, its adoption and practices worldwide, both in the public and private sector, in regulation and codes of best practices, in professional and academic literature, appears to be converging vividly within the descriptive scenario of this quotation from Dimaggio and Powell (1983:148). The picture painted in the scenario is a tacit reflection of how ACs evolved over time to become part of the generally accepted corporate governance mechanism (FRC 2018; ROG 2016; IoDSA 2016; Fichtner 2010; Vera-Muñoz 2005; National Commission on Fraudulent Financial Reporting [Treadway Commission] 1987) in terms of composition, authority, resources needed, diligence (Sulaiman 2017; DeZoort et al. 2002), characteristics in academic discourse (Hassan et al. 2017; Brennan & Kirwan 2015; Bédard & Gendron 2010; Lin, Xiao & Tang 2008), and legislative requirements in various jurisdictions (FRC 2016; ROG 2016; Malik 2014). Thus, contemplating the practice of ACs today, as reviewed in prior sections of this chapter, it is

concluded that the AC concept has achieved an advanced level of homogeneity, rendering its analysis within the Institutional theory (Aksom & Tymchenko 2020) appropriate.

According to Dimaggio and Powell (1983:149), the concept that succinctly depicts the process of homogenisation, is an isomorphism, that is construed as a constraining process that compelled a single unit in a population to opt to be similar to other units that encounter the same set of environmental situations. Dimaggio and Powell (1983:150) identified three types of institutional isomorphism: coercive, mimetic and normative. Aksom and Tymchenko (2020:3) argued very strongly that the insistence on institutional isomorphism upholds the entire institutional research endeavour as a true scientific theory, that predicts a pervasiveness of "isomorphic tendencies and conformism over diversity and strategic" behaviour. Following up on the above definition, in support of institutional isomorphism and drawing from prior and subsequent literature on a similar subject (Martínez-Ferrero & García-Sánchez 2017; Hegazy & Stafford 2016), an analysis of the AC and AC effectiveness follows.

# 2.3.2.1 Coercive isomorphic nature of ACs.

"Coercive isomorphism" is a product of the combination of formal and informal influences exerted on organisations by other organisations on which it depends and by the cultural environment in which it exists (Dimaggio & Powell 1983: 150). In their review of other works, Jacobs (2013:6) noted that the Institutional theory perspective was adopted in relation to funding for the United States Security and Exchange Commission. This example was cited as the basis that informed an argument that public sector organisations could create, maintain and manage legitimacy, so as to receive sustainable support in funding. This appears to be a strong motivation for some public sector institutions to establish and maintain ACs and support it to be effective, at least symbolically, under a legislative regime, e.g., s 86 of the PFMA (ROG 2016).

# 2.3.2.2 Mimetic isomorphic nature of ACs.

Sometimes uncertainties or ambiguous goals, rather than coercion, are a forceful power that encourages imitation (Dimaggio & Powell 1983). Proponents of institutional isomorphism, e.g., Martínez-Ferrero and García-Sánchez (2017), Human-Vogel (2006), and Dimaggio and Powell (1983), believe that organisations are inclined to model themselves after cognate organisations that they identify as more legitimate or successful. As demonstrated earlier in this chapter, ACs evolved, initially, as a mechanism to solve agency problems between the shareholder and management. However, with time it transformed as a leading good governance mechanism, adopted by organisations in both private and public sectors, whether in Europe, the Americas or Africa. In general, the establishment, composition, qualifications, duties and responsibilities of ACs have been benchmarked against each other by organisations, in such a way that each apparently imitate the other. Professional and scholarly literature also appear to have no variety of discourse, except to remain within the parameters offered by actors in the practice of the AC concept. Legislators and standard setters in countries and organisations establishing ACs merely mimic the practice of pacesetter countries or model that of successful organisations. This could lead to stereotyping which may not lead to efficiency of ACs in all jurisdictions or organisations.

#### 2.3.2.3 Normative isomorphic nature of ACs.

According to Dimaggio and Powell (1983:152), normative isomorphism emanates primarily from professionalism. They understood "professionalism" as the collective effort of members of an occupation to define the conditions and methods of their work, so as to control the "production of producers" by establishing a cognitive foundation and legitimation for occupational autonomy. This is true of the requirements of AC membership, when legislators, regulators, and standard setters ensure that a certain number of AC positions are reserved for financial experts (ROG 2019; Bilal, Chen & Komal 2018), often members of a predetermined professional body. A typical example of normative isomorphism is where professional financial expert associations used its corporate influence to ensure that the inclusion of its members in ACs is encoded in law, standards or guidelines. A few examples in this regard are s 407 of the SOX Act, in the United States of America (USA), that requires the "Disclosure of Audit Committee Financial Expert" (USA 2002); the UK's Provision 24 of the UK Corporate Governance Code, that mandates the BoD to "satisfy itself that at least one member has recent and relevant financial experience" (FRC 2018); and Ghana's Regulation 224 "Qualification for appointment to an Audit Committee" of the PFM Regulations, that directs who qualifies to be a member of an AC in the public sector (ROG 2019). The UK's Guidance on Audit Committees (FRC 2016), whilst emphasising the need for the fusion of "skills, experience, knowledge and professional qualifications" on the AC, s 2(15) states, in part, that:

...the need for a degree of financial literacy among the other members will vary according to the nature of the company, but experience of corporate financial matters will normally be required. The availability of appropriate financial expertise will be particularly important where the company's activities involve specialised financial activities.

In Ghana's public sector, the Guidelines in compliance with s 87 of the PFMA (ROG 2016), categorically require that the Institute of Chartered Accountants, Ghana (ICAG), as a professional body, should recommend "...one independent member to serve on the AC of the Legislature, Judiciary, Constitutional Bodies, Ministries, Departments and Agencies, Public Service, Autonomous Agencies, and Statutory Bodies (with Board or Council)."

Additionally, in the case of the Regional Coordinating Councils, MMDAs, Constitutional Bodies, Autonomous Agencies and Statutory Bodies, "(without Board or Council)", the Guideline requires that "the ICAG shall nominate two independent members to serve on each" of the ACs. The Ghanaian requirement, however, does not consider the nominated member's specific experience, as the United Kindom's does. The requirement of professional membership may appear as a protectionist approach by the professional bodies, in favour of its members and to the disadvantage of non-professional financial experts, such as those with on-the-job financial experience without professional qualifications. However, to paraphrase Martínez-Ferrero and García-Sánchez (2017:2), such protectionist provisions are to ensure that financial experts charged with oversight responsibilities on ACs, act in the manner that is deemed professionally correct. Figure 2.2 demonstrates the institutional concept of ACs in Ghana's public sector.

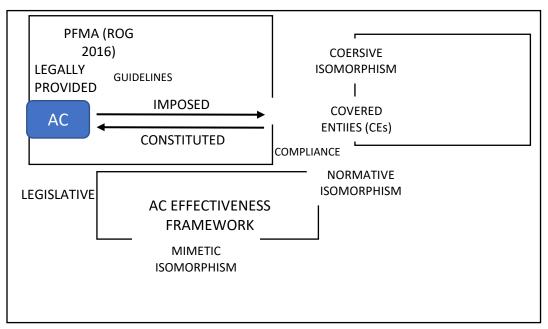


Figure 2.2 Institutional concept in Ghana's public sector AC

## (Source: Own construction)

Figure 2.2 demonstrates the institutionalisation of ACs in the public sector in Ghana. The flowchart indicates that the PFMA (ROG 2016), embossed at the top of the box on the left, established ACs directly (in the middle of the PFMA box) for all CEs (in the box to the right). The arrow from the AC box to the CEs box indicates that ACs are imposed by law on the CEs, a case of coercive isomorphism. "Coercive isomorphism" refers to pressures that require institutions to

subject themselves to legislation, licensing, or accreditation in order to be perceived as acting legitimately (Frumkin & Galaskiewicz 2004). The reverse arrow from the CEs box, flowing from the right back to the AC box, indicates that the CEs have to comply with legislation and guidelines to constitute ACs, an example of normative isomorphism. According to Frumkin and Galaskiewicz (2004), "normative isomorphism" refers to how one yields to environmental pressures created by their peers' actions. In this case, for a given CE, the pressure is the establishment of ACs, as the law demands it and all other CEs are complying. The AC effectiveness framework box is at the bottom of the AC and CE boxes. The AC effectiveness framework, an example of Mimetic isomorphism, is standing alone. It is not connected to any of the other boxes, as it is the conceptual, standard operating performance toolbox that is desired for ACs, CEs and other stakeholders. It is also not connected as, currently, there is no AC effectiveness framework for Ghana's public sector institutions. "Mimetic isomorphism" also refers to cognitive institutional pressures that are considered culturally supported and conceptually correct, and thus accepted by organisations, so as to measure its performance (Frumkin & Galaskiewicz 2004).

### 2.4 Audit Committees: Origin, Concept and Meaning

The purpose of this section is to consider background information relevant to ACs in both professional, technical and academic literature. Unlike Roussy and Perron (2018), who excluded non-empirical literature in their review, this review includes grey literature, professional, technical and legislative, as it contributes to the foundation of the AC.

#### 2.4.1 Origin of audit committees.

The origin of the AC is grounded in legislation, regulation, best practice governance codes and committees' or commissions' reports (DeZoort et al. 2002:39; Kalbers & Fogarty 1998), usually as reactions towards mitigating corporate scandals, allegations of corruption, and fraudulent

financial reporting or reforms in financial management administration (FRC 2018; ROG 2016; IoDSA 2016; Fichtner 2010; Vera-Muñoz 2005; USA 2002; ROG 2000; Treadway Commission 1987). According to ICPAK (2015:7), examples of notable reports and committees that informed the move to adopt ACs, include the SOX Act of 2002 in the USA, the report of the Australian Treasury of 2002, and the recommendations of the Smith Committee of 2003 and the Higgs review of 2003, in the UK. Also influential in this regard were South Africa's King reports on Corporate Governance I, II, III and IV, in 1994, 2002, 2009 and 2016, respectively, that included strong recommendations on the need to establish ACs. Thus, the narratives of the AC's origin varies from one jurisdiction to another chronologically, however it is similar in nature (mimetic), with the shared, underlying objective of mitigating the cost of information asymmetry between the principal and agent (Fama & Jensen 1983; Jensen & Meckling 1976).

In the USA, for instance, it was observed that the formalisation of ACs dated back to between the 1930s and 1940s (Fichtner 2010:229; Vera-Muñoz 2005:116; Kalbers & Fogarty 1998:129), and was particularly linked to the McKesson & Robbins Inc. scandal (a corporate fraud case) (ICPAK 2015:9; Fichtner 2010:228). The scandal prompted the New York Stock Exchange and the Securities and Exchange Commission (SEC) to recommend that the appointment of external auditors should be the responsibility of an elite committee, composed of non-executive board members (Ghafran & O'Sullivan 2013; Fichtner 2010; Vera-Muñoz 2005). This is an indication that, even prior to the theorisation of the Agency conflict-of-interest-problem in an enterprise by Jensen and Meckling (1976) and Fama and Jensen (1983), there were attempts to resolve such conflicts in corporate governance relationships. According to Vera-Muñoz (2005:136), ACs, as part of the BoD were first recommended by the New York Stock Exchange in 1939, and the first time the SEC proposed that publicly held companies establish ACs, was in 1972. It has been argued that this SEC proposition was the beginning of the integration of the AC as a "key component of sound financial reporting and good corporate governance" (Fichtner 2010:227). Earlier on, in support of this narrative, the National Commission on Fraudulent Financial Reporting, the Treadway Commission, recognised, in 1987, that an informed, vigilant and effective AC assists a company in its responsibility to minimise the prevalence of fraudulent financial reporting.

Consequently, the Commission recommended that all public companies be required to establish ACs, composed entirely of independent directors (Treadway Commission 1987:3,11). Building on this foundation in the late 1990s, the Blue Ribbon Committee on Improving the Effectiveness of ACs, identified ACs as being the "catalyst for effective financial reporting" and established a variety of guidelines regarding its composition, operation and empowerment, towards the protection of shareholder-interests (Fichtner 2010:230). In 2002, as a response to embarrassing, high profile scandals in the USA, the House of Representatives enacted the SOX Act in order to, inter alia, restore investor confidence in the integrity and transparency of public entities' financial statements, by categorically providing that all companies listed on the USA stock exchanges should establish ACs (Ghafran & O'Sullivan 2013:382; Fichtner 2010:231).

In the UK, Collier (1996) documented the AC's evolution and noted that prior to 1970, no UK company had an AC. He traced this evolution from the 1970s until its climax in 1992, with the report of the Cadbury Committee, that recommended that all listed companies should establish ACs (Collier 1996:122). The factors attributed to the formation of ACs in the UK, between 1970 and 1992, were discussed by Collier (1996:125), who listed it as acceptance (of ACs) in North America; growth in the number of non-executive directors (on ACs); corporate failures; alternative board structures; legislative pressures/coercive isomorphism; pressure by the accounting profession/normative isomorphism; and pressure by other bodies. Thus, the acceptance of ACs in the UK, was the result of a kind of veiled mimicking of that which was happening in other parts of the developed world. However, unlike the USA, where AC emergence and transformation stems

mainly from corporate scandals, in the UK, ACs evolved as a result of recommendations by the SEC and the Cadbury Committee, normative isomorphism, as important steps towards raising the standards of good corporate governance (Ghafran & O'Sullivan 2013; Collier 1996). It is noted that ever since the Cadbury Committee's recommendations, ACs have been identified as a powerful mechanism for improving corporate governance, especially in the UK (Ghafran & O'Sullivan 2013:381).

Given the limited AC research literature available, the origin of ACs in Ghana's public sector entities could be traced to Acts of Parliament and regulatory and legislative instruments, coercive isomorphism. The first requirement aimed at ACs in Ghana's public sector, was delineated by the ASA, that require in s 30(1) that "An institution, body or organisation which is subject to auditing by the Auditor-General shall establish an Audit Report Implementation Committee…" (ROG 2000:12).

It is clear from the aforementioned narratives that ACs originated basically as a governance mechanism to constrain managers, on behalf of shareholders or taxpayers, from implementing decisions that will negatively affect the economic welfare of the owners of the enterprise, i.e., the principal and agent problem (Fama & Jensen 1983; Jensen & Meckling 1976). In a number of instances, the AC has become a best practice governance mechanism, that has been legislated, accepted and integrated into most organisations, i.e., institutional isomorphism (Dimaggio & Powell 1983). The two theories alluded to in this paragraph, form the theoretical base of this work and are discussed in detail later in this chapter.

## 2.4.2 The audit committee concept and meaning.

As indicated in the preceding sections, an AC is a governance mechanism designed to provide shareholders or taxpayers with another layer of assurance to mitigate the principal and agent problem caused by information asymmetry, and created by the suspected and real self-interest of managers of an institution in the financial and accounting governance spectrum. This problem assumed certain proportions in instances of fraudulent financial reporting, defalcations, accounting method choice abuses, and opinion shopping, demonstrating that management was not faithfully and fully accountable to the BoD, and by extension, stakeholders (Kalbers & Fogarty 1998:130). Gendron and Bédard (2006:211), in discussing how an effective AC is constituted, stated that an "…audit committee (AC) is one of the main corporate governance mechanisms upon which are predicated stakeholders' hopes in constraining the behaviour of corporate managers."

This description emphasises the role ACs play in ensuring that the principal and agent conflict is mitigated to serve the interest of the principals (shareholders/tax payers) and not an agent's conflicting interest. The Agency logic theorises that an effective AC improves financial reporting quality by reducing the information asymmetry between managers and external stakeholders (Wu, Habib & Weil 2012:16; Fama & Jensen 1983; Jensen & Meckling 1976). In this regard, Oussii and Taktak (2018) stated that ACs are regarded as supervisory bodies, included in the internal corporate governance mechanism. Wu et al. (2014:321) asserted that ACs are critical subcommittees of the BoD, that are authorised to oversee the auditing and financial reportingrelated matters of the firm. In other words, the AC concept was an effort designed explicitly to cede financial related issues, in order to provide reporting mechanisms to insiders, that would circumvent managerial retribution and supervise relations with external auditors (Kalbers & Fogarty 1998:130). In the USA, s 2 of the SOX Act states that an AC is "...a committee (or equivalent body) established by and amongst the board of directors of an issuer, for the purpose of overseeing the accounting and financial reporting processes of the issuer and audits of the financial statements of the issuer" (USA 2002).

Thus, it is understood that the fundamental concept of a corporate AC is to engage in the process of financial reporting oversight, including the engagement of external auditors and the audit process, the internal control systems, including IAFs, as well as compliance with the laws and regulations of a particular jurisdiction (FRC 2018; IoDSA 2016; Beasley et al. 2009; Turley & Zaman 2004, 2007). A classical and cogent description of an effective AC is that it is a board committee, holding qualified members, with the authority and resources to protect stakeholder interests, by ensuring reliable financial reporting, internal controls, and risk management though its diligent oversight efforts (DeZoort et al. 2002).

It was observed that, consistently, the meanings derived from the AC concept review indicate that the AC is a board subcommittee with delegated authority to perform fiduciary roles in its oversight responsibilities, on behalf of the stakeholders. It should be noted that, in public sector governance structures in certain jurisdictions, such as Ghana, the AC is dominated by legally imposed, independent outsiders who are not members of the main BoD, e.g., s 87(2) of the PFMA (ROG 2016). This statutory provision clearly aims to ensure the independence and objectivity of the AC, in the performance of its duties.

## 2.5 Duties and Responsibilities of ACs

This section considers the multiple duties and responsibilities of ACs from a general, global perspective, and then narrows it down to the Ghanaian, public sector perspective.

#### 2.5.1 General perspective.

The duties and responsibilities of ACs are widely discussed in the literature (Oussii et al. 2019; FRC 2018; IoDSA 2016; IIA 2014; Ghafran & O'Sullivan 2013; Wu et al. 2012; Bédard & Gendron 2010; Fichtner 2010; Gendron & Bédard 2006; DeZoort et al. 2002). It was noted that, primarily, the duties and responsibilities of the AC is a delegated role, by the BoD of corporations (Sulaiman 2017; Bromilow & Keller 2011). Specifically, it is the responsibility of the BoD to ensure proper corporate governance, so as to safeguard the interest of shareholders. It is within this BoD responsibility that AC duties and responsibilities are embedded (Thomas & Purcell 2019; Jacobs 2013; Wu et al. 2012; Krishnamoorthy, Wright & Cohen 2002; DeZoort et al. 2002). Therefore, the AC's role is to monitor the executive management actions on behalf of the BoD, in order to mitigate agency risk, where managers, who are the agents of the shareholders, could possibly act against the best interest of the shareholders, who are the principals (Hegazy & Stafford 2016; Jacobs 2013; Beasley et al. 2009). However, the observation was made that, first and foremost, the ultimate responsibility for the integrity and accuracy of the financial statements lies with a company's board. Oversight of financial reporting can be delegated to the AC, but that delegation does not absolve the board of its obligations (Leka 2019). Ordinarily, the duties of ACs involve recommending the appointment of external auditors; reviewing the company's financial statements; taking action on items and concerns indicated by the external and internal auditors; mediating between the auditor and management; and advising on any significant findings in the external and internal audit investigations (Fichtner 2010; Klein 2002). Wu et al. (2012) stated that ACs oversee the audit scope and the adequacy of the independent public accountant's audit plans and results, review and monitor the annual and quarterly financial statements and other financial reports, and monitor the internal accounting controls. The FRC (2018:10) identified, what it referred to as, the main roles and responsibilities of ACs, that include monitoring the integrity of the financial statement; providing advice on whether the annual reports and accounts are fair, balanced and understandable for the use of shareholders; reviewing the entity's internal financial and internal control, as well as risk management systems; and monitoring and reviewing the effectiveness of the entity's IAF. The FRC (2018) announced that the AC is responsible for conducting the tender process, and recommending the appointment, re-appointment and removal of external auditors; reviewing and monitoring the external auditor's independence and objectivity; reviewing the effectiveness of the external audit process; developing and implementing policy on the engagement of external auditors to supply non-audit services; and to report to the board on

how it has discharged its responsibilities. Similarly, Lin et al. (2008) summarised the expected role and responsibilities of ACs in corporate governance as follows: the review of management programmes, as well as monitoring of compliance with codes of business conduct and reviewing of internal control procedures, in order to prevent or detect fraudulent activities or irregularities. Also, the AC assists the BoD to exercise oversight of the companies' financial reporting processes; the monitoring of the independence of external auditors with an oversight responsibility; appointing or dismissing auditors and determining the types of audit service and related remuneration for auditors. The AC further reviews the proper functioning of internal auditing; and to coordinate the work of internal and external auditors.

In the USA, for instance, the Treadway Commission on Fraudulent Financial Reporting outlined the duties that expanded the roles of the AC to reviewing a company's process of assessing the risk of fraudulent financial reporting, as well as a schedule established by management to monitor compliance with the code of conduct; maintaining an open door of communication with the chief accounting officer and the chief internal auditor; and overseeing the reporting process (Fichtner 2010:229; Treadway Commission 1987:187). According to Abu and Jaffar (2020), in Malaysia, the SEC mandated companies to form ACs, that are responsible for planning the internal audit, appointing the external auditor, advising the external auditor on audit issues, and ensuring that financial statements are prepared according to prescribed accounting standards. Thus, it is understood that the formation of ACs reduce the information asymmetric problem associated with the principal and agent relationship (Abu & Jaffar 2020; Fama & Jensen 1983; Jensen & Meckling 1976). In a similar vein, Aldamen, Duncan, Kelly, Mcnamara and Nagel (2012) observed, from prior literature, that the primary role of the AC is to oversee the firm's financial reporting process, the review of financial reports, internal accounting controls, the audit process and, more recently, the entity's risk management practices. Looking at it from the perception of roles, responsibilities

and characteristics of ACs in China, scholars Lin et al. (2008) determined that different groups of stakeholders have accepted the roles and responsibilities of ACs, including improving the image of corporate governance, enhancing communication between the BoD and the auditors, and mediating conflict between management and auditors.

Flowing from the litany of duties and responsibilities of ACs, the point could be made that common boundaries exist in that which professional, technical, and empirical literature ascribed as the duties and responsibilities of ACs. These boundaries are reflective of the similarities in the way that various jurisdictions prescribe AC duties and responsibilities, resulting in countries and institutions mimicking each other by following leading or best practices, across the globe. Thus, these roles and responsibilities, according to Lin et al. (2008), emphasise the underlying importance of ACs, that is derived from the separation of an organisation's executive management and its shareholders (Fama & Jensen 1983; Jensen & Meckling 1976). Yet, the generic nature of the catalogue of AC duties and responsibilities, from different perspectives, points in the direction of institutional isomorphism (Dimaggio & Powell 1983; Meyer & Rowan 1977).

#### 2.5.2 Ghanaian perspective.

In the private sector, the Ghana Stock Exchange (SEC) of Ghana recently issued its Corporate Governance Code, in 2020, that applies to all companies whose securities are admitted to trading on the Ghana Stock Exchange, unless it is exempted (ROG 2020). S 19 of the code outlines the duties of the AC of a listed company as follows: Firstly, the AC must oversee the integrity of the accounting and financial reporting process, with reporting responsibility to the BoD regarding these matters, (refer to s 19(1)). Secondly, the AC is mandated to periodically review its company's financial statements, with particular attention to accounting policies and practices; significant adjustments arising from the audit; the going concern assumption; and compliance with existing accounting standards and legal requirements (refer to s 19(2)). Further detailed, enhancing

responsibilities were bestowed, in terms of s 19(3–7) of the Corporate Governance Code for Listed Companies (ROG 2020:17–19).

Pertaining to the public sector, the duties of the ACs in Ghana are stipulated in s 88 of the PFMA (ROG 2016). S 88(1a) requires that an AC ensures that the head of a CE, to which the AC belongs, follows and implements any recommendations made in the internal audit report, Parliament's decision on the AG's report, AG's Management Letter, and the report of an Internal Monitoring Unit in the CE concerned, particularly in relation to financial matters raised (ROG 2016:52). In addition to these roles and responsibilities, s 88(1b) enjoins the ACs to prepare annual statements, detailing the status of implementation of any recommendations contained in all the reports listed in s 88(1a). In furtherance of s 88(1) of the PFMA, the PFM Regulations (ROG 2019:Reg. 228) stipulate that, in the process of discharging its duties and responsibilities, ACs shall be empowered and entitled to unrestricted access to management, employees and all relevant records, books, vouchers, and other documents relating to the audit report of the CE to which it belongs. The AC can also solicit professional advice from relevant government organisations, when needed. Furthermore, ACs are vested with the investigative authority to probe any matter within its responsibility, and can intervene in any disagreements between management and the internal auditor. At the individual level, the chairpersons of ACs, for instance, are particularly charged to promptly report any suspected case of fraud or misappropriation of public funds to the Principal Spending Officer or the Principal Account Holder responsible for an investigation regarding the matter (ROG 2019:Reg. 228).

These duties and responsibilities, dictated by corporate governance codes, rules, and regulations in various countries, both in the public and private sectors, are analogous to each other, and Ghana's public sector is no exception. The AC picture captured by these reviews, is a reinforcement of the argument that, with time, the establishment of ACs by various countries and institutions has assumed a state of only achieving legitimacy, rather than protecting the stakeholder-interest (Cohen, Krishnamoorthy & Wright 2002). However, this argument was refuted by Gendron and Bédard (2006), who concluded that AC members undertake activities that enhance their oversight role, in the interest of stakeholders.

## 2.6 The Importance of the AC in the Governance Architecture

In terms of the corporate governance roles of the AC in the public sector, the IIA (2014) noted that an AC supports the BoD in executing its oversight duties, by offering objective advice and recommendations to the BoD on whether the organisation's governance, risk management, and internal control processes are suitably designed and working as intended, to achieve the objectives. In this way, the AC helps build trust and confidence in how the organisation is managed (IIA 2014:7). Van der Nest (2008) postulated that ACs have gained wide recognition of being an integral component of control structures, and a governance element in public accountability and governance systems, by improving the integrity of corporate governance in public institutions. Thomas and Purcell (2019) also noted that an AC serves as a mechanism to monitor the executive management team, where self-interest is in conflict with the governance requirements in terms of legislation, societal norms, and public expectations. In this case, Thomas and Purcell (2019) highlighted the self-interest threat posed by a few citizens, who are managing the national resources on behalf of all, but are misappropriating these scarce resources. In another research, Van der Nest et al. (2008) asserted that ACs are critical contributors to improving corporate governance in the public sector. They contended that ACs play a crucial role in ensuring effective internal control and sound governance systems for prudent public sector management and for enabling accountability. According to Van der Nest et al. (2008), where ACs are legislated as accountability mechanisms and empowered to function effectively, it adds value to corporate governance systems in the public sector. Ellwood and Garcia-Lacalle (2016) also noted that ACs

perform strategic roles in enhancing governance, by vertically assuring financial accountability and, further, horizontally giving assurance for accountability to local communities, professional bodies and other stakeholders. Another finding, by Magrane and Malthus (2010), suggested that, despite clear deficiencies in the areas of AC members' independence, competence, tenure and remuneration, that affect their general effectiveness, relaxed networking between AC members and management optimises the realisation of true AC effectiveness. Rich and Zhang (2014) studied the relationship between the presence of municipal, read: public sector, ACs and internal control quality, and found that AC presence performs a crucial role in municipal financial oversight.

In the Ghanaian public sector context, the importance of ACs was highlighted in the Guidelines issued by the Minister of Finance (ROG 2017a) in compliance with s 86 of the PFMA (ROG 2016). It indicated that an AC is a statutory and high-level, independent governance committee in the public sector financial management system. Therefore, to be effective, the AC should have unrestricted access to all information, documents, personnel, and adequate resources to accomplish its responsibilities. This is in line with research on global AC importance, roles, and responsibilities in the public sector (Lin 2018; Coetzee & Erasmus 2017; Lary & Taylor 2012; Wu et al. 2012; Magrane & Malthus 2010; Alleyne, Howard & Greenidge 2006; Vera-Muñoz 2005; DeZoort et al. 2002). It underscores the assertion that ACs are ceremonial governance mechanisms, providing legitimacy to public sector organisations, that comply with governance codes and legislations or with global best practices.

## 2.7 AC Effectiveness

A study of AC effectiveness, as reported by literature, indicated that the discourse on selecting a generic framework to determine AC effectiveness, is yet to be settled (Inaam & Khamoussi 2016; Wu et al. 2012; DeZoort et al. 2002), as different results and findings are reported from similar investigations (Inaam & Khamoussi 2016). This is the case, as empirical and professional discussions continue to express divergent findings concerning variables that constitute the body of AC effectiveness (FRC 2018; KPMG 2013; Wu et al. 2012:16; Bromilow & Keller 2011). Nonetheless, it has been observed that, following the occurrence of numerous high profile corporate governance failures in the early 2000s, that was strongly related to accounting and financial misconduct, the role of the AC and AC effectiveness had become one of the most significant themes in financial corporate governance debates (Oussii et al. 2019; Gendron & Bédard 2006). The following subsections consider literature viewpoints on the determinants of AC effectiveness in the private and public sectors.

# 2.7.1 Private sector perspective.

In an attempt to consolidate the varied viewpoints in the AC discourse, DeZoort et al. (2002) synthesised 55 existing AC studies and designed a framework, considered to be the constituents of an effective AC. They concluded that an effective AC held qualified members with the authority and resources to protect stakeholder-interests, by ensuring reliable financial reporting, internal controls, and risk management through its diligent oversight efforts. They conceptualised the determinants of AC effectiveness to be composition, authority, resources, and diligence (DeZoort et al. 2002:43). Wu et al. (2012) also synthesised AC literature, and identified AC independence and competencies as the two important characteristics of AC membership qualifications that have significantly influenced the attention of researchers. Oussii et al. (2019:675-676) recognised two major streams around which AC roles and effectiveness research evolve. The first is "AC characteristics perspective", that is mostly empirical and inter alia encompasses AC independence, AC financial expertise, AC diligence, and AC authority. The other is "AC processes", that refer to those qualitative studies explaining the processes of AC meetings that contribute to AC effectiveness. Other authors, e.g., Bilal et al. (2018), and Inaam and Khamoussi (2016), used metaanalysis to examine prior literature on AC effectiveness. In this regard, Inaam and Khamoussi (2016) reviewed 58 prior studies, in order to examine whether the differences in the results of AC effectiveness and audit quality literature are related to moderating effects associated with corporate governance mechanisms or earnings management. Their results indicated several, significant, negative relationships with earnings management, regarding the independence of the AC, its size, expertise, and number of meetings. Similarly, Bilal et al. (2018) set out to reconcile the results of 90 studies with 165 529 firm-year observations, in respect of the relationship between AC financial expertise and earnings quality. Their findings, to some extent contradicting that of Inaam and Khamoussi (2016), indicated that AC financial expertise has a positive relationship with earnings quality than non-accounting financial experts. However, a 2017 survey by KPMG (2017b:12) indicated that members of the AC improve their oversight effectiveness when they have a better understanding of the business and the company's key risks.

These examples of divergent views and findings, related to empirical AC literature, emphasise the gap, neccesitating further review in this area, that partially informs the objectives of this study. Drawing an inference from the above synthesis from prior AC literature, it is concluded that AC effectiveness revolves mainly around independence, competencies, diligence, composition, authority, and resources. Other factors are the size of the AC and the frequency of meetings. Para. 2.8 reviews AC characteristics, towards further insight into the conclusion drawn here.

# 2.7.2 Public sector perspective.

The dexterity with which AC research is conducted in the private sector, with emphasis on the importance of various governance characteristics and financial oversight, is much better than the effort towards public sector research concerning the same subject. More so, whereas private sector literature employed AC characteristics in determining AC effectiveness in terms of association, or otherwise, with certain corporate objectives or outcomes (Inaam & Khamoussi 2016; Li, Mangena

& Pike 2012; Goodwin-Stewart & Kent 2006; Lin, Li & Yang 2006), public sector AC literature is concerned with the way that ACs facilitate compliance, or otherwise, with its entities' wider stakeholder accountability requirements and expectations (Akwenye et al. 2016; Ellwood & Garcia-Lacalle 2016; Hegazy & Stafford 2016). As was noted earlier, public sector ACs have an important role to play in the internal control systems of public entities, not only by reducing agency cost, but also in ensuring increased performance on a significant scale. This is critical, as taxpayers and beneficiaries of public services, in general, have vested interests in ensuring that public entities are governed and managed responsibly, with an effective, properly functioning AC (Magrane & Malthus 2010).

At this point, a review of AC effectiveness in several jurisdictions is worth considering, for illustration purposes. In New Zealand, Magrane and Malthus (2010) examined the conditions and processes affecting the operations of public sector ACs, using the AG best practice guideline for ACs as a benchmark, and found that the District Health Boards rates average to well, regarding effectiveness potentials. In this case, it denotes that standards had been set, against which AC effectiveness could be measured, thus institutionalising the performance criteria that, though commendable, has the potential of leading to the danger of "ticking the boxes" by the AC, that could be counterproductive for the stakeholders, in Agency terms. For Namibia (Akwenye et al. 2016), there were no explicit or legislative requirements for the establishment of ACs in government ministries, in 2012, although the Namibian Government's Permanent Secretaries attempted to promote the establishment of ACs, in order to improve internal controls. As a result, out of 17 ministries that were sampled, only two held established ACs. Using the Agency theoretic logic (Jensen & Meckling 1976), Bananuka, Nkundabanyanga, Nalukenge & Kaawaase (2018) attempted to clarify the precise mechanism by which the IAF and AC of a public sector corporation board ensure accountability. They suggested that the IAF is a major determinant of accountability

in a public sector corporation, in Uganda. Surprisingly, Bananuka et al. (2018:139) claimed that AC effectiveness does not exist where internal auditing is present, and that AC effectiveness can only exist, as a major determinant of accountability, when the IAF is absent. In contrast, the analysis by Ellwood and Garcia-Lacalle (2016), of how corporate governance mechanisms, such as ACs, are implemented in public sector entities, showed that ACs play a key role in improving governance, through the audit assurance processes it extends across the different lines of accountability, vertical and horizontal, to wider stakeholders. In the USA, the utilisation of ACs for effective delivery of accountability at local governments, was examined by Matkin (2010b). The results suggested that different indicators influence the establishment of ACs in local governments. The obvious indicators being, to improve financial oversight, comply with public sector regulations, and follow "best practices" directions.

It should be noted that establishing an AC does not necessarily result in its effectiveness in providing the benefits of improved financial reporting and auditing outcome. It is claimed that there is considerable evidence that many, if not most, audit committees fall short of doing what is generally perceived as its duties (Beasley et al. 2009). However, several scholars have pointed out that the presence of an AC is an effective communication tool, signalling to? internal actors that there is a legitimate authority with oversight responsibility hovering over the entity's activities and, therefore, only desirable decisions are to be exhibited (Lammers & Garcia 2017).

Table 1.2 is a synthesis by Bromilow and Keller (2011), who provided detailed perspective of nine thematic areas, its practice areas and corresponding elements, related to that which are expected from the AC, as leading practices of an effective AC. The thematic areas show the key areas the AC must focus on; the practice areas relate to actions that must be taken to achieve the given thematic area; the ingredients or elements area are the objectives or deliverables to be achieved, as a result of AC practice of the given thematic areas.

# Table 2.1: Audit committee effectiveness: What works best

| THEMATIC AREA   | PRACTICE AREA  | INGREDIENTS/ELEMENTS   |
|---|--|--|
| Financial reporting and disclosures   | Supporting audit committee effectiveness in overseeing companies' financial reporting processes  | Understanding the business; staying focused on complex, difficult and riskier areas; materiality; accounting policies; accounting estimates; significant changes during the reporting period; related party transaction; special items; interim financial statements; management disclosures; narrative reporting and transparency; earnings guidance; correspondence with securities regulators; timing |
| Risk management and the system of internal control  | Risks assessment   | Risk management processes; internal controls; incentives and fraud risks; financial reporting fraud risk; bribery and corruption risk  |
| Culture and compliance with laws and regulations<br>which is the soul of corporate governance<br>accountability | AC involvement in an effective corporate compliance<br>and financial reporting culture   | Set tone at the top; compliance and ethics programs: Codes of conduct, conflicts of interest, Whistle-blower- and complaint hotlines   |
| Oversight of management and internal auditing   | Oversight  | Overall relationship with management; management bench strength;<br>meetings with management; defining IA role, IA plan; understanding<br>IA resources; communicating audit results; IA reporting lines; IA<br>leadership; private sessions; evaluating IA performance   |
| Relationship with the external auditor  | Maximising the value added by external auditor<br>relationship in ensuring the integrity of the company's<br>financial reporting process | The reporting relationship; selection, reappointment, replacement, and<br>evaluation of auditors; auditor independence and objectivity; EA<br>scope; audit fees; communication of audit results and insights;<br>management representation letters; private sessions; disagreement<br>with EAs; non-audit services; using other auditors   |
| What to do when things go wrong, especially with financial statement errors and fraud investigations.           | Areas ACs should consider before things go awry  | Error in issued financial statements; investigations involving possible fraud or illegal acts; effective crisis management planning  |
| Audit committee composition   | Key considerations   | Selecting of members; the committee chair; member-attributes, i.e., financial knowledge and independence; committee size   |
| Meetings  | Attributes of success  | Schedule; frequency and duration; agenda; briefing material; participants; private sessions; the chair's role; meeting dynamics; minutes; reporting to board.  |
| Supporting AC effectiveness with charter, evaluation, resources and training                                    | Processes  | Charter; committee evaluation: Individual member assessment,<br>frequency of assessment; resources; training and education: New<br>member orientation, ongoing development   |

(Source: Bromilow & Keller 2011:1–111)

Pursuant to the inventory of AC literature analysed in the review, this researcher argued that the relationship between particular AC characteristics can impact AC effectiveness, relative to achieving or mitigating the risk of corporate beneficial or risky outcomes. The following sub-paragraphs focus on four key AC characteristics, i.e., independence, expertise, size and diligence, that have become part of the rhetoric on communicative tools (Lammers & Garcia 2017:4) of AC effectiveness, according to prior literature (Deslandes, Fortin & Landry 2020; Hassan et al. 2017).

# 2.7.3 AC independence.

From a practitioner's perspective, "independence" is a cardinal attribute of the effective AC, especially when monitoring areas of material judgments and estimates. Complete de facto independence of mind is critical for each member of the AC, in addition to any legally imposed independence requirements. An effective, independent AC is described as one whose members are not employees of, or providers of any services to their organisation, beyond their core duties as members of the AC (IIA 2014:12). Hence, an effective, independent AC is one that excludes current and former employees, relatives of management, and persons receiving compensation from the entity (Poretti, Schatt & Bruynseels 2018:34; Abbott, Parker & Peters 2004:72). According to KPMG (2017a), independence is achieved where members of the AC are proficient at communicating with management and the auditors, and are prepared to dare and ask analytical questions concerning the organisation's risk management and control systems, accounting and corporate reporting. It is also argued that, for an AC to be effective, it must be independent of management (Poretti et al. 2018; Barka & Legendre 2017; Al-Najjar 2011; Bradbury, Mak & Tan 2006), ascribed to the notion that independent ACs are capable of objectively assessing the propriety of the organisation's accounting, internal control, and accounting practices (Abbott et al. 2004).

The extent of AC independence impacts differently on the organisation's objectives and relationships with other governance mechanisms. Lary and Taylor (2012) concluded that, overall,

the total body of AC members need to be independent, competent and diligent, so as to effectively fulfil their multiple duties. Regarding specific corporate desirability, Poretti et al. (2018) found that an independent AC plays a key role in explaining the market reaction to earnings announcement. For instance, Inaam and Khamoussi (2016) noted that the independence of ACs combined with other characteristics have a negative impact on earnings management. Bradbury et al. (2006) disclosed that ACs comprising of a majority of independent members, and especially those with exclusively independent membership, are associated with a lower level of abnormal accruals. It is also asserted that the greater the independence of the AC, the higher the perception that internal audit recommendations will be implemented (Alzeban & Sawan 2015) and, earlier, Krishnan (2005) evidenced a negative association between internal control problems and AC independence. However, it is contended that a fully independent AC is associated with lower firm performance, since the independence of the board itself is reflected by an increase in the economic and equity performance of the entity (Barka & Legendre 2017).

The independence of the AC is important to legislators and regulators, in both the public (IIA 2014) and private sectors (Poretti et al. 2018). For this reason, the laws and codes of corporate governance prescribing the composition of ACs most often include provisions for ensuring the independence of ACs (FRC 2018; ROG 2016; USA 2002). For example, s 87(2) of the PFMA (ROG 2016) emphasised that the majority of members of an AC should be independent members and, also, s 18(1) of the Corporate Governance Code for Listed Companies (ROG 2020) states in part, that independent non-executive directors should constitute a majority of the Committee.

It is important to note that the concept and requirement of AC independence, at both the BoD and individual membership levels, significantly strengthen the root of investor and taxpayer confidence in the organisation, to the extent that it reduces the agency problem. Persons (2009:295) maintained that fraud is improbable once an independent AC has been established, because financial

misreporting or unsuitable commercial dealings are probable indicators that expose unscrupulous managers to the independent ACs. Further, Deloitte (2015:2) asserted that organisations which have independent ACs are supposedly able to find out and deal with financial risk. Nevertheless, this perceived colossal benefit of AC independence may be significantly impaired. This is because, institutionally, the AC is created to operate within well-known arrangements, work schedules, normal political and developing technical, and economic schemes to achieve given assignments (Lammers & Garcia 2017), that the AC may not have the authority to alter.

#### 2.7.4 AC expertise.

The essence of AC member expertise or competence, as an indicator of and contributor to AC effectiveness, is pervasive in AC literature, and holds different attributions and definitions (Bilal et al. 2018; Cohen, Hoitash, Krishnamoorthy & Wright 2014; Ghafran & O'Sullivan 2013; Dhaliwal, Naiker & Navissi 2010). Bilal et al. (2018) noted that the definition of the appropriate expertise required to render an AC effective, remains debatable and inconclusive. The continuing debate on that which constitutes AC (financial) expertise, include the notion of Dhaliwal et al. (2010) that the business and industry orientation of financial experts on the AC balance the "domain-specific" knowledge of accounting, expected to promote accruals quality. Cohen et al. (2014) agreed with Dhaliwal et al. (2010), arguing that, for an AC to be more effective in its financial reporting monitoring process, it is advantageous to have members with industry experience, in addition to accounting expertise. However, Ghafran and O'Sullivan (2013) suggested that, the higher the levels of financial expertise, the higher the audit fees. In this regard, Oussii and Taktak (2018) pointed out that this may be neutralised, as AC financial expertise contributes to AC effectiveness by significantly reducing external audit delays. In their contribution to the financial expertise debate, Albring, Robinson and Robinson (2014) postulated that accounting financial expertise enhances AC monitoring of auditor independence. Supporting this position, Sultana, Singh & Van der Zahn (2015) concluded that accounting financial expertise is the principal form of expertise that impacts earnings conservatism, rather than any other expertise. Later, Bilal et al. (2018) strengthened the accounting expertise point by suggesting that, although AC financial expertise positively impacts earnings quality, accounting financial expertise was increasingly associated with earnings quality. However, it was explained that financial expertise should not be limited to the mere understanding of financial statements. Rather, AC members should be capable of understanding the rules and the principles informing the preparation of the financial statements and the judgements of the auditor. Additionally, financial expertise should be reflected in the way that AC members commit adequate time to understand the reason underlying the selection and application of critical accounting policies, and to satisfy themselves that the end result fairly represents their understanding (KPMG 2017a:35–36). In order to enable control of the inherent risk involved in their ever increasing and complex responsibilities, AC members indicated, in a survey by KPMG (2017b:12), that they also perceived other expertise, such as technology and cyber security, as crucial to greater effectiveness, since it would strengthen their ability to oversee other risk.

Practically, in cases where the establishment of an AC is legislated, the requirements for its composition will normally and categorically provide for the kind of expertise needed on the AC. For example, in the classical case of the USA, s 47(a) of the popular SOX Act require, in part, that the AC of an issuer should comprise at least one member who is a financial expert. S 47(b) of the SOX Act defines a "financial expert" as an individual with education and experience as a public accountant or auditor or a principal financial officer, comptroller, or principal accounting officer, or from a position involving the performance of comparable roles and diverse financial experiences (USA 2002). Juxtaposing the USA situation with the public sector in Ghana, Regulation 224(1) and (2) of the PFM Regulations (ROG 2019) prescribe that a person can only qualify to be appointed a member of an AC, as a financial expert, if they possess a professional expertise and work experience

as an accountant, auditor, or was involved in public financial management. The nature of the professional expertise and work experience are detailed in the Guidelines, with the specifics of the qualifications of potential AC members contained in "Annexure 2: Qualification for Appointment to an Audit Committee". Thus, comparing the requirements for AC financial expertise of the USA and Ghana, with related findings from the literature review, it was concluded that there is an obvious similarity concerning this matter, globally, i.e., mimetic isomorphism.

# 2.7.5 AC size.

According to IIA (2014), for an AC to be effective, it should be composed of members who hold an appropriate blend of skills and experience, pertinent to their responsibilities. The ideal composition of an AC depends on various factors, such as the entity's size, complexity, and responsibilities. In terms of numbers, it was proposed that an AC should generally be composed of three to eight members, with a typical AC consisting of four or five members. It is claimed that, as a general rule, the least number of members of an effective AC is three, and this ensures that an adequate array of skills and experience are obtained for the task (IIA 2014:10). Hassan et al. (2017) commented that an AC that comprises an adequate membership, is likely to strengthen the effectiveness of the AC in executing its oversight and monitoring responsibilities. From prior literature, Hassan et al. (2017) surmised that a large AC offers a greater monitoring function, as it has more members to perform numerous monitoring responsibilities. Furthermore, an AC with a suitable number of members, aids members in using their experiences and expertise in favour of the stakeholders and, at the same time, is able to ascertain and handle possible complications in the financial reporting process. It is also noted that the complexity of matters that confront ACs, especially accounting and financial issues, demand the allocation of adequate director resources in terms of size and competency (Abbott et al. 2004). Thus, the size of an AC influences its effectiveness.

Mostly, the actual size of an AC is prescribed by legislation or standards that relate to corporate governance, either in the public or private sector. For example, the PFMA (ROG 2016:51) requires, in s 87(1), that an AC should consist of five members.

#### 2.7.6 AC diligence.

Another key indicator of AC effectiveness in the literature, is AC "diligence", i.e., the process by which ACs discharge its duties effectively (Deslandes et al. 2020; Hassan et al. 2017; Raghunandan & Rama 2007; DeZoort et al. 2002). From an institutional communication standpoint, AC diligence fits into the rhetorical strategies for managing and attending to organisational participants' domesticated norms, that guide or control behaviour (Lammers & Garcia 2017:4). AC diligence is normally measured by the frequency of meetings, since regular meetings of the AC ensure the proper functioning of the financial reporting process and improved scrutiny of the accounting and internal control architecture (Hassan et al. 2017). The frequency of AC meetings is also deemed an effective mechanism of monitoring management (Deslandes et al. 2020), in fulfilment of its duties on behalf of the BoD. It is observed that the number of AC meetings is the only publicly available quantitative information on AC diligence (Raghunandan & Rama 2007; DeZoort et al. 2002), and that is the reason why regulatory bodies emphasise the necessity of frequent AC meetings (Raghunandan & Rama 2007). Emphasising the importance of AC meetings, (KPMG (2017a) stated that the scheduling of meetings to coincide with important dates regarding the financial reporting and audit cycle, enables the ACs to come to timely and influential decisions. Similarly, allocating sufficient time for meetings is crucial, enabling the committee to deal with all items on the agenda, and to conduct sufficient discussion, so as to allow all parties to pose questions or provide input. There should also be sufficient time for an exclusive AC members only meeting, to discuss issues without the presence of others, in a private session. ACs should also have private meetings with assurance providers without management.

The AC mechanism as a management oversight control measure has been discounted by certain authors (Cohen, Krishnamoorthy et al. 2002), who argued that, in line with institutional theory, ACs are only symbolic mechanisms, that play ceremonial roles rather than an effective agency role. Arguing against this position, Gendron and Bédard (2006) posited that AC members do not perceive their meetings as mere rituals, devoid of interest, instead, they actively participate in activities that would enhance their own dignity by involving themselves in mutually constructive interactions, bearing in mind their individual and collective effectiveness. Thus AC diligence, manifested via the frequent meeting, is in tandem with the AC's fulfilment of its agency responsibility towards stakeholders as, the more the AC interacts with management, the lesser the information asymmetry becomes. Moreover, AC presence in an organisation, through its frequent meetings, has a symbolic and strategic influence on internal participants' perception of the actual enforcement of institutionalised rules and norms, that yield results (Lammers & Garcia 2017). In other words, the legitimacy of the AC is perceived through its diligence, which is the product of adequate and the relevant number of meetings.

# 2.8 AC Characteristics: Determinants of Corporate Governance Effectiveness

AC characteristics have been extensively applied by various authors to express the nature of the AC and other corporate governance factor effectiveness or outcomes (Buallay & Al-Ajmi 2020; Sultana et al. 2015; Aldamen et al. 2012; Li et al. 2012). Hence, AC characteristics are often employed as yardsticks to determine the level of the quality and effectiveness of good corporate governance of an organisation. In this regard, Li et al. (2012) investigated the association between AC characteristics and intellectual capital disclosures and discovered that, overall, intellectual capital is positively related to the size and frequency of AC meetings, but negatively associated with AC directors' shareholding. In a different finding, Aldamen et al. (2012), who investigated ways of enhancing AC characteristics that impact positively on the performance of a firm, concluded that the

size and level of expertise of AC members positively impact the market performance of a firm. Similarly, Appuhami and Tashakor (2017) considered how AC characteristics determine Corporate Social Responsibility (CSR) disclosures in Australian listed companies, and concluded that AC size, frequency of meeting, independence, and gender are significantly associated with the level of CSR disclosures. However, they emphasised that there was no evidence in support of the assertion that either an independent AC chairperson or members' financial expertise influence CSR disclosure in a firm's annual reports. Extending the discussion to the ways that the capabilities of AC characteristics can suitably support sustainable information disclosure, Buallay and Al-Ajmi (2020) disclosed that AC size, independence of members, and meeting frequency significantly positively impact sustainability disclosure, however, AC members' financial expertise negatively and significantly impacted sustainable disclosure. Another perspective was provided by Alzeban and Sawan (2015), who studied the link between AC characteristics and the perception of implementation of internal audit recommendations, and found that internal audit effectiveness is influenced by the independence of the AC, expertise of AC members, the number of AC meetings, and the size of the AC. Also, Barua, Rama and Sharma (2010) examined the association between AC characteristics and the extent of expenditure on internal audit. These scholars pointed out that expenditure on internal audit is negatively related to the presence of auditing experts on the AC and the tenure of members, but is positively associated with regular AC meetings. It was also determined, by Sultana et al. (2015), that AC members with financial expertise, earlier AC experience, and independence of membership are associated with a reduced audit report lag. In terms of the effects AC characteristics can exert on disclosure of Key Audit Matters (KAM), Abu and Jaffar (2020) noted that the number of meetings of ACs negatively impact the disclosure of KAM. They further contended that AC independence and expertise are deemed not to have any significant influence on KAM disclosure.

From the brief review in this section, it is evident that AC size, expertise, independence, experience, and meetings are the main determinants used as proxies in assessing ACs as effective corporate governance mechanisms, with mixed objectives and findings. It is clear from the review that AC literature has come to a point where scholars are using the same characteristics as acceptable parameters within which AC effectiveness could be assessed. This development is interpreted as a kind of institutionalising of the AC concept, mimetic isomorphism, whilst, at the same time, measuring the impact that these characteristics have on reducing the information asymmetry problem between the manager and the stakeholder.

#### **2.8.1** Combined AC characteristics for effectiveness.

In determining AC effectiveness, researchers in the field often create the impression that it is the combined AC characteristics, identified in the preceding section, that play key roles in achieving a given outcome or the objective of the organisation it serves (Oussii et al. 2019). Lary and Taylor (2012) examined the effectiveness of ACs by utilising two quality measures, namely financial reporting and auditor independence. They concluded that the AC, as a unit, need three characteristics, namely independence, competency, and diligence, in order to perform its multiple roles effectively. Similarly, Contessotto and Moroney (2014) asserted that, when external auditors consider AC members' actual effectiveness, they use characteristics related to their independence, resources available to them, and their level of diligence. In terms of achieving a given positive or negative corporate objective, Deslandes et al. (2020) studied the interaction between the application of aggressive tax planning and different AC members' characteristics, and discovered that measures of AC expertise and diligence significantly relate to tax aggressiveness. Thus, the financial expertise and tenure of AC members, together with a large committee size, play a critical role in restraining the tax aggressiveness of a company. Using meta-analysis to synthesise prior literature in relation to the effects of AC effectiveness and audit quality variables in minimising the extent of earnings

management, Inaam and Khamoussi (2016) noted that AC independence, size, expertise and the number of meetings, negatively impact on earnings management. An earlier study by Lin et al. (2006) on the association between AC characteristics, size, independence, financial expertise, and activity, and stock ownership, measured against earnings restatement, being a direct measure of earnings management, suggested that there is a negative association between AC size and the occurrence of earnings restatement. However, they concluded that there is no significant impact between the other four AC characteristics and the quality of reported earnings.

# 2.9 Corporate Governance in Ghana's Public Sector Context

It was deemed imperative that this study focused on the AC and AC effectiveness frameworks within the public sector structure, in Ghana. An approach, similar to that used by Wong (2012), is followed in this section and in para. 2.10. Wong (2012:38–42) provided a perspective on the governance structure of Australia, starting from the Federal Government and narrowing down to Victoria State level, in the public sector. Further, Hepworth and De Koning (2012:4) succinctly noted that the choice of role for an audit committee in the public sector depends upon a number of factors, involving the degree of sophistication of financial reporting, the financial management, and control systems. It also depends on the degree to which managerial accountability has revolved over the distance between the political and the administrative decision-making processes, and the understanding and application of risk management techniques. Additional factors include positive support from the topmost management ranks towards change; the readiness of truly independent and expert persons to become members of audit committees; and the willingness to recommend such persons, other than executive managers, to join the committee.

The above observation exemplifies how complex accountability in the public sector can be, and also justified the use of Agency theory in analysing the oversight responsibilities of the public sector AC in a *multiple-principal-multiple-agent* relationship scenario. Furthermore, it shows how

institutional isomorphism, whether coercive, mimetic, or normative, drives the effective oversight of public institutional management. The following subsections review the Ghanaian public sector's administrative and accountability structures and arrangements.

# 2.9.1 Classification of public sector organisations.

The Constitution (ROG 1992) classifies public sector organisations, under Article 190(1), as public services. Thus, public sector organisations in Ghana comprise the Civil Service; the Judicial Service; the Audit Service; the Education Service; the Prisons Service; the Parliamentary Service; the Health Service; the Statistical Service; the National Fire Service; the Customs, Excise and Preventive Service; the Internal Revenue Service; the Police Service; the Immigration Service; and the Legal Service. The list also include public corporations, other than those set up as commercial ventures, public services established by the Constitution, and such other public services as Parliament may, by law, prescribe. The PFMA (ROG 2016), s 102 (Interpretation), refer to these type of institutions as "covered entities". CEs are subject to audit by the AG of Ghana, whose recommendations the ACs are required to implement. These state organisations play important roles in the areas of maintaining law and order; facilitating economic development and optimal use of resources; ensuring equitable distribution of such resources, in order that the citizens can live a quality of life that can be sustained; maintaining a good image of the country; assisting the government in the formulation and implementation of national policies; facilitating regional and global integration; and mobilising revenue for national development. The responsibilities imposed on these state organisations and its managers, position it in an Agency relationship with the citizenry, who are the key beneficiaries of its services. This is where the efficiency of the AC monitoring responsibility is important (Fama & Jensen 1983; Jensen & Meckling 1976).

## 2.9.2 Appointment and responsibilities of governing boards and councils.

According to Article 70(1)(d)(iii) of the Constitution, "the President shall, acting in consultation with the Council of State, appoint the Chairmen and other members of the governing bodies of public corporations" (ROG 1992). Further, Article 190(3)(a) states that, subject to the provisions of the Constitution, an Act of Parliament, enacted by clause (1) of this article, shall provide for the governing council, for the public service to which it relates. Similar to the BoD of any corporate entity, globally, especially in Africa (Bananuka et al. 2018; Nakpodia, Adegbite, Amaeshi & Owolabi 2018; Akwenye et al. 2016), the responsibilities of a public sector organisation's Board/Council in Ghana include providing leadership for the attainment of the organisation's vision, mission, values and structure; approving the strategic plan, annual budgets and other relevant documents; and submitting statutory and other periodic reports to the appropriate officer. Other areas of responsibility are policy formulation and monitoring; risk management; management oversight; and ensuring compliance with the applicable laws and regulations of Ghana, e.g., ensuring that the organisation discharges all contractual obligations in line with the Public Procurement Act 663 of 2003 (ROG 2003b). The Board or Council is also responsible for the appointment of key officers and other staff; ensuring regular internal and external auditing of the business transactions and financial statements of the organisation; and enforcing the implementation of audit recommendations. In addition, Boards are mandated to ensure the development of appropriate Human Resource Management systems, policies, procedures, and practices to promote high productivity.

S 90 of the PFMA (ROG 2016) prescribe the responsibility of oversight of local government authorities and public corporations, by declaring that the governing body of a public corporation or state-owned enterprise shall establish and maintain policies, procedures, risk management and internal control systems, and governance and management practices. This is to ensure that a particular public corporation or state-owned enterprise manages its resources prudently and operates efficiently, in accordance with the objectives for which the public corporation or state-owned enterprise was established (ROG 2016).

## 2.10 Audit of Public Accounts in Ghana

It is acknowledged in the literature (refer to 2.5) that the cardinal responsibilities of an AC include ensuring the quality of financial reporting and the oversight of the audit processes (Cassell, Myers, Schmardebeck & Zhou 2018; Beasley et al. 2009; Krishnamoorthy et al. 2002). The external audit of public accounts in Ghana is legislated in terms of the ASA (ROG 2000), in accordance with Article 187 of the Constitution, whilst the internal audit is legislated under the IAA (ROG 2003a). This section briefly reviews the provisions of these two statutes, relative to AC oversight functions.

## 2.10.1 Ghana public external audit requirements.

The original mandate to audit the accounts of public institutions or CEs in Ghana, is vested in the AG, refer to Article 187(1) of the Constitution of Ghana (ROG 1992). Specifically, Article 187(2) of the Constitution stipulates that:

...public accounts of Ghana and of all public offices, including the courts, the central and local government administrations, of the Universities and public institutions of like nature, of any public corporation or other body or organisation established by an Act of Parliament shall be audited and reported on by the Auditor-General.

S 18(2)(a) of the ASA, furthermore, require the ARIC, now referred to as the AC, in the PFMA (ROG 2016), to ensure that the Head of a CE pursues the implementation of matters in all audit reports, as well as the AG's reports, endorsed by Parliament, as well as financial matters raised in the reports of internal monitoring units in the covered entity. Additionally, ss 18(b) mandates the AC to ensure that the Head of the CE "annually prepares a statement showing the status of implementation of recommendation made in all audit reports as well as the Auditor-General's reports

which have been accepted by Parliament and any other related directives of Parliament". The PFMA (ROG 2016), s 84, compels the AG to examine and audit the public accounts submitted in terms of the PFMA, in accordance with Article 187 of the Constitution and the ASA, within six months after the end of each financial year.

### 2.10.2 Ghana public sector internal audit requirements.

The objective for the establishment of the Internal Audit Agency (ROG 2003a) is to co-ordinate, facilitate and provide quality assurance for internal audit activities within the MDAs and MMDAs in Ghana, refer to s 2 of the IAA. To achieve this objective, s 16(1) and 16(2) of the IAA (ROG 2003a) call for the establishment of an IAF in each MDA and MMDA, as an integral part of the MDA or MMDA, with personnel appointed, as required, to ensure effective and efficient internal auditing of the MDA or MMDA concerned. An IAF so established shall, in accordance with s 16(3) of the IAA (ROG 2003a), and standards and procedures provided by the agency, carry out an internal audit of its MDA or MMDA, and shall submit reports on the internal audit conducted to the Director-General of the agency and other authorities, as required by law. Further, s 16(8) of the IAA mandates the ACs of MDAs and MMDAs, as established in terms of s 30(1) of the ASA, to be responsible for the implementation of the recommendations of the internal audit reports. These provisions of the roles of ensuring that the internal audit recommendations are implemented, efficiently legitimatises the presence of ACs at all levels of the MDAs and MMDAs, as the citizenry expects the ACs to exert the authority vested in it, as agents of the state clothed with oversight, to be exercised for a common benefit.

It is important to consider the above provisions concerning the relationship between the AC and IAF from the extant literature perspective. Research results suggest a reciprocal, significant, positive relationship between the IAF and the AC, in ensuring good corporate accountability in both publicand private sector organisations (Bananuka et al. 2018; Coetzee & Erasmus 2017; Khelil, Hussainey & Noubbigh 2016; Alzeban & Sawan 2015). Bananuka et al. (2018:140) indicated that an IAF, that has a specific obligation to review internal control systems, ensures compliance with regulation, and risk management enhances accountability. In a similar vein, an AC with a clear mandate to review corporate accounting information and that works closely with external auditors, are able to augment accountability in its organisations. Erasmus and Coetzee (2018) also argued that, if the AC deem the IAF effective, then the AC will depend on the assurances provided by the IAF and, through this, strengthen the AC's accountability role in the organisation. In this way, the challenges of poor governance and insufficient accountability, especially in the public sector, could be diminished. In the same regard, Khelil et al. (2016:2) stated that an IAF that receives strong support from the AC is likely to be more objective and powerful in the implementation of controls, permitting the internal auditor to confront all forms of conflict that distract ethical behaviour. Thus, an effective IAF can assist ACs with assurances regarding controls; independent evaluation of accounting practices and processes; risk analysis; and fraud analysis and special investigations (Barua et al. 2010). Prior to these findings, Sarens, De Beelde and Everaert (2009) suggested that, in addition to the IAF's traditional assurance role, its involvement in improving internal controls provides a significant level of comfort to the AC. In effect, the internal auditors' exclusive knowledge of risk management and internal control, combined with appropriate interpersonal and behavioural skills, enables them to provide the desired comfort to the AC. Moreover, the IAF's internal position, familiarity with its organisation, as well as its closeness to people all over the organisation, facilitate internal auditors being a major source of ease to the AC. The important symbols of this comfort, according to Sarens et al. (2009), include formal audit reports and presentations, together with informal contacts with people in the organisation.

#### 2.11 Summary of the Chapter

This chapter explored extant literature (professional, technical, legislative and academic) on the concept of the AC and AC effectiveness, as a process of contextualising the study, with the main objective to construct a framework for enhancing the effectiveness of ACs in Ghana's public sector. The theoretical perspective facilitating analysis and elucidation of the AC concept, comprised Agency theory and Institutional theory. The literature review revealed that the concept of the AC originated in the USA in the late 1930's, in response to corporate scandals resulting from managers' (agents) betraval of trust reposed in them by shareholders (principals). Thus, the AC was to mitigate the negative effects of the information asymmetry problem created between the owner (principal) and the manager (agent) of an enterprise. For the private sector, the AC is a committee of the BoD, that represent the shareholders, with oversight responsibility of the managers of an enterprise. Even though the objective of the study concerned public sector organisations, private sector literature presented the majority of the review, owing to the limited literature pertaining to the public sector. A study of literature also revealed that the public sector adopted the AC concept as a good governance mechanism, to deal with issues of accountability and transparency, as compared to shareholders' interest of wealth maximisation, in the private sector.

Over time, ACs have assumed an important position in the governance structure of an organisation, whether private or public, with similar make-ups, i.e., exhibiting institutional isomorphism in several roles and characteristics. Accompanying this important position, are a myriad of duties and responsibilities, including financial oversight, and the monitoring of risks that confront the organisation and the audit process. To be effective in its duties and responsibilities, an AC should be properly constituted, resourced, authorised, and be diligent. The AC must also possess certain characteristics for it to be, and be perceived as being, effective. Key amongst these characteristics are independence, expertise, size and diligence.

As in other parts of the world, such as the USA and UK, ACs are currently established in all Ghanaian public sector organisations/CEs, in terms of s 86 of the PFMA (ROG 2016). This Act, together with related Acts, regulations, and guidelines forms the central reference literature in the review of AC literature regarding the public sector in Ghana.

### **Chapter 3**

# Methodology

#### **3.1 Introduction**

This chapter describes the architecture of the research methodology and methods adopted for this study. The research paradigm will be discussed first, followed by the research design, methodology, methods, and sampling. The main methodologies used were IQA focus groups, and a survey questionnaire with open-ended fields for respondent commentaries.

### **3.2 The Research Paradigm**

A "paradigm" in research refers to synchronised generalisations, beliefs, and values of a community of experts, relating to the nature of reality and knowledge (Kaushik & Walsh 2019). It is also referred to as the "worldview" (Creswell & Clark 2017), that describes the manner of thinking and making sense in connection with the complexities of the real world situation (Patton 2002). Various paradigms build and establish contemporary research, including positivism, postpositivism, constructivism, interpretivism, participatory action frameworks, or pragmatism, that are mainly philosophical (Kankam 2019; Morgan 2007). In this study, the constructivist- and interpretivist paradigms are adopted, where participants, in focus groups and via follow-up questionnaires, interrogate the phenomenon of AC effectiveness, whilst the researcher interprets finding through inductive reasoning.

The elements of the paradigm that defines a particular research perspective, are the axiological, ontological, epistemological, methodological and rhetorical perspectives (Erickson 2011). The "axiological" perspective of a study is the belief concerning the role of values and morals in the research work (Erickson 2011). Hence, the axiology of a study concentrates on ethical reflexions regarding the research procedure (Saunders, Lewis & Thornhill 2012). The axiology of this study

follows UNISA's ethical policies for research, that is explained below (refer to 3.9). The "ontological" perspective of a study relates to the assumptions concerning the nature of reality (Erickson 2011). In this study, the nature of reality was constructed using the perspective of various stakeholding participants in focus group sessions and validation questionnaires, to interrogate the specific phenomenon, i.e., AC effectiveness in Ghana's public sector. According to Denzin & Lincoln (2011), this method of building realism from participating stakeholders' perspective is referred to as constructivism. The "epistemological" perspective refers to the worldview regarding the nature of knowledge and how knowledge can be known (Roberts & Wills 2019; Goldman, Turner & Meaghan 2018). Thus, it is the assumptions concerning the ways through which we know the world, how we gain knowledge, and the relationship between the knower and the known (Erickson 2011). This study used an interpretivist epistemology (Denzin & Lincoln 2011), signifying that the phenomenon under study will be constructed and interpreted by the participants and, then, formulated by the researcher from the participants' perspective (Berryman 2019; Denzin & Lincoln 2011). The "methodological" perspective is the common viewpoint of the finest way by which knowledge is gainined about the world (Berryman 2019; Roberts & Wills 2019; Erickson 2011). For this study, a qualitative methodology was adopted and applied, since the study was based on constructivist-ontology and interpretivist-epistemology. The "rhetorical" perspective concerns the shared understanding of the language of the research (Erickson 2011). The rhetoric of this study included the language and terminology used by ACs and its stakeholders, to construct and define the factors (affinities) that constitute AC effectiveness. Such terminologies were constructed at the focus groups sessions organised for the two groups, namely AC members and other stakeholders. The rhetoric used in this work also included terminologies employed by the researchers in similar disciplines. IQA terminologies have also been extensively adopted as the rhetoric of the study. English (UK) was the lingua franca of all interactions.

# 3.3 Research Design

According to Creswell (2014) research designs are investigations that are classified into three categories, known as qualitative, quantitative, and mixed methods, that offer detailed routes for measures in research. The research design was aimed at achieving the research objectives outlined in para. 1.3, chapter 1. As indicated earlier, the research design for this study was qualitative, with the objective of constructing a framework for the effectiveness of ACs in Ghana's public sector. Erickson (2011) explained that qualitative investigations seek to uncover and describe, narratively, what specific people do in their lives and what their activities signify to them. This study dealt with AC effectiveness from the perspective of AC members, and those who interact with them in official capacities concerning their performance. Thus, the qualitative research design adopted in this study was phenomenological, in that the focus group participants described, analysed and interpreted their lived experiences, as AC stakeholders (Creswell 2014; Erickson 2011). Figure 3.1 depicts the conceptual framework of the research design for this study.

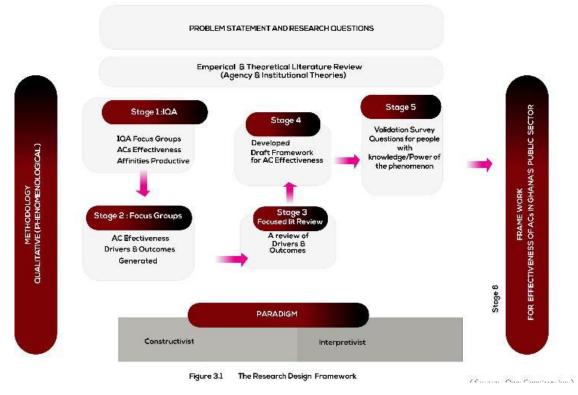


Figure 3.1 Research design framework

(Source: Own construction)

At the top of figure 3.1 a recap of the research problem statement is presented, as well as the main research question developed in chapter 1, paras 1.4 and 1.6, respectively. Directly below that a flashcard of the empirical and theoretical literature review of the study, is mounted. The methodology and paradigm of the study are also outlined. The other aspects of the research design's conceptual framework shows the exploratory phase of the IQA focus groups, that identified the factors (affinities) that influence AC effectiveness in the Ghanaian public sector (Stage 1: refer to 3.7 & 3.8.2). Also key, are the findings of the focus groups that provided the primary driver, main influencer of other factors, and secondary drivers, secondary outcomes and primary outcomes, factors being influenced by other factors (Stage 2: refer to 3.8.4). As these factors formed the basis of the ultimate framework in enhancing AC effectiveness (mainly the driving influences), a focused

literature review is presented in chapter 5, on the findings of the focus groups (Stage 3: refer to 3.9). The product of the focus groups findings (stages 1 & 2) and the focused literature review (Stage 3) were then used for the development of a draft framework for AC effectiveness (Stage 4). The draft framework was then presented to authoritative and knowledgeable participants in a validation survey questionnaire, to legitimise the proposed actions (Stage 5: refer to 3.10), following which the final framework was developed (Stage 6).

# 3.4 Population of the Study

The "population of a study" is the complete set of units that possess certain, common characteristics, defined by the researcher, in respect of which the research data is collected (Mohajan 2018; Goodrick 2014). The target population of this study consisted of AC members and key AC stakeholders in Ghana's public sector institutions or CEs, as defined by the ASA (ROG 2000) and the PFMA (ROG 2016). Further, the population was limited to AC members and stakeholders in the CEs that were accessible to the researcher, irrespective of geographical distance, via technological (online) proximity. These were participants who, after determining that they satisfy the conditions for inclusion, agreed to be available, in terms of time and contribution, by participating in the research. An accessible population is that portion of the target population that the researcher finds logically accessible, and may be a subset of the target population (Alston & Bowles 2020; Pandey & Pandey 2015). Porter (1999) justified the use of this approach by observing that where a rare target was the centre of a suggested phenomenological study, it was crucial to promote the size of the population, that was both eligible to participate and accessible to the researcher. In this study, participants were selected from ACs in designated CEs. As public sector ACs have similar characteristics, mandates, and a regulatory framework in Ghana, it did not matter which CE was included in the population. The findings of this study are therefore transferable to other ACs of CEs

in Ghana, since the situations and conditions were sufficiently similar to other environments (Krueger 1998).

There were two categories of participants for the focus group segment of the study, i.e., providers (supply side) and consumers (demand side) of the AC services. The providers were the AC members of selected CEs. The selection of this group was by virtue of their expert knowledge and experiences gained from their training and practice as members of the various ACs, and understanding of AC operations. The demand side-participants comprised directors and managers of purposively selected CEs, who are technocrats or bureaucrats with rich experiences of the operations of ACs (the phenomenon). This group was selected as they were the direct beneficiaries or subject of the AC phenomenon, whose interests, in diverse ways, were affected by the AC's level of efficiency. They were therefore able to determine the efficiency of the AC, from the services they received.

## 3.5 Research Methodology

A research methodology assists the researcher to understand the various stages, mostly espoused in reviewing the research problem, relative to the judgement supporting those stages (Kothari 2004). Thus, "methodology" is the lens via which the researcher explains the type of methods used in dealing with the research questions, to achieve the best effect for the objectives (Miles, Huberman & Saldana 2014). The primary methodology applied in this study was qualitative, following and adapting Northcutt and McCoy's (2004) IQA (refer to 3.6). It is acknowledged, by certain authoritive scholars, that qualitative studies are vulnerable to criticism, as they usually do not proceed with a fixed design (Katz 2015). However, IQA, as a qualitative method, is a structured way of designing qualitative research, by using focus groups to generate a systematic demonstration of a phenomenon, from participant knowledge of the phenomenon under study (Bargate 2014). This study investigated AC effectiveness from the perspective of the members of selected ACs, and the users of these ACs' services. The study, therefore, extracted knowledge based on constructivist and interpretivist approaches to acquiring knowledge from human experience (Roberts & Wills 2019; Goldman et al. 2018; Denzin & Lincoln 2011). The qualitative methodology was selected as it opportuned the researcher to gather information from people with diverse backgrounds, concerning actual experiences and practices of AC work. Importantly, the collection of the opinions or viewpoints of participating stakeholders improved the understanding, and cognitive as well as behavioural perspectives from which AC effectiveness was to be enhanced, in Ghana's public sector. The descriptive nature of qualitative research required that the researcher consciously undertook a thorough data collection process, leading to flawless interpretation of the findings and providing relevant recommendations (Mohajan 2018; Gentles, Charles, Ploeg & McKibbon 2015; Creswell 2014). The application of IQA (Northcutt & McCoy 2004) as a specific methodology was deemed appropriate for this study and is explained in subsequent sections.

## **3.6 Research Methods**

The research methods that were applied in this study commenced with an exploratory phase. As an exploratory study, the researcher started off with a broad idea, and employed this research approach as a means to categorise issues that could be the focus of the literature review or future research. The exploratory approach was in tandem with qualitative research methods, that do not always reveal any assured research outline at the beginning of data collection (Yin 2016). In this vein, there was an initial familiarisation interaction with certain key stakeholders, including the AC secretaries and AC members of designated CEs, on the phenomenon under review. This informed the decision to use focus groups in data collection, by applying the IQA method (Bargate 2014; Human-Vogel 2006; Northcutt & McCoy 2004). The main reason for choosing this method was that IQA ensures that the voices of the participants (in this case AC members and their beneficiaries) are valued and complement the voice of the researcher (Bargate 2014). Hence, the voices of the participants to the focus groups constituted the data, that was inductively analysed to identify those factors that impact the effectiveness of ACs in Ghana's public sector (Yin 2016). A single question was formulated (refer to 3.8.1), based on the primary objective of the study (refer to 1.3), that the group participants discussed. This allowed for those influences that make ACs effective within the context of Ghana's public sector, to be identified. The factors identified by the focus groups (refer to *affinities* in chapter 4), formed the basis to discuss the specific issues, in a focused literature review, represented in chapter 5 (Bolderston 2012; Williams 2007). The data generated from the focus groups sessions and the focused literature review served as tools, that were used to draft a framework that have the potential to enhance the effectiveness of ACs in Ghana's public sector. In order to obtain credibility for the draft frameworks, it was presented for scrutiny via a questionnaire directed at experts and practitioners in AC phenomenon (Bolderston 2012). Thus, multiple sources were utilised in data collection, in a methodological process and triangulation (Amin et al. 2020; Alexander 2018) of data, that was important for the credibility and trustworthiness of the research findings.

The researcher analysed and interpreted the qualitative data that was collected from the two focus group sessions. Data analysis was an attempt by the researcher to summarise collected data in a dependable and accurate manner, that did not have a propensity of deniability by participants. Thus, in analysing the data for this study, the researcher engaged in the process of thoroughly scrutinising and organising the focus group (refer to chapter 5) and survey questionnaire data (refer to chapter 6), researcher notes, and other textual and non-textual materials accumulated both manually and electronically, so as to increase the appreciation of the phenomenon of AC effectiveness (Wong 2008). Conversely, in interpreting the rich data that was collected and processed, an effort was made by the researcher to find meanings in the analysed data, and to answer the question as to the implications of the findings for the research objectives. Thus, whilst the participants defined and constructed the rich data in the focus groups (refer to chapter 4), the findings of which were validated

via the survey questionnaire (refer to chapter 6), the researcher was responsible for collecting, analysing, and interpreting the data from multiple sources.

## 3.6.1 Sampling method.

The sampling method applied in the study was "purposive", a non-probability sampling technique that is most effective amid the need to study a phenomenon, in this case the AC effectiveness, within a certain, knowledgeable domain (Tongco 2007). The purposive sampling was adopted, owing to the need for specialised knowledge and expertise, as well as the rich experiences to be sourced from participants. The sample size for this study, for the IOA segment, was divided into two focus groups (refer to table 3.1), namely (1) the AC members of CEs in Ghana; (2) the Directors of Finance (DoF) and IA, and Secretaries to ACs of the selected CEs, who work in a role that is directly connected with ACs (stakeholders). Refer to para. 3.6.2 and table 3.2 for further analysis of the profile of focus group participants. This approach denoted that participants with the relevant knowledge and required information and contribution participated in the two focus group sessions (Mohajan 2018; Williams 2007). The principles for selecting the participants were grounded on participant knowledge of ACs in CEs (Katz 2015; Northcutt & McCoy 2004). The participants selected provided relevant information, from their rich knowledge and individual viewpoints (Parker, Scott & Geddes 2019; Shenton 2004). As aforementioned, the data generated by the focus group sessions informed a further, focused literature review (refer to chapter 5) following which two draft frameworks were constructed, with the objective of achieving the main aim of this study (refer to table 5.7.1 and table 5.7.2).

| Session       | Description                 | Relevance                |
|---------------|-----------------------------|--------------------------|
| Focus group 1 | Mandated members of ACs     | See the Guidelines (ROG  |
|               | (supply side).              | 2017a); PFMA (ROG 2016); |
|               |                             | the PFM Regulations (ROG |
|               |                             | 2019).                   |
| Focus group 2 | Stakeholders of AC (demand  | See the Guidelines (ROG  |
|               | side) e.g., CEOs of CEs,    | 2017a); PFMA (ROG 2016); |
|               | Finance Officers, IAF Head, | the PFM Regulations (ROG |
|               | the AC Secretaries.         | 2019).                   |
|               |                             |                          |
|               |                             |                          |

Table 3.1: Focus group participant classifications for the IQA

(Source: Own compilation)

Ultimately, 31 members participated in the focus group segments. Focus Group 1 consisted of 15 participants, and Focus Group 2 consisted of 16 participants. These numbers, in respect of a normal focus group, appeared to be larger than standard numbers suggested in literature (Lazar, Feng & Hochheiser 2017:187). Views differ regarding the optimal focus group size, with certain scholars advocating between eight and 12 participants, and others suggesting reduced groups of five to seven participants as appropriate for detailed conversation (Lazar et al. 2017:187). However, as this study used an online platform for the focus groups, it enabled more than the usual participants to attend, and no issues were encountered that are usually associated with physical face-to-face sessions (refer to 3.6.2 for further discussion).

To obtain credibility for the draft AC effectiveness framework, an online survey questionnaire, with a field for optional comments, was designed and administered (refer to 3.6.4.2). The sampling method used for the questionnaire, was the snowball sampling approach (Parker et al. 2019; Buchbinder 2011). Snowball sampling or chain-referral is a method of sampling in qualitative research, the core characteristics of which are networking and referral. In this method, the researcher

starts off with a few identified individuals, who are suitable in terms of the research objectives and who are willing participants to the research. Therefore, the existing participants to the two focus group sessions were the first line of contact, with regard to the questionnaire. They were requested by the researcher to recommend other acquaintances, who possess valuable knowledge and experience of the research phenomenon, and who were potentially willing to participate and contribute to the research (Parker et al. 2019). The result of this process led to the discovery of individuals who had power, knowledge and experience as AC practitioners, who participated in the validation questionnaire segment (refer to 6.2).

In determining the sample size for the survey questionnaire phase, the researcher was guided by the reasoning that when the sample size of a qualitative study was set very high and therefore a large amount of data was collected, the data results turned out to be repetitive and, ultimately, redundant (Mason 2010). Thus, this study maintained the concept of saturation in qualitative research. The point of saturation is the point at which the collection of additional data does not produce any further or new, significant information concerning the phenomenon under investigation (Mason 2010). Saunders et al. (2017) discussed a number of the complexities of the concept of saturation, and noted that saturation is generally assumed to indicate that, in view of the data that have already been collected or analysed, additional data collection and/or analysis have become redundant. Guest, Bunce and Johnson (2006) pegged the point of saturation at the first 12 participants. Similarly, Hennink and Kaiser's (2022:2) guidelines indicated that a sample size of 12 to 13 completed survey questionnaires, in the form adopted in this study, was deemed appropriate and sufficient to reach data saturation in a qualitative study. Therefore, this study followed the standard set by Guest et al. (2006) and Hennink and Kaiser (2022) when administering the survey questionnaire, where the researcher was vigilantly attentive to the point of saturation, when questionnaire participants neared the number 12 (refer to 3.8.1 & 6.1.1).

It may be argued that the sample sizes for the focus groups sessions and the questionnaire were too small, taking into consideration the large number of CEs with ACs, in Ghana. However, Gentles et al. (2015) argued that, unlike in quantitative research, where large sample sizes are needed to produce statistically exact results, in qualitative research, as in the case of this study, smaller sample sizes are sufficient. The reason attributed to this is that the overall aim of sampling in qualitative research is to gather data that is suitable for the interpretation of the intricacy, depth, variation, or context involving the phenomenon, rather than to represent a population, as in quantitative studies (Gentles et al. 2015).

#### 3.6.2 Focus groups approach.

A focus group is a cluster of people with common experience, who work or live in a given organisation, or share a common background (Du Preez & Du Preez 2012; Wyatt 2010). As such, focus groups are constituted as a clusters of individuals, having different views and know-hows of a given phenomenon of investigation yet in judgement, admit to a mutual standpoints about the phenomenon (Blanche, Durrheim & Painter 2006; Northcutt & McCoy 2004). In a focus group scenario, the researcher is an active listener of the focus group constituents and learns from the group, that is likely to generate fresh lines of communication and idea construction between the researcher and the constituents (De Vos, Strydom, Fouché & Delport 2011). It is suggested that the researcher should first contemplate commonalities, rather than the differences, when designing the composition of the focus group, though consideration should be given to the suggestion by Cohen, Manion and Morrison (2000), that the specific constituents of a focus group must, as much as possible, be made up of people who are strangers to each other. IQA data collection and analysis methods are designed to gather knowledge from members of a discipline, in order to solve problems and improve procedures, similar to the approach of the Total Quality Management (TQM) method (Bargate 2014; Northcutt & McCoy 2004). One key TQM supposition is that persons who are close to the job are better placed in terms of understanding it, what is not right and how to fix it (Sashkin & Kiser 1993). In a similar vein, IQA data collection techniques assist members of a group close to a phenomenon of interest in describing and categorising their experiences, and in articulating perceived relationships amongst these experiences, so as to produce a theory in perception or a conceptual map, that is a systems representation of how a person or a group understands a particular phenomenon (Northcutt & McCoy 2004).

The following processes were used for the focus group sessions data collection:

1) Focus groups constituents were identified as **Group 1**, consisting of 15 AC members of selected CEs (the supply side), and **Group 2**, comprising 16 key stakeholders from the selected CEs (the demand side). Refer to table 3.2 for a breakdown of the profile of focus group participants.

2) A preliminary meeting was convened with the Secretaries of the ACs of the selected CEs, individually, to discuss the intention of including their ACs' stakeholders in the study's focus groups. It is worth noting that in every CE with an established AC, there is an AC secretariat that coordinates the activities of that AC. The secretariat is manned by a dedicated senior officer who serves as the secretary to the AC. A request was made, via the secretaries, to contact the identified participants and inform them about the intended online focus group sessions.

3) A permission letter, to conduct the research, was then officially sent to the head of each CE (refer to annexure 2 for a sample of the permission letter), which was approved (refer to annexure 6 for an example of an approval letter received from one CE, in order to conduct the research).

4) Thereafter, participants' contact details were obtained through the AC Secretariat (or research unit, where applicable) of the selected CE.

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5) Invitation letters were sent to individual participants, either by email or WhatsApp messages (refer to annexure 3 for a sample of the invites). These invites were accompanied by a "Focus Groups Participants Information Leaflet" (refer to annexure 4) and an "Informed Focus Groups Participant's Consent Form" (refer to annexure 5), as attachments.

6) A facilitator, an Educational Psychologist, was appointed, and a meeting was conducted with them, in order to plan the focus group sessions. It was agreed that the focus group sessions should be conducted online, using a combination of Zoom and Miro technologies. This medium of meeting was deemed appropriate, on account of the geographical location of participants, that was internationally dispersed.

7) The invitations indicated the purpose, date and medium (i.e., online, via Zoom) of the focus group sessions, and the role the participants were required to fulfil during the focus group sessions. The internet link to the Zoom meeting was also provided, along with an instruction to sign up to MIRO via its web page, on their devices, prior to the meeting date.

8) The online focus group meetings took place on 15 September 2022 for Focus Group1, and on 16 September 2022 for Focus Group 2.

9) To ensure the expected participation, the researcher followed up on the invitations and telephonically contacted individual participants two weeks prior to the meeting, to introduce themselves and, also, one day prior to the sessions, as a reminder. Reminders were also sent via WhatsApp messages prior to and on the morning of the day of the online meeting. Certain participants had to again be called and reminded to join, when the meetings started.

10) On the day of the meeting, the facilitator and the researcher met online, to test the systems, 30 minutes ahead of the appointed time. Another 30 minutes was used to orientate participants on the use of the MIRO technology, and to allow those who had not signed up, to do so.

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To ensure optimal group functioning for the focus group sessions, the four principles, namely procedure, interaction, content, and recording proposed by Blanche, Durrheim and Painter (2006), were applied. *Procedure* related to the set of rules that all the stakeholders in the group session had to agree on, prior to and at the start of the session. These rules set out the "do's" and "don'ts" for members. *Interaction* involved the interpersonal rapport that was generated amongst participants during the session. Interaction is a function of a focus group, as it empowers constituents to express their perspectives on the subject matter. Care was taken to avoid any discrimination or intimidation of any group member by a dominant person, especially as the sessions were online. It was important to ensure that, in order to allow all participants independence of thought and action during group session discussions. Content referred to the research questions and the subsequent deliberations emanating from it. Steps were taken to ensure that the facilitator kept the discourse on track, to elicit optimal benefit from the group within the stipulated time and the IQA mandate. Recording referenced the arrangements by the researcher to record proceedings during the focus group sessions. The MIRO technology was used for the axial and deductive coding of the sessions (refer to chapter 4).

As intimated, IQA is a systems approach to qualitative research, that attempts to advance upon phenomenology in a study (Northcutt & McCoy 2004). The IQA uses focus groups to produce a systematic representation of a phenomenon, in this study, an enhanced AC effectiveness, from participant experiences. It was selected for use in this study, as the processes involved are useful for quick referencing in the step-by-step methodology offered, and for its flexibility of application, as seen in the work of Bargate (2014), Human-Vogel (2006), and Wyatt (2010). The following subsections explain the relevant phases of the IQA process that were applied in this study.

|                            | FOCUS GROUP 1:                  | FOCUS GROUP 2:                |
|----------------------------|---------------------------------|-------------------------------|
| DESCRIPTIONS               | External Audit Committee        | Stakeholders of AC            |
|                            | Members                         |                               |
| TOTAL PARTICIPANTS         | 15                              | 16                            |
|                            | Chairs: 6                       | CEO/Chief Director: 2         |
| Status on Audit Committee  | Others AC Members: 10           | Secretary: 2                  |
|                            |                                 | Director of Finance: 5        |
|                            |                                 | Head/Internal Auditor: 4      |
|                            |                                 | Presiding member (MMDA): 3    |
| Locus of Representation on | ICAG: 12                        | Secretary Rep CE: 2           |
| the Audit Committee        | Internal Audit Agency: 3        | Presiding member (MMDA): 3    |
|                            |                                 | Management of CE: 11          |
| Number of Years of Work    | Average years all members: 12   | Average years all members: 14 |
| Experience                 | years                           | years                         |
| Highest Academic           | PhD: 2                          | MPhil/MSc/MA: 10              |
| Qualification              | MPhil/MSc/MA: 9                 | Bachelor Degree: 6            |
|                            | Bachelor Degree: 4              |                               |
| Professional Qualification | CAG: 12                         | CAG: 9                        |
|                            | None: 3                         | None: 7                       |
| Current Work Place         | Senior Lecturer: 2              | CEO/Chief Director: 2         |
| Designation                | Finance Director: 4             | Deputy CEO/Director: 2        |
|                            | Internal Audit Director: 4      | Regional Auditor GAS: 1       |
|                            | Deputy Internal Audit Director: | Director of Finance: 4        |
|                            | 3                               | Head/Internal Auditor: 4      |
|                            |                                 | Presiding member (MMDA): 3    |
| Type of Organisation of    | Public University: 5            | Public University: 5          |
| Employment                 | MMDA: 6                         | MMDA: 7                       |
|                            | Other Government                | Other Government              |
|                            | Agency/Hospital: 4              | Agency/Hospital: 4            |

Table 3.2: Background of participants at the focus groups sessions

(Source: Own compilation)

# 3.6.2.1 IQA research design process, data collection and analysis.

The IQA research design phase provided a sequence of techniques to aid in expressing the problems of interest, to select constituencies (refer to 3.6.1) that had an interest in the problem, and to state the research questions that were implied by the problem statement. The research problem of the current study was formulated in para. 1.2.

Having determined the problem statement, IQA required the identification of the constituents who were to participate in the focus group sessions. The constituents were those who possessed knowledge and understanding of the problem and who could contribute meaningfully to the AC phenomenon. The constituents were selected according to the criteria of "distance and power" (Bargate 2014; Northcutt & McCoy 2004), in relation to the phenomenon being studied. In this study, those who were selected to participate in the study were those who had knowledge relative to the ACs in the Ghanaian public sector, who were capable of transmitting their perceptions into words, who were prepared to sacrifice time as participants, those that appreciated the group subtleties, and those that were identical in power and distance to the AC phenomenon in CEs, in Ghana (refer to 3.3, 3.6, and 3.7 for details on the recruitment of constituents of the two focus groups). Thus, the IQA method empowers participants of a focus group to voice out their views about the phenomenon, devoid of influence by the researcher (Northcutt and McCoy, 2004). This study encouraged participants to voice out their know-hows, develop affinities and articulate how the affinities related to each other. The specific sampling technique used for the selection of the constituents was purposive, as explained in paras 3.6.1 and 3.6.2.

IQA provides three universal research questions that describe the matters to be resolved through systems representation of phenomena. The questions are, (i) what components does the system poseess?; (ii) how related are the components to each other?; and (iii) How do the systems contrast? In IQA terms, a "phenomenon" is an intellectual knowledge, e.g., AC effectiveness, that could potentially produce a system with elements and relationships that define the phenomenon and, also, describes the way it works (Wyatt 2010; Northcutt & McCoy 2004). The affinities produced by the constituents to explain the phenomenon, and how to clarify the affinity relationships and comparisons to each other in a system, are referred to as the "components". Saunders et al. (2012) indicated that the topic under discussion for the group need to be defined, unambiguously. Therefore, in order to elicit affinities of the present phenomenon from the constituents' perspective, the facilitator posed the following research question:

What are the factors that could enhance the effectiveness of audit committees in Ghana's public sector institutions, in the performance of its functions?

The research question was followed by an issue statement, as shown below. Northcutt and McCoy (2004) indicated that the issue statement is normally a simple one, and a variant of requesting the constituencies to tell the researcher about the phenomenon. Hence, the issue statement poses the question needed to move the constituents to discuss the phenomenon. In this study, the issue statement was constructed as follows:

You have been chosen for this focus goup session because you are a member of an AC of a CE or a head of a department of your organisation, which is a CE. Consider that I have little understanding of how ACs work in the public sector in Ghana. We all have a fair idea about what the functions of ACs are according to the PFMA (ROG 2016) and related regulations, guidelines and best practices.

You are, however, more experienced and highly qualified professionals and technocrats with explicit responsibilities in the area of financial governance in the public sector in Ghana. We respect your views, experiences and thoughts about the factors that could enhance AC effectiveness in the public sector. We want to know about your good or bad experiences and what you will recommend as the remedy to achieving optimal performance of public sector ACs in Ghana. Ours is to listen and document issues while you tell us your real AC work experiences and perception of what actually could enhance AC effectiveness in Ghana's public sector. Think for a few moments about this and write down your thoughts.

## 3.6.2.2 Inductive and axial coding.

In consonance with Northcutt and McCoy's (2004) IQA requirements, the focus group phase of this study started with a directed imagery exercise, using the focus group warm-up exercise designed at the research design phase (refer to 3.8.1). This stage of the focus group process was designed to identify the factors or affinities that influence AC effectiveness (refer to table 4.1 & table 4.7). Prior

to a silent brainstorming activity (participants observing silent moments while writing down their ideas on a specific question about a phenomenon), the facilitator requested the participants to recall their experiences regarding AC work. The independent group facilitator then asked the participants to write down, on notecards (using MIRO, during the Zoom meetings), their experiences concerning factors that influence AC effectiveness, an experience (a thought) on each card. After producing a sufficient number of cards, the participants were requested to review the cards, so as to fine-tune their thoughts. The facilitator read each card outcome out loud and the group reached a consensus as to the meaning of each card. Thus the foundations were laid for constructing, through discussion, a shared reality amongst group members. The facilitator then requested the group to silently organise the cards into groups of meaning, an activity referred to as "inductive coding". Inductive coding was followed by the affinity-naming and revision stage, known as "axial coding" (refer to 4.2.1 & 4.3.1). This consisted naming the group of affinities and categorisation of cards, that might be miscalssified in another group (refer to annexure 8 for evidence of the MIRO final mind-map results of these activities).

During the axial coding, participants were engaged in naming, reorganising, clarifying, and refining the affinities. Whilst the first kind of coding was virtually entirely inductive reasoning, axial coding cycles back and forth from inductive to deductive reasoning. Once the affinities were refined and reorganised by the group participants, they were reinvigorated to drill down the meanings of the affinities and their categories. Key sets of affinities were reviewed and were combined or divided into hierarchical systems of sub-affinities (refer to table 4.1 & table 4.7).

## 3.6.2.3 Affinity relationship formulation.

Subsequent to a successful completion of the focus group sessions, the researcher organised and analysed the information obtained by way of written records, with the assistance of the facilitator. The information gathered enabled the researcher to construct definitions for the list of affinities produced at the focus groups session (refer to 4.2.1 & 4.3.1). The result was the compilation of a document containing the affinities and the original definitions of every affinity, as constructed by the focus groups and composed by the researcher. The compiled document was sent, by the researcher to the participants, via email, for their comments and completion (Du Preez 2015). This process included an individual theoretical coding, that was obtained by using a Detailed Affinity Relationship Table (DART) (refer to 4.2.2 & 4.3.2). "Theoretical coding" refers to ascertaining the perceived cause and effect relationships (influences) amongst all the affinities in a system. The DART is a spreadsheet that avails a rapid reference of all of the possible relationships between affinities (Northcutt & McCoy 2004). Therefore, as indicated above, the participants were presented with copies of the DART, included in the researcher's compiled document and emailed to the individual participants. They were then asked to indicate (vote), by completing the DART, if they thought a relationship existed between each affinity, these are referred to as "if/then" statements. Thus, individually, participants were requested to decide (vote) on the nature of the relationship between all the possible pairs of affinities presented (refer to table 4.2 & 4.8). According to Northcutt and McCoy (2004), for every two affinities, e.g., in this study, in respect of Affinities 1 (A1) and 2 (A2), there were only three possible relationships: either A1 directly influenced A2, or A2 directly influence A1, or there was no direct influence between A1 and A2. Thus, in this study, the instruction to participants on the DART form, read:

Please complete the attached table below by indicating what you think the direction of the relationship between two affinities was. Use the affinity descriptions as done during the focus groups to help you with this task. For example:

If you think that 1 influences 2, then indicate  $1 \rightarrow 2$ 

If you think that 2 influences 1, then indicate  $1 \leftarrow 2$ 

If you think that there is no relationship between 1 and 2, then indicate 1 < > 2.

Following this instruction, participants were requested to record their responses in a DART, which was a matrix containing all the perceived relationships in the system, and return it to the researcher (refer to annexure 7 for a sample of a completed DART-form). The data derived from the DART database was gathered and, then, all the relationships were tallied, to decide on the ideal relationships to be counted in an Interrelationship Diagram (IRD) using the Pareto principle (refer to tables 4.3 & 4.9). "Pareto principle" is a concept based on the assumption of the "trivial many and the significant few" analysis of productivity and economics. Within systems terms, the Pareto principle posits that 20% of the variables in a system will account for 80% of the total variation in outcomes. Of essential importance, is that the usefulness of the Pareto principle is based on the anionity of the relationships in a system will account for a majority of the variation within that system. It is quite prospective that there will be a measure of disagreement amongst either individuals or subgroups concerning the nature of a given relationship, contingent upon the variation of theoretical coding utilised. This is where the researcher applied the Pareto rule, in order to obtain compromise, operationally, and to create a statistical group composite, analytically.

#### 3.6.2.4 Interrelationship Diagram (IRD).

The result of the DART was followed by the IRD, that determines if individusl affinities in a pair was an apparent *cause* or *effect*, or whether there were *no relationships* amongst the affinities (refer to 4.2.3 & 4.3.2). These apparent relationships were summarised with arrows in an IRD on a table (refer to table 4.4 & table 4.10). This process is well-known *rationalisation of the system*. The IRD, finally, classified the affinities as drivers, or outcome, that were further classified as primary or secondary drivers or outcomes, or neutral (Northcutt & McCoy 2004:170). The "primary drivers" are defined as elements that can be viewed as the central causes of influence on affinities in the system, whilst the "secondary drivers" consist of those elements in the system that are influenced by the primary drivers. Secondary drivers are also known as "relative causes". "Primary outcomes" are substantial effects caused by many of the affinities, whilst "secondary outcomes" reveal only relative

effects. A "neutral" or "pivot" refers to the element that represents a position in the central point of the system, where it is in the equal measure of influencing or being influenced by any other affinity.

## 3.6.2.5 System Influence Diagram (SID).

The objective of IQA is to draw a representation of the system, known as a Systems Influence Diagram (SID), that represents the perceptual topography or the mind map of an individual or group, concerning a phenomenon represented by the issue statement. The SID is a representation designed, using a set of rules for rationalisation on a summary of the theoretical codes, termed an IRD, developed by the participants (discussed in 3.8.5). In preparation for designing an individual system, the relationships were transmitted onto an Affinity Relationship Table (ART), discussed in 3.8.4 below. The relationships were then processed, through an IRD protocol (refer to 3.8.5). The IRD is followed by a cluttered SID, one that contains all relationships identified by the participants (refer to 4.2.4 & 4.3.3). The cluttered SID was the first version of the SID, covering each connection that existed in the IRD network. The system became saturated with connections, in which the cluttered SID contained all of the links identified by participants, in the protocol leading to the IRD (figures 4.1 & 4.7).

To mitigate this problem of a saturated SID, an uncluttered SID was designed, where redundant associations or relationships were removed (figures 4.2 & 4.8). The issue with a cluttered SID is that, whilst it is comprehensive and rich, interpretation could be very difficult to interpret, for even a fewer number of affinities that are extremely intertwined or entrenched in the system. Comprehensiveness and richness are surely objectives of the SID, yet, so is parsimony. One way to resolve the richness-parsimony conflict was the production of an uncluttered SID, where redundant links had been detached. "Redundant links" were those between two affinities, in which, even if detached, a path from the driver to the outcome can be achieved, through an intermediary affinity. Redundant links can be regarded as the paths of least resistance. The uncluttered SID is the modest

possible representation consistent with all the relationships contained in the IRD, as it eliminates all the redundant connections (Northcutt & McCoy 2004).

## 3.6.2.6 The IQA feedback loops and zoom.

According to the IQA methodology (Bargate 2014; Northcutt & McCoy 2004), feedback loops comprise a minimum of three affinities, individually influencing each other, directly or indirectly (refer to 4.2.5 & 4.3.4). Feedback loops were renamed, by revising the components of each subsystem. The SID was rendered clearer, by removing linked affinities to give meaning to the system. This process is referred to as "zooming out", in which the substituted names for the subsystems were generated by reviewing the axial coding and descriptions, together with the placements of the feedback loops within the overall system (Northcutt & McCoy 2004).

# **3.7 Literature Review Approach**

The purpose of a literature review, generally, is to offer valid and important means of identifying existing patterns and gaps in research of the subject area under consideration (Rozas & Klein 2010). Furthermore, literature reviews seek to resolve definitional obscurities and shape the scope of a topic, by providing synthesis of the current state of knowledge and insight, for future research (Palmatier, Houston & Hulland 2018). In addition, Palmatier et al. (2018) noted that literature reviews not only evaluate existing methodological approaches, but also assist to develop conceptual frameworks, to reconcile and extend past research. In this study, the initial literature review inspired the modelling of the topic, the background of the study and the importance of the study (refer to 1.1), the framing of the research problem (refer to 1.1), and the associated objectives and questions (refer to chapter 1). Subsequently, in chapter 2, an extended literature review was executed, to situate the research in its disciplinary and professional context. Chapter 2 thus evaluated AC effectiveness, from a historical and general perspective, before drilling through international and Ghanaian backgrounds, with the objective of understanding the philological connotations of existing AC literature. Chapter

2 also reviewed the theoretical perspective of the topic, in order to align the topic within a conceptual framework. The substance and validity of these literature reviews were rooted in references to authoritative books, professional literature, legislation, peer-reviewed empirical literature, related theses, credible websites, and databases.

Another important phase of the literature review was undertaken (refer to chapter 5) to aid the researcher in evaluating the data generated by the focus groups sessions, so as to achieve the critical aim of creating a framework that may enhance the effectiveness of ACs in Ghana's public sector. The drivers and outcomes (affinities and its relationships) formulated by the focus groups, were used as the data set, to develop themes for this further literature review. Thus, after the identification of the drivers and outcomes of AC effectiveness by the focus groups, it (drivers and outcomes) was used as the basis for a further literature review. This further literature review finally informed preparation of a draft framework of AC effectiveness, intended to reflect extant literature in alignment with real life situations.

#### **3.8 Validation Survey**

The drafted frameworks for the effectiveness of ACs (refer to 5.7.1 & 5.7.2) in Ghana's public sector (CEs), emanating from the focus groups' affinity drivers and outcomes (refer to chapter 4), and the focused literature review in chapter 5, were tested by a survey questionnaire, administered to certain, identified, key, influential individuals in the practice of ACs in Ghana, who possessed power, authority, and knowledge concerning the phenomenon (Northcutt & McCoy 2004). Questionnaires with open options, allowing the participant to add comments, were used, as it is an accepted method to collect qualitative data and provide insight into participant understanding and the meaning they attribute to that understanding of the issues (Bolderston 2012). For this study, the questionnaire was designed and grounded on the need to further clarify the affinities developed by the focus group participants in their session, as discussed in 3.8.2 (also, refer to chapter 4), and that

was integrated into the draft framework to enhance AC effectiveness (refer to 5.7.1 & 5.7.2). To achieve the objectives of the study (refer to 1.3), the questionnaire was designed on the tenets of the draft frameworks, that needed further clarification. The questionnaire was used to stimulate confirmatory and additional descriptions of affinities produced by the focus groups sessions, and to pinpoint, by elucidative descriptions, the relationships between the affinities. The overall aim of the questionnaire survey was to (1) clarify affinities or concepts, emanating from the focus groups, where required; and (2) assist in finalising the framework to enhance the effectiveness of ACs in Ghana's public sector, as a credible framework.

Furthermore, the questionnaire were essentially a validation survey, intended for the participants to confirm, substantiate, verify or correct the researcher's conclusions, as presented in the draft frameworks of the study. It should be noted, however, that the draft frameworks (refer to 5.7.1 & 5.7.2) emanated from the main data collection process, that was the focus group sessions described into detail earliar (refer to para. 3.6). The validation survey was not administered simply to overwrite the findings of the focus group findings reported in chapter 4. Respondents who did not agree with a given proposed action were required to provide reasons for their disagreement. The reason(s) divulged were then considered in refining the final frameworks (refer to 5.7.1 & 5.7.2) and reason(s) in support of a given action were used to strengthen the framework, if and where applicable.

The questionnaire was administered to those who were possessed of power, authority, and knowledge in the AC practice in Ghana, and from whom credibility of the final framework was solicited. As aforementioned, the participants consisted of certain, purposefully selected participants to the focus groups sessions, and others who were recommended influential persons in the AC arena, in Ghana. As Buchbinder (2011) indicated, validation questionnaires or interviews achieve two objectives. These are (1) to check that the analysis by the researcher was authentic and exactly captures the complexities of the participant perspective, to confirm that the researcher was not biased

and did not distort facts in drafting the framework; and (2) to serve as follow-up to the initial findings by the researcher, from the focus group sessions, and the subsequent determination of drivers and outcomes, that informed the drafting of the framework (refer to chapter 4). Thus, in this study, it was necessary that the researcher revert to the constituents and other key stakeholders, in order to solicit support for the claims made in the draft framework, by balancing the researcher participant power, towards the reconstruction of the final framework for the effectiveness of ACs.

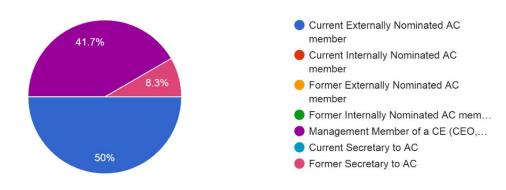
#### 3.8.1 Survey data collection.

The sampling method used for the focus groups and survey participants' data collection, was discussed in para. 3.6. This section exclusively discusses the survey data collection process. To maintain an audit trail for the survey processes, the researcher kept records of the questionnaire and the responses, in Google Drive. The purpose of the validation survey was not to add or retract from the focus groups findings, but it was merely needed to determine whether the survey participants agreed, partially agreed, or disagreed with or contested any of the constructs of the draft frameworks. Any additional information obtained from the questionnaire were not included in the framework, however, it was deferred as recommendations for future research. Those who were contacted and who agreed to participate in the survey phase, included the following classes of experts: (1) present or former AC members; (2) present or former DoF and IA at CEs; (3) Regulators; and (4) AC stakeholders of CEs (refer to 6.2 for specific analysis of respondents' profile).

The responses to the online questionnaire were captured in the form of bar charts, pie charts and narrative texts, in Google Forms. Examples are depicted in figures 3.2 and 3.3.

1. Please, indicate your status by selecting one of the following.

12 responses



## Figure 3.2: Sample 1 of responses by respondents

(Source: Own)

#### 1. Please, indicate your status by selecting one of the following.

12 responses

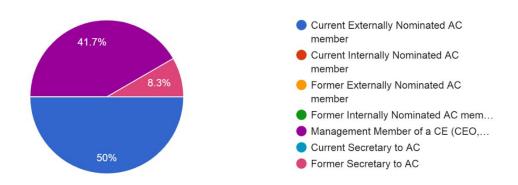


Figure 3.3: Sample 2 of responses by respondents

(Source: Own)

#### 3.8.2 Data analysis and interpretation.

IQA methodology (Northcutt & McCoy 2004) was used in the data analysis and interpretation of the focus group data collected (refer to chapter 4). In order to validate and improve the two frameworks, as aforementioned, an online survey tool using a Likert style questionnaire, with openended options for comments, was administered, to purposively selected participants who had knowledge of and power in respect of the phenomenon under study. The completed questionnaires were analysed and interpreted through the summary of data generated through Google Forms. The data was presented in three parts: Part A involved the profile of participants (refer to 6.2); Part B pertained to the analysis and interpretation of the data, relating to the framework for ACs (refer to 6.3); whilst Part C involved the analysis and interpretation of the data, relating to the AC framework for CEs (refer to 6.4). The questions and responses were in line with the structure of the two draft frameworks (refer to 5.7.1 & 5.7.2). The system of numbering utilised for categories in Part B and C therefore corresponded with the numbering system of the categories from the draft frameworks.

The data generated from Google Forms comprised the results of respondents replies to the question, "*Do you agree with, disagree with, partially agree with or contest or wish to add something to the proposed actions?*".

The specific proposed actions, from the drafted frameworks, were presented in the form of statements, in respect of which participants selected whether they "agreed", "partially agreed", or "disagreed" with the suggested actions (refer to 6.3 & 6.4). Participants were also afforded the option of a "long answer text" open field, so as to add their own comments concerning specific, proposed actions.

The questionnaire responses aided in validating and refining the proposed actions in the final frameworks. In those cases where the responses included "disagreements" or "partial agreements", those particular statements were quoted verbatim, in separate grey highlighted textboxes, and counted in absolute terms, to assist validation or refinement of the proposed actions. Also, where participants commented on specific proposed actions, such proposed actions were represented in a textbox, followed by the participant comment(s), and then analysed. Participant comments were quoted and denoted as  $C_1$ ,  $C_2$ ,  $C_3$ , etc. The comments were quoted in italics and indented, however, it was not attributed to any individual participant, in order to maintain anonymity.

Further, the pattern of presentation and analysis performed in each of Part B and C, were executed in a simple manner, for easy understanding. Each proposed action, under each category, was referenced to its corresponding component in the Draft Framework for ACs or CEs (refer to 5.7.1 and 5.7.2). The proposed action also corresponded to the action statement in the questionnaire, completed by participants. Each proposed action that was presented to the survey participants, was referenced (in Italic and in Bold type font) to correspond with the category and the proposed action number to which it was related, and then analysed. For example, Proposed Action 3 under Category 1 of the Draft Framework for ACs, was referenced as "*Cat 1: Proposed Action 3 (i to iv) of AC Framework*" (refer to table 5.2).

### 3.8.3 Methodological considerations.

The determinants of the rigour of qualitative research are trustworthiness and authenticity, that, debatably, are substitutes for validity and reliability in quantitative research (Amin et al. 2020; Johnson, Adkins & Chauvin 2020; Seale & Silverman 1997; Lincoln & Guba 1985). According to Lincoln and Guba (1985), the measures for assessing the trustworthiness of a study are dependability, confirmability, transferability, and credibility. Trustworthiness was rooted into the research methods of this study, through the manner that the specific elements were managed, described in the paragraphs that follow.

Credibility means the level at which a research description is acceptable and appropriate, especially in relation to the degree of consensus built amongst participants and the researcher (Mills, Durepos & Wiebe 2010). The credibility of this study was achieved by the adoption of IQA methodology (Bargate 2014; Northcutt & McCoy 2004), that is a well-established qualitative research methodology and has been used by other researchers, successfully (Legodi 2021; Du Preez 2015; Wyatt 2010). The credibility criteria was further realised through early familiarisation with the supervising authorities responsible for the establishment and functioning of ACs, in the sampled

CEs. The demographic details were obtained and confirmed by the participants, as part of the consent form they completed and signed. To enhance credibility of the reported themes from the focus group sessions, validation questionnaires were administered to contact traced, credible participants, from each of the two focus groups, as well as other participants, recruited through snowballing. That denotes that methodological triangulation (Amin et al. 2020) was executed, through two focus groups sessions; a theme and category focused literature review (refer to chapter 5); and a questionnaire survey administered and analysed (refer to chapter 6), and represented the data collection strategy, used until data saturation was reached (refer to 3.6). Additionally, the involvement of a moderator in the focus groups sessions and their subsequent verification of the correctitude of the interpreted data, built more confidence in the process.

The second element of trustworthiness, is transferability (Lincoln & Guba 1986). "Transferability" in qualitative research refers to the extent that the research findings could be used in another setting, with similar circumstances as the relevant study (Coghlan & Brydon-Miller 2014; Lincoln & Guba 1986). It is comparable to generalisability and external validity, in quantitative research. In this study, transferability was achieved through adherence to the standards and documentations required in the IQA process, that allowed for public accessibility, verification and accountability. As such, the transferability rigour of this study was attained through processes, in the research that were reported in detail, leaving audit trails to enable future researchers to repeat the study in any public sector institution in Ghana, and elsewhere.

The third element of trustworthiness, that was built into the rigour of this research, is "dependability" (Lincoln & Guba 1986). It refers to the reliability and consistency of the research results, and the level at which the research processes are chronicled, permitting a newcomer to the relevant research to track, take inventory of, and review the research procedure (Moon, Brewer, Januchowski-Hartley, Adams & Blackman 2016; Lincoln & Guba 1986). The dependability of this

study hinges on the multiple documented methods that were used in data collection, involving officers of state institutions, with perceived or actual high integrity.

"Confirmability" is the degree to which the processes and results of research could be audited by another researcher (Lincoln & Guba 1986). To attain this criteria, steps were taken to ensure that, as far as possible, the findings reported were the results of the experiences and ideas of constituents at the focus groups sessions, instead of the conjectures and biases of the researcher (Shenton 2004:72). Thus, to ensure confirmability, all processes of data collection and analysis, especially the IQA focus groups sessions (Northcutt & McCoy 2004) and validation survey questionnaire (Brinkmann 2018; Buchbinder 2011) were verified, tested, and documented to leave audit trails enabling possible future research.

The other criteria of rigour, in a qualitative study managed with trustworthiness, is authenticity (Lincoln & Guba 1985). Shannon and Hambacher (2014) noted that "authenticity" is established when the researcher is able to demonstrate several, diverse perspectives and depth of understanding, that fairly represent those perspectives. Lincoln and Guba (1986) reemphasised that authenticity comprises five dimensions, i.e., fairness, ontological authenticity, educative authenticity, catalytic authenticity, and tactical authenticity. In this study, only fairness was explained, on account of the methods applied, and the fluidity and elusive nature of the definition of authenticity, itself (Shannon & Hambacher 2014). Therefore, in this study, fairness was achieved through the valuation of the variety of participant viewpoints, and ensuring that all viewpoints were adequately represented. Thus, fairness was realised through empowering stakeholders to have their voices heard in the focus groups, as well as the validation survey questionnare phases. This became possible when all stakeholders were encouraged to participate actively in the consensus building process, that led to constructing a framework capable of enhancing the effectiveness of ACs in Ghana's public sector.

### **3.9 The Researcher's Role**

As is common with most qualitative studies, distinguishing it from quantitative studies, the researcher in this study played ownership and the leading roles in thematising, designing the questionnaire, interpreting, analysing, verifying and reporting data (Fink 2000), during the research process. However, being aware of the inherent power imbalances between the participants and researcher, and the ethical requirements concerning these imbalances, with specific attention to the potential of predetermined asymmetric roles between the researcher and the researched (Råheim, Magnussen, Sekse, Lunde, Jacobsen & Blystad 2016), steps were taken so as to avoid any biases. For instance, the CEs were involved in the selection of focus group participants. Also, an independent facilitator, who was an expert in IQA methodology, was recruited to moderate the focus group sessions. The validation survey participants were also selected directly from the focus group sessions, or recruited through snowballing, after participant profiles were reviewed and the researcher was assured that they were individuals with proven knowledge and power, close to the phenomenon under review (Bargate 2014; Northcutt & McCoy 2004). Mobilisation of resources were the sole responsibility of the researcher, with kind support from certain benefactors. The researcher was also involved in searching for academic journal articles, relevant books and materials, and reviewing such related articles, that was essential to the write-up of empirical, theoretical and the focused literature reviews, that formed the critical elements of this research.

#### **3.10 Ethical Considerations: Further Explanation**

As introduced in para. 1.10, throughout the research, ethical issues were considered a central principle, by the researcher. The researcher complied with the UNISA Policy on Research Ethics and the Standard Operating Procedures on Research Risk Assessment and applied for ethical clearance. A single ethical clearance, with reference number 2022\_CAS\_020\_Amendment, was obtained for the collection of data by means of focus groups and questionnaires, from the UNISA

College of Accounting Sciences Research Ethics Review Committee (refer to annexure 1). All the requirements stipulated in the clearance certificate were complied with. Furthermore, a formal permission was sought from and granted by institutions involved in the research (refer to annexure 6, for an example). All sources of information have been duly referenced and acknowledged. At the data collection stage, permission was sought from all stakeholders, individually (refer to annexure 2, as an example) and their consent was received (refer to annexure 5) before involving them in the sample for the focus groups sessions and questionnaire stage. To preserve the confidentiality, anonymity, and privacy of individuals and institutions that participated in the research, the researcher never mentioned names of participants, using alphanumeric symbols, such as P1 or  $C_1$ , to represent participants or their comments.

# **3.11 Chapter Summary**

This chapter provided insight into the methods adopted towards the information gathering for this study. The paradigm of the study, the research design, research methodology, research method, population of the study, and sampling technique were discussed. The main data collection method, i.e., the IQA focus groups, were explained in sufficient detail, and the process concerning the validation questionnaire was explained.

### **Chapter 4**

### Focus Groups Data Analysis and Interpretation

### **4.1 Introduction**

In this chapter, information collected from the two focus group sessions is presented, analysed, and interpreted. The secondary objective 1 (RO<sup>1</sup>) of this study (refer to 1.3) is to interact, respectively, with members and stakeholders of the ACs of CEs, in order to obtain an understanding of the perceptions and experiences of the factors influencing the effective functioning of ACs in Ghana's public sector. For this purpose, two focus group sessions were conducted, by means of the IQA method. The presentation of the data starts with a description of the factors, i.e., the *affinities*, as per IQA terminology, identified by the focus groups, referred to as inductive and axial coding. Followed by establishing relationships between the affinities, known as theoretical coding, after which an influence classification for individual affinities is determined, visually presented by the System Influence Diagram (SIDs) (refer to 3.6.2.5). The final activity in the IQA method, is to identify and explain any feedback loops (refer to 3.6.2.6). The chapter concludes by grouping similar affinities into themes, for further scrutiny by means of a literature review in chapter 5. Note that all Tables and Figures in this Chapter were the researcher's own constructions derived from data gathered.

### 4.2 Focus Group 1: AC Members from CEs

In the following sub-paragraphs, the results of the group session with the first focus group are discussed.

# 4.2.1 Inductive and axial coding.

Focus Group 1 (FG1) comprised 15 participants who were AC members of the CEs selected. The group identified 13 affinities and 46 sub-affinities (refer to table 4.1) during an IQA focus group session (refer to 3.6.2.1).

| AFFINITY     | (1) Characteristics<br>or qualities of AC<br>members  | (2) Coordination<br>amongst<br>stakeholders  | (3) Financing<br>of AC   |                                   | (4)<br>requency and<br>ttendance of<br>meetings  | (5)                        | Independence  | (6) Independence<br>of the internal<br>audit [function]   | (7) Mana<br>commit  |  |
|--------------|---|--|--|-----------------------------------|--|----------------------------|---|---|---|--|
| SUB-AFFINITY | <ol> <li>Composition of<br/>AC</li> <li>Experience of<br/>AC chair</li> <li>Experience of<br/>AC members</li> <li>Focus of AC</li> <li>Competence of<br/>AC members</li> <li>Credibility of AC<br/>members</li> </ol> | <ul> <li>7. Relationship<br/>with all<br/>stakeholders</li> <li>8. Effective<br/>communication<br/>amongst AC,<br/>management,<br/>internal- and<br/>external audit</li> <li>9. Coordination<br/>between AC and<br/>CE</li> <li>10. Members need<br/>to care for<br/>management</li> </ul> | <ul> <li>11. Lack of<br/>finance for<br/>AC work</li> <li>12. Separate<br/>budget line for<br/>the AC</li> <li>13. Financing<br/>AC<br/>allowances</li> <li>14. Lack of<br/>finance for<br/>internal audit<br/>(IA) work.</li> <li>15. Inadequate<br/>human<br/>resources in<br/>IA</li> </ul> | mee<br>17.1<br>mee<br>18.2<br>and | Lack of timely<br>tings<br>Regular<br>tings of AC<br>Appropriateness<br>effectiveness of<br>meetings   |                            | Independence<br>AC members  | 20. The<br>independence of<br>internal auditors<br>21. The use of<br>experienced,<br>practicing internal<br>auditors as<br>members of AC  | <ul> <li>22. Managcommitme<br/>work</li> <li>23. Managcommitme<br/>stakeholde</li> <li>24. Trainin<br/>manageme<br/>terms of th<br/>appropriate</li> <li>25. Commi<br/>of manager<br/>and the boat<br/>the implem<br/>of AC report</li> </ul> | nt to AC<br>ement<br>nt to all<br>rs<br>ag of<br>nt in<br>e<br>e laws<br>itment<br>ment<br>ard to<br>mentation |
| AFFINITY     | (8)<br>Nature of<br>institution audited   | (9)<br>Policies<br>governing ACs   | (10) Political<br>influence  | l                                 | (11) Profession<br>competence e<br>Internal Audit  | of                         | (12) Quality<br>control   | (13)<br>Quality of recomm   | endations   |  |
| SUB-AFFINITY | <ul> <li>26. Enterprise risk management</li> <li>27. Knowledge of nature of activities of the institution audited</li> <li>28. Corporate qualities</li> <li>29. Understanding the industry</li> </ul>                 | <ul> <li>30. Sanctions for<br/>non-compliance</li> <li>31. Amendment<br/>of laws to<br/>empower IAs</li> <li>32. Policy<br/>governing the IA<br/>function</li> <li>33. Artificial<br/>intelligence</li> </ul>  | <ul><li>34. Political<br/>interference</li><li>35. Lack of legal<br/>authority for AC t<br/>enforce its<br/>recommendations</li></ul>  |                                   | <ul> <li>36. Less focus of impact</li> <li>37. AC work is usually reactive not proactive</li> <li>38. Reliability of IA function</li> <li>39. Qualification</li> <li>39. Qualification and competence internal auditors</li> <li>40. Understandit of the laws by members of IA function</li> </ul> | e<br>of<br>on<br>e of<br>s | <ul><li>41. Regular evaluation of AC work</li><li>42. Refresher courses for AC members to equip them to perform</li></ul> | <ul> <li>43. Auditor's report<br/>address the conditio<br/>cause identified</li> <li>44. Conflicting reporesponses</li> <li>45. Availability of<br/>information</li> <li>46. The quality of an<br/>reports</li> </ul> | ns and<br>rts and   |  |

# Table 4.1: Focus Group 1: Catalogue of Affinities and Sub-Affinities

(Source: Own compilation)

These affinities related to factors influencing the effective performance of ACs in Ghana's public sector, from the perspective of FG1. The following section presents the affinity descriptions,

according to what emerged from the group after silent brainstorming and subsequent discussion sessions.

# Affinity 1: Characteristics or qualities of AC members.

The group identified *characteristics or qualities of AC members* as an important factor that influences the effectiveness of ACs in Ghana's public sector. According to the group, these factors included a number of components. Firstly, participants expressed the view that the *composition of ACs* must follow the stipulated AC regulations and guidelines, in order to clothe the AC with legitimacy to exert its oversight role in a given CE, for effective output. Hence, ACs must be properly composed according to legal standards, in all circumstances. Secondly, participants held that AC chairpersons and AC members should possess a measure of *experience in AC work* or related financial and public sector administrative work, that would assist them to have a firm grip on issues that confront them in the effective performance of their duties. Thirdly, participants believed that the *competencies* of AC members, in terms of qualification and current or previous relevant work experience, impact the effectiveness of AC work and, hence, should be considered when appointments are made. Fourthly, the *credibility of AC members' character*, in terms of their social and professional or academic credentials, influences effective AC output. Finally, participants noted that the *focus of the AC's role* must be clearly defined in law and the AC charter.

# **Participant comment:**

P10: "If there is a well constituted AC with a high level of experience, members can force the hands of management in doing what is expected."

### Affinity 2: Coordination amongst stakeholders.

The group identified that *coordination amongst stakeholders* is critical to the effectiveness of ACs in Ghana's public sector. Several issues were raised concerning this affinity. Firstly, participants suggested that the AC should have cordial *relationships with all stakeholders*, for

effective AC work. By this, participants explained that the AC should accord due recognition to the various stakeholders in the performance of their duties, if the AC is to be effective. Secondly, the group was of the view that, for effective AC work, there should be *effective communication* between the AC, management, internal audit, and external audit components of the CE, as well as coordination between the AC and the CE. According to the participants, effective communication and coordination include information sharing, and quick and factual responses to enquiries by stakeholders. Finally, the group added that AC members need to *care for management needs*, in the sense that the AC should appreciate management policies and strategies in certain situations, provided that such policies and strategies are within the remit of the laws.

### **Participant comments:**

P10: "If there is cordial relationship between management and AC members, then the presence of the AC members will no[t] irritate management of an entity."

P8: "If there is good relationship between management and AC members, then there is going to be less interference of management in AC's activities and programmes."

# Affinity 3: Financing [funding] of ACs.

The participants also considered that *financing [funding] of ACs* is a factor that influences the effectiveness of ACs in Ghana's public sector. With regard to this affinity, the group emphasised the issue of adequate funding for the work of ACs. The group highlighted the lack of financing as a limiting factor within the CE, in respect of implementing and monitoring AC recommendations. The financing takes the form of the logistical cost of transport and accommodation of members attending the meeting, and the hourly rate paid to members for preparation as well as meeting time. They further pointed out that, for AC to be effective, there should be a separate budget line item for the AC work, in terms of the financing of logistical resources, allowances, and adequate remuneration

for AC members. The participants, therefore, suggested that, for the AC to be effective, the financing should be budgeted for by the central government and complemented by a given AC's CE.

# **Participant comments:**

P10: "If the nature of institution being audited is such that more income is generated within the institution, then there is high likelihood for adequate financing of AC meetings."

P8: "If the government in power is much concern[ed] about financial accountability, then there will be adequate financing of AC meetings."

P11: "If the source of financing is not from the appropriate source, then the source can influence the independence of the committee."

# Affinity 4: Frequency and attendance of meetings.

The group viewed *frequency and attendance of meetings* as an essential element to enhancing the effectiveness of ACs in Ghana's public sector. They identified certain factors that affect the effectiveness of AC meetings, including the lack of meetings held on a timely basis, appropriateness and effectiveness of meetings, frequency of meetings, and regular attendance of AC meetings by the Head of the CE. According to the group, since meetings are the forum used for AC work, its frequency and appropriateness influence AC effectiveness.

# **Participant comments:**

P7: "The higher the commitment of management, the higher the frequency of meetings will increase."

P8: "If the nature of business is at higher financial risk, then the higher the frequency of meetings will be [held]."

### Affinity 5: Independence of the audit committee.

The group emphasised the *independence of the audit committee* as an important factor, that should be guaranteed if the effectiveness of the AC in Ghana's public sector is to be enhanced. Members

were of the view that, if the independence of the AC is improved, i.e., when it is free from undue political interference, it will enhance the quality of its recommendations. The group was of the opinion that the policies governing ACs should be sufficient and effective in addressing the specific roles of the AC, to insulate it from direct or indirect political interference. Members of the group asserted that an institution that is highly politicised places the independence of the AC at risk, by frequent interventions when adverse findings and recommendations are made, especially against political appointees of the CE.

### **Participant comment:**

P:10 "If there is high political influence within the entity, then it can affect the independence of AC members negatively, since political power can override [recommendations] and form or controls [can be] put in place"

### Affinity 6: Independence of the IA [function].

The focus group noted that the *independence of the internal audit (IA) [function]* is a contributing factor to AC effectiveness in Ghana's public sector. They explained that a lack of IA independence and the need for an experienced IAF, whose work output is required for the AC's work, can influence AC effectiveness. The reasons supplied by members of the group were that the independence of the IAF facilitates the effectiveness of the AC, as IA work output serves as the input for AC work. Moreover, they observed that the Internal Audit Agency, which is the mother body of all IAFs in CEs, has a statutory representative membership of all the ACs. Therefore, the independence of the IAF and the expertise it contributes, have an impact on the effectiveness of the AC. The group determined that IAF independence exist where the IAF is functionally responsible to the AC, but only administratively responsible to the management of the CE.

### **Participant comment:**

P: 4 "If the policies governing [the] AC are robust, then the independence of the Internal Auditor will be enhanced."

### Affinity 7: Management commitment.

The group identified *management commitment* as an important element of AC effectiveness in Ghana's public sector. The group denoted underlying factors for this affinity. Firstly, *management's commitment to AC work*, that involved the perception of management concerning AC work as being beneficial to the entity, and the willingness of management to avail critical resources for effective AC work. Secondly, *management's commitment to the implementation of audit report[s]* [recommendations] is important for AC's effectiveness, as AC recommendations are derived mostly from both internal and external audit reports. Therefore, non-commitment by management to the implementation of these reports, negatively impacts AC effectiveness. Thirdly, management and staff should be prepared for *continuous training* in terms of laws governing their entities, e.g., the PFMA and the PFM Regulations (ROG 2019; ROG 2016), that form the basis of AC work.

# **Participant comments:**

P8: "If management commitment is high within a particular entity, then it is likely that those in charge of making or influencing policy (management) will make policies that will favour AC function and activities."

P10: "If management is not committed, then adequate resources may not be made available for the AC."

### Affinity 8: Nature of institution audited [familiarity with the institutional environment].

The group noted that the nature of the institution audited [familiarity with the institutional environment] is an important contributing factor to the effectiveness of ACs in Ghana's public

sector. Participants emphasised the importance of AC members having or acquiring knowledge and understanding regarding the institution's nature, activities, industry, corporate qualities, and enterprise risk management. Hence, they opined that AC members should be familiar with the institutional environment of their CE. To do this, they suggested that, firstly, the selection of members to an AC should take into consideration the competencies and experiences of the members, relative to the nature and complexities of the CE, in terms of services or products the CE engages in. Secondly, participants stated that the nature and activities of the entity's industry should determine the approach to the strategy of the work plan, including enterprise risk management for effective AC work. For this reason, they argued that AC members should continuously update themselves, through training workshops and seminars, concerning relevant areas affecting the institutional environment.

### **Participant comment:**

P4 "If the nature of [the] entity or the industry in which the entity operate[s] is a very sensitive one, the monitoring and supervision of [the] AC and its activity[,] must be intensified."

# Affinity 9: Policies governing ACs.

According to the participants, *policies governing ACs* are the main essentials that support AC effectiveness in Ghana's public sector. The group members asserted that AC policies should address sanctions for non-compliance with internal and external audit recommendations, clash/conflict of laws and regulations, and the need to amend laws to empower internal auditors to work towards AC effectiveness. The group members further explained that *policies governing ACs* include all laws, regulations, and guidelines addressing AC establishment and practice in Ghana's public sector. According to the group, the current policy frameworks governing ACs do not sufficiently address the AC mandate and authority issues, so as to enable it to function effectively.

# Affinity 10: Political influence.

The group noted that *political influence* was a factor that influenced AC effectiveness in Ghana's public sector. They highlighted several components of *political influence*. The first one, is *political interference*, that refers to the situation where the political power of top public officials, within or outside the CE, is used to influence the decisions and recommendations of the AC, to protect vested individuals against public interests. Secondly, the group noted that the *lack of clear legal authority* of the AC to enforce audit recommendations, results in affected officials undermining the AC in the performance of its duties. Thirdly, the group opined that the political nature of public sector institutions in Ghana, where appointments to key public offices are highly influenced by political affiliation, significantly impairs the independence and objectivity of the AC.

# **Participant comments:**

P1: "If political influence is high within a particular entity or sector[,] then there is [a] likelihood that policies governing the AC could be changed to the disadvantage of the AC membership and its activities."

P8: "If AC members are well paid, then they are less likely to be influenced[,] politically."

# Affinity 11: Professional competence of Internal Auditors.

The group viewed the *professional competence of Internal Auditors* as contributing to AC effectiveness in Ghana's public sector. They indicated that the quality of the IAFs, its professional competence and understanding of the laws and guidelines regarding ACs, would render the Internal Auditors more appreciative of the AC's role in the CE. Simply put, the group argued that the IAF is directly under the oversight of the AC, hence the professional competencies of the IAs feed into AC effectiveness, as the output of the IAFs work becomes the input of AC work.

### **Participant comment:**

P2: "If there are high quality recommendations from the IAF because of professional competence,

it will improve the effectiveness of the AC."

### Affinity 12: Quality control

The group identified *quality control* as one of the determining factors influencing AC effectiveness in Ghana's public sector. Two components of *quality Control* were identified. The first, is *regular evaluation* of the work of the AC, to ensure that the objectives of establishing ACs are achieved. The group argued that, for the effectiveness of the AC to be achieved, an assessment policy should be in place to evaluate its performance, in terms of financial oversight of the CE. According to the group, the AC work evaluation could be in the form of an AC self-assessment questionnaire, or stakeholder assessment questionnaire for AC performance. By undertaking an assessment, all stakeholders would know whether the AC is effective or not, from the assessment report. Secondly, the group recommended that for AC to be effective, *refresher or training sessions* should be provided for members, to better equip them to perform their duties.

### **Participant comment:**

P4: "If there is a good or regular quality control review by a powerful regulator[,] then one is more likely to say that political influence could be reduce[d][,] to some extent."

# Affinity 13: Quality of recommendations.

The group agreed on the *quality of recommendations*, as an aspect of critical importance to AC effectiveness in Ghana's public sector. The group explained that both internal and external auditors' recommendations should clearly address the condition and causes of issues identified during the audit work, and avoid conflicting audit reports and responses, in order that the AC can work with reliable and credible documents. The group further considered that the availability of credible information from management and the quality of the auditor reports, will aid the effectiveness of the AC.

# **Participant comment:**

P10: "If there is intensified quality control, reviewed by regulators, then one can expect that quality audit recommendation[s] can be given by auditors to management of those entities."

# **4.2.2** Theoretical coding – DART.

Theoretical coding refers to determining the apparent cause and effect relationships amongst all the affinities in a system. Following the identification and definition of the affinities from participants view, the association amongst them was established (the process of which was discussed in 3.5.2.3). Applying the Pareto protocol, all the relationships from the DARTs were tallied, that rendered the determination of the frequency of each relationship, possible. The total votes of FG1 members were 967, in 156 possible relationships between affinities. Only one of the relationships was not voted for, since the focus group participants did not establish any relationship for the affinities involved. The screenshot is shown as table 4.2 (original Excel copy embedded).

#### 105 × 5 36 3 < 8 1 1 1 1 1 1 6 < 10 1 1 1 1 1 5 1 51 > 4 1 1 57 3 > 9 109 > 11 10 1 4 4 6 11 3 5 11 < 9 3 × 1 1 1 1 7 1 1 3 111 91 > 6 9 1 11 6 > 13 3 > 1 01 < 6 11 < 13 ~ 15 33 > 1 8 115 28 8 2 4 7 8 8 \* 11 \* \* 8 < 1 < 9 29 > 10 161 < 9 1 68 4 < 5 1 1 1 1 120 7 < 10 17 1 > 10 1 1 1 8 4 > 0 1 1 4 121 7 > 11 1 1 2 7 6 8 9 < 10 > 11 1 1 4 > 1 6 > 1 > 12 > 13 4 2 126 5 < 12 > 13 1 1 10 1 5 127 8 > 9 23 1 75 4 > 2 9 3 \* 13 764 < 9 1 1 10 128 8 < 9 8 × 3 129 01 < 2 01 > 8 1 1 1 10 14 131 • 1 5 23 1 1 81 4 > 1 5 133 8 > 13 4.5 3 31 2 > 6 32 2 < 6 33 2 > 7 34 2 < 7 1 1 3 1 1 1 1 1 2 1 135 5 7 8 136 8 < 13 137 9 > 10 138 9 < 10 85 5 > 1 11 1 1 1 1 1 1 1 1 1 1 1 5 35 2 > 8 36 2 < 8 5 139 9 > 11 140 9 < 11 87 5 > 1 9 5 1 5 3 8 7 8 142 . < 9 > 10 1 1 2 40 2 × 10 41 2 > 11 7 2 92 5 × 9 93 5 > 10 1 144 9 < 13 145 10 > 11 11 42 2 ≺ 11 43 2 > 12 44 2 ≺ 12 8 10 146 10 <11 8 5.2 1 5 147 1 10 > 12 1 1 2 149 10 > 13 150 10 < 13 5 > 13 < 13 47 3 > 4 14 99 5 > 13 100 5 < 13 1 1 5 151 11 > 12 152 11 < 12 1 1 1 1 1 1 1 111 7 6 1 1 1 1 1 1 153 11 > 13 154 11 < 13 155 12 > 13 2 3 5 156 12 < 13 TOTAL

# Table 4.2: Voting results of FG1 participants from the DART

#### (Source: Own compilation)

Following the tallying of the DART votes and the determination of the frequency of each relationship, the next step was the construction of the Pareto chart, by categorising the relationships in descending order of frequency. The cumulative frequencies and percentages in terms of both the number of votes (967) and relationships (156), were also determined. Table 4.3 shows the screenshot of the results of relationships constructed from the DART form for FG1, in descending order of frequency (original Excel copy embedded).

# Table 4.3: Analysis of Pareto and Power in descending order frequency:FG1

| $\sim$  |   | -                                   |  | , o p   |   | 15  | -  |   | 1.1  | <u> </u>  | 1 . se  | 15                        | U U   |  | <u> </u>   | *   |  |
|---|---|-------------------------------------|--|---|---|---|--|---|--|---|---|---------------------------|---|--|--|---|--|
| quency<br>orted<br>:ending)   | Cumulative<br>Frequency   | Cumulative<br>Percent<br>(Relation) | Cumulative<br>Percent<br>(Frequency)   | Power   | Affinity Pair<br>Relationship   | Frequency<br>Sorted<br>(Descending)   | Cumulative<br>Frequency  | Cumulative<br>Percent<br>(Relation)   | Cumulative<br>Percent<br>(Frequency)   | Power   |   | Affinity Pa<br>Relationsh |   | Cumulative<br>Frequency  | Cumulative<br>Percent<br>(Relation)  | Cumulative<br>Percent<br>(Frequency)  | Power  |
| 14  | 14  | 0.6                                 | 1.4  | 0.81  | No.<br>40 3 < 9   | 8   | 391  | 25.6  | 40.4   | 14.8  | No.   | 2 > 10                    | 6   | 667  | 50.6   | 69.0  | 18.3   |
| 14  | 28  | 1.3                                 | 2.9  | 1.61  | 41 3 > 12   | 8   | 399  | 26.3  | 41.3   | 15.0  |   | 2 < 12                    | 6   | 673  | 51.3   | 69.6  | 18.3   |
| 13  | 41  | 1.9                                 | 4.2  | 2.32  | 42 4 < 7  | 8   | 407  | 26.9  | 42.1   | 15.2  |   | 2 < 13                    | 6   | 679  | 51.9   | 70.2  | 18.3   |
| 12  | 53  | 2.6                                 | 5.5  | 2.92  | 43 4 < 12   | 8   | 415  | 27.6  | 42.9   | 15.4  |   | 4 > 7                     | 6   | 685  | 52.6   | 70.8  | 18.3   |
| 11<br>11  | 64<br>75  | 3.2                                 | 6.6<br>7.8   | 3.41<br>3.91  | 44 5 > 13<br>45 6 < 7   | 8   | 423  | 28.2<br>28.8  | 43.7<br>44.6   | 15.5<br>15.7  |   | 4 > 12<br>5 < 11          | 6   | 691<br>697   | 53.2<br>53.8   | 71.5  | 18.3<br>18.2   |
| 11  | 86  | 4.5                                 | 8.9  | 4.41  | 46 6 < 10   | 8   | 439  | 29.5  | 45.4   | 15.9  |   | 6 > 7                     | 6   | 703  | 54.5   | 72.7  | 18.2   |
| 11  | 97  | 5.1                                 | 10.0   | 4.90  | 47 6 > 13   | 8   | 447  | 30.1  | 46.2   | 16.1  |   | 6 > 8                     | 6   | 709  | 55.1   | 73.3  | 18.2   |
| 11  | 108   | 5.8                                 | 11.2   | 5.40  | 48 7 > 8  | 8   | 455  | 30.8  | 47.1   | 16.3  |   |                           | 6   | 715  | 55.8   | 73.9  | 18.2   |
| 10  | 118   | 6.4                                 | 12.2   | 5.79  | 49 8 < 13   | 8   | 463  | 31.4  | 47.9   | 16.5  |   | 6 < 13                    | 6   | 721  | 56.4   | 74.6  | 18.2   |
| 10<br>10  | 128<br>138  | 7.1                                 | 13.2<br>14.3   | 6.19  | 50 10>13<br>51 1>3  | 8   | 471 478  | 32.1<br>32.7  | 48.7<br>49.4   | 16.7<br>16.7  |   | 8 < 9<br>8 < 10           | 6   | 727  | 57.1<br>57.7   | 75.2<br>75.8  | 18.1<br>18.1   |
| 10  | 130   | 8.3                                 | 15.3   | 6.97  | 52 1 < 8  | 7   | 485  | 33.3  | 50.2   | 16.8  |   | 8 > 12                    | 6   | 739  | 58.3   | 76.4  | 18.1   |
| 10  | 158   | 9.0                                 | 16.3   | 7.36  | 53 1 < 10   | 7   | 492  | 34.0  | 50.9   | 16.9  |   | 8 < 12                    | 6   | 745  | 59.0   | 77.0  | 18.1   |
| 10  | 168   | 9.6                                 | 17.4   | 7.76  | 54 2 > 7  | 7   | 499  | 34.6  | 51.6   | 17.0  |   | 9 < 10                    | 6   | 751  | 59.6   | 77.7  | 18.0   |
| 10  | 178   | 10.3                                | 18.4   | 8.15  | 55 2 < 9  | 7   | 506  | 35.3  | 52.3   | 17.1  |   | 9 > 13                    | 6   | 757  | 60.3   | 78.3  | 18.0   |
| 10<br>10  | 188<br>198  | 10.9<br>11.5                        | 20.5   | 8.54  | 56 2 < 10<br>57 3 > 6   | 7   | 513<br>520   | 35.9<br>36.5  | 53.1<br>53.8   | 17.2<br>17.2  |   | 11<12<br>1>4              | 6   | 763  | 60.9<br>61.5   | 78.9  | 18.0<br>17.9   |
| 10  | 208   | 12.2                                | 21.5   | 9.33  | 58 3 > 8  | 7   | 527  | 37.2  | 54.5   | 17.3  |   | 2 > 6                     | 5   | 708  | 62.2   | 79.9  | 17.8   |
| 10  | 218   | 12.8                                | 22.5   | 9.72  | 59 3 < 8  | 7   | 534  | 37.8  | 55.2   | 17.4  |   | 2 < 6                     | 5   | 778  | 62.8   | 80.5  | 17.6   |
| 9   | 227   | 13.5                                | 23.5   | 10.01   | <b>60</b> 3 > 10  | 7   | 541  | 38.5  | 55.9   | 17.5  |   | 2 > 8                     | 5   | 783  | 63.5   | 81.0  | 17.5   |
| 9   | 236   | 14.1                                | 24.4   | 10.30   | 61 3 < 10   | 7   | 548  | 39.1  | 56.7   | 17.6  |   | 2 < 8                     | 5   | 788  | 64.1   | 81.5  | 17.4   |
| 9   | 245<br>254  | 14.7<br>15.4                        | 25.3<br>26.3   | 10.59<br>10.88  | 62 3 > 11<br>63 4 < 5   | 7   | 555<br>562   | 39.7<br>40.4  | 57.4<br>58.1   | 17.7  |   | 2 > 13<br>3 < 7           | 5   | 793<br>798   | 64.7<br>65.4   | 82.0<br>82.5  | 17.3<br>17.1   |
| 9   | 263   | 15.4                                | 20.5   | 11.17   | 64 4 < 6  | 7   | 562  | 40.4  | 58.8   | 17.8  |   | 3 > 9                     | 5   | 803  | 66.0   | 83.0  | 17.1   |
| 9   | 272   | 16.7                                | 28.1   | 11.46   | 65 5 < 8  | 7   | 576  | 41.7  | 59.6   | 17.9  |   | 4 > 5                     | 5   | 808  | 66.7   | 83.6  | 16.9   |
| 9   | 281   | 17.3                                | 29.1   | 11.75   | 66 5 < 12   | 7   | 583  | 42.3  | 60.3   | 18.0  |   | 4 > 9                     | 5   | 813  | 67.3   | 84.1  | 16.8   |
| 9   | 290   | 17.9                                | 30.0   | 12.04   | 67 7 > 10   | 7   | 590  | 42.9  | 61.0   | 18.1  | 106   | 5 < 7                     | 5   | 818  | 67.9   | 84.6  | 16.6   |
| 9   | 299<br>308  | 18.6<br>19.2                        | 30.9<br>31.9   | 12.33   | 68 7 < 10<br>69 8 > 10  | 7   | 597<br>604   | 43.6<br>44.2  | 61.7<br>62.5   | 18.1<br>18.2  |   | 5 > 11<br>6 > 10          | 5   | 823  | 68.6<br>69.2   | 85.1<br>85.6  | 16.5<br>16.4   |
| 9   | 317   | 19.2                                | 32.8   | 12.91   | 70 8 > 11   | 7   | 611  | 44.9  | 63.2   | 18.3  |   | 6 < 11                    | 5   | 833  | 69.9   | 86.1  | 16.3   |
| 9   | 326   | 20.5                                | 33.7   | 13.20   | 71 9 > 11   | 7   | 618  | 45.5  | 63.9   | 18.4  |   | 7 > 9                     | 5   | 838  | 70.5   | 86.7  | 16.1   |
| 9   | 335   | 21.2                                | 34.6   | 13.49   | 72 11>12  | 7   | 625  | 46.2  | 64.6   | 18.5  |   | 7 < 11                    | 5   | 843  | 71.2   | 87.2  | 16.0   |
| 8   | 343   | 21.8                                | 35.5   | 13.68   | 73 1 < 4  | 6   | 631  | 46.8  | 65.3   | 18.5  |   | 1 > 8                     | 4   | 847  | 71.8   | 87.6  | 15.8   |
| 8   | 351   | 22.4<br>23.1                        | 36.3<br>37.1   | 13.86<br>14.05  | 74 1 > 9<br>75 1 > 10   | 6   | 637<br>643   | 47.4<br>48.1  | 65.9<br>66.5   | 18.4<br>18.4  |   | 1 < 12<br>3 < 5           | 4   | 851  | 72.4 73.1  | 88.0<br>88.4  | 15.6<br>15.3   |
| 8   | 367   | 23.7                                | 38.0   | 14.05   | 76 1 > 11   | 6   | 645  | 48.7  | 67.1   | 18.4  |   | 3 < 12                    | 4   | 859  | 73.7   | 88.8  | 15.5   |
| 8   | 375   | 24.4                                | 38.8   | 14.42   | 77 1 < 11   | 6   | 655  | 49.4  | 67.7   | 18.4  |   | 4 > 6                     | 4   | 863  | 74.4   | 89.2  | 14.9   |
| 8   | 383   | 25.0                                | 39.6   | 14.61   | 78 2 > 9  | 6   | 661  | 50.0  | 68.4   | 18.4  | 117   | 4 > 10                    | 4   | 867  | 75.0   | 89.7  | 14.7   |
|   |   |                                     |  |   |   |   |  |   |  |   |   |                           |   |  |  |   |  |
|   |   |                                     | -  |   | -   |   |  |   | -  |   |   |                           |   |  |  |   |  |
|   | Affinity Pai  |                                     | uency c  |   | Cumulative  | e Cumulati  |  |   |  |   |   |                           |   |  |  |   |  |
| No.   | Relationshi   | in 30                               | tod V  | umulativ  |   |   |  | -   | Affinity   | Pair  | Frequ   | - 10                      | umulative   | Cumulative   |  |   | lower  |
| 79  |   | (Desce                              | ted F  | Frequenc  | Percent   | Percen  | t Powe   | er No.  | Affinity<br>Relation   | shin  | Sort  | ed                        | umulative<br>requency   | Percent  | Perce  | ent P   | ower   |
|   | 2 > 10  | ' (Desce                            | ted  |   | Percent   |   | t Powe   | No.   | Relation   | ship (  |   | ed                        | umulative   |  |  | ent P<br>ency)  | ower   |
| 80  | 2 < 12  | (Desce                              | nted<br>ending)<br>6<br>6  | Frequenc<br>667<br>673  | e Percent<br>(Relation)<br>50.6<br>51.3   | Percen<br>(Frequen<br>69.0<br>69.6  | t Powe<br>cy)<br>18.3<br>18.3  | No.<br>118  | Relation:<br>5 > 8<br>5 > 9  | ship<br>(   | Sort<br>Descer<br>4<br>4  | ed                        | 871<br>875  | Percent<br>(Relation)<br>75.6<br>76.3  | Perce<br>(Freque<br>90.:<br>90.:   | ent P<br>ency)<br>1<br>5  | 14.4<br>14.2   |
| 80<br>81  | 2 < 12<br>2 < 13  | (Desce                              | rted Fending) F  | Frequenc<br>667<br>673<br>679   | e Percent<br>(Relation)<br>50.6<br>51.3<br>51.9   | Percen<br>(Frequen<br>69.0<br>69.6<br>70.2  | t Powe<br>cy)<br>18.3<br>18.3<br>18.3  | No.<br>118<br>119<br>120  | Relation:<br>5 > 8<br>5 > 9<br>6 > 12  | ship<br>(<br>2  | Sort<br>Descer<br>4<br>4  | ed                        | 871<br>875<br>879   | Percent<br>(Relation)<br>75.6<br>76.3<br>76.9  | Perce<br>(Freque<br>90.1<br>90.1<br>90.1   | ent P<br>ency)<br>1<br>5<br>9   | 14.4<br>14.2<br>14.0   |
| 80<br>81<br>82  | 2 < 12<br>2 < 13<br>4 > 7   | (Desce                              | rted Fanding)<br>6<br>6<br>6<br>6<br>6   | Frequenc<br>667<br>673<br>679<br>685  | Percent<br>(Relation)<br>50.6<br>51.3<br>51.9<br>52.6   | Percen<br>(Frequen<br>69.0<br>69.6<br>70.2<br>70.8  | t Powe<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3  | No.<br>118<br>119<br>120<br>121   | Relation:<br>5 > 8<br>5 > 9<br>6 > 12<br>7 > 12  | ship<br>2<br>2  | Sort<br>Descer<br>4<br>4<br>4   | ed                        | 871<br>875<br>879<br>883  | Percent<br>(Relation)<br>75.6<br>76.3<br>76.9<br>77.6  | Perce<br>(Freque<br>90.:<br>90.:<br>90.:<br>90.:<br>91.:   | ent P<br>ency)<br>1<br>5<br>9<br>3  | 14.4<br>14.2<br>14.0<br>13.7   |
| 80<br>81<br>82<br>83  | 2 < 12<br>2 < 13<br>4 > 7<br>4 > 12   | (Desce                              | rted F<br>ending)<br>6<br>6<br>6<br>6<br>6<br>6<br>6   | Frequenc<br>667<br>673<br>679<br>685<br>691   | Percent<br>(Relation)<br>50.6<br>51.3<br>51.9<br>52.6<br>53.2   | Percen<br>(Frequen<br>69.0<br>69.6<br>70.2<br>70.8<br>71.5  | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3   | No.<br>118<br>119<br>120<br>121<br>122  | Relation:<br>5 > 8<br>5 > 9<br>6 > 1<br>7 > 1<br>8 > 9   | ship (<br>2<br>2<br>2   | Sort<br>Descer<br>4<br>4<br>4<br>4<br>4<br>4  | ed                        | 871<br>875<br>879<br>883<br>887   | Percent<br>(Relation)<br>75.6<br>76.3<br>76.9<br>77.6<br>78.2  | Perce<br>(Freque<br>90.1<br>90.1<br>90.1<br>90.1<br>91.1<br>91.1   | ent P<br>ency)<br>1<br>5<br>9<br>3<br>7   | 14.4<br>14.2<br>14.0<br>13.7<br>13.5   |
| 80<br>81<br>82<br>83<br>84  | 2 < 12<br>2 < 13<br>4 > 7<br>4 > 12<br>5 < 11   | Desce                               | rted F<br>ending)<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6  | Frequenc<br>667<br>673<br>679<br>685<br>691<br>697  | Percent<br>(Relation)<br>50.6<br>51.3<br>51.9<br>52.6<br>53.2<br>53.8   | Percen<br>(Frequen<br>69.0<br>69.6<br>70.2<br>70.8<br>71.5<br>72.1  | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3   | No.<br>118<br>119<br>120<br>121<br>122<br>123   | Relation:<br>5 > 8<br>5 > 9<br>6 > 12<br>7 > 12<br>8 > 9<br>9 < 13   | ship (<br>2<br>2<br>3   | Sort<br>Descer<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4  | ed                        | 871<br>875<br>879<br>883<br>887<br>891  | Percent<br>(Relation)<br>75.6<br>76.3<br>76.9<br>77.6<br>78.2<br>78.8  | Perce<br>(Freque<br>90.1<br>90.1<br>90.1<br>90.1<br>91.1<br>91.1<br>91.1<br>92.1   | ent P<br>ency)<br>1<br>5<br>9<br>3<br>7<br>1  | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.3   |
| 80<br>81<br>82<br>83  | 2 < 12<br>2 < 13<br>4 > 7<br>4 > 12   | Desce                               | rted F<br>ending)<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6  | Frequenc<br>667<br>673<br>679<br>685<br>691   | Percent<br>(Relation)<br>50.6<br>51.3<br>51.9<br>52.6<br>53.2   | Percen<br>(Frequen<br>69.0<br>69.6<br>70.2<br>70.8<br>71.5  | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3   | No.<br>118<br>119<br>120<br>121<br>122<br>123<br>123  | Relation:<br>5 > 8<br>5 > 9<br>6 > 1<br>7 > 1<br>8 > 9   | ship (<br>2<br>2<br>2<br>3<br>3   | Sort<br>Descer<br>4<br>4<br>4<br>4<br>4<br>4  | ed                        | 871<br>875<br>879<br>883<br>887   | Percent<br>(Relation)<br>75.6<br>76.3<br>76.9<br>77.6<br>78.2  | Perce<br>(Freque<br>90.1<br>90.1<br>90.1<br>90.1<br>91.1<br>91.1   | ent P<br>ency)<br>1 5<br>5 5<br>3 5<br>7 5<br>1 6   | 14.4<br>14.2<br>14.0<br>13.7<br>13.5   |
| 80<br>81<br>82<br>83<br>84<br>85  | 2 < 12<br>2 < 13<br>4 > 7<br>4 > 12<br>5 < 11<br>6 > 7  | Desce                               | rted Fanding)<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6  | Frequenc<br>667<br>673<br>679<br>685<br>691<br>697<br>703   | Percent<br>(Relation)<br>50.6<br>51.3<br>51.9<br>52.6<br>53.2<br>53.8<br>54.5   | Percen<br>(Frequen<br>69.0<br>70.2<br>70.8<br>71.5<br>72.1<br>72.7  | t Powe<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2  | No.<br>118<br>119<br>120<br>121<br>122<br>123<br>124<br>124   | Relation:<br>5 > 8<br>5 > 9<br>6 > 12<br>7 > 12<br>8 > 9<br>9 < 12<br>11 < 1   | ship<br>(<br>2<br>2<br>2<br>3<br>3<br>3   | Sort<br>Descer<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4  | ed                        | 871<br>875<br>879<br>883<br>887<br>891<br>895   | Percent<br>(Relation)<br>75.6<br>76.3<br>76.9<br>77.6<br>78.2<br>78.8<br>79.5  | Perce<br>(Freque<br>90.1<br>90.1<br>90.1<br>90.1<br>91.1<br>91.1<br>91.1<br>92.1   | ent P<br>ency)<br>1 5<br>5 5<br>9 5<br>3 5<br>7 5<br>1 5<br>6 5<br>9 5  | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.3<br>13.1   |
| 80<br>81<br>82<br>83<br>84<br>85<br>86<br>87<br>88  | 2 < 12<br>2 < 13<br>4 > 7<br>4 > 12<br>5 < 11<br>6 > 7<br>6 > 8<br>6 < 8<br>6 < 13  |                                     | rted         F           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6   | requenc<br>667<br>673<br>679<br>685<br>691<br>697<br>703<br>709<br>715<br>721   | Percent<br>(Relation)<br>50.6<br>51.3<br>51.9<br>52.6<br>53.2<br>53.8<br>54.5<br>55.1<br>55.1<br>55.8<br>56.4   | Percen<br>(Frequen<br>69.0<br>70.2<br>70.8<br>71.5<br>72.1<br>72.7<br>73.3<br>73.9<br>74.6  | t Powe<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2  | No.           118           119           120           121           122           123           124           125           126           127   | Relation<br>5 > 8<br>5 > 9<br>6 > 1<br>7 > 1<br>8 > 9<br>9 < 1<br>11 < 1<br>1 < 3<br>1 < 5<br>1 < 6  | ship<br>2<br>2<br>3<br>3<br>3<br>5<br>5   | Sort<br>Descer<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>3<br>3<br>3<br>3  | ed                        | annuative           requency           871           875           879           883           887           891           895           901           904  | Percent<br>(Relation)<br>75.6<br>76.3<br>76.9<br>77.6<br>78.2<br>78.8<br>79.5<br>80.1<br>80.8<br>81.4  | Perce<br>(Freque<br>90.)<br>90.)<br>90.)<br>91.)<br>91.)<br>92.)<br>92.)<br>92.)<br>92.)<br>92.)<br>92.)<br>92.)<br>93.)   | ent P<br>ency)<br>1 5<br>5<br>9<br>3<br>7<br>7<br>1<br>6<br>5<br>9<br>2<br>2<br>5   | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.3<br>13.1<br>12.7<br>12.4<br>12.1   |
| 80<br>81<br>82<br>83<br>84<br>85<br>86<br>86<br>87<br>88<br>88<br>89  | 2 < 12 $2 < 13$ $4 > 7$ $4 > 12$ $5 < 11$ $6 > 7$ $6 > 8$ $6 < 8$ $6 < 13$ $8 < 9$  |                                     | rted         F           ending)         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6   | 667<br>673<br>679<br>685<br>691<br>697<br>703<br>709<br>715<br>721<br>727   | Percent<br>(Relation)<br>50.6<br>51.3<br>51.9<br>52.6<br>53.2<br>53.8<br>54.5<br>55.1<br>55.8<br>56.4<br>57.1   | Percen<br>(Frequen<br>69.0<br>70.2<br>70.8<br>71.5<br>72.1<br>72.7<br>73.3<br>73.9<br>74.6<br>75.2  | t Powe<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2  | No.           118           119           120           121           122           123           124           125           126           127           128   | Relation<br>5 > 8<br>5 > 9<br>6 > 1<br>7 > 1<br>8 > 9<br>9 < 1<br>11 < 1<br>1 < 3<br>1 < 5<br>1 < 6<br>2 < 3   | ship<br>2<br>2<br>3<br>3<br>3<br>5<br>5<br>5<br>5<br>5  | Sort<br>Descer<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>3<br>3<br>3<br>3<br>3  | ed                        | annuative           871           875           879           883           887           891           895           898           901           904           907   | Percent<br>(Relation)<br>75.6<br>76.3<br>76.9<br>77.6<br>78.2<br>78.8<br>79.5<br>80.1<br>80.1<br>80.8<br>81.4<br>82.1  | Perce<br>(Freque<br>90.)<br>90.)<br>90.)<br>91.)<br>91.)<br>92.)<br>92.)<br>92.)<br>93.)<br>93.)<br>93.)   | ent P<br>ency)<br>1 5<br>5<br>9<br>3<br>7<br>7<br>1<br>6<br>9<br>9<br>2<br>5<br>5<br>8  | 14.4<br>14.2<br>13.7<br>13.5<br>13.3<br>13.1<br>12.7<br>12.4<br>12.1<br>11.7   |
| 80<br>81<br>82<br>83<br>83<br>84<br>85<br>86<br>87<br>88<br>87<br>88<br>89<br>90  | $\begin{array}{c} 2 < 12 \\ 2 < 13 \\ 4 > 7 \\ 4 > 12 \\ 5 < 11 \\ 6 > 7 \\ 6 > 8 \\ 6 < 8 \\ 6 < 13 \\ 8 < 9 \\ 8 < 10 \end{array}$  |                                     | rted         F           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6   | requenc<br>667<br>673<br>679<br>685<br>691<br>697<br>703<br>709<br>715<br>721<br>727<br>733   | Percent<br>(Relation)<br>50.6<br>51.3<br>51.9<br>52.6<br>53.2<br>53.8<br>54.5<br>55.1<br>55.8<br>55.4<br>55.8<br>55.4<br>55.8<br>55.4<br>55.7   | Percen<br>(Frequen<br>69.0<br>70.2<br>70.8<br>71.5<br>72.1<br>72.7<br>73.3<br>73.9<br>74.6<br>75.2<br>75.8  | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.1   | No.<br>118<br>119<br>120<br>121<br>123<br>124<br>124<br>125<br>126<br>127<br>128<br>127<br>128<br>129   | Relation<br>5 > 8<br>5 > 9<br>6 > 1<br>7 > 1<br>7 > 1<br>8 > 9<br>9 < 1<br>11 < 1<br>1 < 3<br>1 < 5<br>2 < 3<br>2 < 5  | ship<br>2<br>2<br>3<br>3<br>3<br>3<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5   | Sort<br>Descer<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>3<br>3<br>3<br>3<br>3<br>3<br>3                                    | ed                        | requency<br>871<br>875<br>879<br>883<br>887<br>891<br>895<br>895<br>898<br>901<br>904<br>907<br>910   | Percent<br>(Relation)<br>75.6<br>76.9<br>77.6<br>78.2<br>78.8<br>79.5<br>80.1<br>80.8<br>81.4<br>82.1<br>82.7  | Perce<br>(Freque<br>90.:<br>90.:<br>91.:<br>92.:<br>92.:<br>92.:<br>93.:<br>93.:<br>93.:<br>93.:<br>93.:   | Pancy)           1           5           9           1           6           9           2           5           5           1           2           5           5           1           2           5           1           5           1  | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.3<br>13.1<br>12.7<br>12.4<br>12.1<br>11.7<br>11.4   |
| 80         81           82         83           84         85           86         87           88         89           90         91   | $\begin{array}{c} 2 < 12 \\ 2 < 13 \\ 4 > 7 \\ 5 < 11 \\ 6 > 7 \\ 6 > 8 \\ 6 < 8 \\ 6 < 8 \\ 8 < 9 \\ 8 < 10 \\ 8 > 12 \end{array}$   |                                     | rted         F           ending)         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6   | requenc<br>667<br>673<br>679<br>685<br>691<br>697<br>703<br>709<br>715<br>721<br>721<br>727<br>733<br>739   | Percent<br>(Relation)<br>50.6<br>51.3<br>51.9<br>52.6<br>53.2<br>53.8<br>54.5<br>55.8<br>55.8<br>55.8<br>56.4<br>57.1<br>57.7<br>58.3   | Percen<br>(Frequen<br>69.0<br>69.0<br>70.2<br>70.8<br>71.5<br>72.1<br>72.7<br>73.3<br>73.9<br>74.6<br>75.2<br>75.8<br>76.4  | t Powe<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.1<br>18.1  | No.<br>118<br>119<br>120<br>121<br>122<br>123<br>124<br>125<br>126<br>126<br>127<br>128<br>129<br>129<br>130  | Relation<br>5 > 8<br>5 > 9<br>6 > 1<br>7 > 1<br>8 > 9<br>9 < 1<br>11<1<br>1 < 3<br>1 < 5<br>1 < 6<br>2 < 3<br>2 < 5<br>3 < 1   | ship<br>22<br>23<br>33<br>33<br>55<br>55<br>1   | Sort<br>Descer<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3                     | ed                        | arequency           871           875           879           883           891           895           998           901           904           907           910           913   | Percent<br>(Relation)<br>75.6<br>76.3<br>76.9<br>77.6<br>78.2<br>78.8<br>79.5<br>80.1<br>80.8<br>81.4<br>82.1<br>82.1<br>82.7<br>83.3  | Perce<br>(Freque<br>90.:<br>90.:<br>91.:<br>91.:<br>92.:<br>92.:<br>92.:<br>93.:<br>93.:<br>93.:<br>93.:<br>93.:<br>93.:<br>93.:   | Pancy)         Pancy)           1   | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.3<br>13.1<br>12.7<br>12.4<br>12.1<br>11.7<br>11.4<br>11.1   |
| 80<br>81<br>82<br>83<br>83<br>84<br>85<br>86<br>87<br>88<br>87<br>88<br>89<br>90  | $\begin{array}{c} 2 < 12 \\ 2 < 13 \\ 4 > 7 \\ 5 < 11 \\ 6 > 7 \\ 6 > 8 \\ 6 < 8 \\ 6 < 13 \\ 8 < 9 \\ 8 < 10 \\ 8 > 12 \\ 8 < 12 \end{array}$  |                                     | rted         F           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6   | Frequenc<br>667<br>673<br>679<br>685<br>691<br>697<br>703<br>709<br>715<br>721<br>727<br>733<br>739<br>745  | Percent<br>(Relation)<br>50.6<br>51.3<br>52.6<br>53.2<br>53.8<br>54.5<br>55.1<br>55.8<br>56.4<br>57.7<br>58.3<br>57.7<br>58.3<br>59.0   | Percen<br>(Frequen<br>69.0<br>70.2<br>70.8<br>71.5<br>72.1<br>72.7<br>73.3<br>73.9<br>74.6<br>75.2<br>75.8  | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2   | No.           118           119           120           121           122           123           124           125           126           127           128           129           120           121           123           124           125           126           127           128           129           130           131   | Relation           5 > 8           5 > 9           6 > 12           7 > 12           8 > 9           9 < 12  | ship<br>2<br>2<br>3<br>3<br>3<br>3<br>3<br>4<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5   | Sort<br>Descer<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>3<br>3<br>3<br>3<br>3<br>3<br>3                                    | ed                        | requency<br>871<br>875<br>879<br>883<br>887<br>891<br>895<br>895<br>898<br>901<br>904<br>907<br>910   | Percent<br>(Relation)<br>75.6<br>76.9<br>77.6<br>78.2<br>78.8<br>79.5<br>80.1<br>80.8<br>81.4<br>82.1<br>82.7  | Perce<br>(Freque<br>90.:<br>90.:<br>91.:<br>92.:<br>92.:<br>92.:<br>93.:<br>93.:<br>93.:<br>93.:<br>93.:   | Pancy         Pancy           2         -           9         -           1         -           9         -           1         -           6         -           9         -           2         -           5         -           8         -           1         -           4         -           7         -   | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.3<br>13.1<br>12.7<br>12.4<br>12.1<br>11.7<br>11.4   |
| 80         81           82         83           84         85           86         87           88         89           90         91           92         92   | $\begin{array}{c} 2 < 12 \\ 2 < 13 \\ 4 > 7 \\ 5 < 11 \\ 6 > 7 \\ 6 > 8 \\ 6 < 8 \\ 6 < 8 \\ 8 < 9 \\ 8 < 10 \\ 8 > 12 \end{array}$   |                                     | rted         F           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6           6         6   | requenc<br>667<br>673<br>679<br>685<br>691<br>697<br>703<br>709<br>715<br>721<br>721<br>727<br>733<br>739   | Percent<br>(Relation)<br>50.6<br>51.3<br>51.9<br>52.6<br>53.2<br>53.8<br>54.5<br>55.8<br>55.8<br>55.8<br>56.4<br>57.1<br>57.7<br>58.3   | Percen<br>(Frequen<br>69.0<br>70.2<br>70.8<br>71.5<br>72.1<br>72.7<br>73.3<br>73.9<br>74.6<br>75.2<br>75.8<br>76.4<br>77.0  | t Powe<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.1<br>18.1  | No.           118           119           120           121           122           123           124           125           126           127           128           129           131           132   | Relation<br>5 > 8<br>5 > 9<br>6 > 1<br>7 > 1<br>8 > 9<br>9 < 1<br>11 < 1<br>1 < 3<br>1 < 5<br>1 < 6<br>2 < 3<br>2 < 5<br>3 < 1<br>5 > 1<br>6 > 9<br>9 < 3<br>1 < 6<br>1 < 6<br>2 < 3<br>2 < 5<br>3 < 1<br>5 > 9<br>1 < 6<br>2 < 3<br>3 < 1<br>5 > 9<br>1 < 6<br>5 > 9<br>1 < 6<br>2 < 5<br>3 < 1<br>5 > 9<br>1 < 6<br>5 > 9<br>5 > 9   | ship<br>2<br>2<br>3<br>3<br>3<br>3<br>4<br>5<br>5<br>5<br>1<br>2<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1  | Sort<br>Descer<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3                     | ed                        | requency<br>871<br>875<br>879<br>883<br>883<br>887<br>891<br>895<br>898<br>901<br>904<br>907<br>907<br>910<br>913<br>916  | Percent<br>(Relation)<br>75.6<br>76.9<br>77.6<br>78.2<br>78.8<br>79.5<br>80.1<br>80.8<br>81.4<br>82.1<br>82.1<br>82.7<br>83.3<br>84.0  | Perce<br>(Freque<br>90.3<br>90.3<br>91.3<br>91.3<br>92.4<br>92.4<br>92.4<br>93.3<br>93.4<br>93.4<br>93.4<br>93.4<br>93.4<br>93.4<br>93   | P         P           1         1           5         -           9         -           7         -           6         -           9         -           5         -           5         -           6         -           9         -           1         -           6         -           7         -           7         -           0         -   | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.3<br>13.1<br>12.7<br>12.4<br>12.1<br>11.7<br>11.4<br>11.1<br>10.8   |
| 80<br>81<br>82<br>83<br>84<br>85<br>86<br>87<br>88<br>87<br>90<br>90<br>91<br>92<br>93<br>94<br>95  | $\begin{array}{c} 2 < 12 \\ 2 < 13 \\ 4 > 7 \\ 4 > 12 \\ 5 < 11 \\ 6 > 7 \\ 6 > 8 \\ 6 < 8 \\ 6 < 13 \\ 8 < 9 \\ 8 < 10 \\ 8 > 12 \\ 8 < 12 \\ 9 < 10 \\ 9 > 13 \\ 11 < 12 \end{array}$   |                                     | rted         p           anding)         a           6         b   | requenc<br>667<br>673<br>679<br>685<br>691<br>697<br>709<br>715<br>721<br>727<br>733<br>739<br>745<br>751<br>757<br>763   | Percent           (Relation)           50.6           51.3           52.6           53.2           55.1           55.8           55.4           57.1           57.7           58.3           59.0           59.6           60.3           60.3           60.9   | Percent<br>(Frequent<br>(Frequent<br>69.0<br>69.0<br>70.2<br>70.8<br>71.5<br>72.1<br>72.7<br>73.3<br>73.9<br>74.6<br>75.2<br>75.8<br>75.2<br>75.8<br>76.4<br>77.0<br>77.7<br>78.3<br>78.9   | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2   | No.           118           119           120           121           122           123           124           125           126           127           128           129           130           131           132           1334           1334           1334           1334   | Relation           5 > 8           5 > 9           6 > 11           7 > 12           8 > 9           9 < 12  | ship<br>22<br>23<br>33<br>33<br>33<br>33<br>33<br>33<br>33<br>33<br>33<br>33<br>33  | Sort<br>Descer<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3                     | ed                        | amulative           871           875           883           887           891           895           901           904           907           910           913           916           919           922           925   | Percent<br>(Relation)<br>75.6<br>76.3<br>76.9<br>77.6<br>78.2<br>78.2<br>78.8<br>79.5<br>80.1<br>80.1<br>80.4<br>80.4<br>80.4<br>82.1<br>82.1<br>82.7<br>82.7<br>83.8<br>4.0<br>84.6<br>85.9   | Perce<br>(Freque<br>90<br>90<br>91<br>92<br>92<br>93<br>93<br>93<br>93<br>94<br>94<br>94<br>95<br>95   | Pentcy)  Solution  Solution  Solution  Particular  Par  | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.3<br>13.1<br>12.7<br>12.4<br>12.1<br>11.7<br>11.4<br>11.1<br>10.8<br>10.4<br>10.1<br>9.8  |
| 80<br>81<br>82<br>83<br>84<br>86<br>86<br>87<br>88<br>88<br>89<br>90<br>91<br>91<br>92<br>93<br>93<br>94<br>95<br>96  | $\begin{array}{c} 2 < 12 \\ 2 < 13 \\ 4 > 7 \\ 4 > 12 \\ 5 < 11 \\ 6 > 7 \\ 6 > 8 \\ 6 < 8 \\ 6 < 13 \\ 8 < 9 \\ 8 < 10 \\ 8 > 12 \\ 8 < 12 \\ 9 < 10 \\ 9 > 13 \\ 11 < 12 \\ 1 > 4 \end{array}$  |                                     | reduing)           se  | requenc<br>667<br>673<br>679<br>685<br>691<br>697<br>703<br>709<br>715<br>727<br>733<br>739<br>745<br>751<br>757<br>768   | Percent<br>(Relation)<br>50.6<br>51.3<br>51.9<br>52.6<br>53.2<br>53.2<br>55.1<br>55.8<br>54.5<br>55.1<br>55.8<br>54.5<br>55.1<br>55.8<br>56.4<br>57.1<br>57.7<br>58.3<br>59.0<br>59.6<br>60.3<br>60.9<br>61.5   | Percent           (Frequent           69.0           69.6           70.2           70.8           71.5           72.1           72.7           73.3           73.9           74.6           75.2           75.4           76.4           77.0           78.3           78.9           78.9           78.9   | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2   | No.           118           119           1120           1200           1211           1221           1222           1233           124           125           126           127           128           129           1300           1313           1340           1340           1340  | Relation           5 > 8           5 > 9           6 > 11           7 > 11           8 > 9           9 < 11  | ship         ()           2         2           2         2           3         3           3         3           5         1           2         2           3         3           3         3           3         3           3         3           3         1           3         3   | Sort<br>Descer<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3                     | ed                        | amulative           871           875           879           883           891           895           998           901           904           907           910           913           916           919           922           925           928   | Percent<br>(Relation)<br>75.6<br>76.3<br>76.3<br>77.6<br>77.6<br>78.8<br>80.8<br>80.8<br>80.8<br>80.1<br>80.8<br>80.1<br>80.8<br>81.4<br>82.7<br>83.3<br>84.4<br>83.3<br>84.6<br>85.3<br>85.9<br>86.5  | Perce<br>(Freque<br>90<br>90.1<br>91.1<br>91.1<br>92.2<br>92.1<br>93.3<br>93.3<br>93.4<br>94.4<br>94.4<br>94.9<br>95.5<br>95.9<br>95.9   | Pent P<br>sncy)<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>4<br>4<br>4   | 14.4<br>14.2<br>13.7<br>13.5<br>13.3<br>13.1<br>12.7<br>12.4<br>12.1<br>11.7<br>11.4<br>10.8<br>10.4<br>10.1<br>9.8<br>9.4   |
| 80<br>81<br>82<br>83<br>84<br>85<br>86<br>87<br>88<br>87<br>88<br>89<br>90<br>91<br>92<br>92<br>92<br>93<br>94<br>95<br>96<br>97  | $\begin{array}{c} 2 < 12 \\ 2 < 13 \\ 4 > 7 \\ 4 > 12 \\ 5 < 11 \\ 6 > 7 \\ 6 > 8 \\ 6 < 13 \\ 8 < 9 \\ 8 < 10 \\ 8 > 12 \\ 8 < 12 \\ 9 < 10 \\ 9 > 13 \\ 111 < 12 \\ 1 > 4 \\ 2 > 6 \end{array}$   |                                     | rted         p           snding)         s           s         -   | requence<br>667<br>673<br>679<br>685<br>691<br>697<br>703<br>709<br>715<br>721<br>727<br>727<br>733<br>739<br>745<br>757<br>763<br>763<br>763<br>773  | Percent<br>(Relation)<br>50.6<br>51.3<br>51.9<br>52.6<br>53.2<br>53.8<br>55.1<br>55.1<br>55.1<br>55.1<br>55.4<br>55.4<br>55.4<br>57.7<br>58.3<br>59.0<br>59.0<br>59.0<br>59.6<br>60.3<br>60.9<br>61.5<br>62.2   | Percen           (Frequen           69.0           69.6           70.2           70.8           71.5           72.1           73.3           73.9           74.6           75.2           75.8           76.4           77.7           78.3           78.9           78.9           78.9           79.4           79.4           79.4           79.4           79.4           79.4  | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2   | No.           119           119           119           120           121           122           123           124           125           126           127           128           129           130           131           132           1330           1334           135           136   | Relation           5 > 8           5 > 9           6 > 11           7 > 12           8 > 9           9 < 11  | ship         (           2         2           2         2           3         3           3         1           2         2           3         1           2         2           3         1           3         1           1         1           1         1  | Sort<br>Descer<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3                     | ed                        | annuative           871           875           879           883           887           891           895           901           904           907           910           916           916           919           922           925           931   | Percent<br>(Relation)<br>75.6<br>76.9<br>77.6<br>77.6<br>78.8<br>80.1<br>80.8<br>81.4<br>82.1<br>82.7<br>83.3<br>84.0<br>84.6<br>85.3<br>85.9<br>86.5  | Perce<br>(Freque<br>90:<br>90:.<br>91:.<br>92:.<br>93:.<br>93:.<br>93:.<br>93:.<br>93:.<br>93:.<br>93:.<br>93  | Pent P  style="border: 2pt solid black; color: 2pt sol  | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.3<br>13.1<br>12.7<br>12.4<br>12.1<br>11.7<br>11.4<br>10.8<br>10.4<br>10.1<br>9.8<br>9.4<br>9.1  |
| 80<br>81<br>82<br>83<br>84<br>85<br>86<br>87<br>88<br>89<br>90<br>91<br>92<br>93<br>94<br>95<br>96<br>97<br>98  | $\begin{array}{c} 2 < 12 \\ 2 < 13 \\ 4 > 7 \\ 4 > 12 \\ 5 < 11 \\ 6 > 7 \\ 6 > 8 \\ 6 < 13 \\ 8 < 9 \\ 8 < 10 \\ 8 > 10 \\ 8 > 12 \\ 8 < 12 \\ 8 < 12 \\ 8 < 12 \\ 1 > 4 \\ 1 > 4 \\ 2 > 6 \\ 2 < 6 \end{array}$   |                                     | rtted         p           anding)         a           6         -           6         -           6         -           6         -           6         -           6         -           6         -           6         -           6         -           6         -           6         -           6         -           6         -           6         -           6         -           6         -           6         -           6         -           7         -           6         -           6         -           6         -           7         -           7         -           7         -           7         -           7         -           7         -           7         -           8         -           6         -           5         -           5         -  | requence<br>667<br>673<br>679<br>685<br>691<br>697<br>703<br>709<br>715<br>721<br>721<br>727<br>733<br>729<br>745<br>751<br>757<br>763<br>763<br>768<br>778   | Percent           (Relation)           50.6           51.3           52.6           53.2           53.8           54.5           55.1           55.4           57.1           55.8           56.4           57.7           58.3           59.0           59.6           60.3           60.9           62.2           62.8   | Percen           (Frequen           69.0           69.6           70.2           70.8           71.5           72.1           72.7           73.3           73.9           74.6           75.2           75.2           75.8           76.4           77.0           78.3           78.9           79.4           79.9           80.5   | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2   | No.           118           119           120           121           122           123           124           122           123           124           125           126           127           128           129           130           131           133           134           135           136           136           136   | Relation           5 > 8           5 > 9           6 > 11           7 > 11           7 > 12           7 > 12           1 < 5   | ship         (           2         2           2         2           3         3           3         3           3         3           3         1           2         2           3         1           3         1           1         1           2         1           3         1           1         1           2         2  | Sort<br>Descer<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>3<br>3<br>3<br>3<br>3<br>3<br>3                     | ed                        | and active           871           875           879           883           887           891           895           896           901           904           907           910           916           919           922           928           931           934  | Percent<br>(Relation)<br>75.6<br>76.9<br>77.6<br>77.6<br>78.2<br>79.5<br>80.1<br>80.8<br>81.4<br>82.7<br>83.3<br>84.0<br>84.6<br>85.3<br>84.6<br>85.3<br>85.9<br>86.5<br>87.8  | Perce<br>(Freque<br>90<br>90<br>91<br>91<br>91<br>92<br>92<br>92<br>93<br>93<br>94<br>94<br>94<br>95<br>95<br>95<br>95<br>95   | Penet P<br>sncy)<br>1   | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.3<br>13.1<br>12.7<br>12.4<br>12.1<br>11.7<br>11.4<br>12.1<br>11.7<br>11.4<br>10.8<br>10.4<br>10.1<br>9.8<br>9.4<br>9.1<br>8.8   |
| 80<br>81<br>82<br>83<br>84<br>85<br>86<br>87<br>88<br>87<br>88<br>89<br>90<br>91<br>92<br>92<br>92<br>93<br>94<br>95<br>96<br>97  | $\begin{array}{c} 2 < 12 \\ 2 < 13 \\ 4 > 7 \\ 4 > 12 \\ 5 < 11 \\ 6 > 7 \\ 6 > 8 \\ 6 < 13 \\ 8 < 9 \\ 8 < 10 \\ 8 > 12 \\ 8 < 12 \\ 9 < 10 \\ 9 > 13 \\ 111 < 12 \\ 1 > 4 \\ 2 > 6 \end{array}$   |                                     | rted         p           snding)         s           s         -   | requence<br>667<br>673<br>679<br>685<br>691<br>697<br>703<br>709<br>715<br>721<br>727<br>727<br>733<br>739<br>745<br>757<br>763<br>763<br>763<br>773  | Percent<br>(Relation)<br>50.6<br>51.3<br>51.9<br>52.6<br>53.2<br>53.2<br>55.1<br>55.1<br>55.1<br>55.1<br>55.1<br>55.1<br>55.3<br>55.1<br>55.3<br>55.1<br>55.3<br>55.1<br>55.3<br>55.3   | Percen           (Frequen           69.0           69.6           70.2           70.8           71.5           72.7           73.3           73.9           74.6           75.2           75.8           76.4           77.7           78.3           78.4           77.7           78.3           78.4           77.7           78.3           78.4           79.9           80.5           81.0   | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2   | No.           119           119           1120           1211           122           122           122           122           122           122           122           122           122           122           122           122           122           122           122           122           123           126           127           130           132           133           134           135           136           137           138           137           138   | Relation           5 > 8           5 > 9           6 > 11           7 > 12           8 > 9           9 < 11  | ship         (           2         2           2         2           3         3           3         3           3         1           3         2           3         1           3         2           3         1           3         1           3         1           3         1           3         1           1         1           2         1           3         1           1         1           2         3           3         3  | Sort<br>Descer<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3                     | ed                        | annuative           871           875           879           883           887           891           895           901           904           907           910           916           916           919           922           925           931   | Percent<br>(Relation)<br>75.6<br>76.9<br>77.6<br>78.8<br>79.5<br>80.1<br>80.4<br>80.4<br>82.1<br>82.1<br>82.1<br>82.7<br>83.3<br>84.0<br>84.0<br>84.6<br>85.3<br>85.9<br>86.5<br>87.2<br>87.2<br>87.5  | Perce           (Freque           90           90           91           91           92           93           93           93           94           95           95           95           95           96           96           96           96   | Penet P<br>Part 2<br>Part | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.3<br>13.1<br>12.7<br>12.4<br>12.1<br>11.7<br>11.4<br>10.8<br>10.4<br>10.1<br>9.8<br>9.4<br>9.1  |
| 80<br>81<br>82<br>83<br>84<br>85<br>86<br>87<br>88<br>89<br>90<br>91<br>92<br>93<br>94<br>95<br>96<br>97<br>98<br>99  | $\begin{array}{c} 2 < 12 \\ 2 < 13 \\ 4 > 7 \\ \hline \\ 4 > 12 \\ 5 < 11 \\ 6 > 7 \\ 6 > 8 \\ 6 < 8 \\ 8 < 9 \\ 8 < 10 \\ 8 > 12 \\ 8 < 11 \\ 9 < 10 \\ 9 > 13 \\ 11 < 12 \\ 1 > 4 \\ 2 > 6 \\ 2 < 8 \end{array}$  |                                     | rtted         p           anding)         a           6         b           6         b           6         b           6         b           6         b           6         b           6         b           6         b           6         b           6         b           6         b           6         b           6         b           6         b           6         b           6         b           6         b           5         c           5         b           5         b  | request           667           673           679           685           691           697           703           709           715           721           733           739           7451           757           768           773           768           773           768           773           768           773           768           773           783  | Percent           (Relation)           50.6           51.3           52.6           53.2           53.8           54.5           55.1           55.4           57.1           55.8           56.4           57.7           58.3           59.0           59.6           60.3           60.9           62.2           62.8   | Percen           (Frequen           69.0           69.6           70.2           70.8           71.5           72.1           72.7           73.3           73.9           74.6           75.2           75.2           75.8           76.4           77.0           78.3           78.9           79.4           79.9           80.5   | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2   | No.           118           119           120           121           122           123           124           125           126           127           128           126           127           128           129           130           131           131           131           131           131           135           136           136           136           137           138           139   | Relation           5 > 8           5 > 8           5 > 8           6 > 11           7 > 12           8 > 9           9 < 11  | ship         (           -  | Sort<br>Descer<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3                     | ed                        | annuative           871           875           879           883           887           891           895           901           904           907           910           913           916           912           925           925           925           921           931           934           937   | Percent<br>(Relation)<br>75.6<br>76.9<br>77.6<br>77.6<br>78.2<br>79.5<br>80.1<br>80.8<br>81.4<br>82.7<br>83.3<br>84.0<br>84.6<br>85.3<br>84.6<br>85.3<br>85.9<br>86.5<br>87.8  | Perce<br>(Freque<br>90<br>90<br>91<br>91<br>91<br>92<br>92<br>92<br>93<br>93<br>94<br>94<br>94<br>95<br>95<br>95<br>95<br>95   | Pent P<br>ancy // // // // // // // // // // // // //   | 14.4<br>14.2<br>13.7<br>13.5<br>13.1<br>12.7<br>12.4<br>12.7<br>12.4<br>12.1<br>11.7<br>11.4<br>11.1<br>10.8<br>10.4<br>9.8<br>9.4<br>9.4<br>9.1<br>8.8<br>8.4   |
| 80<br>81<br>82<br>83<br>84<br>85<br>86<br>87<br>90<br>91<br>92<br>93<br>94<br>95<br>94<br>95<br>97<br>98<br>99<br>1001<br>102   | $\begin{array}{c} 2 < 12 \\ 2 < 13 \\ 4 > 7 \\ 4 > 12 \\ 5 < 11 \\ 6 > 7 \\ 6 > 8 \\ 6 < 13 \\ 8 < 9 \\ 8 < 10 \\ 8 > 12 \\ 8 < 12 \\ 1 > 11 < 12 \\ 1 > 4 \\ 2 > 6 \\ 2 < 8 \\ 2 < 13 \\ 3 < 7 \end{array}$  |                                     | tted         F           ending)         6           6         -           5         -           5         -           5         -           5         -   | Frequence           667           673           679           685           697           703           709           715           727           733           739           745           757           763           763           788           788           798           798   | Percent<br>(Relation)<br>50.6<br>51.3<br>51.9<br>52.6<br>53.2<br>53.8<br>55.1<br>55.1<br>55.1<br>55.1<br>55.1<br>55.1<br>55.3<br>55.1<br>55.3<br>55.1<br>57.7<br>58.3<br>59.0<br>59.6<br>60.3<br>60.3<br>60.3<br>60.3<br>61.5<br>62.2<br>62.8<br>63.5<br>64.1<br>64.7<br>65.4   | Percen           (Frequen           69.0           70.2           70.8           71.5           72.1           72.7           73.3           73.9           74.6           77.5           76.4           77.0           77.7           78.3           76.4           77.0           77.7           78.9           79.4           79.4           79.4           79.4           79.4           79.5           81.0           81.5           82.0           82.1   | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2   | No.           118           119           1120           1221           1222           1223           1224           1225           1226           1227           1228           1229           1221           1227           1227           1227           1227           1230           1310           1340           1355           1366           1376           1388           1390           1400   | Relation           5 > 8           5 > 9           6 > 11           7 > 12           8 > 9           9 < 11  | ship         ()           ()  | Sort<br>Descer<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3 | ed                        | annuality           871           875           877           883           887           891           895           901           904           907           910           916           919           922           925           931           934           937           939           941           943   | Percent<br>(Relation)<br>75.6<br>76.9<br>77.6<br>78.2<br>78.8<br>80.1<br>80.8<br>81.4<br>82.1<br>82.1<br>82.3<br>84.0<br>84.6<br>85.3<br>84.0<br>84.6<br>85.9<br>86.5<br>87.2<br>87.2<br>87.2<br>87.8<br>88.5<br>9<br>86.5<br>89.1<br>89.1   | Perce           (Freque           90.1           90.1           91.1           91.1           91.2           92.2           93.3           93.4           94.4           94.4           95.5           95.6           96.6           96.7           96.8           96.9           96.1           96.2           97.1           97.2  | Pancy           ancy           3           5           33           7           6           9           22           9           23           1           7           1           7           1           7           3           7           3           7           3           7           3           6           9           3           1           3           1           3           1           3           1           3           1           3           1           3           5   | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.1<br>12.7<br>12.4<br>12.1<br>12.1<br>12.1<br>11.7<br>11.4<br>10.4<br>10.1<br>10.1<br>10.4<br>10.4<br>10.4<br>10.4   |
| 80<br>81<br>82<br>83<br>84<br>85<br>86<br>87<br>88<br>87<br>99<br>91<br>92<br>93<br>94<br>95<br>96<br>97<br>95<br>96<br>97<br>97<br>98<br>99<br>100<br>101<br>103   | $\begin{array}{c} 2 < 12 \\ 2 < 13 \\ 4 > 7 \\ 4 > 12 \\ 5 < 111 \\ 6 > 7 \\ 6 > 8 \\ 6 < 13 \\ 8 < 10 \\ 8 > 12 \\ 8 < 10 \\ 8 > 12 \\ 9 < 10 \\ 9 > 13 \\ 11 < 12 \\ 9 < 10 \\ 9 > 13 \\ 11 < 12 \\ 1 > 4 \\ 2 > 6 \\ 2 > 8 \\ 2 < 8 \\ 2 < 8 \\ 2 > 13 \\ 3 < 7 \end{array}$   |                                     | tted         F           ending)         6           6         -           6         -           6         -           6         -           6         -           6         -           6         -           6         -           6         -           6         -           6         -           6         -           6         -           6         -           6         -           6         -           5         -           5         -           5         -           5         -           5         -           5         -   | Frequence           667           673           679           685           697           703           709           715           721           733           729           745           751           763           768           773           788           788           793           803   | Percent           (Relation)           50.6           51.3           52.6           53.2           55.1           55.1           55.4           55.1           55.8           55.1           57.7           58.3           59.0           59.6           60.3           60.9           61.5           62.2           62.8           63.5           64.7           65.4           66.0   | Percen<br>(Frequen<br>69.0<br>70.2<br>70.8<br>71.5<br>72.1<br>73.3<br>73.9<br>74.6<br>75.2<br>75.2<br>75.2<br>75.8<br>76.4<br>77.0<br>77.7<br>78.3<br>75.9<br>78.9<br>79.4<br>77.9<br>80.5<br>81.0<br>81.5<br>82.0<br>82.5<br>83.0  | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.1<br>18.1   | No.           118           119           120           121           122           122           122           122           122           122           124           125           126           127           128           129           130           131           131           131           131           135           136           137           138           139           139           1314           135           136           137           138           139           139           139           139           139           139           139           139           139           139           139           139           120           121           122           123           124           124 <td>Relation           5 &gt; 8           5 &gt; 9           6 &gt; 11           7 &gt; 12           9 &lt; 12</td> 1 < 5  | Relation           5 > 8           5 > 9           6 > 11           7 > 12           9 < 12  | ship         ()           ()         ()   | Sort<br>Descere<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4                         | ed                        | annuality           871           875           879           883           891           895           898           901           904           907           910           916           919           925           931           934           937           934           937           939           941           945   | Percent<br>(Relation)<br>75.6<br>76.9<br>77.6<br>78.2<br>78.8<br>79.5<br>80.1<br>80.8<br>81.4<br>82.7<br>83.3<br>84.0<br>84.6<br>85.3<br>84.6<br>85.3<br>84.5<br>85.9<br>85.5<br>87.2<br>87.8<br>88.5<br>87.2<br>87.8<br>88.5<br>89.1<br>89.7<br>90.4  | Perce<br>(Freque<br>90.)<br>90.)<br>91.1<br>91.1<br>91.1<br>92.2<br>92.2<br>93.3<br>93.3<br>94.1<br>94.4<br>94.4<br>95.5<br>95.1<br>95.5<br>95.5<br>95.5<br>95.5<br>95.5<br>95.7<br>97.7<br>97.7   | Pent P<br>ency // // // // // // // // // // // // //   | 14.4<br>14.2<br>13.7<br>13.5<br>13.1<br>12.7<br>12.4<br>11.7<br>11.4<br>10.8<br>10.4<br>10.1<br>9.8<br>9.8<br>9.4<br>9.1<br>8.8<br>8.4<br>8.0<br>7.6<br>8.8<br>8.4<br>8.0<br>7.6<br>7.1<br>6.7   |
| 80<br>81<br>82<br>82<br>83<br>84<br>85<br>86<br>87<br>88<br>90<br>91<br>93<br>93<br>93<br>93<br>93<br>93<br>93<br>94<br>95<br>96<br>97<br>98<br>99<br>100<br>101<br>102<br>103<br>104   | $\begin{array}{c} 2 < 12 \\ 2 < 13 \\ 4 > 7 \\ 4 > 12 \\ 5 < 11 \\ 6 > 7 \\ 6 > 8 \\ 6 < 13 \\ 8 < 9 \\ 8 < 10 \\ 8 > 12 \\ 8 < 12 \\ 9 < 10 \\ 1 > 11 \\ 1 > 4 \\ 2 > 6 \\ 2 > 8 \\ 2 < 8 \\ 2 < 13 \\ 3 < 7 \\ 3 > 9 \\ 4 > 5 \end{array}$  |                                     | tted         F           anding)         a           b         a           b         b      b         b </td <td>Frequence<br/>67<br/>673<br/>679<br/>685<br/>691<br/>697<br/>703<br/>709<br/>715<br/>727<br/>733<br/>739<br/>745<br/>757<br/>763<br/>757<br/>763<br/>768<br/>778<br/>778<br/>778<br/>788<br/>783<br/>788<br/>798<br/>808</td> <td>Percent<br/>(Relation)<br/>50.6<br/>51.3<br/>51.9<br/>52.6<br/>53.2<br/>53.2<br/>55.1<br/>55.1<br/>55.1<br/>55.1<br/>55.1<br/>55.1<br/>55.3<br/>56.4<br/>57.7<br/>58.3<br/>59.6<br/>60.3<br/>60.9<br/>61.5<br/>62.2<br/>62.8<br/>63.5<br/>64.1<br/>64.7<br/>66.7</td> <td>Percen<br/>(Frequen<br/>69.0<br/>70.2<br/>70.8<br/>71.5<br/>72.1<br/>72.7<br/>73.3<br/>73.9<br/>74.6<br/>75.2<br/>75.8<br/>75.4<br/>77.0<br/>77.7<br/>77.7<br/>77.7<br/>78.9<br/>77.6<br/>77.7<br/>78.9<br/>77.6<br/>8<br/>9.0<br/>8<br/>1.0<br/>8<br/>8.0<br/>8<br/>3.0<br/>83.0<br/>83.0</td> <td>t Power<br/>cy)<br/>18.3<br/>18.3<br/>18.3<br/>18.3<br/>18.3<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2</td> <td>No.           119           119           120           121           122           123           124           125           126           127           128           127           128           129           130           131           132           133           136           137           138           139           140           142           142</td> <td>Relation           5 &gt; 8           5 &gt; 9           6 &gt; 11           7 &gt; 12           9           11           1           1           2 &lt; 3</td> 3 < 4  | Frequence<br>67<br>673<br>679<br>685<br>691<br>697<br>703<br>709<br>715<br>727<br>733<br>739<br>745<br>757<br>763<br>757<br>763<br>768<br>778<br>778<br>778<br>788<br>783<br>788<br>798<br>808  | Percent<br>(Relation)<br>50.6<br>51.3<br>51.9<br>52.6<br>53.2<br>53.2<br>55.1<br>55.1<br>55.1<br>55.1<br>55.1<br>55.1<br>55.3<br>56.4<br>57.7<br>58.3<br>59.6<br>60.3<br>60.9<br>61.5<br>62.2<br>62.8<br>63.5<br>64.1<br>64.7<br>66.7   | Percen<br>(Frequen<br>69.0<br>70.2<br>70.8<br>71.5<br>72.1<br>72.7<br>73.3<br>73.9<br>74.6<br>75.2<br>75.8<br>75.4<br>77.0<br>77.7<br>77.7<br>77.7<br>78.9<br>77.6<br>77.7<br>78.9<br>77.6<br>8<br>9.0<br>8<br>1.0<br>8<br>8.0<br>8<br>3.0<br>83.0<br>83.0  | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2   | No.           119           119           120           121           122           123           124           125           126           127           128           127           128           129           130           131           132           133           136           137           138           139           140           142           142   | Relation           5 > 8           5 > 9           6 > 11           7 > 12           9           11           1           1           2 < 3  | ship         I           I         I  | Sort 1 Descer 4 4 4 4 4 4 4 4 4 4 4 4 3 3 3 3 3 3 3 3   | ed                        | annuality           871           875           879           883           891           895           896           901           907           910           913           916           922           925           928           931           934           937           939           941           943           945           947   | Percent<br>[Relation]<br>75.6<br>76.9<br>77.6<br>77.6<br>78.8<br>79.5<br>80.1<br>80.8<br>81.4<br>82.1<br>82.1<br>82.7<br>83.3<br>84.0<br>84.0<br>84.6<br>85.3<br>85.9<br>86.5<br>87.2<br>87.2<br>87.8<br>87.2<br>87.2<br>87.8<br>87.9<br>88.5<br>87.2<br>87.2<br>87.5<br>89.1<br>89.7<br>90.4<br>91.7  | Perce           (Freque           90           90           91           92           92           92           93           93           93           93           93           93           93           94           95           95           95           96           96           96           97           97           97           97  | P           11           5           5           5           7           1           6           9           2           5           8           7           8           7           9           11           7           8           7           9           3           9           3           9           11           9           9           12           9           9           9           9           9           9   | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.1<br>13.1<br>12.7<br>12.4<br>12.1<br>11.7<br>10.8<br>9.4<br>9.4<br>9.4<br>9.9<br>9.1<br>8.8<br>8.4<br>8.8<br>9.4<br>7.6<br>7.6<br>7.6<br>7.6<br>7.6   |
| 80<br>81<br>82<br>83<br>84<br>85<br>86<br>87<br>88<br>86<br>87<br>88<br>90<br>91<br>92<br>93<br>94<br>95<br>93<br>94<br>95<br>97<br>97<br>97<br>97<br>97<br>97<br>100<br>101<br>102<br>103  | $\begin{array}{c} 2 < (12 \\ 2 < 13 \\ 4 > 7 \\ 4 > 12 \\ 5 < 111 \\ 6 > 7 \\ 6 > 8 \\ 6 < 13 \\ 8 < 10 \\ 8 > 12 \\ 8 < 12 \\ 9 < 10 \\ 9 > 13 \\ 11 < 12 \\ 1 > 4 \\ 2 > 6 \\ 2 < 8 \\ 2 < 8 \\ 2 < 8 \\ 2 < 8 \\ 2 < 13 \\ 3 < 7 \\ 3 > 9 \\ 4 > 5 \end{array}$  |                                     | rted         F           anding)         a           a         a           b         b      b         b </td <td>Frequence           667           673           679           685           697           703           709           715           727           733           745           757           763           763           783           783           783           788           798           803           803           813</td> <td>Percent           Relation           \$50.6           \$51.3           \$52.6           \$53.2           \$58.3           \$55.1           \$55.8           \$56.4           \$77.1           \$59.6           \$60.3           \$60.3           \$62.2           \$62.8           \$63.5           \$64.1           \$64.7           \$65.4           \$67.7</td> <td>Percen<br/>(Frequen<br/>69.0<br/>70.2<br/>70.8<br/>71.5<br/>72.1<br/>73.3<br/>73.9<br/>74.6<br/>75.2<br/>75.8<br/>76.4<br/>77.0<br/>77.7<br/>78.3<br/>75.8<br/>76.4<br/>77.0<br/>77.7<br/>78.3<br/>78.9<br/>78.9<br/>78.9<br/>78.9<br/>78.9<br/>78.9<br/>78.9<br/>78.9</td> <td>t Power<br/>cy)<br/>18.3<br/>18.3<br/>18.3<br/>18.3<br/>18.3<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2</td> <td>No.           118           119           120           121           122           123           124           125           126           127           128           126           127           128           129           130           133           133           134           135           136           136           137           138           139           134           135           136           137           138           139           1341           140           141           141           1443</td> <td><math display="block">\begin{array}{c} \textbf{Relation} \\ \hline \textbf{S} &gt; \textbf{8} \\ \textbf{S} &gt; \textbf{9} \\ \textbf{S} = \textbf{9} \\ \textbf{S} = \textbf{1} \\ \textbf{S} \\ </math></td> <td>Ship         I           i         i</td> <td>Sort 1 Descer 4 4 4 4 4 4 4 4 4 4 4 4 4 4 3 3 3 3 3 3</td> <td>ed</td> <td>annuality           871           875           877           883           887           891           895           901           904           907           910           916           916           919           922           925           931           934           937           939           943           945           947           949</td> <td>Percent<br/>(Relation)<br/>75.6<br/>76.9<br/>77.6<br/>78.8<br/>79.5<br/>80.8<br/>81.4<br/>82.1<br/>82.7<br/>83.3<br/>84.0<br/>84.6<br/>84.6<br/>84.5<br/>85.9<br/>86.5<br/>87.2<br/>87.8<br/>85.9<br/>86.5<br/>87.2<br/>87.8<br/>88.5<br/>9.6<br/>8.5<br/>87.2<br/>87.8<br/>88.9<br/>8.8<br/>8.5<br/>9.7<br/>9.5<br/>89.1<br/>89.1<br/>9.5<br/>89.1<br/>9.5<br/>89.1<br/>9.5<br/>89.1<br/>9.5<br/>89.1<br/>9.5<br/>89.1<br/>89.2<br/>89.2<br/>89.2<br/>80.2<br/>89.2<br/>80.2<br/>80.2<br/>80.2<br/>80.2<br/>80.2<br/>80.2<br/>80.2<br/>80</td> <td>Perce           (Freque           90.1           90.1           91.1           91.1           91.2           92.2           93.3           93.4           94.1           94.2           95.5           95.5           95.6           96.6           97.7           97.7           97.7           97.3           98.8</td> <td>Pent P<br/>ancy // // // // // // // // // // // // //</td> <td>14.4<br/>14.2<br/>14.0<br/>13.7<br/>13.5<br/>13.3<br/>13.1<br/>12.7<br/>12.4<br/>12.1<br/>11.7<br/>11.4<br/>10.1<br/>10.8<br/>10.4<br/>10.4<br/>10.4<br/>10.4<br/>10.4<br/>10.4<br/>10.8<br/>8.8<br/>8.8<br/>8.8<br/>8.8<br/>8.8<br/>8.0<br/>7.6<br/>7.7<br/>6.3<br/>5.8</td>  | Frequence           667           673           679           685           697           703           709           715           727           733           745           757           763           763           783           783           783           788           798           803           803           813   | Percent           Relation           \$50.6           \$51.3           \$52.6           \$53.2           \$58.3           \$55.1           \$55.8           \$56.4           \$77.1           \$59.6           \$60.3           \$60.3           \$62.2           \$62.8           \$63.5           \$64.1           \$64.7           \$65.4           \$67.7   | Percen<br>(Frequen<br>69.0<br>70.2<br>70.8<br>71.5<br>72.1<br>73.3<br>73.9<br>74.6<br>75.2<br>75.8<br>76.4<br>77.0<br>77.7<br>78.3<br>75.8<br>76.4<br>77.0<br>77.7<br>78.3<br>78.9<br>78.9<br>78.9<br>78.9<br>78.9<br>78.9<br>78.9<br>78.9  | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2   | No.           118           119           120           121           122           123           124           125           126           127           128           126           127           128           129           130           133           133           134           135           136           136           137           138           139           134           135           136           137           138           139           1341           140           141           141           1443   | $\begin{array}{c} \textbf{Relation} \\ \hline \textbf{S} > \textbf{8} \\ \textbf{S} > \textbf{9} \\ \textbf{S} = \textbf{9} \\ \textbf{S} = \textbf{1} \\ \textbf{S} \\ $   | Ship         I           i         i  | Sort 1 Descer 4 4 4 4 4 4 4 4 4 4 4 4 4 4 3 3 3 3 3 3   | ed                        | annuality           871           875           877           883           887           891           895           901           904           907           910           916           916           919           922           925           931           934           937           939           943           945           947           949   | Percent<br>(Relation)<br>75.6<br>76.9<br>77.6<br>78.8<br>79.5<br>80.8<br>81.4<br>82.1<br>82.7<br>83.3<br>84.0<br>84.6<br>84.6<br>84.5<br>85.9<br>86.5<br>87.2<br>87.8<br>85.9<br>86.5<br>87.2<br>87.8<br>88.5<br>9.6<br>8.5<br>87.2<br>87.8<br>88.9<br>8.8<br>8.5<br>9.7<br>9.5<br>89.1<br>89.1<br>9.5<br>89.1<br>9.5<br>89.1<br>9.5<br>89.1<br>9.5<br>89.1<br>9.5<br>89.1<br>89.2<br>89.2<br>89.2<br>80.2<br>89.2<br>80.2<br>80.2<br>80.2<br>80.2<br>80.2<br>80.2<br>80.2<br>80   | Perce           (Freque           90.1           90.1           91.1           91.1           91.2           92.2           93.3           93.4           94.1           94.2           95.5           95.5           95.6           96.6           97.7           97.7           97.7           97.3           98.8   | Pent P<br>ancy // // // // // // // // // // // // //   | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.3<br>13.1<br>12.7<br>12.4<br>12.1<br>11.7<br>11.4<br>10.1<br>10.8<br>10.4<br>10.4<br>10.4<br>10.4<br>10.4<br>10.4<br>10.8<br>8.8<br>8.8<br>8.8<br>8.8<br>8.8<br>8.0<br>7.6<br>7.7<br>6.3<br>5.8                             |
| 80<br>81<br>82<br>82<br>83<br>84<br>85<br>86<br>87<br>88<br>88<br>90<br>91<br>92<br>93<br>94<br>92<br>95<br>95<br>96<br>97<br>95<br>96<br>97<br>97<br>93<br>100<br>101<br>102<br>103  | $\begin{array}{c} 2 < 12 \\ 2 < 13 \\ 4 > 7 \\ 4 > 12 \\ 5 < 11 \\ 6 > 7 \\ 6 > 8 \\ 6 < 8 \\ 8 < 9 \\ 8 < 10 \\ 8 > 12 \\ 8 < 10 \\ 8 > 11 \\ 1 > 4 \\ 1 > 4 \\ 2 > 6 \\ 2 > 8 \\ 2 > 13 \\ 3 < 7 \\ 3 > 9 \\ 4 > 5 \\ 4 > 7 \\ 5 < 7 \end{array}$   |                                     | rted         p           anding)         a           a         a           b         a           b         a           b         b      b         b </td <td>Frequence<br/>667<br/>673<br/>679<br/>685<br/>691<br/>703<br/>709<br/>715<br/>721<br/>727<br/>733<br/>739<br/>745<br/>751<br/>757<br/>768<br/>7757<br/>768<br/>7757<br/>768<br/>778<br/>783<br/>788<br/>783<br/>788<br/>783<br/>788<br/>808<br/>818</td> <td>Percent           (Relation)           \$50.6           \$51.3           \$52.6           \$3.2           \$53.2           \$55.1           \$55.3           \$55.4           \$57.1           \$57.7           \$8.3           \$59.0           \$59.0           \$59.6           \$60.3           \$62.2           \$62.8           \$63.5           \$64.1           \$64.7           \$65.4           \$67.3           \$67.3           \$67.9</td> <td>Percen           (Frequen           69.0           69.6           70.8           71.5           72.1           72.7           73.3           73.9           74.6           75.2           75.2           75.2           75.2           76.4           77.0           78.3           78.4           79.4           79.4           79.4           79.4           79.5           81.0           81.5           82.0           82.5           83.6           84.1           84.6</td> <td>t Power<br/>cy)<br/>18.3<br/>18.3<br/>18.3<br/>18.3<br/>18.3<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>17.8<br/>17.5<br/>17.4<br/>17.5<br/>17.4<br/>17.5<br/>17.4<br/>17.5<br/>17.4<br/>17.5<br/>17.4<br/>17.5<br/>17.5<br/>17.4<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5<br/>17.5</td> <td>No.           119           119           119           120           121           122           123           124           125           126           127           128           129           130           131           132           133           134           135           136           137           138           139           140           142           143           144           144           144</td> <td><math display="block">\begin{array}{c} \textbf{Relation} \\ \hline \textbf{S} &gt; \textbf{8} \\ \hline \textbf{S} &gt; \textbf{9} \\ \textbf{6} &gt; 12 \\ \hline \textbf{7} &gt; 11 \\ \hline \textbf{7} &gt; 12 \\ \hline \textbf{7} </math></td> <td>ship         ship           22         2           33         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           34         3           33         3           11         1           2         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           34         3           35         3           36         3           37         3           38         3</td> <td>Sort Sort Sort Sort Sort Sort Sort Sort</td> <td>ed</td> <td>annuality           871           875           879           883           887           891           901           904           907           910           916           919           922           928           931           934           937           939           941           945           947           949           951</td> <td>Percent<br/>(Relation)<br/>75.6<br/>76.9<br/>77.6<br/>77.6<br/>78.2<br/>79.5<br/>80.1<br/>80.8<br/>81.4<br/>82.7<br/>83.3<br/>84.0<br/>84.6<br/>85.9<br/>86.5<br/>87.2<br/>87.8<br/>85.9<br/>86.5<br/>87.2<br/>87.8<br/>88.5<br/>89.1<br/>89.7<br/>90.4<br/>91.7<br/>92.9</td> <td>Perce<br/>(Freque<br/>90<br/>90<br/>91<br/>92<br/>92<br/>92<br/>93<br/>93<br/>93<br/>93<br/>93<br/>93<br/>93<br/>93<br/>93<br/>93<br/>93<br/>94<br/>94<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>95<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97<br/>97</td> <td>Pent P<br/>ency // // // // // // // // // // // // //</td> <td>14.4<br/>14.2<br/>14.0<br/>13.7<br/>13.5<br/>13.1<br/>12.7<br/>12.4<br/>12.1<br/>11.7<br/>11.4<br/>10.4<br/>10.1<br/>10.4<br/>10.1<br/>9.8<br/>9.4<br/>9.1<br/>8.8<br/>8.4<br/>8.0<br/>7.6<br/>7.6<br/>5.8<br/>5.4</td>  | Frequence<br>667<br>673<br>679<br>685<br>691<br>703<br>709<br>715<br>721<br>727<br>733<br>739<br>745<br>751<br>757<br>768<br>7757<br>768<br>7757<br>768<br>778<br>783<br>788<br>783<br>788<br>783<br>788<br>808<br>818  | Percent           (Relation)           \$50.6           \$51.3           \$52.6           \$3.2           \$53.2           \$55.1           \$55.3           \$55.4           \$57.1           \$57.7           \$8.3           \$59.0           \$59.0           \$59.6           \$60.3           \$62.2           \$62.8           \$63.5           \$64.1           \$64.7           \$65.4           \$67.3           \$67.3           \$67.9  | Percen           (Frequen           69.0           69.6           70.8           71.5           72.1           72.7           73.3           73.9           74.6           75.2           75.2           75.2           75.2           76.4           77.0           78.3           78.4           79.4           79.4           79.4           79.4           79.5           81.0           81.5           82.0           82.5           83.6           84.1           84.6  | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>17.8<br>17.5<br>17.4<br>17.5<br>17.4<br>17.5<br>17.4<br>17.5<br>17.4<br>17.5<br>17.4<br>17.5<br>17.5<br>17.4<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5<br>17.5 | No.           119           119           119           120           121           122           123           124           125           126           127           128           129           130           131           132           133           134           135           136           137           138           139           140           142           143           144           144           144   | $\begin{array}{c} \textbf{Relation} \\ \hline \textbf{S} > \textbf{8} \\ \hline \textbf{S} > \textbf{9} \\ \textbf{6} > 12 \\ \hline \textbf{7} > 11 \\ \hline \textbf{7} > 12 \\ \hline \textbf{7} $  | ship         ship           22         2           33         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           34         3           33         3           11         1           2         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           33         3           34         3           35         3           36         3           37         3           38         3  | Sort Sort Sort Sort Sort Sort Sort Sort   | ed                        | annuality           871           875           879           883           887           891           901           904           907           910           916           919           922           928           931           934           937           939           941           945           947           949           951   | Percent<br>(Relation)<br>75.6<br>76.9<br>77.6<br>77.6<br>78.2<br>79.5<br>80.1<br>80.8<br>81.4<br>82.7<br>83.3<br>84.0<br>84.6<br>85.9<br>86.5<br>87.2<br>87.8<br>85.9<br>86.5<br>87.2<br>87.8<br>88.5<br>89.1<br>89.7<br>90.4<br>91.7<br>92.9  | Perce<br>(Freque<br>90<br>90<br>91<br>92<br>92<br>92<br>93<br>93<br>93<br>93<br>93<br>93<br>93<br>93<br>93<br>93<br>93<br>94<br>94<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>95<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97<br>97 | Pent P<br>ency // // // // // // // // // // // // //   | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.1<br>12.7<br>12.4<br>12.1<br>11.7<br>11.4<br>10.4<br>10.1<br>10.4<br>10.1<br>9.8<br>9.4<br>9.1<br>8.8<br>8.4<br>8.0<br>7.6<br>7.6<br>5.8<br>5.4   |
| 80<br>81<br>82<br>82<br>83<br>84<br>85<br>86<br>87<br>88<br>86<br>87<br>90<br>91<br>92<br>93<br>94<br>95<br>93<br>94<br>95<br>93<br>94<br>97<br>97<br>97<br>97<br>97<br>100<br>100<br>1002<br>1004<br>1004  | $\begin{array}{c} 2 < 12 \\ 2 < 13 \\ 4 > 7 \\ 4 > 12 \\ 5 < 11 \\ 6 > 7 \\ 6 > 8 \\ 6 < 13 \\ 8 < 9 \\ 8 < 10 \\ 8 > 12 \\ 8 < 12 \\ 1 > 11 < 12 \\ 1 > 4 \\ 2 > 6 \\ 2 < 8 \\ 2 < 13 \\ 3 < 7 \\ 3 > 9 \\ 4 > 5 \\ 4 > 9 \\ 5 > 11 \end{array}$   |                                     | tted         F           anding)         a           anding)         a           b         a           b         a           b         b           b   | Frequence           667           673           679           685           697           703           709           715           727           733           745           757           763           763           783           783           783           788           798           803           803           813   | Percent           Relation           \$50.6           \$51.3           \$52.6           \$53.2           \$58.3           \$55.1           \$55.8           \$56.4           \$77.1           \$59.6           \$60.3           \$60.3           \$62.2           \$62.8           \$63.5           \$64.1           \$64.7           \$65.4           \$67.7   | Percen<br>(Frequen<br>69.0<br>70.2<br>70.8<br>71.5<br>72.1<br>73.3<br>73.9<br>74.6<br>75.2<br>75.8<br>76.4<br>77.0<br>77.7<br>78.3<br>75.8<br>76.4<br>77.0<br>77.7<br>78.3<br>78.9<br>78.9<br>78.9<br>78.9<br>78.9<br>78.9<br>78.9<br>78.9  | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2   | No.           119           119           112           122           122           122           122           122           122           124           125           126           127           128           129           130           132           133           134           135           136           137           138           140           141           143           144           1445  | $\begin{array}{c} \textbf{Relation} \\ \hline \textbf{S} > \textbf{8} \\ \textbf{S} > \textbf{9} \\ \textbf{G} > \textbf{11} \\ \textbf{G} \\ \textbf{S} > \textbf{9} \\ \textbf{G} > \textbf{11} \\ \textbf{G} \\ \textbf{G} \\ \textbf{S} > \textbf{9} \\ \textbf{9} < \textbf{11} \\ \textbf{G} \\ \textbf{G} \\ \textbf{11} \\ \textbf{G} \\ \textbf{11} \\ \textbf{G} \\ \textbf{G} \\ \textbf{G} \\ \textbf{11} \\ \textbf{G} \\ $  | ship         ()           i         i   | Sort Sort Sort Sort Sort Sort Sort Sort   | ed                        | annuality           871           875           877           883           887           891           895           901           904           907           910           916           916           919           922           925           931           934           937           939           943           945           947           949   | Percent<br>(Relation)<br>75.6<br>76.9<br>77.6<br>78.8<br>79.5<br>80.8<br>81.4<br>82.1<br>82.7<br>83.3<br>84.0<br>84.6<br>84.6<br>84.5<br>85.9<br>86.5<br>87.2<br>87.8<br>85.9<br>86.5<br>87.2<br>87.8<br>88.5<br>9.6<br>8.5<br>87.2<br>87.8<br>88.9<br>8.8<br>8.5<br>9.7<br>9.5<br>89.1<br>89.1<br>9.5<br>89.1<br>9.5<br>89.1<br>9.5<br>89.1<br>9.5<br>89.1<br>9.5<br>89.1<br>89.2<br>89.2<br>89.2<br>80.2<br>89.2<br>80.2<br>80.2<br>80.2<br>80.2<br>80.2<br>80.2<br>80.2<br>80   | Perce           (Freque           90.1           90.1           91.1           91.1           91.2           92.2           93.3           93.4           94.1           94.2           95.5           95.5           95.6           96.6           97.7           97.7           97.7           97.3           98.8   | Pent P<br>ency<br>5<br>5<br>7<br>7<br>7<br>7<br>7<br>7<br>2<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7   | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.3<br>13.1<br>12.7<br>12.4<br>12.1<br>11.7<br>11.4<br>10.1<br>10.8<br>10.4<br>10.4<br>10.4<br>10.4<br>10.4<br>10.4<br>10.8<br>8.8<br>8.8<br>8.8<br>8.8<br>8.8<br>8.0<br>7.6<br>7.7<br>6.3<br>5.8                             |
| 80<br>81<br>82<br>82<br>83<br>84<br>85<br>86<br>87<br>90<br>91<br>92<br>93<br>94<br>95<br>94<br>95<br>94<br>97<br>97<br>98<br>99<br>90<br>100<br>101<br>102<br>103<br>104<br>107  | $\begin{array}{c} 2 < 12 \\ 2 < 13 \\ 4 > 7 \\ 4 > 12 \\ 5 < 11 \\ 6 > 7 \\ 6 > 8 \\ 6 < 8 \\ 8 < 9 \\ 8 < 10 \\ 8 > 12 \\ 8 < 10 \\ 8 > 11 \\ 1 > 4 \\ 1 > 4 \\ 2 > 6 \\ 2 > 8 \\ 2 < 13 \\ 3 < 7 \\ 3 > 9 \\ 4 > 5 \\ 4 > 7 \\ 5 < 7 \end{array}$   |                                     | rted         p           anding)         a           a         a           b         a           b         a           b         b      b         b </td <td>Frequence           667           673           679           685           697           703           709           715           727           739           745           757           763           768           778           783           788           798           808           813           818           823</td> <td>Percent<br/>(Relation)<br/>50.6<br/>51.3<br/>51.9<br/>52.6<br/>53.2<br/>55.1<br/>55.1<br/>55.1<br/>55.1<br/>55.1<br/>55.1<br/>55.1<br/>55</td> <td>Percen           (Frequen           69.0           69.6           70.2           70.8           71.5           72.1           73.3           73.9           74.6           77.5           76.4           77.0           77.7           78.3           76.4           77.0           77.7           78.9           79.9           80.5           81.0           82.0           82.0           83.6           83.6           84.1           84.6           85.1</td> <td>t Power<br/>cy)<br/>18.3<br/>18.3<br/>18.3<br/>18.3<br/>18.3<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2</td> <td>No.           118           119           120           121           122           122           122           122           122           122           122           122           124           125           126           127           128           129           130           131           131           131           136           136           137           138           140           141           1441           1444           1445           1446           1446</td> <td><math display="block">\begin{array}{c} \textbf{Relation} \\ \hline \textbf{S} &gt; \textbf{R} \\ \hline \textbf{S} &gt; \textbf{S} \\ \hline \textbf{S} &gt; \textbf{S} \\ \textbf{S} = \textbf{S} \\ \textbf{S} \\ \textbf{S} = \textbf{S} \\ \textbf{S} \\ \textbf{S} = \textbf{S} \\ S</math></td> <td>Ship         I           22         3           333         3           333         3           333         3           333         3           333         3           333         3           333         3           333         3           333         3           333         3           333         3           33         3           33         3           33         3           11         3           33         1           33         3           4         3           4         3           5         3</td> <td>Sort Sort Sort Sort Sort Sort Sort Sort</td> <td>ed</td> <td>annuality           871           875           877           883           887           891           895           901           904           907           910           913           916           922           925           931           937           939           941           943           945           947           949           951           953</td> <td>Percent<br/>(Relation)<br/>75.6<br/>76.9<br/>77.6<br/>78.2<br/>78.8<br/>79.5<br/>80.1<br/>80.8<br/>81.4<br/>82.1<br/>82.7<br/>83.3<br/>84.0<br/>84.6<br/>85.3<br/>84.0<br/>84.6<br/>85.9<br/>86.5<br/>87.2<br/>87.2<br/>87.2<br/>87.8<br/>87.2<br/>87.2<br/>87.5<br/>89.1<br/>89.1<br/>90.4<br/>91.0<br/>91.0<br/>91.0<br/>91.0<br/>91.0<br/>91.0<br/>91.0<br/>91.0</td> <td>Perce           (Freque           (Freque           90.1           90.1           91.1           91.1           91.1           91.1           92.1           92.2           93.3           93.4           94.4           94.4           94.5           95.5           95.6           96.6           96.7           97.7           97.7           97.7           97.8           98.1           98.2</td> <td>Pent P<br/>ancy // // // // // // // // // // // // //</td> <td>14.4<br/>14.2<br/>14.0<br/>13.7<br/>13.5<br/>13.3<br/>13.1<br/>12.7<br/>12.4<br/>12.1<br/>11.4<br/>10.1<br/>9.8<br/>9.4<br/>9.8<br/>8.8<br/>8.4<br/>8.0<br/>7.6<br/>7.6<br/>7.6<br/>7.6<br/>7.6<br/>5.8<br/>5.4<br/>5.0</td>   | Frequence           667           673           679           685           697           703           709           715           727           739           745           757           763           768           778           783           788           798           808           813           818           823   | Percent<br>(Relation)<br>50.6<br>51.3<br>51.9<br>52.6<br>53.2<br>55.1<br>55.1<br>55.1<br>55.1<br>55.1<br>55.1<br>55.1<br>55   | Percen           (Frequen           69.0           69.6           70.2           70.8           71.5           72.1           73.3           73.9           74.6           77.5           76.4           77.0           77.7           78.3           76.4           77.0           77.7           78.9           79.9           80.5           81.0           82.0           82.0           83.6           83.6           84.1           84.6           85.1   | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2   | No.           118           119           120           121           122           122           122           122           122           122           122           122           124           125           126           127           128           129           130           131           131           131           136           136           137           138           140           141           1441           1444           1445           1446           1446  | $\begin{array}{c} \textbf{Relation} \\ \hline \textbf{S} > \textbf{R} \\ \hline \textbf{S} > \textbf{S} \\ \hline \textbf{S} > \textbf{S} \\ \textbf{S} = \textbf{S} \\ \textbf{S} \\ \textbf{S} = \textbf{S} \\ \textbf{S} \\ \textbf{S} = \textbf{S} \\ S$  | Ship         I           22         3           333         3           333         3           333         3           333         3           333         3           333         3           333         3           333         3           333         3           333         3           333         3           33         3           33         3           33         3           11         3           33         1           33         3           4         3           4         3           5         3   | Sort Sort Sort Sort Sort Sort Sort Sort   | ed                        | annuality           871           875           877           883           887           891           895           901           904           907           910           913           916           922           925           931           937           939           941           943           945           947           949           951           953   | Percent<br>(Relation)<br>75.6<br>76.9<br>77.6<br>78.2<br>78.8<br>79.5<br>80.1<br>80.8<br>81.4<br>82.1<br>82.7<br>83.3<br>84.0<br>84.6<br>85.3<br>84.0<br>84.6<br>85.9<br>86.5<br>87.2<br>87.2<br>87.2<br>87.8<br>87.2<br>87.2<br>87.5<br>89.1<br>89.1<br>90.4<br>91.0<br>91.0<br>91.0<br>91.0<br>91.0<br>91.0<br>91.0<br>91.0  | Perce           (Freque           (Freque           90.1           90.1           91.1           91.1           91.1           91.1           92.1           92.2           93.3           93.4           94.4           94.4           94.5           95.5           95.6           96.6           96.7           97.7           97.7           97.7           97.8           98.1           98.2   | Pent P<br>ancy // // // // // // // // // // // // //   | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.3<br>13.1<br>12.7<br>12.4<br>12.1<br>11.4<br>10.1<br>9.8<br>9.4<br>9.8<br>8.8<br>8.4<br>8.0<br>7.6<br>7.6<br>7.6<br>7.6<br>7.6<br>5.8<br>5.4<br>5.0   |
| 80         81           82         83           84         85           86         87           87         88           89         90           91         92           93         94           95         96           97         98           99         1001           102         103           1005         106           1007         108           1009         110  | $\begin{array}{c} 2 < 12 \\ 2 < 13 \\ 4 > 7 \\ 4 > 12 \\ 5 < 111 \\ 6 > 7 \\ 6 > 8 \\ 6 < 13 \\ 8 < 10 \\ 8 > 12 \\ 8 < 10 \\ 8 > 12 \\ 8 < 12 \\ 1 > 4 \\ 1 > 2 > 6 \\ 2 < 8 \\ 2 < 13 \\ 11 < 12 \\ 1 > 4 \\ 2 > 6 \\ 2 < 8 \\ 2 < 8 \\ 2 < 8 \\ 2 < 8 \\ 2 < 8 \\ 2 < 8 \\ 2 < 8 \\ 2 < 8 \\ 2 < 8 \\ 2 < 8 \\ 2 < 8 \\ 2 < 8 \\ 2 < 8 \\ 2 < 8 \\ 2 < 8 \\ 2 < 8 \\ 2 < 8 \\ 2 < 8 \\ 2 < 8 \\ 2 < 8 \\ 2 < 8 \\ 2 < 11 \\ 3 < 7 \\ 3 > 9 \\ 4 > 5 \\ 5 > 11 \\ 6 < 10 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 6 < 11 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ $   |                                     | rted         P           anding)         a           anding)         a           b         a           b         b           b   | Frequence           667           673           679           685           697           703           709           715           727           733           745           757           763           763           788           798           808           813           818           828           828           838   | Percent<br>(Relation)<br>50.6<br>51.3<br>52.6<br>53.2<br>53.8<br>55.1<br>55.8<br>55.1<br>55.8<br>55.1<br>55.8<br>55.1<br>57.7<br>57.7<br>58.3<br>59.0<br>60.3<br>60.9<br>61.5<br>62.2<br>62.8<br>63.5<br>64.1<br>64.7<br>65.4<br>66.0<br>66.7<br>67.3<br>68.6<br>69.2   | Percen<br>(Frequen<br>69.0<br>70.2<br>70.8<br>71.5<br>72.1<br>73.3<br>73.9<br>73.9<br>74.6<br>75.2<br>75.8<br>76.4<br>77.0<br>77.7<br>78.3<br>75.8<br>76.4<br>77.0<br>77.7<br>78.3<br>75.8<br>76.4<br>77.0<br>77.7<br>78.3<br>78.9<br>79.4<br>77.5<br>81.0<br>81.5<br>81.5<br>81.5<br>81.5<br>83.0<br>83.6<br>83.6<br>83.6<br>85.6<br>85.6<br>85.6  | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2   | No.           118           119           120           121           122           123           124           125           126           127           128           129           120           121           122           123           126           127           128           129           130           131           131           1330           134           136           136           137           138           139           1341           140           142           1441           1442           1444           1445           1446           1446           1447           1448           1449  | $\begin{array}{c} \textbf{Relation} \\ \hline \textbf{S} > \textbf{8} \\ \hline \textbf{S} > \textbf{9} \\ \hline \textbf{S} > \textbf{9} \\ \textbf{9} \\ \textbf{6} > 11 \\ \hline \textbf{7} \\ \textbf{7} > 11 \\ \hline \textbf{1} \\ \textbf{7} \\ \textbf{7} > 11 \\ \hline \textbf{1} \\ \textbf{7} \\ 7$  | Image: second  | Sort 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4  | ed C<br>hding) F<br>      | annuality           871           871           875           879           883           887           891           895           901           904           907           910           913           916           912           925           931           937           939           941           943           945           947           949           951           955           955           955           957           955           957           959   | Percent<br>(Relation)<br>75.6<br>76.9<br>77.6<br>78.8<br>79.5<br>80.8<br>81.4<br>82.7<br>83.8<br>84.0<br>84.6<br>85.3<br>85.9<br>86.5<br>87.2<br>87.8<br>87.2<br>87.8<br>89.1<br>89.7<br>90.4<br>91.0<br>91.0<br>91.0<br>91.0<br>92.3<br>92.9<br>92.6<br>94.2<br>94.2<br>94.2  | Perce           (Freque           (Freque           90.1           90.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           92.2           93.3           93.3           93.3           93.3           93.3           93.3           93.3           93.3           93.3           93.4           94.4           94.4           94.5           95.5           95.5           95.6           96.6           96.7           97.7           97.7           97.3           98.3           98.3           98.3           98.4           98.3           99.4           99.4           99.5           99.5           99.6           99.7 <td>Pancy         Pancy           ancy         -           1         -           5         -           5         -           3         -           7         -           2         -           2         -           2         -           3         -           7         -           7         -           7         -           3         -           7         -           3         -           6         -           9         -           1         -           3         -           6         -           9         -           1         -           3         -           9         -           1         -           3         -           9         -           1         -           3         -           9         -           1         -           1         -           1         -           2         <t< td=""><td>14.4<br/>14.2<br/>14.0<br/>13.7<br/>13.5<br/>13.3<br/>12.7<br/>12.4<br/>12.7<br/>11.4<br/>10.4<br/>10.1<br/>9.8<br/>9.4<br/>9.4<br/>9.4<br/>9.4<br/>9.4<br/>9.4<br/>9.4<br/>9.4<br/>9.4<br/>9.4</td></t<></td>   | Pancy         Pancy           ancy         -           1         -           5         -           5         -           3         -           7         -           2         -           2         -           2         -           3         -           7         -           7         -           7         -           3         -           7         -           3         -           6         -           9         -           1         -           3         -           6         -           9         -           1         -           3         -           9         -           1         -           3         -           9         -           1         -           3         -           9         -           1         -           1         -           1         -           2 <t< td=""><td>14.4<br/>14.2<br/>14.0<br/>13.7<br/>13.5<br/>13.3<br/>12.7<br/>12.4<br/>12.7<br/>11.4<br/>10.4<br/>10.1<br/>9.8<br/>9.4<br/>9.4<br/>9.4<br/>9.4<br/>9.4<br/>9.4<br/>9.4<br/>9.4<br/>9.4<br/>9.4</td></t<>  | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.3<br>12.7<br>12.4<br>12.7<br>11.4<br>10.4<br>10.1<br>9.8<br>9.4<br>9.4<br>9.4<br>9.4<br>9.4<br>9.4<br>9.4<br>9.4<br>9.4<br>9.4  |
| 80         81           82         83           84         85           87         87           88         89           90         91           92         93           94         95           97         98           99         100           101         102           1003         100           1001         107           108         1007           1101         111  | $\begin{array}{c} 2 < 12 \\ 2 < 13 \\ 4 > 7 \\ 4 > 12 \\ 5 < 11 \\ 6 > 7 \\ 6 > 8 \\ 6 < 13 \\ 8 < 9 \\ 8 < 10 \\ 8 > 12 \\ 9 < 10 \\ 9 > 13 \\ 11 < 12 \\ 9 < 10 \\ 9 > 13 \\ 11 < 12 \\ 1 > 4 \\ 2 > 6 \\ 2 > 8 \\ 2 < 13 \\ 3 < 7 \\ 3 > 9 \\ 5 < 7 \\ 5 > 11 \\ 6 > 10 \\ 6 < 11 \\ 7 > 9 \\ 5 < 7 \\ 5 > 11 \\ 7 > 9 \\ 5 < 7 \\ 5 > 11 \\ 7 > 9 \\ 5 < 7 \\ 5 > 11 \\ 7 > 9 \\ 5 < 7 \\ 5 > 11 \\ 7 > 9 \\ 5 < 7 \\ 5 > 11 \\ 7 > 9 \\ 5 < 7 \\ 5 > 11 \\ 7 > 9 \\ 5 < 7 \\ 5 > 11 \\ 7 > 9 \\ 5 < 7 \\ 5 > 11 \\ 7 > 9 \\ 5 < 7 \\ 5 > 11 \\ 7 > 9 \\ 5 < 7 \\ 5 > 11 \\ 7 > 9 \\ 5 < 7 \\ 5 > 11 \\ 7 > 9 \\ 5 < 7 \\ 5 > 11 \\ 7 > 9 \\ 5 < 7 \\ 5 > 11 \\ 7 > 9 \\ 5 < 7 \\ 5 > 11 \\ 7 > 9 \\ 5 < 7 \\ 5 > 11 \\ 7 > 9 \\ 5 < 7 \\ 5 > 11 \\ 7 > 9 \\ 5 < 7 \\ 7 < 1 \\ 7 > 9 \\ 7 < 1 \\ 7 > 1 \\ 7 > 9 \\ 1 \\ 7 > 1 \\ $ |                                     | rted         p           anding)         a           a         a           b         a           b         a           b         b      b         b </td <td>Frequence           667           673           679           681           697           703           709           711           721           723           739           745           751           757           768           778           783           783           783           793           783           808           818           828           833           838           833           838           833           843</td> <td>Percent           (Relation)           50.6           51.3           52.6           53.2           55.1           55.8           55.1           55.8           55.1           57.7           58.3           60.3           60.3           60.3           60.3           60.3           60.4           62.2           62.8           63.5           64.7           65.4           66.7           67.9           67.3           67.9           68.6           69.2           69.9           70.5           71.2</td> <td>Percen<br/>(Frequen<br/>69.0<br/>70.2<br/>70.8<br/>71.5<br/>72.1<br/>73.3<br/>73.9<br/>74.6<br/>75.2<br/>75.2<br/>75.8<br/>76.4<br/>77.0<br/>77.7<br/>78.3<br/>75.2<br/>75.8<br/>76.4<br/>77.0<br/>77.7<br/>78.3<br/>75.9<br/>79.4<br/>77.0<br/>77.7<br/>78.3<br/>78.9<br/>79.4<br/>77.0<br/>80.5<br/>81.0<br/>81.5<br/>82.0<br/>81.5<br/>83.0<br/>83.6<br/>83.6<br/>83.6<br/>83.6<br/>83.6<br/>83.6<br/>83.6<br/>83.6</td> <td>t Power<br/>cy)<br/>18.3<br/>18.3<br/>18.3<br/>18.3<br/>18.3<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.1<br/>18.1<br/>18.1<br/>18.1<br/>18.1<br/>18.1<br/>18.1<br/>18.1<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.2<br/>18.5<br/>17.5<br/>17.5<br/>17.6<br/>16.5<br/>16.6<br/>16.5<br/>16.6<br/>16.5<br/>16.6<br/>16.5<br/>16.6<br/>16.5<br/>16.6<br/>16.5<br/>16.6<br/>16.5<br/>16.6<br/>16.5<br/>16.6<br/>16.5<br/>16.6<br/>16.5<br/>16.6<br/>16.5<br/>16.6<br/>16.5<br/>16.6<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5<br/>16.5</td> <td>No.           118           119           120           121           122           123           124           125           126           127           128           129           129           129           129           130           131           132           133           134           135           136           137           138           1397           138           1399           1400           1440           142           1444           142           1445           1445           1446           1447           1448           1448           1449           1449</td> <td><math display="block">\begin{array}{c} \text{Relation} \\ \hline \textbf{S} &gt; \textbf{8} \\ \hline \textbf{S} &gt; \textbf{9} \\ \hline \textbf{G} &gt; \textbf{12} \\ \hline \textbf{G} &gt; \textbf{9} \\ \hline \textbf{G} &gt; \textbf{12} \\ \hline \textbf{G} &gt; \textbf{9} \\ \hline \textbf{G} &gt; \textbf{12} \\ \hline \textbf{G} &gt; \textbf{9} \\ \hline \textbf{G} &gt; \textbf{11} \\ \hline \textbf{G} = \textbf{11} \hline \textbf{G} = \textbf{11} \\ \hline \textbf{G} = \textbf{11} \hline \textbf</math></td> <td>Ship         Image: Constraint of the second se</td> <td>Sort 1<br/>Descent 4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4</td> <td>ed F<br/>hding) F</td> <td>annuality           871           875           877           883           897           891           895           898           901           904           907           910           916           919           925           931           934           937           934           945           945           945           945           945           955           957           959           957           959           961</td> <td>Percent<br/>(Relation)<br/>75.6<br/>76.9<br/>77.6<br/>77.8<br/>78.8<br/>79.5<br/>80.1<br/>80.8<br/>81.4<br/>82.7<br/>83.3<br/>84.0<br/>84.6<br/>85.3<br/>84.6<br/>85.3<br/>84.6<br/>85.9<br/>85.9<br/>85.5<br/>87.2<br/>87.8<br/>85.9<br/>85.5<br/>87.2<br/>87.8<br/>88.5<br/>87.2<br/>87.8<br/>89.1<br/>91.0<br/>91.7<br/>92.3<br/>92.9<br/>93.6<br/>94.9<br/>95.5<br/>96.2</td> <td>Perce           (Freque           90.1           90.1           91.1           91.1           91.2           92.2           92.3           93.3           93.4           94.4           95.5           95.5           95.6           96.6           96.7           97.7           97.7           97.9           98.8           98.8           98.8           98.9           99.9           99.9</td> <td>Phote         P           ancy         -           ancy         -           5         -           5         -           3         -           6         -           9         -           1         -           6         -           9         -           11         -           12         -           13         -           14         -           15         -           16         -           17         -           18         -           19         -           10         -           10         -           11         -           12         -           13         -           14         -           15         -           16         -           17         -           18         -           19         -           10         -           11         -           12         -           13         -</td> <td>14.4<br/>14.2<br/>14.0<br/>13.7<br/>13.5<br/>13.3<br/>13.1<br/>12.7<br/>12.4<br/>12.1<br/>11.7<br/>12.4<br/>11.1<br/>10.8<br/>10.4<br/>10.4<br/>9.8<br/>9.8<br/>9.8<br/>9.8<br/>9.8<br/>9.8<br/>9.8<br/>9.8<br/>9.8<br/>9.8</td> | Frequence           667           673           679           681           697           703           709           711           721           723           739           745           751           757           768           778           783           783           783           793           783           808           818           828           833           838           833           838           833           843 | Percent           (Relation)           50.6           51.3           52.6           53.2           55.1           55.8           55.1           55.8           55.1           57.7           58.3           60.3           60.3           60.3           60.3           60.3           60.4           62.2           62.8           63.5           64.7           65.4           66.7           67.9           67.3           67.9           68.6           69.2           69.9           70.5           71.2 | Percen<br>(Frequen<br>69.0<br>70.2<br>70.8<br>71.5<br>72.1<br>73.3<br>73.9<br>74.6<br>75.2<br>75.2<br>75.8<br>76.4<br>77.0<br>77.7<br>78.3<br>75.2<br>75.8<br>76.4<br>77.0<br>77.7<br>78.3<br>75.9<br>79.4<br>77.0<br>77.7<br>78.3<br>78.9<br>79.4<br>77.0<br>80.5<br>81.0<br>81.5<br>82.0<br>81.5<br>83.0<br>83.6<br>83.6<br>83.6<br>83.6<br>83.6<br>83.6<br>83.6<br>83.6  | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.1<br>18.1<br>18.1<br>18.1<br>18.1<br>18.1<br>18.1<br>18.1<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.5<br>17.5<br>17.5<br>17.6<br>16.5<br>16.6<br>16.5<br>16.6<br>16.5<br>16.6<br>16.5<br>16.6<br>16.5<br>16.6<br>16.5<br>16.6<br>16.5<br>16.6<br>16.5<br>16.6<br>16.5<br>16.6<br>16.5<br>16.6<br>16.5<br>16.6<br>16.5<br>16.6<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5<br>16.5 | No.           118           119           120           121           122           123           124           125           126           127           128           129           129           129           129           130           131           132           133           134           135           136           137           138           1397           138           1399           1400           1440           142           1444           142           1445           1445           1446           1447           1448           1448           1449           1449  | $\begin{array}{c} \text{Relation} \\ \hline \textbf{S} > \textbf{8} \\ \hline \textbf{S} > \textbf{9} \\ \hline \textbf{G} > \textbf{12} \\ \hline \textbf{G} > \textbf{9} \\ \hline \textbf{G} > \textbf{12} \\ \hline \textbf{G} > \textbf{9} \\ \hline \textbf{G} > \textbf{12} \\ \hline \textbf{G} > \textbf{9} \\ \hline \textbf{G} > \textbf{11} \\ \hline \textbf{G} = \textbf{11} \hline \textbf{G} = \textbf{11} \\ \hline \textbf{G} = \textbf{11} \hline \textbf$  | Ship         Image: Constraint of the second se  | Sort 1<br>Descent 4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4                     | ed F<br>hding) F          | annuality           871           875           877           883           897           891           895           898           901           904           907           910           916           919           925           931           934           937           934           945           945           945           945           945           955           957           959           957           959           961   | Percent<br>(Relation)<br>75.6<br>76.9<br>77.6<br>77.8<br>78.8<br>79.5<br>80.1<br>80.8<br>81.4<br>82.7<br>83.3<br>84.0<br>84.6<br>85.3<br>84.6<br>85.3<br>84.6<br>85.9<br>85.9<br>85.5<br>87.2<br>87.8<br>85.9<br>85.5<br>87.2<br>87.8<br>88.5<br>87.2<br>87.8<br>89.1<br>91.0<br>91.7<br>92.3<br>92.9<br>93.6<br>94.9<br>95.5<br>96.2  | Perce           (Freque           90.1           90.1           91.1           91.1           91.2           92.2           92.3           93.3           93.4           94.4           95.5           95.5           95.6           96.6           96.7           97.7           97.7           97.9           98.8           98.8           98.8           98.9           99.9           99.9  | Phote         P           ancy         -           ancy         -           5         -           5         -           3         -           6         -           9         -           1         -           6         -           9         -           11         -           12         -           13         -           14         -           15         -           16         -           17         -           18         -           19         -           10         -           10         -           11         -           12         -           13         -           14         -           15         -           16         -           17         -           18         -           19         -           10         -           11         -           12         -           13         -   | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.3<br>13.1<br>12.7<br>12.4<br>12.1<br>11.7<br>12.4<br>11.1<br>10.8<br>10.4<br>10.4<br>9.8<br>9.8<br>9.8<br>9.8<br>9.8<br>9.8<br>9.8<br>9.8<br>9.8<br>9.8   |
| 80         81           82         83           84         85           86         87           87         88           89         90           91         92           93         94           90         95           96         97           90         99           100         100           102         103           1006         1007           100         110           1110         1112   | $\begin{array}{c} 2 < 12 \\ 2 < 13 \\ 4 > 7 \\ 4 > 12 \\ 5 < 11 \\ 6 > 7 \\ 6 > 8 \\ 6 < 13 \\ 8 < 9 \\ 8 < 10 \\ 8 > 12 \\ 8 < 12 \\ 8 < 12 \\ 1 > 11 \\ 4 \\ 2 > 6 \\ 2 < 13 \\ 11 \\ < 12 \\ 2 < 8 \\ 2 < 13 \\ 3 < 7 \\ 3 > 9 \\ 4 > 5 \\ 4 > 9 \\ 5 < 11 \\ 6 > 11 \\ 6 > 11 \\ 6 > 11 \\ 7 > 9 \\ 7 < 11 \\ 7 > 9 \\ 7 < 11 \\ 1 > 8 \end{array}$   |                                     | tted         F           anding)         a           anding)         a           b         a           b         a           b         b           b   | Frequence           667           673           679           685           697           703           709           715           727           739           745           757           763           768           778           783           788           798           808           818           823           828           838           838           838           847   | Percent<br>(Relation)<br>50.6<br>51.3<br>51.9<br>52.6<br>53.2<br>55.1<br>55.1<br>55.1<br>55.1<br>55.1<br>55.1<br>55.1<br>55   | Percen<br>(Frequen<br>69.0<br>70.2<br>70.8<br>71.5<br>72.1<br>73.3<br>73.9<br>74.6<br>75.2<br>75.8<br>75.4<br>75.2<br>75.8<br>76.4<br>77.0<br>77.7<br>78.9<br>77.4<br>77.0<br>77.7<br>78.9<br>77.4<br>77.9<br>80.5<br>81.0<br>82.0<br>82.0<br>82.0<br>82.5<br>83.0<br>82.5<br>83.0<br>82.5<br>83.0<br>83.6<br>83.5<br>83.0<br>83.5<br>83.0<br>83.5<br>83.0<br>83.5<br>83.0<br>83.5<br>83.0<br>83.5<br>83.0<br>83.5<br>83.0<br>83.5<br>83.0<br>83.5<br>83.0<br>83.5<br>83.0<br>83.5<br>83.0<br>83.5<br>83.5<br>83.0<br>83.5<br>83.5<br>83.5<br>83.5<br>83.5<br>83.5<br>83.5<br>83.5    | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2   | No.           119           119           1120           1211           1221           1221           1222           123           124           125           126           127           128           129           130           131           132           133           134           135           137           138           139           140           1442           1442           145           146           146           147           148           149           150           150  | $\begin{array}{c} \textbf{Relation} \\ \hline \textbf{S} > \textbf{8} \\ \hline \textbf{S} > \textbf{9} \\ \hline \textbf{G} > 11 \\ \hline \textbf{G} \\ \hline \textbf{G} \\ \hline \textbf{S} > \textbf{9} \\ \hline \textbf{G} \\ \hline \textbf{S} > \textbf{1} \\ \hline \textbf{G} \\ \hline \textbf{G} \\ \hline \textbf{S} \hline \textbf$                                    | ship         I           2         2         2           3         3         3           2         2         1           3         3         3           3         3         1           1         3         1           1         2         1           3         3         3           1         1         2           1         3         3           1         3         3           1         3         3           3         1         1           3         3         1           3         3         3           1         1         3           3         3         3           1         1         3           3         3         3           3         3         3           3         3         3           3         3         3           3         3         3           3         3         3           3         3         3           3         3         3  | Sort Descent<br>Descent<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4            | ed F<br>hding) F          | annuality           arraquency           871           875           879           883           887           891           895           896           901           904           907           910           913           916           922           925           928           931           934           937           939           941           943           945           947           949           951           955           955           957           959           961           963                      | Percent<br>(Relation)<br>75.6<br>76.9<br>77.6<br>78.2<br>78.8<br>79.5<br>80.8<br>81.4<br>82.1<br>82.7<br>82.7<br>82.7<br>82.7<br>82.7<br>82.7<br>82.7<br>84.0<br>84.6<br>85.3<br>84.0<br>84.6<br>85.3<br>85.9<br>86.5<br>87.2<br>87.8<br>87.2<br>87.8<br>87.2<br>87.8<br>87.2<br>87.8<br>89.1<br>89.1<br>90.4<br>91.0<br>91.7<br>92.3<br>92.3<br>92.3<br>92.3<br>92.3<br>92.5<br>94.9<br>94.2<br>94.2<br>94.2<br>94.2<br>94.2<br>94.2<br>94.2  | Perce           (Freque           (Freque           90.1           90.1           91.1           91.1           91.1           92.1           92.2           93.3           93.4           94.4           94.4           94.4           94.5           95.5           95.6           96.6           96.7           97.7           97.7           97.3           98.8           98.8           98.9           99.9           99.9           99.1           99.2   | Pancy         Pancy           analy   | 14.4<br>14.2<br>14.0<br>13.7<br>13.3<br>13.1<br>12.7<br>12.4<br>12.1<br>11.7<br>11.4<br>10.1<br>9.8<br>9.1<br>9.4<br>9.1<br>9.4<br>9.4<br>9.1<br>6.7<br>6.3<br>5.8<br>8.8<br>8.8<br>8.8<br>8.8<br>8.8<br>8.8<br>8.8<br>8.8<br>8.8                                      |
| 80         81           82         83           84         85           86         87           87         88           99         91           92         93           94         95           96         97           98         99           101         102           1003         1007           1008         1007           1001         1101           1111         1112   | $\begin{array}{c} 2 < (12 \\ 2 < 13 \\ 4 > 7 \\ 4 > 12 \\ 5 < 111 \\ 6 > 7 \\ 6 > 8 \\ 6 < 8 \\ 6 < 8 \\ 8 < 9 \\ 11 \\ 2 \\ 9 \\ < 10 \\ 9 \\ > 11 \\ 1 \\ 2 \\ 2 \\ < 6 \\ 2 \\ < 8 \\ 2 \\ < 13 \\ 3 \\ < 7 \\ 3 \\ > 9 \\ 4 \\ > 5 \\ < 7 \\ 5 \\ > 11 \\ 2 \\ < 6 \\ 2 \\ < 8 \\ 2 \\ < 13 \\ 3 \\ < 7 \\ 5 \\ > 11 \\ 3 \\ > 9 \\ 4 \\ > 5 \\ < 7 \\ 5 \\ > 10 \\ 6 \\ < 11 \\ 7 \\ > 9 \\ 7 \\ < 11 \\ 1 \\ 2 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ 1 \\ < 12 \\ 1 \\ 1 \\ < 12 \\ 1 \\ 1 \\ < 12 \\ 1 \\ 1 \\ < 12 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 $  |                                     | rted         p           ending)         3           6         -           5         -           5         -           5         -           5         -           5         -           5         -           5         -           5         -           5         -           5         -           5         -           5         -           5         -      5         -  | Frequence           667           673           679           685           691           703           709           715           727           739           745           757           768           778           788           788           783           788           803           808           818           828           833           848           843           843           843   | Percent<br>(Relation)<br>50.6<br>51.3<br>52.6<br>53.2<br>53.8<br>55.1<br>55.1<br>55.8<br>55.1<br>55.8<br>55.1<br>57.7<br>57.7<br>57.7<br>57.7<br>57.7<br>57.7<br>58.3<br>59.0<br>59.6<br>60.3<br>60.9<br>61.5<br>62.2<br>62.8<br>63.5<br>64.1<br>64.7<br>65.4<br>66.7<br>65.4<br>66.7<br>65.4<br>66.9<br>67.9<br>68.6<br>69.2<br>69.2<br>69.2<br>69.2<br>71.2<br>71.2<br>71.2   | Percen           (Frequen           69.0           69.6           70.2           70.8           71.1           72.2           73.3           73.3           73.3           73.5           75.2           75.8           76.4           77.7           78.3           78.9           78.9           78.9           78.9           80.5           81.0           82.5           83.0           83.6           84.1           85.6           86.1           86.7           87.2           87.6           88.0           86.1           86.7           87.2           87.6           88.0 | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2   | No.           118           119           120           121           122           122           122           122           122           122           122           122           124           125           126           127           128           129           130           131           131           132           133           134           135           136           137           138           139           139           139           139           139           139           139           139           139           139           140           141           144           144           144           144           144           144           149           149           150           151 <td><math display="block">\begin{array}{c} \textbf{Relation} \\ \hline \textbf{S} &gt; \textbf{R} \\ \hline \textbf{S} &gt; \textbf{S} \\ \hline \textbf{S} = \textbf{S} \\ \hline \textbf{S} &lt; \textbf{S} \\ \hline \textbf{S} = \textbf{S} \\ \hline \textbf{S} &lt; \textbf{S} \\ \hline \textbf{S} \\ \hline \textbf{S} = \textbf{S} \\ \hline \textbf{S} \hline \textbf{S} \hline \textbf{S} \\ \hline \textbf{S} \hline \textbf{S} \hline \textbf{S} \hline \textbf{S} \\ \hline \textbf{S} \hline</math></td> <td>A         A           3         3           2         2           3         3           3         3           3         3           3         3           3         3           3         3           3         3           3         3           3         1           1         1           1         1           5         3           1         1           5         3           1         1           5         3           1         1           5         3           1         1           5         3           1         1           5         3           1         1           5         3           6         3           7         3           8         3           9         3           9         3           10         3           11         1           12         3           13         1<td>Sort 1<br/>Descent 4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4</td><td>ed F<br/>hding) F</td><td>annuality           871           875           879           883           887           891           895           898           901           904           907           910           916           919           922           931           934           943           945           945           945           955           955           955           955           955           955           955           955           955           955           955           955           955           961           963</td><td>Percent<br/>(Relation)<br/>75.6<br/>76.9<br/>77.6<br/>78.8<br/>79.5<br/>80.1<br/>80.8<br/>81.4<br/>82.7<br/>83.3<br/>84.0<br/>84.2<br/>82.7<br/>83.3<br/>84.0<br/>84.6<br/>85.9<br/>84.5<br/>85.9<br/>86.5<br/>87.2<br/>87.8<br/>87.2<br/>87.8<br/>88.5<br/>9<br/>87.2<br/>87.8<br/>89.1<br/>89.1<br/>89.1<br/>91.0<br/>91.7<br/>92.3<br/>92.9<br/>93.6<br/>94.2<br/>94.2<br/>94.2<br/>94.2<br/>94.5<br/>95.5<br/>96.2<br/>95.8</td><td>Perce           (Freque           90.1           90.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           92.2           93.3           93.3           93.3           93.4           94.1           94.2           95.5           95.5           95.6           95.7           97.7           97.7           97.7           97.3           97.4           97.5           97.5           97.7           97.7           97.3           98.3           98.4           98.4           98.5           99.5           99.5           99.5           99.5           99.5</td><td>Pancy         Pancy           ancy         -           1         -           5         -           5         -           33         -           6         -           9         -           1         -           5         -           6         -           9         -           1         -           7         -           7         -           7         -           7         -           7         -           7         -           7         -           7         -           7         -           7         -           7         -           7         -           9         -           9         -           10         -           11         -           12         -           13         -           14         -           15         -           16         -           17         -</td><td>14.4<br/>14.2<br/>14.0<br/>13.7<br/>13.5<br/>13.3<br/>13.1<br/>12.7<br/>12.4<br/>12.1<br/>11.7<br/>10.4<br/>10.4<br/>10.4<br/>9.8<br/>9.4<br/>9.8<br/>9.4<br/>9.8<br/>9.4<br/>9.8<br/>8.8<br/>8.8<br/>8.4<br/>9.4<br/>9.5<br/>7.6<br/>6.7<br/>6.7<br/>6.7<br/>6.7<br/>6.7<br/>6.7<br/>6.7<br/>6.7<br/>6.7</td></td> | $\begin{array}{c} \textbf{Relation} \\ \hline \textbf{S} > \textbf{R} \\ \hline \textbf{S} > \textbf{S} \\ \hline \textbf{S} = \textbf{S} \\ \hline \textbf{S} < \textbf{S} \\ \hline \textbf{S} = \textbf{S} \\ \hline \textbf{S} < \textbf{S} \\ \hline \textbf{S} \\ \hline \textbf{S} = \textbf{S} \\ \hline \textbf{S} \hline \textbf{S} \hline \textbf{S} \\ \hline \textbf{S} \hline \textbf{S} \hline \textbf{S} \hline \textbf{S} \\ \hline \textbf{S} \hline$   | A         A           3         3           2         2           3         3           3         3           3         3           3         3           3         3           3         3           3         3           3         3           3         1           1         1           1         1           5         3           1         1           5         3           1         1           5         3           1         1           5         3           1         1           5         3           1         1           5         3           1         1           5         3           6         3           7         3           8         3           9         3           9         3           10         3           11         1           12         3           13         1 <td>Sort 1<br/>Descent 4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4<br/>4</td> <td>ed F<br/>hding) F</td> <td>annuality           871           875           879           883           887           891           895           898           901           904           907           910           916           919           922           931           934           943           945           945           945           955           955           955           955           955           955           955           955           955           955           955           955           955           961           963</td> <td>Percent<br/>(Relation)<br/>75.6<br/>76.9<br/>77.6<br/>78.8<br/>79.5<br/>80.1<br/>80.8<br/>81.4<br/>82.7<br/>83.3<br/>84.0<br/>84.2<br/>82.7<br/>83.3<br/>84.0<br/>84.6<br/>85.9<br/>84.5<br/>85.9<br/>86.5<br/>87.2<br/>87.8<br/>87.2<br/>87.8<br/>88.5<br/>9<br/>87.2<br/>87.8<br/>89.1<br/>89.1<br/>89.1<br/>91.0<br/>91.7<br/>92.3<br/>92.9<br/>93.6<br/>94.2<br/>94.2<br/>94.2<br/>94.2<br/>94.5<br/>95.5<br/>96.2<br/>95.8</td> <td>Perce           (Freque           90.1           90.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           92.2           93.3           93.3           93.3           93.4           94.1           94.2           95.5           95.5           95.6           95.7           97.7           97.7           97.7           97.3           97.4           97.5           97.5           97.7           97.7           97.3           98.3           98.4           98.4           98.5           99.5           99.5           99.5           99.5           99.5</td> <td>Pancy         Pancy           ancy         -           1         -           5         -           5         -           33         -           6         -           9         -           1         -           5         -           6         -           9         -           1         -           7         -           7         -           7         -           7         -           7         -           7         -           7         -           7         -           7         -           7         -           7         -           7         -           9         -           9         -           10         -           11         -           12         -           13         -           14         -           15         -           16         -           17         -</td> <td>14.4<br/>14.2<br/>14.0<br/>13.7<br/>13.5<br/>13.3<br/>13.1<br/>12.7<br/>12.4<br/>12.1<br/>11.7<br/>10.4<br/>10.4<br/>10.4<br/>9.8<br/>9.4<br/>9.8<br/>9.4<br/>9.8<br/>9.4<br/>9.8<br/>8.8<br/>8.8<br/>8.4<br/>9.4<br/>9.5<br/>7.6<br/>6.7<br/>6.7<br/>6.7<br/>6.7<br/>6.7<br/>6.7<br/>6.7<br/>6.7<br/>6.7</td> | Sort 1<br>Descent 4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4                     | ed F<br>hding) F          | annuality           871           875           879           883           887           891           895           898           901           904           907           910           916           919           922           931           934           943           945           945           945           955           955           955           955           955           955           955           955           955           955           955           955           955           961           963 | Percent<br>(Relation)<br>75.6<br>76.9<br>77.6<br>78.8<br>79.5<br>80.1<br>80.8<br>81.4<br>82.7<br>83.3<br>84.0<br>84.2<br>82.7<br>83.3<br>84.0<br>84.6<br>85.9<br>84.5<br>85.9<br>86.5<br>87.2<br>87.8<br>87.2<br>87.8<br>88.5<br>9<br>87.2<br>87.8<br>89.1<br>89.1<br>89.1<br>91.0<br>91.7<br>92.3<br>92.9<br>93.6<br>94.2<br>94.2<br>94.2<br>94.2<br>94.5<br>95.5<br>96.2<br>95.8   | Perce           (Freque           90.1           90.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           92.2           93.3           93.3           93.3           93.4           94.1           94.2           95.5           95.5           95.6           95.7           97.7           97.7           97.7           97.3           97.4           97.5           97.5           97.7           97.7           97.3           98.3           98.4           98.4           98.5           99.5           99.5           99.5           99.5           99.5  | Pancy         Pancy           ancy         -           1         -           5         -           5         -           33         -           6         -           9         -           1         -           5         -           6         -           9         -           1         -           7         -           7         -           7         -           7         -           7         -           7         -           7         -           7         -           7         -           7         -           7         -           7         -           9         -           9         -           10         -           11         -           12         -           13         -           14         -           15         -           16         -           17         -   | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.3<br>13.1<br>12.7<br>12.4<br>12.1<br>11.7<br>10.4<br>10.4<br>10.4<br>9.8<br>9.4<br>9.8<br>9.4<br>9.8<br>9.4<br>9.8<br>8.8<br>8.8<br>8.4<br>9.4<br>9.5<br>7.6<br>6.7<br>6.7<br>6.7<br>6.7<br>6.7<br>6.7<br>6.7<br>6.7<br>6.7 |
| 80         81           82         83           84         85           86         87           87         88           89         90           91         92           93         94           95         96           97         97           98         99           1001         100           1005         1006           1009         110           111         112           113         1131  | $\begin{array}{c} 2 < 12 \\ 2 < 13 \\ 4 > 7 \\ 4 > 12 \\ 5 < 11 \\ 6 > 7 \\ 6 > 8 \\ 6 < 8 \\ 6 < 8 \\ 8 < 9 \\ 8 < 10 \\ 8 > 12 \\ 8 < 10 \\ 8 > 12 \\ 8 < 10 \\ 1 > 12 \\ 4 > 12 \\ 1 > 4 \\ 1 > 4 \\ 2 > 6 \\ 2 > 8 \\ 2 > 13 \\ 3 < 7 \\ 3 > 9 \\ 4 > 5 \\ 4 > 5 \\ 4 > 5 \\ 5 < 7 \\ 5 > 11 \\ 6 > 10 \\ 6 < 11 \\ 7 > 9 \\ 7 < 11 \\ 1 > 8 \\ 1 < 12 \\ 8 \\ 1 > 8 \\ 1 < 12 \\ 3 < 5 \end{array}$  |                                     | tted         p           anding)         a           b         a           b         b      b         b  | Frequence           667           673           679           685           691           697           703           709           711           721           723           739           745           757           768           778           783           788           793           808           813           828           833           843           843           847           855   | Percent<br>(Relation)<br>50.6<br>51.3<br>51.9<br>52.6<br>53.2<br>55.1<br>55.1<br>55.1<br>55.1<br>55.1<br>55.1<br>55.1<br>55   | Percen<br>(Frequen<br>69.0<br>70.2<br>70.8<br>71.5<br>72.1<br>73.3<br>73.9<br>74.6<br>75.2<br>75.8<br>75.4<br>77.0<br>77.7<br>78.3<br>78.9<br>77.0<br>77.7<br>78.3<br>78.9<br>77.0<br>77.7<br>78.3<br>78.9<br>77.4<br>77.7<br>88.0<br>88.0<br>88.0  | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2   | No.           119           119           1120           121           122           122           122           122           122           122           122           122           123           124           125           126           127           128           129           130           132           133           1340           135           136           137           138           139           140           142           143           144           145           144           145           144           145           145           145           151           152           153   | $\begin{array}{c} \textbf{Relation} \\ \hline \textbf{S} > \textbf{8} \\ \hline \textbf{S} > \textbf{9} \\ \hline \textbf{S} > \textbf{9} \\ \textbf{G} > \textbf{12} \\ \hline \textbf{7} > \textbf{11} \\ \hline \textbf{1} < \textbf{32} \\ \hline \textbf{1} < \textbf{5} \\ \hline \textbf{1} \\ \hline \textbf{1} < \textbf{1} \\ \hline \textbf{1} \\ \hline \textbf{1} < \textbf{1} \\ \hline \textbf{2} \\ \hline \textbf{2} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{1} \\ \hline \textbf{1} \\ \hline \textbf{1} \\ \hline \textbf{2} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{1} \\ \hline \textbf{1} \\ \hline \textbf{1} \\ \hline \textbf{2} \\ \hline \textbf{1} \\ \hline \textbf{3} \\ \hline \textbf{1} \\ \hline \textbf{1} \\ \hline \textbf{1} \\ \hline \textbf{1} \\ \hline \textbf{2} \\ \hline \textbf{1} \hline \textbf{1} \\ \hline \textbf{1} \hline \textbf{1} \\ \hline \textbf{1} \\ \hline \textbf{1} \hline \textbf{1} \\ \hline \textbf{1} \hline \hline \textbf{1} \\ \hline \textbf{1} \hline \hline \textbf{1} \\ \hline \textbf{1} \hline \textbf{1} \hline \hline \textbf{1} \hline \textbf{1}$ | ship         I           2         2         1           2         2         1           3         3         1           3         3         1           3         3         1           3         1         1           3         1         1           3         1         1           3         1         1           3         3         1           3         3         1           3         3         1           3         3         1           1         1         1           1         1         1           3         3         1           3         3         1           1         1         1           1         1         1           1         1         1           1         1         1           1         1         1           1         1         1           1         1         1           1         1         1           1         1         1  | Sort T<br>Descent<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4                  | ed F<br>hding) F          | annuality           871           875           879           883           891           895           894           907           904           907           913           916           922           925           931           934           937           939           941           943           945           947           951           955           955           955           955           955           955           963           9663           965           965  | Percent<br>[Relation]<br>75.6<br>76.9<br>77.6<br>78.8<br>79.5<br>80.1<br>80.8<br>81.4<br>82.1<br>82.7<br>82.7<br>82.7<br>82.7<br>82.7<br>82.7<br>82.7<br>84.0<br>84.0<br>84.0<br>84.6<br>85.3<br>84.0<br>84.0<br>84.5<br>85.3<br>85.9<br>86.5<br>87.2<br>87.2<br>87.8<br>87.2<br>87.2<br>87.8<br>87.9<br>90.4<br>91.7<br>92.3<br>90.4<br>91.7<br>92.3<br>92.9<br>93.6<br>94.9<br>95.5<br>96.5<br>94.9<br>95.5<br>96.5<br>96.8<br>97.2<br>96.8<br>97.2<br>96.4<br>96.4<br>97.2<br>97.2<br>97.6<br>97.5<br>97.6<br>97.5<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.6<br>97.7<br>97.6<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97.7<br>97. | Perce           (Freque           90.1           90.1           91.1           91.1           92.1           92.2           93.3           93.4           94.4           94.3           94.4           95.1           95.2           95.3           95.4           95.7           95.7           97.7           97.7           97.1           97.2           97.3           98.3           98.4           98.4           99.5           97.7           97.7           97.7           97.9           97.9           97.9           97.9           97.9           97.9           97.9           97.9           97.9           97.9           97.9           97.9           97.9           97.9           97.9           97.9           97.9           97.9           97.9  | P           11           5           5           5           5           1           5           1           2           5           5           5           6           7           8           7           9           1           7           8           9           1           9           1           9           1           9           1           9           1           9           1           9           1           9           1           9           1           9           1           9           1           9           1           9           1           9           1           1           1           1           1           1  | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.3<br>13.1<br>12.7<br>12.4<br>12.1<br>11.7<br>12.4<br>11.1<br>10.8<br>10.4<br>10.1<br>10.4<br>10.1<br>10.4<br>10.1<br>9.8<br>9.9<br>9.4<br>9.1<br>9.8<br>8.8<br>8.8<br>8.8<br>8.8<br>8.8<br>8.8<br>8.8<br>8.8<br>8.8         |
| 80         81           82         82           83         84           85         86           87         88           89         90           91         92           93         94           95         96           97         98           99         901           101         102           103         104           105         106           1001         107           1008         1097           1101         112           1111         112 | $\begin{array}{c} 2 < (12 \\ 2 < 13 \\ 4 > 7 \\ 4 > 12 \\ 5 < 111 \\ 6 > 7 \\ 6 > 8 \\ 6 < 8 \\ 6 < 8 \\ 8 < 9 \\ 11 \\ 2 \\ 9 \\ < 10 \\ 9 \\ > 11 \\ 1 \\ 2 \\ 2 \\ < 6 \\ 2 \\ < 8 \\ 2 \\ < 13 \\ 3 \\ < 7 \\ 3 \\ > 9 \\ 4 \\ > 5 \\ < 7 \\ 5 \\ > 11 \\ 2 \\ < 6 \\ 2 \\ < 8 \\ 2 \\ < 13 \\ 3 \\ < 7 \\ 5 \\ > 11 \\ 3 \\ > 9 \\ 4 \\ > 5 \\ < 7 \\ 5 \\ > 10 \\ 6 \\ < 11 \\ 7 \\ > 9 \\ 7 \\ < 11 \\ 1 \\ 2 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ < 12 \\ 1 \\ 1 \\ < 12 \\ 1 \\ 1 \\ < 12 \\ 1 \\ 1 \\ < 12 \\ 1 \\ 1 \\ < 12 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 $  |                                     | rted         p           ending)         3           6         -           5         -           5         -           5         -           5         -           5         -           5         -           5         -           5         -           5         -           5         -           5         -           5         -           5         -      5         -  | Frequence           667           673           679           685           697           703           709           715           727           739           745           757           768           778           788           788           783           788           803           808           818           828           833           848           843           843           843   | Percent<br>(Relation)<br>50.6<br>51.3<br>52.6<br>53.2<br>53.8<br>55.1<br>55.1<br>55.8<br>55.1<br>55.8<br>55.1<br>57.7<br>57.7<br>57.7<br>57.7<br>57.7<br>57.7<br>58.3<br>59.0<br>59.6<br>60.3<br>60.9<br>61.5<br>62.2<br>62.8<br>63.5<br>64.1<br>64.7<br>65.4<br>66.7<br>65.4<br>66.7<br>65.4<br>66.9<br>67.9<br>68.6<br>69.2<br>69.2<br>69.2<br>69.2<br>71.2<br>71.2<br>71.2   | Percen           (Frequen           69.0           69.6           70.2           70.8           71.1           72.2           73.3           73.3           73.3           73.5           75.2           75.8           76.4           77.7           78.3           78.9           78.9           78.9           78.9           80.5           81.0           82.5           83.0           83.6           84.1           85.6           86.1           86.7           87.2           87.6           88.0           86.1           86.7           87.2           87.6           88.0 | t Power<br>cy)<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.3<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2<br>18.2   | No.           118           118           119           120           121           122           123           124           125           126           127           128           129           120           121           122           122           122           122           122           122           122           122           122           122           122           122           122           122           122           122           122           131           131           133           134           140           142           144           144           144           144           144           144           144           150           152           153           154   | $\begin{array}{c} \textbf{Relation} \\ \hline \textbf{S} > \textbf{8} \\ \hline \textbf{S} > \textbf{9} \\ \hline \textbf{9} < \textbf{1} \\ \hline \textbf{3} \\ \hline \textbf{1} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{1} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{1} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{1} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{1} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{1} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{1} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{1} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{1} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{1} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{1} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{1} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{1} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{1} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{1} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{1} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{3} \\ \hline \textbf{1} \\ \hline \textbf{3} \hline \hline \textbf{3} \hline \hline \textbf{3} \hline \textbf{3} \hline \hline \textbf{3} \hline \textbf{3} \hline \hline \textbf{3} \hline 3$   | Ship         I           3         3           22         1           33         1           33         1           33         1           33         1           33         1           33         1           34         1           35         1           36         1           37         1           38         1           39         1           30         1           30         1           31         1           33         1           33         1           33         1           33         1           33         1           33         1           33         3           33         3           33         1           33         1           33         3           33         3           33         3           33         3           33         3           33         3           33         3   | Sort 1<br>Descent 4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4                     | ed F<br>hding)<br>F       | annuality           871           875           879           883           887           891           895           898           901           904           907           910           916           919           922           931           934           943           945           945           945           955           955           955           955           955           955           955           955           955           955           955           955           955           961           963 | Percent<br>(Relation)<br>75.6<br>76.9<br>77.6<br>78.8<br>79.5<br>80.1<br>80.8<br>81.4<br>82.7<br>83.3<br>84.0<br>84.2<br>82.7<br>83.3<br>84.0<br>84.6<br>85.9<br>84.5<br>85.9<br>86.5<br>87.2<br>87.8<br>87.2<br>87.8<br>88.5<br>9<br>87.2<br>87.8<br>89.1<br>89.1<br>89.1<br>91.0<br>91.7<br>92.3<br>92.9<br>93.6<br>94.2<br>94.2<br>94.2<br>94.2<br>94.5<br>95.5<br>96.2<br>95.8   | Perce           (Freque           90.1           90.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           91.1           92.2           93.3           93.3           93.3           93.4           94.1           94.2           95.5           95.5           95.6           95.7           97.7           97.7           97.7           97.3           97.4           97.5           97.5           97.7           97.7           97.3           98.3           98.4           98.4           98.5           99.5           99.5           99.5           99.5           99.5  | Pancy         Pancy           ancy         -           s         -           5         -           5         -           5         -           7         -           6         -           9         -           2         -           5         -           7         -           7         -           7         -           7         -           3         -           6         -           9         -           11         -           12         -           13         -           14         -           15         -           16         -           11         -           12         -           13         -           14         -           15         -           16         -           17         -           18         -           19         -           10         -           11         -   | 14.4<br>14.2<br>14.0<br>13.7<br>13.5<br>13.3<br>13.1<br>12.7<br>12.4<br>12.1<br>11.7<br>10.4<br>10.4<br>10.4<br>9.4<br>9.8<br>9.4<br>9.8<br>9.4<br>9.8<br>8.8<br>8.4<br>9.4<br>9.5<br>7.6<br>6.7<br>6.7<br>6.7<br>6.7<br>6.7<br>6.7<br>6.7<br>6.7<br>6.7               |

# (Source: Own compilation)

100.

Equals 100%

Power = E-D

100.0

Equals 100%

As illustrated in table 4.3, the cumulative percentage (relation) column was calculated using the total number of 156 relationships. That denotes that every relationship represents 1/156 multiplied

2 otal

Frequency

0

967

967 Equal Tot

75.0

117

4 > 10

by 100, resulting in approximately 0.6% of the total possible number, added to the previous percentage immediately above. The  $156^{th}$  relationship had to be left out, as it was the only relationship out of the 156 that had not been voted for . Hence, scored a zero frequency. The cumulative percentage (frequency) column was determined by the formula: cumulative frequency/967 votes x 100. The cut-off point was the  $72^{nd}$  relationship, that was chosen because the system comprises the maximum power of 18.48, with a relationship representing 64.6% of the over all deviation in the entire system.

### 4.2.3 The IRD.

Here, the SID assignments protocol was completed, by examining the number of relationships a particular affinity influences, and is influenced by. Thus, the number of OUT arrows (drivers) and IN arrows (outcomes) of each affinity were calculated (refer to table 4.4). The variance between the OUT and IN arrows determines if the affinity is a relative driver or outcome. Affinities are then sorted from drivers to outcomes, using the IRD. In this study, 72 relationships were utilised to sort each affinity as driver, outcome, or neutral. In the system, there were four conflicted relationships, i.e., 2-7; 3-8; 3-10; 7-10. All four were resolved by the decluttering, resulting in a total of 68 relationships. Table 4.4 presents these relationships.

|    |              |              |              |            |              |              |            | IF           | RD           |              |              |              |              |     |    |    |
|----|--------------|--------------|--------------|------------|--------------|--------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|-----|----|----|
|    | 1            | 2            | 3            | 4          | 5            | 6            | 7          | 8            | 9            | 10           | 11           | 12           | 13           | OUT | IN | Δ  |
| 1  |              | $\uparrow$   | $\uparrow$   |            | $\uparrow$   | $\uparrow$   | 1          | ←            | ←            | ←            |              | $\uparrow$   | $\uparrow$   | 7   | 3  | 4  |
| 2  | ←            |              | $\uparrow$   | $\uparrow$ | $\uparrow$   |              | ←          |              | ←            | ←            | ←            | $\uparrow$   |              | 4   | 5  | -1 |
| 3  | $\leftarrow$ | $\leftarrow$ |              | $\uparrow$ | $\uparrow$   | $\uparrow$   | $\uparrow$ | $\uparrow$   | $\leftarrow$ | $\uparrow$   | $\uparrow$   | $\leftarrow$ | $\uparrow$   | 9   | 3  | 6  |
| 4  |              | $\leftarrow$ | $\leftarrow$ |            | $\leftarrow$ | $\leftarrow$ | ←          | $\leftarrow$ | $\leftarrow$ | $\leftarrow$ | $\leftarrow$ | $\downarrow$ | $\uparrow$   | 1   | 10 | -9 |
| 5  | $\leftarrow$ | ¥            | $\leftarrow$ | $\uparrow$ |              | $\uparrow$   | $\uparrow$ | ←            | $\leftarrow$ | $\leftarrow$ |              | Ļ            | $\uparrow$   | 4   | 7  | -3 |
| 6  | $\leftarrow$ |              | $\leftarrow$ | $\uparrow$ | $\leftarrow$ |              | ←          |              | $\leftarrow$ | $\leftarrow$ | $\uparrow$   | Ļ            | $\uparrow$   | 3   | 7  | -4 |
| 7  | ←            | ↑            | $\leftarrow$ | $\uparrow$ | $\leftarrow$ | ↑            |            | $\uparrow$   | $\leftarrow$ | $\uparrow$   | $\uparrow$   | $\leftarrow$ | $\uparrow$   | 7   | 5  | 2  |
| 8  | $\uparrow$   |              | $\leftarrow$ | $\uparrow$ | $\uparrow$   |              | ←          |              |              | $\uparrow$   | $\uparrow$   |              | $\leftarrow$ | 5   | 3  | 2  |
| 9  | $\uparrow$   | $\uparrow$   | $\leftarrow$ | $\uparrow$ | $\leftarrow$ | $\uparrow$   | $\uparrow$ |              |              | $\leftarrow$ | $\uparrow$   | $\leftarrow$ |              | 10  | 0  | 10 |
| 10 | $\uparrow$   | $\uparrow$   | $\leftarrow$ | $\uparrow$ | $\uparrow$   | $\uparrow$   | ←          | ←            | $\leftarrow$ |              | $\uparrow$   | $\leftarrow$ | $\uparrow$   | 8   | 4  | 4  |
| 11 |              | $\uparrow$   | $\leftarrow$ | $\uparrow$ |              | $\leftarrow$ | ←          | ←            | $\leftarrow$ | $\leftarrow$ |              | $\uparrow$   | $\uparrow$   | 4   | 6  | -2 |
| 12 | $\leftarrow$ | $\leftarrow$ | $\leftarrow$ | $\uparrow$ | $\uparrow$   | $\uparrow$   | $\uparrow$ |              | $\leftarrow$ | $\leftarrow$ | ←            |              | $\uparrow$   | 5   | 6  | -1 |
| 13 | $\leftarrow$ |              | $\leftarrow$ | ←          | $\leftarrow$ | $\leftarrow$ | ←          | $\uparrow$   |              | $\leftarrow$ | ←            | Ļ            |              | 1   | 9  | -8 |
|    |              | -            |              | =          |              | -            | -          | -            |              |              | -            |              | Total        | 68  | 68 | 0  |

### Table 4.4: IRD: FG1

• **Arrows out**  $\uparrow$  on the vertical side show affinities that influence the affinity on the horizontal side.

• Arrows in  $\leftarrow$  on the vertical side show affinities that are influenced by the affinity on the horizontal side.

(Source: Own compilation)

Table 4.4 shows that the system registered 13 affinities, as identified by the participants in FG1, with 68 relationships between those 13 affinities. The interrelationships of the affinities, as indicated by the participants (refer to table 4.2 & 4.3), were summarised on the right side of table 4.4. An example is *Affinity 13*, that shows 1 *Out* and 9 *Ins* with a *Delta* of 8. This signifies that *Affinity 13* is influenced by 8 other affinities, and is only influenced by one affinity, i.e., *Affinity 8*. This is calculated by adding up the number of up arrows *Out* ( $\uparrow$ ) and adding up the number of arrows *In* ( $\Leftarrow$ ) and, then, subtracting the number of *Ins* from the *Outs* to determine the ( $\Delta$ ) *Deltas*.

# $\therefore \Delta = \text{Outs} - \text{Ins}$

The 13 shaded blocks refer to 13 affinities that cannot have a relationship with itself. The total of 68 arrows facing to the left ( $\bigstar$ ) and, also, 68 arrows facing upwards ( $\Uparrow$ ), refer to the 68 relationships derived from the 68 affinities.

The next activity was sorting the IRD in descending order of the delta ( $\Delta$ ). Drivers are affinities with positive deltas, outcomes are affinities with negative deltas, and neutral affinities have a delta of zero, as depicted in table 4.5.

|    |              |              |              |              | Ι            | RD – S       | Sorted       | in De      | scendi       | ng Or        | der of       | Δ            |              |     |    |    |
|----|--------------|--------------|--------------|--------------|--------------|--------------|--------------|------------|--------------|--------------|--------------|--------------|--------------|-----|----|----|
|    | 1            | 2            | 3            | 4            | 5            | 6            | 7            | 8          | 9            | 10           | 11           | 12           | 13           | OUT | IN | Δ  |
| 9  | $\uparrow$   |            |              | $\uparrow$   | $\uparrow$   | $\uparrow$   |              | 10  | 0  | 10 |
| 3  | $\leftarrow$ | $\leftarrow$ |              | $\uparrow$   | $\uparrow$   | $\uparrow$   | $\uparrow$   | $\uparrow$ | $\leftarrow$ | $\uparrow$   | $\uparrow$   | $\leftarrow$ | $\uparrow$   | 9   | 3  | 6  |
| 1  |              | $\uparrow$   | $\uparrow$   |              | $\uparrow$   | $\uparrow$   | $\uparrow$   | ←          | ←            | ←            |              | $\uparrow$   | $\uparrow$   | 7   | 3  | 4  |
| 10 | $\uparrow$   | $\uparrow$   | $\leftarrow$ | $\uparrow$   | $\uparrow$   | $\uparrow$   | ←            | ←          | ←            |              | $\uparrow$   | $\leftarrow$ | $\uparrow$   | 8   | 4  | 4  |
| 7  | $\leftarrow$ | $\uparrow$   | ←            | $\leftarrow$ | $\leftarrow$ | $\leftarrow$ |              | $\uparrow$ | ←            | $\uparrow$   | $\uparrow$   | ↓            | $\uparrow$   | 7   | 5  | 2  |
| 8  | $\uparrow$   |              | ↓            | $\leftarrow$ | $\uparrow$   |              | ←            |            |              | $\uparrow$   | $\uparrow$   |              | $\leftarrow$ | 5   | 3  | 2  |
| 2  | $\leftarrow$ |              | $\leftarrow$ | $\leftarrow$ | $\uparrow$   |              | ←            |            | ✦            | ←            | ←            | $\leftarrow$ |              | 4   | 5  | -1 |
| 12 | $\leftarrow$ | $\leftarrow$ | ✦            | $\leftarrow$ | $\uparrow$   | $\leftarrow$ | $\uparrow$   |            | $\leftarrow$ | $\leftarrow$ | $\leftarrow$ |              | $\uparrow$   | 5   | 6  | -1 |
| 11 |              | $\uparrow$   | $\leftarrow$ | $\uparrow$   |              | $\leftarrow$ | $\leftarrow$ | ←          | $\leftarrow$ | ←            |              | $\uparrow$   | $\uparrow$   | 4   | 6  | -2 |
| 5  | $\leftarrow$ | $\leftarrow$ | $\leftarrow$ | $\uparrow$   |              | $\uparrow$   | $\uparrow$   | ←          | $\leftarrow$ | ←            |              | $\leftarrow$ | $\uparrow$   | 4   | 7  | -3 |
| 6  | $\leftarrow$ |              | ←            | $\leftarrow$ | $\leftarrow$ |              | ←            |            | ←            | ←            | $\uparrow$   | ↓            | $\uparrow$   | 3   | 7  | -4 |
| 13 | $\leftarrow$ |              | ↓            | $\leftarrow$ | $\leftarrow$ | $\leftarrow$ | $\leftarrow$ | $\uparrow$ |              | $\leftarrow$ | $\leftarrow$ | $\downarrow$ |              | 1   | 9  | -8 |
| 4  |              | ←            | ←            |              | ←            | ←            | ←            | ←          | ←            | ←            | ←            | ↓            | 1            | 1   | 10 | -9 |

Table 4.5: IRD in descending order of delta (△): FG1

(Source: Own compilation)

The results of the sorted IRD were examined to determine the tentative order of the affinities, in preparation for drawing the SID. Thus, the IRD in table 4.5 indicate that the system had six positive deltas, that were drivers. These include Affinities 9, 3, 1,10,7 and 8. The IRD also had seven negative deltas, which were outcomes, namely Affinities 2, 12,11,5,6,13 and 4. The outline of the drivers and outcomes are shown as a tentative SID assignments, in table 4.6, that identifies the categories of every affinity. Every affinity was classified into categories, namely primary driver, secondary driver, neutral, secondary outcome, or primary outcome (refer to 3.6.2.4). For FG1, in this study, no neutral or primary outcomes were recorded in the system.

Table 4.6: Tentative SID assignment: FG1

|    | Affinities                                   | Tentative SID Assignments |
|----|--|---------------------------|
| 9  | Policies governing ACs                       | Primary Driver            |
| 3  | Financing of ACs                             | Secondary Driver          |
| 1  | Characteristics or qualities of AC members   | Secondary Driver          |
| 10 | Political influence                          | Secondary Driver          |
| 7  | Management commitment                        | Secondary Driver          |
| 8  | Nature of institution audited                | Secondary Driver          |
| 2  | Coordination amongst stakeholders            | Secondary Outcome         |
| 12 | Quality control                              | Secondary Outcome         |
| 11 | Professional competence of Internal Auditors | Secondary Outcome         |
| 5  | Independence                                 | Secondary Outcome         |
| 6  | Independence of the IA [function]            | Secondary Outcome         |
| 13 | Quality recommendation                       | Secondary Outcome         |
| 4  | Frequency of meetings                        | Secondary Outcome         |

(Source: Own compilation)

As indicated in table 4.6, the tentative SID assignments did not produce either a neutral or primary outcome. The primary driver that influenced other affinities, but was not influenced by others, was *Affinity 9, Policies governing ACs.* There were five secondary drivers, i.e., *Affinity 3, Financing of AC; Affinity 1, Characteristics or qualities of AC members; Affinity 10, Political influence; Affinity 7, Management commitment,* and *Affinity 8, Nature of institution audited.* These secondary drivers, that influenced other affinities at the same time, were influenced by a smaller number of affinities. On the other hand, there were seven secondary outcomes in the system, i.e., *Affinity 2, Coordination amongst stakeholders; Affinity 12, Quality control; Affinity 11, Professional competence of Internal Auditors; Affinity 5, Independence; Affinity 13, Quality recommendation, and Affinity 4, Frequency of meetings.* These secondary outcomes are influenced by other affinities and only influenced a smaller number of affinities.

At the centre of the effectiveness of every governance phenomenon, such as the AC, is the body of rules and regulations directing all stakeholders on how to navigate the system, in order to achieve the objectives of the organisation. Thus, it is appropriate that participants voted for *Affinity 9*, *Policies governing ACs*, as the primary driver of the system under review. Policies are the guidelines,

rules and regulations directing the parameters within which decisions are to be rationally made, and statements of protocols to be followed, in achieving the principal objectives of the system. Therefore, the policies governing effective audit committees (Affinity 9) should codify and address the issues, classified as secondary drivers and outcomes in the system, as listed above.

### 4.2.4 SIDs: FG1.

From the tentative SID assignment above, the first version of the SID was drawn, that contains all the affinities within the system, each linking with those that are present in the IRD. This is referred to as the cluttered SID, and is presented by figure 4.1.

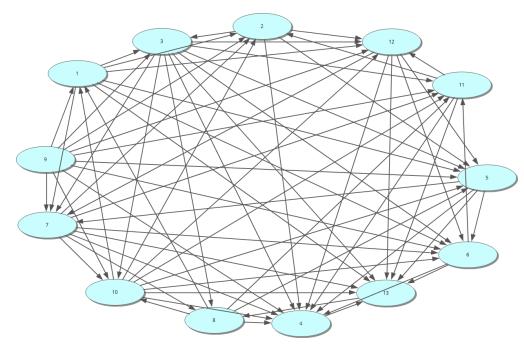


Figure 4.1: Cluttered SID: FG1

Plotted at the extreme left side of the system, alongside the secondary drivers, is the primary driver, *Affinity 9*, *Policies governing ACs*. Where there is a primary outcome, it is usually plotted at the extreme right of the system, alongside the secondary outcomes. In this particular system, there was no primary outcome, so only the secondary drivers appear at the right of the system. In IQA

methodology, the locations of the categories of affinities are standard, and is logically arranged to differentiate the categories of affinities in a system.

The problem with a cluttered SID is that, whilst it is comprehensive and rich, it is saturated and, therefore, the system can be very difficult to interpret. One way to resolve the difficulty, is to produce an uncluttered SID (refer to figure 4.2), where redundant links have been removed. As aforementioned, "Redundant links" are those between two affinities in which, even if removed, a path from the driver to the outcome can be achieved, through an intermediary affinity.

The uncluttered SID (refer to figure 4.2) commences with *Affinity 9*, *Policies governing ACs* at the extreme right, directly influencing *Affinity 3*, *Financing of AC* that, itself, influenced *Affinity 10*, *Political influence*. Affinity 3 is, in turn, influenced by *Affinity 2*, *Coordination amongst stakeholders* (a secondary outcome) and *Affinity 1*, *Characteristics or qualities of AC members* (a secondary driver), resulting in two separate feedback loops. It is understandable that the primary driver, *Policies governing ACs*, should directly influence all affinities and directly influence *Financing of AC*, as FG1 participants, who are AC members, indicated that financing AC activities is key to their effective functioning. Therefore, the guidelines, rules, and regulations that govern ACs should adequately provide for the financial needs of AC activities, in the CEs.

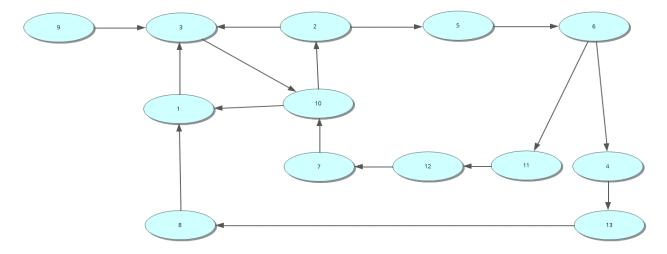


Figure 4.2: FG1: uncluttered SID

4. Frequency of meetings | 5. Independence | 6. Independence of the internal audit [function] | 7. Management commitment |

# 4.2.5 Feedback loop discussions: FG1.

The system provided for the following four feedback loops, that were subsequently illustrated with diagrams:

- Feedback loop 1: Affinity 3→Affinity 10→Affinity 2→Affinity 3→continuous;
- ➤ Feedback loop 2: Affinity 3→Affinity 10→Affinity 1→Affinity 3→continuous;
- ▶ Feedback loop 3: Affinity 7→Affinity 10→Affinity 2→Affinity 5→Affinity 6→Affinity 11→Affinity 12→Affinity 7→continuous;
- ➤ Feedback loop 4: Affinity 10→Affinity 2→Affinity 5→Affinity 6→Affinity 4→Affinity 13→Affinity 8→Affinity 1→Affinity 3→Affinity 10→continuous.

# <u>Feedback loop 1</u>.

The route of Feedback loop 1 of FG1 was Affinity  $3 \rightarrow Affinity \ 10 \rightarrow Affinity \ 2 \rightarrow Affinity \ 3 \rightarrow continuous, illustrated by figure 4.3.$ 

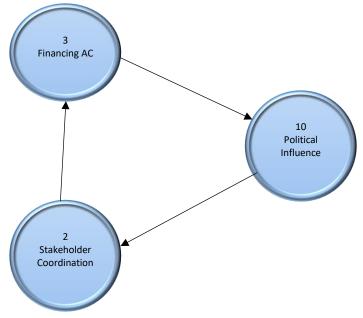


Figure 4.3: FG1: Feedback loop 1

Feedback loop 1 started with *Affinity 3*, *Financing of AC*, that refers to the budgetary allocation of the AC. The source of financing of AC work is of primary concern to both the ACs, as suppliers, and management of the CEs, as the consumers of AC operations, should efficiency and effectiveness be achieved. The primary concern is whether AC financing should emanate from the central government, or whether the CE should budget for it, or whether it should be a cost-shared responsibility between both parties. This leads to the importance of *Affinity 10*, *Political influence*. The source of political influence will depend on the financing source of the AC. If financing is dependent on the auditee CE, management is likely to frustrate AC work by inadequate financing or delays in financing the AC work. On the other hand, if ACs are funded by central government, the appointing authority of ACs, the work of the AC may suffer bureaucratic encumbrances, leading to a rubber-stamping AC that, once established, will not have financial liquidity to function effectively. The solution to this quagmire is the need for *Coordination amongst stakeholders (Affinity 2)*. Well established AC policies should be in place, effecting smooth coordination between the appointing authority and the auditee CE, so as to ensure the effective functioning of the AC.

# Feedback loop 2.

The route of Feedback loop 2 of FG1 was Affinity 3→Affinity 1→Affinity 1→Affinity 3→continuous, illustrated by figure 4.4.

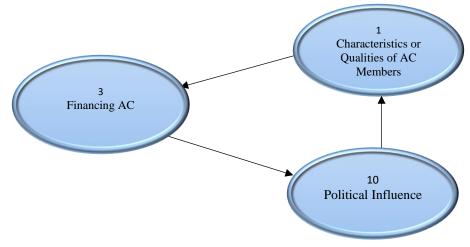


Figure 4.4: FG1: Feedback loop 2

This feedback loop established the connectivity between *Affinity 3*, *Financing of AC*, *Affinity 10*, *Political influence*, and *Affinity 1*, *Characteristics or qualities of AC members*. The loop suggested that the financial source of ACs impact the political influence that is exerted on AC characteristics or qualities of AC members. If the financing is emanating from the central government, then the quality of AC members will be high, in terms of qualification and experience. Central government's desire to ensure a high standard of accountability at the various government agencies, would lead to the prudent exercise of political power in the appointment of AC members and financing of the AC.

# <u>Feedback loop 3</u>.

The route of Feedback loop 3 of FG1 was Affinity  $7 \rightarrow Affinity 10 \rightarrow Affinity 2 \rightarrow Affinity 5 \rightarrow Affinity 11 \rightarrow Affinity 12 \rightarrow Affinity 7 \rightarrow continuous, depicted by figure 4.5.$ 

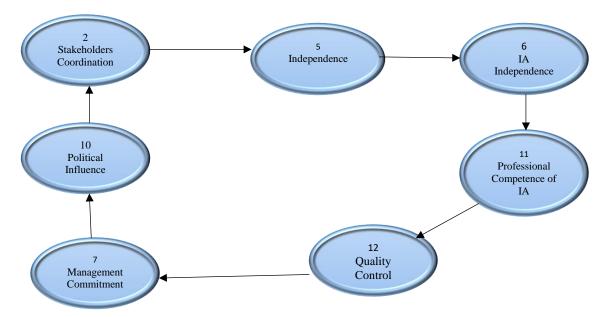


Figure 4.5: FG1: Feedback loop 3

The third loop suggested that management's commitment to AC work would affect the manifestation of political influence, on how effectively the AC can function. Management should be committed to the implementation of AC recommendations and, also, upgrade their knowledge of the rules and regulations relevant to their entities, in general, and the AC, in particular. Political

influences on AC work could be mitigated when management is committed to AC work. Whatever the level of management commitment and political influences, there should be productive coordination amongst stakeholders. The stakeholders, in this case, consist of central government agencies, members of ACs, IAFs, and management of CEs. Stakeholder coordination may adversely compromise the independence of the AC, however, if all stakeholders respect each other's roles, independence could be achieved, as well as professional competence of Internal Auditors and Quality Control.

# Feedback loop 4:

The route of Feedback loop 4 of FG1 was Affinity  $10 \rightarrow Affinity 2 \rightarrow Affinity 5 \rightarrow Affinity 6 \rightarrow Affinity 4 \rightarrow Affinity 13 \rightarrow Affinity 8 \rightarrow Affinity 1 \rightarrow Affinity 3 \rightarrow Affinity 10 \rightarrow continuous, depicted by figure 4.6.$ 

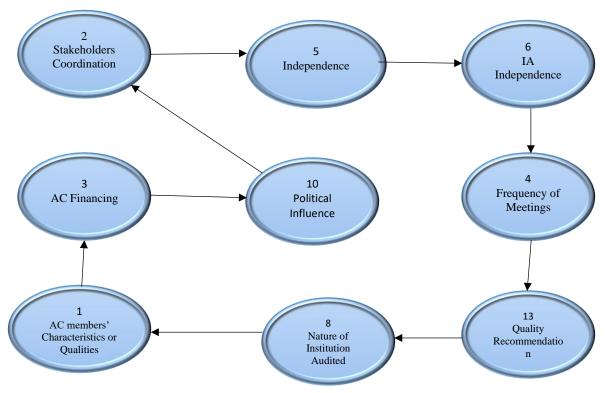


Figure 4.6: FG1: Feedback loop 4

Feedback loop 4 commenced with Affinity 10, Political influence, an indication that political interference or influence, whether by central government or institutionally based, directs the extent that policies on ACs could be implemented for an effective AC output, or otherwise. To mitigate the possible non-compliance and non-cooperation, owing to an overly politicised environment, there should be *Coordination amongst stakeholders* (Affinity 2). The coordination amongst stakeholders, however, should not compromise the Independence (Affinity 5) of any of the parties, especially that of the AC. Independence of the AC demands a consistent and principled approach to AC work, that requires frequent AC meetings (Affinity 4). The frequency of AC meetings is a significant and symbolic measure of the seriousness that is attached to AC work, at least in the minds of other stakeholders. The frequency of AC meetings also indicates members' dedication to work, with consequential improvement of the quality of AC recommendations (Affinity 13). The AC's familiarity with the auditee CE, as a result of frequent meetings, does not only lead to an improvement in the quality of AC recommendations, but also facilitates the AC members' understanding of the *Nature of institution audited* (Affinity 8), that results in improved output. The nature of the audited institution influences the Characteristics or qualities of AC members (Affinity 1), selected and appointed to serve on the AC. Financing of AC (Affinity 3), at the end of the feedback loop, emphasises that the foundation of all influences within the system is the requirement for adequate financing, if effective AC work delivery is to be achieved.

#### 4.3 FG2: Audit Committee Key Stakeholders

# 4.3.1 Inductive and axial coding.

FG2 consisted of 16 participants, who first listed 26 sub-affinities, during the silent brainstorming segment of the session. The group then clustered these sub-affinities under 12 affinities (factors), during a discussion segment. A catalogue of the affinities (factors) and sub-affinities is presented in table 4.7.

| AFFINITY           | (1)<br>Access to<br>information and<br>data  | (2)<br>Commitment   | (3)<br>Continuous<br>training of<br>audit<br>committee<br>members  | (4)<br>Desire to bring<br>about change   | (5)<br>Effectiveness of<br>internal<br>controls                       | (6)<br>Finance<br>function  |
|--------------------|--|---|--|--|---|---|
| SUB-<br>AFFINITIES | <b>1.</b> Access to information and data   | <ol> <li>Commitment<br/>on both sides</li> <li>Integrity of<br/>commitment</li> </ol>                                   | <b>4.</b> Advanced training of AC members  | <ul><li>5. Desire to bring<br/>about change</li><li>6. Change in the<br/>financial<br/>landscape</li></ul>   | <b>7.</b> Effective internal control of the entity                    | <ul><li>8. Financing should come from government</li><li>9. Logistical needs</li></ul>  |
|                    |  |   |  |  |   |   |
| AFFINITY           | (7)<br>Governance  | (8)<br>Independence<br>of the AC  | (9)<br>Meetings  | (10)<br>Professionalism<br>and authority of<br>members   | (11)<br>Risk policy   | (12)<br>Stakeholder<br>collaboration  |
| SUB-AFFINITIES     | <b>10</b> . Rigid AC<br>composition<br><b>11.</b> AC members<br>must be of<br>governing body | <ul><li>12. Lack of<br/>independence<br/>of AC</li><li>13. Lack of IAF</li><li>14. Lack of<br/>political will</li></ul> | <ul> <li>15. Regular<br/>meetings of<br/>AC</li> <li>16. Number<br/>of hours AC<br/>meetings</li> <li>17. Persistent<br/>engagement</li> </ul> | <ul> <li>18. Professional<br/>knowledge of<br/>members</li> <li>19. Competencies<br/>and expertise</li> <li>20. Efficiency of<br/>Audit team<br/>members</li> <li>21. Honesty</li> <li>22. Lack of<br/>requisite<br/>knowledge,<br/>understanding of<br/>accounting and<br/>auditing concepts</li> </ul> | <ul><li>23. Risk policy</li><li>24. Training in risk policy</li></ul> | <b>25.</b> Effective<br>communication<br><b>26.</b><br>Effectiveness<br>collaboration<br>between the<br>auditor and key<br>personnel on the<br>AC |

(Source: Own compilation)

Below, is the presentation of the affinities, explained, along with its sub-affinities.

# Affinity 1: Access to information and data.

Focus Group 2 identified *Access to information and data* as a critical factor for the effective functioning of the AC in Ghana's public sector. This was explained as the willingness of management to provide adequate information in the required form, as and when needed. They

believed that the situation where management is unwilling to provide critical information required by the AC, impedes the committee's work. They determined that information provided by management should be complete, especially responses to audit queries, that should be honest and factual, in order that AC members will be well informed when arriving at decisions.

### **Participant comments:**

**P7:** "Having the requested financial data made [make] it possible for the audit committee to independently issue their [its] professional opinion."

**P12:** "It is a fundamental call that information is accessed [and] so the committee become equipped to work effectively and efficiently."

### Affinity 2: Commitment.

According to the group, another key factor to AC effectiveness was *Commitment*. The group suggested that this involved commitment on the part of both the AC and the management of the CE, i.e., commitment to its roles relating to the audit report implementation process. In this regard, they opined that management should be seen to actively be introducing reforms, in line with recommendations in the audit report, whilst the AC takes actions to monitor those reforms. The group emphasised that the integrity inherent in the commitment of both the AC's and the auditee management's posture, is needed for a sustained AC effectiveness. Also, they argued that commitment signified the willingness of AC stakeholders to allocate enough resources, e.g., the financing, and time and skills needed for AC work.

### **Participant comments:**

P7: "Management's commitment to the strategic goals are reflected in the risk policy...."

P12: "Commitment of audit committee members is shown by their high level of attendance at meeting[s]."

Affinity 3: Continuous training of AC members.

The group members recognised that *Continuous training of AC members* is a key contributor to the effectiveness of ACs in Ghana's public sector. The group recommended that AC members should receive continuous advanced training, in order for them to appreciate the complexities of their function, e.g., in legal and policy issues, for effective output. Examples of training recommended by the group for AC members were workshops, short courses, and seminars organised internally or externally to orientate members on new developments in technical matters.

# **Participant comment:**

P7: "The success at governance is as a result of continuous training at all levels of management."

### Affinity 4: Desire to bring about change.

The group identified the *Desire to bring about change* with reference to the willingness of the AC to face the challenges that confront it, in the performance of its duties. Group members believed that the desire to bring about change is also directed to the management of CEs, that should be ready to implement the recommendations in audit reports and AC recommendations. Members also opined that there should be a change in the financial landscape, e.g., the amendment of s 175(4)(b) of the Local Government Act 936 of 2016, in order to enable a clear understanding of the reporting line of internal auditors. According to the participants, this amendment was necessary, as the current local government legislation, that requires the Internal Auditor to report to the Presiding Member instead of the AC, is problematic.

### Affinity 5: Effectiveness of internal controls.

The group members considered the *Effectiveness of internal controls* as an enabling factor for the effectiveness of ACs in Ghana's public sector. They postulated that effective internal control could aid the control system's robustness and, hence, reduce the risk inherent in management discretion, concerning the implementation of audit recommendations.

### **Participant comments:**

P12: "There cannot be successful governance[,] in the absence of effective internal control."P8: "The effectiveness of internal control ensures that the various committees can show their[its] independence[,] when required."

# Affinity 6: Finance function.

The group determined that the *Finance function* aspect of AC work should be addressed, to ensure its effectiveness. The group defined this affinity as the nature and source of funding for AC work. To this end, the group suggested that AC work funding should emanate from the central government and not from the institution in respect of which the AC is mandated to exercise financial oversight. If the financial aspect of ACs are strengthened, it will lead to AC independence in the exercise of its functions. In addition to this, group members pointed out that ACs needed to be logistically resourced, to enable assessment of certain critical aspects, such as donor funding of government institutions.

#### **Participant comment:**

P7: "The importance of the Finance Function compels the financial management committee to be independent in its deliberations."

### Affinity 7: Governance.

Participants recognised *Governance* as part of the AC effectiveness ecosystem. The sub-affinities that underlie governance, include the rigid composition of members of ACs, and the inclusion of AC members as part of public sector governing bodies, as non-executive members. Selectors of external members to the committee should consider those who are closer to the CE, in order to reduce the operation costs. AC members must essentially assume a character of political neutrality, if they are to be, and be seen as being, independent and effective.

Affinity 8: Independence of the AC.

According to participants, the *Independence of the AC* is important to effectively accomplish AC duties in Ghana's public sector. Concerning this affinity, the group indicated that "independence" denoted the political will to exercise the AC role devoid of management pressures and - manipulations. Thus, to be independent signifies maintaining a professional and ethical relationship with management, and not be compromised on critical issues, such as adverse audit findings and recommendations on which the AC is to deliberate. Participants noted that a lack of independence on the part of AC members usually results in inefficiencies and ineffectiveness of the AC work process.

### **Participant comment:**

P7: "The independence of the audit committee kept [keep] the external influence on meeting deliberations at minimum."

# Affinity 9: Meetings.

According to the group, Meetings of the ACs reflect its effectiveness. Regular meetings of ACs signal to? both employee and management that the AC is serious about its oversight responsibilities. The group noted that the number of hours of AC meetings is very important in measuring effectiveness, however, it had to be measured in such a way that resources are prudently utilised. The group suggested that AC meetings should be used to persistently engage management towards effective implementation of the audit report of the particular entity.

### **Participant comment:**

P12: "Deliberations and procedures at meetings are determined by the requirements of governance."

# Affinity 10: Professionalism and authority of members.

The group identified *Professionalism and authority of members* as a key factor that influences AC effectiveness in Ghana's public sector. To achieve this, AC members are required to possess the

requisite understanding of accounting and auditing concepts; be honest, individually and as a group; and be competent and experienced in their roles. Also, the group asserted that AC members had to work as a team and be efficient, at the same time, exhibiting their professional knowledge.

# Affinity 11: Risk policy.

The issue of having a *Risk policy* was listed and deliberated by the group. The group was of the notion that the auditee institution should have a risk policy and, for that matter, a risk register. To ensure that the risk policy is pervasive in public institutions, there must be training in risk policy, as well as training in risk management and implementation, for all employees in each CE. The group indicated that identifying and assessing risky areas of the CE's operations and documenting it, is facilitated by the compliance with policy at all levels of activity in the entity.

### **Participant comment:**

P12: "Good understanding of the risks to the institution would compel both management and audit committee to commit to [the] functionality of the audit committee."

# Affinity 12: Stakeholder collaboration.

The group further stipulated that *Stakeholder collaboration* is essential to AC effectiveness in public sector institutions in Ghana. Thus, the group agreed that effective collaboration and communication between the management, the auditors, and key personnel on the AC could enhance AC effectiveness. According to the group, collaboration should be in the form of relevant information sharing; maintenance of good professional relationships; respect for divergent views, expressed based on factual evidence; and conformance with rules and regulations.

# **Participant comment:**

P5: "The requirements to comply with rules, regulations[,] and laws determine the boundaries of collaboration among stakeholders."

### 4.3.2 Theoretical coding: DART.

The concept of Theoretical coding was explained in paras 3.5.2.3 and 4.2.2. As for FG1, the processes used in the analysis regarding FG2, was similar (refer to 4.2.2). After participants explained the affinities, the relationships amongst all the affinities were determined, from the DART forms. The processes used by participants to vote for the relationships, using the DART, were explained in para. 3.6.2.3. As shown by a screenshot, in table 4.8, FG2 identified 12 affinities, that had 132 relationships (original Excel copy embedded). All 16 participants voted for all possible relationships, resulting in a total of 979 votes on the DART.

| S Particip | oant 1 | 1 2       | 3     | 4   | 5 6 | 1              | 8         | 9   | 10 | ) 1 | 1   | 12            | 13       | 14 | 15              | 1 | 6 1        | otal | S/N Participant | 1  | 2        | 3        | 4 | 5 (      | i 1 | 8   | 9        | 10       | 11       | 12       | ! 13 | 14  | L   1 | 5 16         | Total | S/N Par  | rticipant | 1            | 2 3          | 8 4          | 5   | 6                | 7        | 8        | 9     | 10 | 11            | 12         | 13  | 1   | 4 1 | 5 1      | 16 T | otal          |
|------------|--------|-----------|-------|-----|-----|----------------|-----------|-----|----|-----|-----|---------------|----------|----|-----------------|---|------------|------|-----------------|----|----------|----------|---|----------|-----|-----|----------|----------|----------|----------|------|-----|-------|--------------|-------|----------|-----------|--------------|--------------|--------------|-----|------------------|----------|----------|-------|----|---------------|------------|-----|-----|-----|----------|------|---------------|
| 11>2       |        | 1 1       | П     |     | 1 1 | 1              |           |     | 1  | 1   | 1   | 1             | 1        |    | 1               |   |            | 10   | 45 3 > 5        |    | 1        | 1        |   | 1        | 1   | 1   | 1        |          | 1        | 1        | 1    |     | 1     | 1            | 11    | 89 5 >   | 12        | 1            |              |              |     | 1                | 1        |          | T     |    |               |            |     |     |     | 1        |      | 4             |
| 21<2       |        |           | 1     | 1   |     |                |           | 1   |    |     |     |               |          |    | 1               |   | 1          | 5    | 46 3 < 5        |    |          |          | 1 |          | 1   |     |          |          |          |          |      |     |       | 1            | 3     | 30 5 <   | : 12      |              | 1 1          | 1 1          | 1   |                  |          | 1        | 1     | 1  | 1             | 1          | 1   | 1   | 1   |          |      | 11            |
| 31>3       |        |           | П     |     |     | 1              | Γ         |     |    | 1   | 1   | 1             | 1        |    |                 |   |            | 5    | 47 3 > 6        | 1  | 1        | 1        |   | 1        | 1   | 1   | 1        |          | 1        | 1        | 1    |     | 1     | 1            | 12    | 91 6 >   | > 7       | 1            |              |              |     | 1                | 1        | 1        | T     |    | 1             | 1          | 1   |     |     |          | 1    | 8             |
| 4 1 < 3    |        | 1 1       | 1     | 1   | 1   |                | 1         | 1   | 1  |     |     |               |          |    | 1 1             |   | 1          | 11   | 48 3 < 6        |    |          |          | 1 |          | 1   |     |          |          |          |          |      |     |       | 1            | 3     | 32 6 <   | (1        |              | 1 1          | 1            |     |                  |          |          | 1     | 1  | _             |            |     | 1   | 1   | 1        |      | 6             |
| 5 1 > 4    |        |           | П     |     |     | 1              | 1         |     |    |     |     |               | 1        |    |                 |   | 1          | 5    | 49 3 > 7        | 1  | 1        | 1        |   |          | 1 1 | 1   | 1        | 1        | 1        | 1        |      |     | 1     | 1            | 12    | 93 6 >   | 8         | 1            | 1            | 1 1          |     | 1                | 1        | 1        | 1     |    | _             |            | 1   | 1   | 1   | 1        | 1    | 11            |
| 61<4       |        | 1         | 1     | 1   |     |                |           | 1   |    | 1   | 1   | 1             |          |    | 1 1             |   |            | 8    | 50 3 < 7        |    |          |          | 1 |          |     |     |          |          |          |          | 1    |     |       | 1            | 3     | 94 6 <   | (8        |              | 1            |              | 1   |                  |          |          | +     | 1  | 1             | 1          |     |     |     |          | _    | 5             |
| 7 1 > 5    |        | 1         | П     |     | 1   | 1              | $\square$ |     | 1  | 1   | 1   | 1             | 1        |    | 1 1             | + |            | 10   | 51 3 > 8        | 1  | 1        | 1        | 1 |          | 1 1 | 1   | 1        |          |          |          |      |     | 1     | 1            | 10    | 35 6 >   | > 9       | 1            | 1            | 1 1          |     | 1                | 1        | 1        | 1     | -  | _             |            | 1   |     |     |          | 1    | 9             |
| 81<5       |        | 1         | 1     | 1   |     |                | 1         | 1   |    |     |     |               |          |    |                 |   | 1          | 6    | 52 3 < 8        |    |          |          |   |          |     |     |          |          | 1        | 1        | 1    |     |       |              | 3     | 36 6 <   | (9        |              | 1            |              | 1   |                  |          |          | +     | 1  | 1             | 1          |     | 1   | 1   | 1        | _    | 7             |
| 91>6       |        | 1         | 1     | 1   | 1   | 1              |           | 1   |    |     |     |               |          |    | 1 1             | + |            | 9    | 53 3 > 9        | 1  |          |          | 1 |          | 1 1 | 1   |          |          | 1        |          | 1    |     |       | 1            | 7     | 97 6 >   | > 10      | 1            |              | 1            |     | 1                | 1        | 1        | +     | -  | 1             |            | 1   |     |     |          | 1    | 8             |
| 10 1 < 6   |        | 1         | Ħ     | +   | +   | +              | $\vdash$  |     |    | 1   | 1   | 1             |          |    | +               | + | 1          | 4    | 54 3 < 9        |    | 1        | 1        |   | 1        |     |     | 1        |          |          | 1        |      |     | 1     | 1            | 7     | 98 6 <   |           |              | 1 1          | 1            | 1   | Н                | П        |          | 1     | 1  | _             | 1          |     | 1   | 1   | 1        | -    | 8             |
| 11 1 > 7   |        | 1 1       | 1     | 1   | 1   | 1              | 1         | 1   |    | 1   | 1   | 1             | 1        |    | 1               |   |            | 13   | 55 3 > 10       | 1  | 1        | 1        |   | 1        | 1 1 | 1   | 1        |          | 1        | 1        | 1    |     | 1     | 1            | 13    | 33 6 >   | > 11      | 1            | 1            | 1            |     | 1                | 1        |          | +     | -  | 1             | 1          |     |     |     |          | _    | 7             |
| 12 1 < 7   |        | +         | Ħ     | +   |     |                |           |     | 1  |     | +   |               |          |    | 1               |   | 1          | 3    | 56 3 < 10       |    |          |          | 1 |          |     |     |          | 1        |          |          |      |     | +     | 1            | 3     | 100 6 <  | < 11      | $\square$    | 1            |              | 1   |                  | C1       | 1        | 1     | 1  | _             |            | 1   | 1   | 1   | 1        | 1    | 9             |
| 13 1 > 8   | -      | 1 1       | 1     | +   | 1   | 11             | 1         | 1   |    |     | +   |               | 1        |    | 1 1             | + | 1          | 9    | 57 3 > 11       | 1  |          |          |   | 1        | 1   |     |          | -        | 1        | 1        | 1    | -   | +     | 1            | 7     | 101 6 >  |           | 1            |              | 1            |     | 1                | (T       | +        | 1     | -  | _             |            |     |     |     | 1        | -    | 4             |
| 14 1 < 8   | -      | Ť         | H     | 1   | t   | Ť              | t         | 1   |    |     | +   |               | -        |    |                 | + | +          | 1    |                 |    | 1        | 1        | 1 |          | 1   |     | 1        |          |          |          |      |     | 1     |              | 6     | 102 6 <  |           | H            | 1 1          | i l          | 1   | H                | H        | 1        | 1     | 1  | 1             | 1          | 1   | 1   | 1   | 1        | 1    | 12            |
| 15 1 > 3   |        | 1 1       | 1     | 1   | 1   | 1              | 1         | 1   | -  |     | +   | +             |          |    | 1               | + |            | 10   |                 | 1  | 1        |          | 1 |          | 1 1 | 1   |          | 1        |          |          | +    |     | +     | 1            | 1     | 103 7 >  |           | 1            | 1 1          | 1 1          |     | 1                | пt       | +        | 1     | +  |               |            | 1   |     | 1   | +        | -    | 10            |
| 16 1 < 9   | -      | Ť         | H     | -   | t   | Ť              | t         | t   | 1  | 1   | 1   | 1             | 1        | 1  | 1               | + | 1          | 6    | 60 3 < 12       | Ť  | 1        | 1        | - |          | t   | Ľ   | 1        | -        | 1        | 1        | 1    |     | 1     |              | 1 7   | 104 7 <  |           |              | Ť            | Ť            | 1   | Ľ                | Ĥ        | 1        | +     | 1  | 1             | 1          | t i | Ť   | +   | 1        |      | 6             |
| 17 1 > 10  | +      | 1         | 1     | 1   | t   | 1              | 1         | 1   | L. | 1   | 1   | 1             | 1        |    | 1 1             | + | -          | 11   |                 |    | Ė        | Ħ        | 1 | 1        | 1 1 |     | Ħ        |          | 1        | 1        | Ť    |     | +     | 1            | 1     | 105 7 >  |           | 1            | 1 1          | 1 1          | † I | 1                |          | +        | 1     | +  | <u> </u>      | L.         | 1   | 1   | 1   | +        | 1    | 10            |
| 18 1 < 10  | -      | Ť         | H     | +   | 1   | it i           | t         | †   |    | 1   | +   | -             | ÷        |    | 1               | + | 1          | 3    |                 | 1  | 1        | 1        | - | -        | T   | 1   | 1        |          | -        | t i      | 1    |     | 1     |              | 7     | 106 7 <  |           |              | 1            | Ť            | 1   | H                | ŕ        | T        | +     | 1  | 1             | 1          | † i | +   | +   | 1        | -    | 6             |
| 19 1 > 11  |        | 1 1       | 1     | 1   | 1   | 1              | +         | 1   |    |     | +   | -             | 1        | -  | 1 1             | + | +          | 10   |                 | 1  | Ė        | ÷        | 1 | 1        | 1   | i i | ÷        |          | 1        | 1        | +    |     | +     | 1            | 7     | 107 7 >  |           | 1            | 1 1          | 11           | 1   | 1                | 1        | ÷        | 1     | ÷  | 1             | 1          | 1   | 1   |     | +        |      | 12            |
| 20 1 < 11  | -      | +         | H     | ÷   | 1   | it i           | +         | Ľ   |    | 1   | 1   | 1             |          | -  | 1               | + | +          | 3    | 64 4 < 6        | L. | 1        | 1        | ÷ | ÷        | 1   | -   | 1        |          | ÷        | · ·      | 1    |     | 1     | . 1          | 7     | 108 7 <  |           | ++           | +            | Ť            | 1   | Ľ                | Ĥ        | T.       | ÷     | 1  |               | + ·        | Ľ   | ť   | -   | 1        | -    | 4             |
| 21 1 > 12  |        | 1         | 1     | +   |     | 1              | +         | 1   |    | _   | ·   | 1             | 1        |    | 1               | + | +          | 9    | 65 4 > 7        | 1  | Ľ.       | L I      | - | +        | 1 1 |     | L.       |          | 1        | 1        | + ·  |     | +     | - ·          | 5     | 109 7 >  |           | 1            | 1 1          | 11           | Ľ   | 1                | 1        | ÷        | 1     | ÷  | 1             | 1          | +   | 1   |     | +        |      | 11            |
| 22 1 < 12  | -      | 1         | H     | 1   | 1   | Ť              | 1         | Ľ   | 1  | 1   | +   | <u> </u>      |          | -  | 1               | + | 1          | - 7  | 66 4 < 7        | L. | 1        | 1        | 1 | +        | 1   | 1   | 1        | 1        | ÷        | · ·      | 1    |     | 1     | 1 1          | 10    | 110 7 <  |           | ++           | +            | Ť            | 1   | Ľ                | Ĥ        | T.       | ÷     | -  |               | <u>ا</u>   | 1   | ť   | -   | 1        |      | 4             |
| 23 2 > 3   | -      | i         | 1     | i   | +   | 11             | +÷        | 1   | +  |     | +   | -             | 1        |    | 1               | + | ÷          | . 9  | 674>8           |    | L.       | L.       | 1 | 1        | 1   | i i | L.       | ÷.       |          |          | +    | +   | +     | 1            | 4     | 111 7 >  |           | 1            | +            | +            | Ľ   | 1                | 1        | ÷        | +     | +  | -             |            | + · | +   | +   | +        | _    | 4             |
| 24 2 < 3   | -      | +         | H     | ÷   | 1   | ÷              | 1         | Ľ   | 1  | 1   | 1   | 1             | <u> </u> | -  | 1               | + | 1          | 7    |                 | 1  | 1        | 1        | - | -        | 1   | 1   | 1        | 1        | 1        | 1        | 1    | 1   | +     | 1            | 12    |          |           | + t          | 1 1          | 1 1          | 1   | Ľ                | · ·      | 1        | +     | 1  | 1             | 1          | 1   | +   |     | 1        |      | 12            |
| 25 2 > 4   | -      | 1 1       | 1     | 1   | 1 1 | 11             | 1 i       | 1   | +  | 1   | it  | 1             | 1        |    | 1               | + | i          | 14   | 634>3           | 1  | L.       | Ľ        | - | +        | 1 1 | 1   | L.       | ÷.       | 1        | 1        | +    | +   | +     | 1            | 6     | 113 8 >  |           | 1            | +            | Ť            | Ľ   | 1                | 1        | <u> </u> | ÷     | ÷  | <u> </u>      | + ·        | + · |     |     | i        | _    | 1             |
| 26 2 < 4   | -      | +         | H     | ÷   | +   | ÷              | + ·       | Ľ   | -  | -   | +   | <u> </u>      | <u> </u> | -  | 1               | + | +          | 1    | 70 4 < 3        |    | 1        | 1        | 1 | 1        | -   | 1   | 1        | 1        | <u> </u> |          | 1    | 1   | +     | . 1          | 10    | 114 8 <  | ( 9       | ++           | 1 1          | i l'         | H   | Ľ                | H        | ÷        | +     | +  | 1             | 1          | 1   | ť   | -   | +        |      | $\frac{1}{1}$ |
| 27 2 > 5   | -      | 1         | H     | 1   | 1   | 1              | 1         | +   |    | 1   | 1   | 1             | 1        | -  | 1               | + | +          | 10   |                 | -  | 1        | 1        | - | 1        | 1 1 | l · | 1        | <u> </u> | -        |          | + ·  | + ' | +     | - ·          | 7     | 115 8 >  |           | 1            | 11           | 1            | H   | 1                | 1        | +        | ÷     | +  | $\frac{1}{1}$ | 1          | 1   | +   |     | +        |      | 12            |
| 28 2 < 5   | -+     | ÷         | 1     | ÷   | +   | ÷              | + ·       | 1   |    | -   | +   | <u> </u>      | <u> </u> | -  | 1               | + | 1          | 4    | 72 4 < 10       |    | Ľ.       | · ·      | 1 | ÷        | 1   | 1   | · ·      | 1        | 1        | 1        | 1    | 1   | +     | 1 1          | 9     | 116 8 <  |           | ++           | +            | +            | H   | Ľ                | H        | 1        | ÷     | 1  |               | + ·        | + · | ť   | -   | 1        |      | 3             |
| 29 2 > 6   | -      | 1 1       | 1 i l | 1   | +   | 1              | +         | 1 i |    | -   | +   | 1             | 1        | -  | 1               | + | +          | 10   |                 | 1  | 1        | 1        | - | 1        | 1   | l · |          | <u> </u> | 1        |          |      | 1   | _     | · · ·        | 8     | 117 8 >  |           | $\vdash$     | +            | 1            | +   | Н                | 1        | ÷        | +     | ÷  | 1             | 1          | 1   | 1   |     | 1        | _    | 8             |
| 30 2 < 6   | -      | ++        | + H   | +   | ÷   | +              | +         | Ľ   | -  | +   | +   | <u> </u>      | <u> </u> | -  | 1               | + | 1          | 2    | 74 4 < 11       | -  | <u> </u> | Ľ        | 1 | <u> </u> | 1   | -   | 1        | 1        | -        | <u>'</u> | 1    | + ' | +     | 1            | 6     | 118 8 <  |           | ++           | 1 1          | i l'         | +   | 1                | H        | <u> </u> | 1     | +  |               | <u>+ '</u> | + ' | + ' | -   | +        | _    | 4             |
| 31 2 > 7   | -      | 1 1       | 1     | 1   | +   | 1              | 1         | 1   | -  | +   | +   | -             |          | -  | 1               | + | +          | 9    | 75 4 > 12       | 1  | -        |          | - | 1        |     |     | · ·      | <u> </u> | -        |          | + '  | +   | +     | ·   -        | Å     | 113 8 >  |           | 1            | ÷+*          | 1            |     | 1                | 1        | +        | ÷     | +  | -             | -          | 1   | +   |     | +        |      | 6             |
| 32 2 < 7   | -+     | ++        | + H   | +   | +   | +              | + ·       | +   | 1  | 1   | .   | 1             | 1        | -  | <u>'</u>        | + | 1          | 6    | 76 4 < 12       |    | 1        | 1        | 1 | <u> </u> | 1   | 1   | 1        | 1        | 1        | 1        | 1    | 1   | +     | 1            | 11    | 120 8 <  |           | ++           | 1 1          | <u>, † '</u> |     | <u> </u>         | H        | +        | $\pm$ | +  | 1             | 1          | + ' | + ' | -   | 1        | +    | 7             |
| 33 2 > 8   | -      | 1 1       | 1     | 1   | +   | 1              | +         | 1   | Ľ  |     | 1   | i l           | · ·      | +  | 1               | + | ·  -       | 9    | 77 5 > 6        | 1  | 1        | 1        | 1 | 1        | 1 1 | 1   | 1        |          | 1        | 1        | + '  | 1   | +     | •            | 10    | 121 9 >  |           |              | 1 1          | 1 1          | 11  |                  | d,       | ÷        | Ť     | +  | 1             | 1          | 1   | + + |     | ·  -     | 1    | 13            |
| 34 2 < 8   | -      | ++        | ++    | -+- | +   | ++             | +         | ť   | 1  | +   | +   | <u> </u>      | 1        | -  | 1               | + | 1          | 5    |                 | +  | Ľ        | Ľ        |   | -        | Ŧ   | 11  | <u> </u> | 1        | <u> </u> | + '      | 1    | + ' | +     | 1 1          | 4     | 122 9 <  |           | ++           | +            | ++           | ť   | Ľ                | H        | 1        | +     | 1  | <u> </u>      | <u> </u>   | + ' | + ' | +   | 1        |      | 3             |
| 35 2 > 9   | -      | 1 1       |       | +   | t,  | 1              | 1         | 1   | +  |     | +   | -             | <u> </u> | -  | 1               | + | i l        | 3    | 79 5 > 7        | 1  | 1        | 1        | + | 1        | 1 1 | 1   | 1        | ÷.       | 1        | 1        | 1    | 1   | +     | ·   ·        | 12    |          |           |              | +            | 1            | 1   |                  | 1        | · •      | +     | ÷  | 1             | 1          | 1   | + + |     | ·  -     | _    | 11            |
| 36 2 < 9   | +      | ++        | ++    | 1   | t   | ++             | ť         | Ľ   | 1  | 1   |     | 1             | 1        | -  | 1               | + | <u>+</u>   | 6    | 80 5 < 7        | +  | +        | H        | 1 | •        | Ŧ   | 1   | H        |          | <u> </u> | + '      | + '  | + ' | +     | 1 1          | 1 12  | 124 9 <  |           | <del> </del> | 1 1          | 1            | ++  | H                | Ĥ        | ÷        | $\pm$ | +  |               | +          | + ' | + ' | +   | 1        | _    | 4             |
| 37 2 > 10  | -      | 1 1       | H     | -+  | +   | 1              | 1         | 1   | +  |     | i l | ÷             |          | -  | 1 1             | + | 1          | 11   |                 | 1  | 1        | 1        | 1 | +        |     |     | 1        |          | -        | -        | 1    | 1   | +     | <u>.   '</u> | 10    | 125 3 >  |           |              | ·+'          | 1            |     | H                |          | +        | +     | +  | 1             | 1          | +   | + • |     | <u>+</u> |      | 9             |
| 38 2 < 10  | -      | <u>++</u> | ++    | 1   | +   | ++             | ť         | +   | -  | + ' | +   | <u> </u>      | 1        | -  | <del>"  '</del> | + | <u>+</u> + | 3    |                 | +  | +        | +        | - | 1        | Ŧ   | 1   | -        |          | 1        | 1        | + '  | +   | +     | ·   -        | 1 10  | 126 9 <  |           | ++           | 1 1          | ++           | +'  | Ľ                | H        | 1        | $\pm$ | 1  |               | + '        | 1   | + ' | +   | 1        | -    | 7             |
| 39 2 > 11  | -      | 1         | +     | ÷   | +   | 4              | +         | +   | -  | +   | +   | -             | -        | -  | +               | + | +          | 3    | 83 5 > 9        | 1  | -        |          | - |          |     | +   |          |          | -        | + '      | +    | +   | +     | -            | 1 3   | 127 10   |           |              | <u>'   '</u> | +            | +   | 1                |          | +        | ╧     | -  | 1             | 1          | + ' | + , | +   | <u>'</u> |      | 1             |
| 40 2 < 11  | -      | ·         | 1     | 4   | +   | ++             | +         | 1   | 1  | 1   | +   | 1             | 1        | -  |                 | + | +          | 10   |                 | +  | 1        | 1        | 1 | 1        | +   | 1   | 1        | 1        | 1        | 1        | + ,  | 1   | +     | 1 1          | 13    | 128 10   |           |              |              | 1.           | +   | ++               | <u> </u> | 1        | +     | -  |               | +          | 1   | + ' | +   | +        |      | 8             |
| 40 2 11    | -      | + '       | ++    | +   | 1   | +              | +         | Ľ   | +  | 1   | · - | $\frac{1}{1}$ | 1        | -  | 1               | + | 1          | 10   |                 | 1  | 1        | <u> </u> | 1 | 1        |     | +   | 1        | _        | -        | -        | + '  | 1   | _     | <u>    </u>  | 6     | 120 10 1 |           |              | <u>' '</u>   | ++           | +   | $\left  \right $ | H        | -+       | 4     | +  | 1             | 1          | 1   | + - | +   | -        |      | 8             |
| 41 2 2 12  | -      | ·         | 1     | 1   | +   | +              | ť         | 1   | -  | +   | +   | -             |          | -  | +               | + | +          | 6    | 86 5 < 10       | +  | -        | +        | 1 | 1        | ť   | 4   | -        | 1        | 1        | 4        | + •  | +   | +     | 1 1          | 1 10  | 130 10 4 |           | ++           |              | 1.           |     | H                | H        | 1        | +     | +  |               | + '        | +   | + ' | +   | +        |      | 8             |
| 42 2 < 12  | -      |           | 1     |     | +   |                | +         | +   | +  | Η.  |     | -             | 4        | -  | 1               | + | +          | 13   |                 |    | -        | $\vdash$ | 1 | 1        |     | 1'  | $\vdash$ | 1        | 1        |          | +    | +   | +     | + +          | 10    | 130 10 4 |           |              | <u>' </u> '  | <u>' '</u>   | +'  | H                | 1        | <u> </u> | 4     | -  | _             | -          | +   | + , | -   |          |      | 5             |
| 43 3 > 4   | -      | 41        |       | 1   | 4   | Ψ <sup>1</sup> | Ľ         | +   | -  | +   | -   | -             | 1        | -  | 1               | + | 4          | 13   |                 | 1  | 1        |          | 1 | -        | 1   | 4   |          |          | -        | 1        | + ,  | 1   | +     | 1            | + .   | 131 11 2 |           | 11           |              | + -          | 1.  | "                |          | 1        | +     | -  | 1             | 1          | 1   | +   | 4   | -        |      | <u>,</u>      |
| 44 3 4 4   | _      | +         |       | -   | +   | -              | -         | -   | -  | -   | +   | _             |          | -  | 1               | + | -          | 2    | 00 2 4 11       | -  | 1        | 11       | _ | 1        | +   | 11  | 11       |          | -        |          | 11   | 11  | -     | 1            | - °   | 102 11 ( | 12        |              | 1            | 11           | 11  |                  | Ц        | -1       | Ц.    | -  |               | 11         | 11  |     | 1   |          | AL : |               |
|            |        | +-        |       | +   | +   | -              | -         |     |    | -   | +   |               |          |    | -               | - | -          |      |                 |    |          |          |   | -        | -   | +   |          |          |          |          | -    | -   | -     | -            |       |          |           | _            | -            | -            | _   | _                | _        | _        | _     | _  | _             | _          | _   | -   | _   | 1017     | NL I | a13           |

 Table 4.8: FG2 Outcome of participants decision from the DART forms

### (Source: Own compilation)

After the votes were counted for all possible relationships, the Pareto protocol was applied to construct the Pareto and Power table, by sorting the relationships in a descending arrangement of frequency, as shown in table 4.9. The table shows the total number of 979 votes casted, for 132

possible relationships, and the cumulative frequencies and percentages were determined. Table 4.9 depicts a screenshot of the results of relationships constructed from the DART form, for FG2, in descending order of frequency (original Excel copy embedded).

| SN | Affinity Pair<br>Relationship | Frequency<br>Sorted<br>(Descending) | Cumulative<br>Frequency | Cumulative<br>Percent<br>(Relation) | Cumulative<br>Percent<br>(Frequency) | Power | SN | Affinity<br>Pair<br>Relationshi<br>P | Frequency<br>Sorted<br>(Descendin<br>g) | Cumulative<br>Frequency | Cumulative<br>Percent<br>(Relation) | Cumulative<br>Percent<br>(Frequency<br>) | Power |
|----|-------------------------------|-------------------------------------|-------------------------|-------------------------------------|--------------------------------------|-------|----|--------------------------------------|---|-------------------------|-------------------------------------|--|-------|
|    | 2>4                           | 14                                  | 14                      | 0.8                                 | 1.4                                  | 0.7   |    | 3>8                                  | 10                                      | 387                     | 25.8                                | 39.5                                     | 13.8  |
|    | 1 > 7                         | 13                                  | 27                      | 1.5                                 | 2.8                                  | 1.2   |    | 4 < 7                                | 10                                      | 397                     | 26.5                                | 40.6                                     | 14.0  |
|    | 3>4                           | 13                                  | 40                      | 2.3                                 | 4.1                                  | 1.8   |    | 4 < 9                                | 10                                      | 407                     | 27.3                                | 41.6                                     | 14.3  |
|    | 3 > 10                        | 13                                  | 53                      | 3.0                                 | 5.4                                  | 2.4   |    | 5 > 8                                | 10                                      | 417                     | 28.0                                | 42.6                                     | 14.6  |
|    | 5 < 9                         | 13                                  | 66                      | 3.8                                 | 6.7                                  | 3.0   |    | 5 < 10                               | 10                                      | 427                     | 28.8                                | 43.6                                     | 14.8  |
|    | 3 > 10                        | 13                                  | 79                      | 4.5                                 | 8.1                                  | 3.5   |    | 7>8                                  | 10                                      | 437                     | 29.5                                | 44.6                                     | 15.1  |
|    | 3 > 6                         | 12                                  | 91                      | 5.3                                 | 9.3                                  | 4.0   |    | 7>9                                  | 10                                      | 447                     | 30.3                                | 45.7                                     | 15.4  |
| _  | 3 > 7                         | 12                                  | 103                     | 6.1                                 | 10.5                                 | 4.5   | _  | 1>6                                  | 9                                       | 456                     | 31.1                                | 46.6                                     | 15.5  |
|    | 4 < 8                         | 12                                  | 115                     | 6.8                                 | 11.7                                 | 4.9   | 42 | 1>8                                  | 9                                       | 465                     | 31.8                                | 47.5                                     | 15.7  |
|    | 5 > 6                         | 12                                  | 127                     | 7.6                                 | 13.0                                 | 5.4   | _  | 1 > 12                               | 9                                       | 474                     | 32.6                                | 48.4                                     | 15.8  |
| _  | 5 > 7                         | 12                                  | 139                     | 8.3                                 | 14.2                                 | 5.9   | _  | 2 > 3                                | 9                                       | 483                     | 33.3                                | 49.3                                     | 16.0  |
|    | 6 < 12                        | 12                                  | 151                     | 9.1                                 | 15.4                                 | 6.3   |    | 2 > 7                                | 9                                       | 492                     | 34.1                                | 50.3                                     | 16.2  |
|    | 7 > 10                        | 12                                  | 163                     | 9.8                                 | 16.6                                 | 6.8   |    | 2>8                                  | 9                                       | 501                     | 34.8                                | 51.2                                     | 16.3  |
|    | 7 < 12                        | 12                                  | 175                     | 10.6                                | 17.9                                 | 7.3   | _  | 2 > 9                                | 9                                       | 510                     | 35.6                                | 52.1                                     | 16.5  |
|    | 8 > 10                        | 12                                  | 187                     | 11.4                                | 19.1                                 | 7.7   |    | 4 < 10                               | 9                                       | 519                     | 36.4                                | 53.0                                     | 16.6  |
|    | 1 < 3                         | 11                                  | 198                     | 12.1                                | 20.2                                 | 8.1   |    | 6 > 9                                | 9                                       | 528                     | 37.1                                | 53.9                                     | 16.8  |
| _  | 1 > 10                        | 11                                  | 209                     | 12.9                                | 21.3                                 | 8.5   | _  | 6 < 11                               | 9                                       | 537                     | 37.9                                | 54.9                                     | 17.0  |
| _  | 2 > 10                        | 11                                  | 220                     | 13.6                                | 22.5                                 | 8.8   |    | 3 > 12                               | 9                                       | 546                     | 38.6                                | 55.8                                     | 17.1  |
|    | 3 > 5                         | 11                                  | 231                     | 14.4                                | 23.6                                 | 9.2   |    | 1 < 4                                | 8                                       | 554                     | 39.4                                | 56.6                                     | 17.2  |
|    | 4 < 12                        | 11                                  | 242                     | 15.2                                | 24.7                                 | 9.6   |    | 4 > 11                               | 8                                       | 562                     | 40.2                                | 57.4                                     | 17.3  |
| _  | 5 < 12                        | 11                                  | 253                     | 15.9                                | 25.8                                 | 9.9   |    | 5 < 11                               | 8                                       | 570                     | 40.9                                | 58.2                                     | 17.3  |
| _  | 6 > 8                         | 11                                  | 264                     | 16.7                                | 27.0                                 | 10.3  |    | 6 > 7                                | 8                                       | 578                     | 41.7                                | 59.0                                     | 17.4  |
| 23 | 7 > 11                        | 11                                  | 275                     | 17.4                                | 28.1                                 | 10.7  |    | 6 > 10                               | 8                                       | 586                     | 42.4                                | 59.9                                     | 17.4  |
|    | 9 > 11                        | 11                                  | 286                     | 18.2                                | 29.2                                 | 11.0  |    | 6 < 10                               | 8                                       | 594                     | 43.2                                | 60.7                                     | 17.5  |
| _  | 11 < 12                       | 11                                  | 297                     | 18.9                                | 30.3                                 | 11.4  | _  | 8 > 11                               | 8                                       | 602                     | 43.9                                | 61.5                                     | 17.6  |
| _  | 1>2                           | 10                                  | 307                     | 19.7                                | 31.4                                 | 11.7  | 53 | 10 < 11                              | 8                                       | 610                     | 44.7                                | 62.3                                     | 17.6  |
|    | 1 > 5                         | 10                                  | 317                     | 20.5                                | 32.4                                 | 11.9  | _  | 10 > 12                              | 8                                       | 618                     | 45.5                                | 63.1                                     | 17.7  |
| _  | 1>9                           | 10                                  | 327                     | 21.2                                | 33.4                                 | 12.2  |    | 10 < 12                              | 8                                       | 626                     | 46.2                                | 63.9                                     | 17.7  |
|    | 1 > 11                        | 10                                  | 337                     | 22.0                                | 34.4                                 | 12.5  | -  | 1 < 12                               | 7                                       | 633                     | 47.0                                | 64.7                                     | 17.7  |
|    | 2 > 5                         | 10                                  | 347                     | 22.7                                | 35.4                                 | 12.7  |    | 2 < 3                                | 7                                       | 640                     | 47.7                                | 65.4                                     | 17.6  |
| _  | 2>6                           | 10                                  | 357                     | 23.5                                | 36.5                                 | 13.0  |    | 3 > 9                                | 7                                       | 647                     | 48.5                                | 66.1                                     | 17.6  |
|    | 2 < 11                        | 10                                  | 367                     | 24.2                                | 37.5                                 | 13.2  |    | 3 < 9                                | 7                                       | 654                     | 49.2                                | 66.8                                     | 17.6  |
| 33 | 2 > 12                        | 10                                  | 377                     | 25.0                                | 38.5                                 | 13.5  | 66 | 3 > 11                               | 7                                       | 661                     | 50.0                                | 67.5                                     | 17.5  |

Table 4.9: Analysis of Pareto and Power in descending order of frequency: FG2

| SN Relat   | I | Frequency<br>Sorted<br>(Descendin | Cumulative<br>Frequency | Cumulative<br>Percent<br>(Relation) | Cumulative<br>Percent<br>(Frequency | Power | SN  | Affinity<br>Pair<br>Relationshi | Frequency<br>Sorted<br>(Descendin | Cunulative<br>Frequency  | Cumulative<br>Percent<br>(Relation) | Cumulative<br>Percent<br>(Frequency | Power       |
|------------|---|-----------------------------------|-------------------------|-------------------------------------|-------------------------------------|-------|-----|---------------------------------|-----------------------------------|--------------------------|-------------------------------------|-------------------------------------|-------------|
|            | P | <u>a)</u>                         |                         |                                     | J                                   | 47.5  | 400 | P                               | g)                                | 074                      | · · ·                               | J                                   | 40.5        |
| 67 3 > 12  | _ | 7<br>7                            | 668<br>675              | 50.8                                | 68.2                                | 17.5  |     | 6 < 8                           | 5                                 | 874<br>879               | 75.8<br>76.5                        | 89.3                                | 13.5        |
| 68 3 < 12  |   | 7                                 |                         | 51.5                                | 68.9                                | 17.4  |     | 11>12                           | 5                                 |                          | 77.3                                | 89.8                                | 13.3        |
| 69 4 > 5   |   | 7                                 | 682<br>689              | 52.3<br>53.0                        | 69.7                                | 17.4  |     | 1<6                             | 4                                 | 883<br>887               |                                     | 90.2                                | 12.9        |
| 70 4 < 5   |   | 7                                 | 636                     |                                     | 70.4                                | 17.3  |     | 2 < 5                           |                                   | 891                      | 78.0                                | 90.6                                | 12.6        |
| 71 4 > 6   |   | 7                                 |                         | 53.8                                | 71.1                                | 17.3  |     | 4 > 8                           | 4                                 |                          | 78.8                                | 91.0                                | 12.2        |
| 72 4 < 6   |   |                                   | 703                     | 54.5                                | 71.8                                | 17.3  |     | 4 > 12                          | 4                                 | 895                      | 79.5                                | 91.4                                | 11.9        |
| 73 4 > 10  | - | 7                                 | 710                     | 55.3                                | 72.5                                | 17.2  |     | 5 < 6                           | 4                                 | 899                      | 80.3                                | 91.8                                | 11.5        |
| 74 5 > 11  |   | 7                                 | 717                     | 56.1                                | 73.2                                | 17.2  |     | 5 < 8                           | 4                                 | 903                      | 81.1                                | 92.2                                | 11.2        |
| 75 6 < 9   |   | 7                                 | 724                     | 56.8                                | 74.0                                | 17.1  |     | 5 > 12                          | 4                                 | 907                      | 81.8                                | 92.6                                | 10.8        |
| 76 6 > 11  |   | 7                                 | 731                     | 57.6                                | 74.7                                | 17.1  |     | 6 > 12                          | 4                                 | 911                      | 82.6                                | 93.1                                | 10.5        |
| 77 8 > 9   | · | ז                                 | 738                     | 58.3                                | 75.4                                | 17.0  |     | 7 < 10                          | 4                                 | 915                      | 83.3                                | 93.5                                | 10.1        |
| 78 8 < 9   |   | ז                                 | 745                     | 59.1                                | 76.1                                | 17.0  |     | 7 < 11                          | 4                                 | 919                      | 84.1                                | 93.9                                | 9.8         |
| 79 8 < 12  |   | 7                                 | 752                     | 59.8                                | 76.8                                | 17.0  |     | 7 > 12                          | 4                                 | 923                      | 84.8                                | 94.3                                | 9.4         |
| 80 9 < 12  |   | 7                                 | 759                     | 60.6                                | 77.5                                | 16.3  |     | 8 < 11                          | 4                                 | 927                      | 85.6                                | 94.7                                | 9.1         |
| 81 10 > 11 |   | 7                                 | 766                     | 61.4                                | 78.2                                | 16.3  |     | 9 < 11                          | 4                                 | 931                      | 86.4                                | 35.1                                | 8.7         |
| 82 1 < 5   |   | 6                                 | 772                     | 62.1                                | 78.9                                | 16.7  |     | 1 < 7                           | 3                                 | 934                      | 87.1                                | 35.4                                | 8.3         |
| 83 1 < 9   |   | 6                                 | 778                     | 62.9                                | 79.5                                | 16.6  |     | 1 < 10                          | 3                                 | 937                      | 87.9                                | 95.7                                | 7.8         |
| 84 2 < 7   |   | 6                                 | 784                     | 63.6                                | 80.1                                | 16.4  |     | 1 < 11                          | 3                                 | 940                      | 88.6                                | 96.0                                | 7.4         |
| 85 2 < 9   |   | 6                                 | 790                     | 64.4                                | 80.7                                | 16.3  |     | 2 < 10                          | 3                                 | 943                      | 89.4                                | 96.3                                | 6.9         |
| 86 2 < 12  |   | 6                                 | 796                     | 65.2                                | 81.3                                | 16.2  |     | 2 > 11                          | 3                                 | 946                      | 90.2                                | 96.6                                | 6.5         |
| 87 3 < 11  | 1 | 6                                 | 802                     | 65.9                                | 81.9                                | 16.0  | 120 | 3 < 5                           | 3                                 | 949                      | 90.9                                | 96.9                                | 6.0         |
| 88 4 > 9   | 9 | 6                                 | 808                     | 66.7                                | 82.5                                | 15.9  | 121 | 3 < 6                           | 3                                 | 952                      | 91.7                                | 97.2                                | 5.6         |
| 89 4 < 11  | 1 | 6                                 | 814                     | 67.4                                | 83.1                                | 15.7  | 122 | 3 < 7                           | 3                                 | 955                      | 92.4                                | 97.5                                | 5.1         |
| 30 5 > 10  | 0 | 6                                 | 820                     | 68.2                                | 83.8                                | 15.6  | 123 | 3 < 8                           | 3                                 | 958                      | 93.2                                | 97.9                                | 4.7         |
| 91 6 < 7   | 7 | 6                                 | 826                     | 68.9                                | 84.4                                | 15.4  | 124 | 3 < 10                          | 3                                 | 961                      | 93.9                                | 98.2                                | 4.2         |
| 92 7 < 8   | ) | 6                                 | 832                     | 69.7                                | 85.0                                | 15.3  | 125 | 5 < 7                           | 3                                 | 364                      | 94.7                                | 98.5                                | 3.8         |
| 93 7 < 9   | ) | 6                                 | 838                     | 70.5                                | 85.6                                | 15.1  | 126 | 5 > 9                           | 3                                 | 967                      | 95.5                                | 98.8                                | 3.3         |
| 94 8 > 12  | 2 | 6                                 | 844                     | 71.2                                | 86.2                                | 15.0  | 127 | 8 < 10                          | 3                                 | 970                      | 96.2                                | 99.1                                | 2.9         |
| 95 1 < 2   |   | 5                                 | 849                     | 72.0                                | 86.7                                | 14.8  | 128 | 9 < 10                          | 3                                 | 973                      | 97.0                                | 99.4                                | 2.4         |
| 36 1 > 3   |   | 5                                 | 854                     | 72.7                                | 87.2                                | 14.5  | 129 | 2<6                             | 2                                 | 975                      | 97.7                                | 99.6                                | 1.9         |
| 97 1 > 4   |   | 5                                 | 859                     | 73.5                                | 87.7                                | 14.3  | 130 | 3 < 4                           | 2                                 | 977                      | 38.5                                | 99.8                                | 1.3         |
| 38 2 < 8   | 3 | 5                                 | 864                     | 74.2                                | 88.3                                | 14.0  | 131 | 1<8                             | 1                                 | 978                      | 99.2                                | 99.9                                | 0.7         |
| 33 4 > 7   | , | 5                                 | 869                     | 75.0                                | 88.8                                | 13.8  | 132 | 2 < 4                           | 1                                 | 979                      | 100.0                               | 100.0                               | 0.0         |
|            |   |                                   |                         |                                     |                                     |       |     | Total<br>Frequency              | 979                               | Equal Total<br>Frequency | Equals<br>1002                      | Equals<br>1002                      | Power = F-E |

# (Source: Own compilation)

In table 4.9, the cumulative percentage (relation) column was calculated using the total number of 132 relationships. This denoted that every relationship represented 1/132, multiplied by 100, resulting in approximately 0.8% of the total possible number of relationships, added to the preceding percentage, immediately above. The cumulative per cent (frequency) column was determined by the formula, cumulative frequency/979 votes multiplied by 100. The cut-off point was the 61st relationship, selected as the point at which the system achieved the maximum power of 17.73 with a cumulative relationship representing 46.2% of the total variation in the entire system.

#### 4.3.3 IRD.

As with FG1, table 4.10 for FG2 depicts the completed SID assignments protocol, that examined the number of relationships a particular affinity influences and by which it is also influenced. Hence, the number of OUT arrows (drivers) and IN arrows (outcomes) of each affinity were examined (refer to table 4.4). The difference between the OUT and IN arrows determines if the affinity is a relative

driver or outcome. Affinities are then sorted from drivers to outcomes, using the IRD. In this study, 61 relationships were utilised to sort each affinity as drivers, outcomes, or neutrals. In the system, there were two conflict relationships, i.e., 6-10 and 10-12. All conflicts were resolved through the decluttering, resulting in a total of 59 relationships. Table 4.10 shows these relationships.

|    |              |              |              |              |            |              | Ι            | RD           |              |              |            |            |     |    |    |
|----|--------------|--------------|--------------|--------------|------------|--------------|--------------|--------------|--------------|--------------|------------|------------|-----|----|----|
|    | 1            | 2            | 3            | 4            | 5          | 6            | 7            | 8            | 9            | 10           | 11         | 12         | OUT | IN | Δ  |
| 1  |              | $\uparrow$   | ←            | ←            | $\uparrow$ | $\uparrow$   | $\uparrow$   | $\uparrow$   | $\uparrow$   | $\uparrow$   | $\uparrow$ | $\uparrow$ | 9   | 2  | 7  |
| 2  | ←            |              | $\uparrow$   | $\uparrow$   | $\uparrow$ | ←            | $\leftarrow$ | ←            | $\uparrow$   | $\uparrow$   | ←          | $\uparrow$ | 9   | 2  | 7  |
| 3  | $\uparrow$   | $\leftarrow$ |              | $\uparrow$   | $\uparrow$ | ←            | $\leftarrow$ | ←            |              | $\uparrow$   |            |            | 7   | 1  | 6  |
| 4  | $\uparrow$   | $\leftarrow$ | $\leftarrow$ |              |            |              | Ļ            | Ļ            | ←            | ←            | $\uparrow$ | ←          | 2   | 7  | -5 |
| 5  | $\leftarrow$ | $\leftarrow$ | ←            |              |            | $\leftarrow$ | $\leftarrow$ | $\leftarrow$ | $\leftarrow$ | $\leftarrow$ | ←          | ←          | 3   | 7  | -4 |
| 6  | $\leftarrow$ | ←            | ←            |              | ←          |              | $\uparrow$   | $\uparrow$   | $\uparrow$   | $\uparrow$   | ←          | ←          | 4   | 6  | -2 |
| 7  | $\leftarrow$ | $\leftarrow$ | $\leftarrow$ | $\uparrow$   | ←          | $\leftarrow$ |              | $\leftarrow$ | $\uparrow$   | $\uparrow$   | $\uparrow$ | ←          | 5   | 6  | -1 |
| 8  | $\leftarrow$ | $\leftarrow$ | $\leftarrow$ | $\uparrow$   | ←          | $\leftarrow$ | Ļ            |              |              | $\uparrow$   | $\uparrow$ |            | 3   | 6  | -3 |
| 9  | ←            | $\leftarrow$ |              | $\uparrow$   | $\uparrow$ | $\leftarrow$ | ←            |              |              | $\uparrow$   | $\uparrow$ | $\uparrow$ | 5   | 4  | 1  |
| 10 | ←            | $\leftarrow$ | ←            | $\uparrow$   | $\uparrow$ | ←            | ←            | ←            | ←            |              | ←          | $\uparrow$ | 3   | 8  | -5 |
| 11 | $\leftarrow$ | $\uparrow$   |              | $\leftarrow$ | $\uparrow$ | $\uparrow$   | $\leftarrow$ | $\leftarrow$ | ←            | $\uparrow$   |            | ←          | 4   | 6  | -2 |
| 12 | ←            | ←            |              | $\uparrow$   | $\uparrow$ | $\uparrow$   | $\uparrow$   |              | ←            | ←            | $\uparrow$ |            | 5   | 4  | 1  |
|    |              |              |              |              |            | Total        | -            | -            |              |              | -          |            | 59  | 59 | 0  |

| <b>Table 4.10:</b> | <b>IRD</b> : | FG2 |
|--------------------|--------------|-----|
|--------------------|--------------|-----|

• **Arrows out**  $\uparrow$  on the vertical side show affinities that influence the affinity on the horizontal side.

• Arrows in  $\leftarrow$  on the vertical side show affinities that are influenced by the affinity on the horizontal side.

(Source: Own compilation)

As shown in table 4.10, the system had 12 affinities, identified by the participants to FG2, with 59 relationships sorted, out of the 12 affinities. The interrelationships of the affinities, as indicated by the participants (refer to table 4.8 & 4.9) were summarised at the right side of table 4.10, e.g., *Affinity 1* that showed 9 *Outs* and 2 *Ins* with a *Delta* of 7, denoting that *Affinity 1* influenced 7 other affinities, but is influenced by only two affinities. This computation is executed by adding up the number of up arrows *Out* ( $\uparrow$ ) and adding up the number of left-facing arrows *In* ( $\Leftarrow$ ) and, then, subtracting the number of *Ins* from the *Outs* to determine the ( $\Delta$ ) *Delta*.

 $\therefore \Delta = \text{Outs} - \text{Ins}$ 

The 12 shaded blocks indicate 12 affinities that cannot have an association with themselves. The total of 59 arrows facing to the left ( $\leftarrow$ ) and also 59 arrows facing upwards ( $\uparrow$ ) refer to the 59 relationships derived from the 59 affinities.

The next step was the sorting of the IRD, in descending order of the delta ( $\Delta$ ). Drivers are affinities with positive deltas, outcomes are affinities with negative deltas, and neutral affinities have a delta of zero (refer to table 4.11).

|    | <b>IRD</b> – Sorted in Descending Order of $\Delta$ |              |              |              |              |              |              |              |              |            |              |              |     |    |    |
|----|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|------------|--------------|--------------|-----|----|----|
|    | 1   | 2            | 3            | 4            | 5            | 6            | 7            | 8            | 9            | 10         | 11           | 12           | OUT | IN | Δ  |
| 1  | _   | $\uparrow$   | $\leftarrow$ | $\leftarrow$ | $\uparrow$   | $\uparrow$   | $\uparrow$   | $\uparrow$   | $\uparrow$   | $\uparrow$ | $\uparrow$   | $\uparrow$   | 9   | 2  | 7  |
| 2  | $\leftarrow$  |              | $\uparrow$   | $\uparrow$ | ←            | $\uparrow$   | 9   | 2  | 7  |
| 3  | $\uparrow$  | $\leftarrow$ |              | $\uparrow$   | $\uparrow$   | $\uparrow$   | $\uparrow$   | $\uparrow$   |              | $\uparrow$ |              |              | 7   | 1  | 6  |
| 9  | ←   | ←            |              | $\uparrow$   | $\uparrow$   | ←            | ←            |              |              | $\uparrow$ | $\uparrow$   | $\uparrow$   | 5   | 4  | 1  |
| 12 | $\leftarrow$  | $\leftarrow$ |              | $\uparrow$   | $\uparrow$   | $\uparrow$   | $\uparrow$   |              | $\leftarrow$ | ←          | $\uparrow$   |              | 5   | 4  | 1  |
| 7  | $\leftarrow$  | $\leftarrow$ | ←            | $\uparrow$   | $\leftarrow$ | $\leftarrow$ |              | $\uparrow$   | $\uparrow$   | $\uparrow$ | $\uparrow$   | $\leftarrow$ | 5   | 6  | -1 |
| 6  | $\leftarrow$  | $\leftarrow$ | ←            |              | $\leftarrow$ |              | $\uparrow$   | $\uparrow$   | $\uparrow$   | $\uparrow$ | ←            | $\leftarrow$ | 4   | 6  | -2 |
| 11 | ←   | $\uparrow$   |              | ←            | $\uparrow$   | $\uparrow$   | ←            | ←            | ←            | $\uparrow$ |              | ←            | 4   | 6  | -2 |
| 8  | ←   | ←            | ←            | $\uparrow$   | ←            | ←            | ←            |              |              | $\uparrow$ | $\uparrow$   |              | 3   | 6  | -3 |
| 5  | ←   | ←            | ←            |              |              | $\uparrow$   | $\uparrow$   | $\uparrow$   | ←            | ←          | ←            | ←            | 3   | 7  | -4 |
| 4  | $\uparrow$  | ↓            | ←            |              |              |              | ↓            | ←            | ↓            | ←          | $\uparrow$   | $\leftarrow$ | 2   | 7  | -5 |
| 10 | $\leftarrow$  | $\leftarrow$ | $\leftarrow$ | $\uparrow$   | $\uparrow$   | $\leftarrow$ | $\leftarrow$ | $\leftarrow$ | $\leftarrow$ |            | $\leftarrow$ | $\uparrow$   | 3   | 8  | -5 |

Table 4.11: IRD in descending order of delta (△): FG2

(Source: Own compilation)

The results of the sorted IRD, for FG2, were examined to determine the tentative order of the affinities, in preparation of drawing the SID. Thus, the IRD (in table 4.11) indicated that the system had five positive deltas, that were drivers. These included Affinities 1, 2, 3, 9 and 12. The IRD also had seven negative deltas, that were outcomes, namely Affinities 7, 6, 11, 8, 5, 4 and 10. The outline of the drivers and outcomes are shown as tentative SID assignments, in table 4.12, that identifies the categories of every affinity. Usually, every affinity should be classified into categories, as primary driver, secondary driver, neutral, secondary outcome, or primary outcome (refer to 3.6.2.4). For FG2 in this study, no primary driver, or neutral, or primary outcome was recorded in the system.

#### Table 4.12: Tentative SID assignments: FG2

|    | Affinities                               | Tentative SID<br>Assignments |
|----|--|------------------------------|
| 1  | Access to information and data           | Secondary Driver             |
| 2  | Commitment                               | Secondary Driver             |
| 3  | Continuous training of committee members | Secondary Driver             |
| 9  | Meetings                                 | Secondary Driver             |
| 12 | Stakeholder collaboration                | Secondary Driver             |
| 7  | Governance                               | Secondary Outcome            |
| 6  | Finance function                         | Secondary Outcome            |
| 11 | Risk policy                              | Secondary Outcome            |
| 8  | Independence of the committee            | Secondary Outcome            |
| 5  | Effectiveness of internal controls       | Secondary Outcome            |
| 4  | Desire to bring about change             | Secondary Outcome            |
| 10 | Professionalism and authority of members | Secondary Outcome            |

(Source: Own compilation)

The Tentative SID Assignment schedule, table 4.12, shows five secondary drivers, that were affinities that influenced other affinities and, at the same time, were influenced by a lesser number of affinities. Conversely, there were seven secondary drivers (refer to table 4.12). Secondary outcomes are affinities influenced by other affinities and that are only influenced by a smaller number of affinities.

### 4.3.4 SIDs: FG2.

In the usual IQA methodology, the SID is drawn with the primary driver positioned at the extreme left of the system, and with the secondary drivers on the same left side of the diagram. Opposite, on the extreme right end, is normally where the primary outcome is indicated, with the secondary outcomes on the same right end of the diagram. The neutral would then be positioned at the bottom end of the diagram. However, as aforementioned, no primary driver, or neutral, or primary outcome was recorded in the system for FG2. Therefore, in the FG2 SID for this study (refer to figure 4.7), all the secondary drivers, which were Affinities 1, 2, 3, 9 and 12, were positioned at the far left of the cluttered SID. The remaining right side of the cluttered SID was occupied by the seven secondary drivers, namely Affinities 7, 6, 11, 8, 5, 4 and 10.

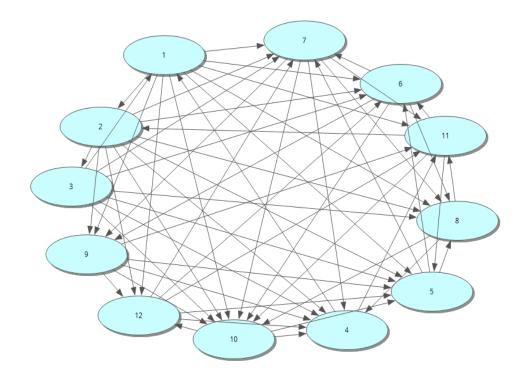


Figure 4.7: Cluttered SID: FG2

As explained in para. 4.2.4, a cluttered SID is comprehensive and rich in nature, however, it presents difficulties when it comes to interpretation. The solution is to draw an uncluttered SID, that removes all the redundant links. The uncluttered SID was produced, as depicted by figure 4.8. The system provided two feedback loops, presented and discussed in the next sections. It should be noted that, in this uncluttered SID, there was no starting point or end point, as the system did not contain a primary driver or primary outcome. The system thus displayed a coordinated relationship.

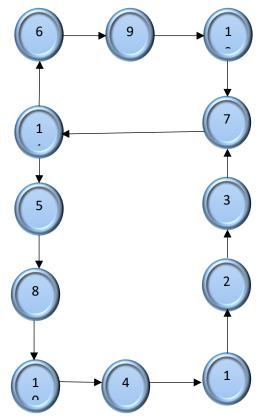


Figure 4.8: FG2: uncluttered SID

# KEY:

1. Access to information and data | 2. Commitment | 3. Continuous training of committee members | 4. Desire to bring about change | 5. Effectiveness of internal controls | 6. Finance function |
 7. Governance | 8. Independence of the committee | 9. Meetings |
 10. Professionalism and authority of members | 11. Risk policy | 12. Stakeholder collaboration

# 4.3.5 Feedback loop discussions: FG2.

The system provided for the following four feedback loops, illustrated with diagrams:

**Feedback loop 1**: Affinity 7 $\rightarrow$ Affinity 11 $\rightarrow$ Affinity 6 $\rightarrow$ Affinity 9 $\rightarrow$ Affinity 12 $\rightarrow$ Affinity

 $7 \rightarrow$  continuous.

**Feedback loop 2**: Affinity 7 $\rightarrow$ Affinity 11 $\rightarrow$ Affinity 5 $\rightarrow$ Affinity 8 $\rightarrow$ Affinity 10 $\rightarrow$ Affinity

 $4 \rightarrow \text{Affinity } 1 \rightarrow \text{Affinity } 2 \rightarrow \text{Affinity } 3 \rightarrow \text{Affinity } 7 \rightarrow \text{continuous.}$ 

# Feedback loop 1.

Feedback loop 1 flowed from Affinity 7: Governance  $\rightarrow$  Affinity 11: Risk policy  $\rightarrow$  Affinity 6: Finance function  $\rightarrow$  Affinity 9: Meetings  $\rightarrow$  Affinity 12: Stakeholder collaboration  $\rightarrow$  Affinity 7: Governance  $\rightarrow$  continuous. The route of Feedback loop 1 of FG2 is depicted by figure 4.9.

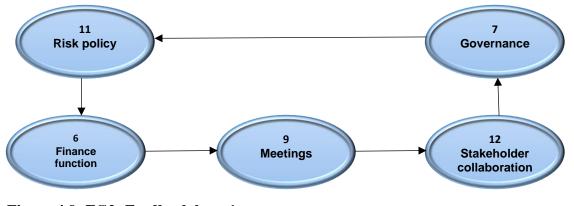


Figure 4.9: FG2: Feedback loop 1

The feedback loop 1 begun with *Governance*, i.e., the way the CE is directed and controlled. The governance structure, direction, and control mechanism of the CE will influence the corporate risk appetite, as captured in the risk policy of the entity, that will affect the AC function and effectiveness. The *Risk policy* will deal with various issues in critical areas, such as financial controls and adequate budgetary allocations for AC work, to ensure effective output. Effective financial controls and adequate budgetary allocation for AC meetings, will significantly impact the quality of AC output. The feedback loop suggested that quality AC meetings can be used to attract the relevant stakeholders, for effective stakeholder collaboration in the implementation of all audit-related reports and recommendations.

# Feedback loop 2.

Feedback loop 2 linked Affinity 7: Governance  $\rightarrow$  Affinity 11: Risk policy  $\rightarrow$  Affinity 5: Effectiveness of internal controls  $\rightarrow$  Affinity 8: Independence of the committee  $\rightarrow$  Affinity 10:

Professionalism and authority of members  $\rightarrow$  Affinity 4: Desire to bring about change  $\rightarrow$  Affinity 1: Access to information and data  $\rightarrow$  Affinity 2: Commitment  $\rightarrow$  Affinity 3: Continuous training of committee members  $\rightarrow$  Affinity 7: Governance  $\rightarrow$  uninterrupted. The route of Feedback loop 2 of FG2 is illustrated by figure 4.10.

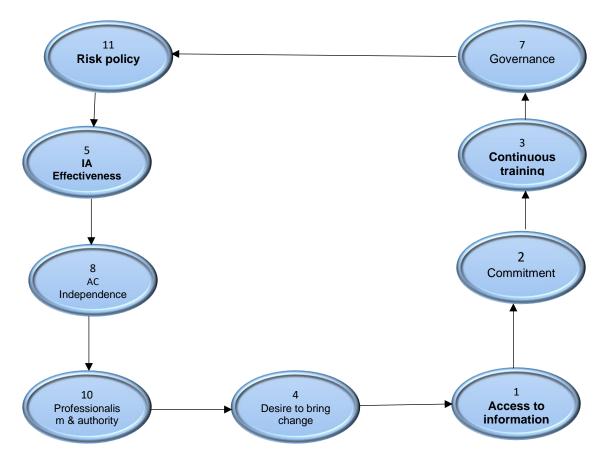


Figure 4.10: FG2: Feedback loop 2

It is important to note that Feedback loop 2 initially used the same route as Feedback loop 1, at the beginning. Thus, it started with *Affinity 7*, *Governance*, that influenced *Affinity 11*, *Risk policy*, before diverging away to the right, influencing *Affinity 5*, *Effectiveness of internal controls*. As noted with Feedback loop 1, *Governance* at the start of the loop emphasised the meaning of governance as the way that entities are directed and controlled. The quality of the governance structure potentially influenced the risk appetite of the managers, which is reflected in the *Risk policy* of the

entity. A robust risk policy is likely to lead to effective internal controls (Affinity 5), that encompasses internal audit, a key mechanism of AC effectiveness. The robustness of the risk policy, that supports a strong internal control system, has the potential to influence the independence of the AC (Affinity 8), a required characteristic for AC effectiveness. Next in the loop was Affinity 10, Professionalism and authority of members of the AC. The flow suggested that an independent AC is one that exemplifies professionalism and authority via knowledge and understanding of the complexities involved in the work of the AC. Furthermore, when the members of the AC display professionalism and authority in their work, this influence the desire to bring about change, by management's willingness to implement compelling and authoritative AC recommendations. Thus the stature of the AC brings about the desired change that, in turn, influences the easy access to information and data (Affinity 1) that is critically needed for the work of the AC. Commitment (Affinity 2) to duty by all stakeholders denotes an important invincible thread, that binds the elements of AC effectiveness together. Continuous training of committee members (Affinity 3) was identified as a source of vitality, that keeps the AC members and all other stakeholders informed of new developments that affect the legal, regulatory, technological, and professional environment of AC practice.

#### **4.4** Consolidating Affinities as Themes

In order to develop themes, to guide a further literature review in the next chapter, the affinities identified by the focus groups (refer to 4.2.1 & 4.3.1) were consolidated, by comparing the affinities of FG1 with those of FG2, and merging or grouping those that are similar, by name or meaning. This resulted in five themes, presented and discussed in the following subsections. Table 4.13 shows the summary of the themes.

|            | Theme 1  | Theme 2   | Theme 3  | Theme 4   | Theme 5   |
|------------|--|---|--|---|---|
| Themes     | Governance and<br>Policies   | Stakeholder<br>Engagement   | The Status of the AC   | Quality Management  | AC Financing<br>[Funding]                                 |
|            | Policies governing<br>ACs<br>(FG1 Affinity 9):<br><i>Primary Driver</i>    | Commitment (FG2<br>Affinity 2): Secondary<br>Driver                             | Characteristics or<br>qualities of AC<br>members (FG1<br>Affinity 1): Secondary<br>Driver      | Access to information<br>and data<br>(FG2 Affinity 1):<br>Secondary Driver                    | Financing of AC<br>(FG1 Affinity 3)<br>Secondary Driver   |
|            | Nature of institution<br>[CE] (FG1 Affinity<br>8): <i>Secondary Driver</i> | Management<br>commitment (FG1<br>Affinity 7): Secondary<br>Driver               | Continuous training of<br>committee members<br>(FG 2 Affinity 3):<br>Secondary Driver          | Quality control (FG1<br>Affinity 12) Secondary<br>Outcome                                     | Finance function<br>(FG2 Affinity 6)<br>Secondary Outcome |
| Affinities | Desire to bring about<br>change<br>(FG2 Affinity 4):<br>Secondary Outcome  | Stakeholder<br>collaboration (FG2<br>Affinity 12):<br>Secondary Driver          | Professionalism and<br>authority of members<br>(FG 2 Affinity 10):<br>Secondary Outcome        | Quality<br>recommendation<br>(FG1 Affinity 13)<br>Secondary Outcome                           |   |
| Aft        | Governance<br>(FG2 Affinity 7)<br>Secondary Outcome                        | Political influence<br>(FG1 Affinity 10):<br>Secondary Driver                   | Independence of the<br>AC<br>(FG2 Affinity 8):<br>Secondary Outcome                            | Effectiveness of internal<br>controls<br>(FG2 Affinity 5)<br>Secondary Outcome                |   |
|            |  | Coordination among<br>stakeholders<br>(FG1 Affinity 2):<br>Secondary Outcome    | Independence (FG1<br>Affinity 5): Secondary<br>Outcome   | Risk policy (FG2<br>Affinity 11): Secondary<br>Outcome  |   |
|            |  | Independence of the<br>Internal Audit<br>(FG1 Affinity 6):<br>Secondary Outcome | Frequency of meetings<br>(FG1 Affinity4) +<br>(FG2 Affinity 9):<br>Secondary<br>Driver/Outcome | Professional<br>competence of Internal<br>Auditors (FG1 Affinity<br>11): Secondary<br>Outcome |   |

# **Table 4.13: Grouping of themes**

(Source: Own compilation)

# 4.4.1 Theme 1: Governance and policies.

The first theme, named **Governance and policies**, is presented by Table 4.14.

| Table 4.14: Governance and policies |  |
|-------------------------------------|--|
|-------------------------------------|--|

| (FG1, Affinity 9): Primary DriverTheme 1:(FG1, Affinity 9): Primary DriverGovernance,<br>PoliciesDesire to finst about change<br>(FG2, Affinity 4): Secondary OutcomeGovernance,<br>GovernanceGovernance | ]            | Policies governing the AC                     |
|--|--------------|---|
| Secondary DriverGovernance,<br>PoliciesSecondary Driver(FG2, Affinity 4): Secondary Outcome  | (            | (FG1, Affinity 9): Primary Driver             |
| Governance,<br>PoliciesDesire to bring about change<br>(FG2, Affinity 4): Secondary Outcome  | neme 1:      | Nature of institution [CE] (FG1, Affinity 8): |
| Policies         (FG2, Affinity 4): Secondary Outcome  | 1            | Secondary Driver                              |
|  | overnance, 🗍 | Desire to bring about change                  |
| Governance   | olicies      | (FG2, Affinity 4): Secondary Outcome          |
| 00 vernanee  | (            | Governance                                    |
| (FG2, Affinity 7): Secondary Outcome   | (            | (FG2, Affinity 7): Secondary Outcome          |

(Source: Own compilation)

The first theme indicated that ACs were established in CEs to satisfy specific requirements of the laws and regulations that form the policies governing ACs, in Ghana's public sector. As such, the object of the PFMA (ROG 2016:s 1(1)) is to "regulate the financial management of the public sector within a macroeconomic and fiscal framework", and informed the establishment of ACs in all CEs, in terms of ss 86 and 87 of the PFMA. It should be noted that *Policies governing ACs (Affinity 9)* was the only affinity returned as a Primary Driver result for both FG1 and FG2 (refer to tables 4.6 and 4.12). The policies governing ACs refer to all the laws, rules and regulations, guidelines, and established standards that prescribe the way all governance mechanisms of an entity, including ACs, should operate. These set of laws, rules and regulations, guidelines, and standards provide the legitimacy for the AC in any given CE and, hence, the reference point in all circumstances. It is, therefore, imperative that Affinity 9 (Policies governing ACs) emerge as the only affinity that is a primary driver, influencing how all other affinities should be directed and controlled. The nature of the CEs (FG1, Affinity 8: Secondary Driver) that the ACs are mandated to oversee, is determined by the laws and statutes that establish and govern those particular entities. The nature of every CE is articulated in its mission and objectives, prescribed in the laws, and should be understood by the AC in order to operate efficiently. The Desire to bring about change (FG2, Affinity 4), by management, is a Secondary Outcome that hinged on the requirement to comply with the objectives of the laws (*Policies governing ACs*) that establish the CEs. The *Desire to bring about change* also denotes the conscious effort by key stakeholders, especially management, to implement recommendations contained in audit reports, over which the AC exercises advisory oversight. The AC should endeavour to advise the management of its CE to always comply with laws and regulations, even as they work innovatively in the course of their *Governance* (FG2, Affinity 7: Secondary Outcome) responsibilities, to bring about the desired strategic changes towards achieving the objectives of the entity.

# 4.4.2 Theme 2: AC stakeholder engagement.

The second theme, namely AC stakeholder engagement, is presented by table 4.15.

| Theme 2:<br>AC<br>stakeholder<br>engagement | Commitment (FG2, Affinity 2): Secondary<br>Driver<br>Management commitment (FG1, Affinity<br>7): Secondary Driver<br>Stakeholder collaboration (FG2, Affinity<br>12): Secondary Driver<br>Political influence<br>(FG1, Affinity 10): Secondary Driver<br>Coordination amongst stakeholders<br>(FG1, Affinity 2): Secondary Outcome<br>Independence of the internal audit<br>[function]<br>(FG1, Affinity 6): Secondary Outcome |
|---|--|
|---|--|

| Table 4.15: AC st | akeholder engagement |
|-------------------|----------------------|
|-------------------|----------------------|

(Source: Own compilation)

Under this theme, *Commitment* [by the AC] (FG2, *Affinity 2*), *Management commitment* (FG1, *Affinity 7*), *Stakeholder collaboration* (FG2, *Affinity 12*), and *Political influence* (FG1, *Affinity 10*) emerged as *Secondary Drivers* that influenced most of the affinities, whilst it is influenced by lesser affinities. In every CE, *Coordination amongst AC stakeholders* (FG1, *Affinity 2*) of CEs should lead to *Stakeholder collaboration* (FG2, *Affinity 12*) concerning the execution of AC responsibilities. Stakeholders of the AC in the CE, such as the BoD, Management, the IAF, and Finance Directors need to collaborate in a coordinated manner, so as to steer the effective performance of AC work. A coordinated approach signifies that all the people and processes involved in the preparation, approval, audit, analysis, and use of financial reports, cooperate with the AC in its work. *Commitment* of the AC and stakeholders denote *Coordination amongst stakeholders*, in working together to achieve the objectives of the entity. However, *Political influence* (FG1, *Affinity 10*: *Secondary Driver*) by political appointees, can derail the expected *Coordination amongst* 

*stakeholders*, if attempts are made to manipulate the decisions of the AC and, also, to compromise the independence of the IAF.

# 4.4.3 Theme 3: The status of the AC

The third theme, named the Status of the AC, is presented by table 4.16.

|               | Characteristics or qualities of AC     |
|---------------|--|
|               | 1                                      |
|               | members (FG1, Affinity 1): Secondary   |
|               | Driver                                 |
|               | Continuous training of committee       |
|               | members (FG 2, Affinity 3): Secondary  |
| Theme 3:      | Driver                                 |
|               | Professionalism and authority of       |
| Status of the | members (FG 2, Affinity 10): Secondary |
| AC            | Outcome                                |
|               | Independence of the AC                 |
|               | (FG2, Affinity 8): Secondary Outcome   |
|               | Frequency of meetings                  |
|               | (FG2, Affinities 4 & 9): Secondary     |
|               | Driver/Outcome                         |

 Table 4.16: The status of the AC

(Source: Own compilation)

*Characteristics or qualities of AC members* (FG1, *Affinity 1*) and *Continuous training of committee members* (FG2, *Affinity 3*) were secondary drivers, that influenced the *Professionalism and authority of AC members* (FG2, Affinity 10) and *Independence of the AC* (FG2, *Affinity 8*), as *Secondary Outcome*. AC characteristics, such as expertise, independence, experience, and competence of members, when continuously assessed and improved through training, led to the required level of professionalism and authority. Thus, *Professionalism and authority* were dependent on *Characteristics or qualities of AC members* and *Continuous training of committee members*. *Independence of the AC* (FG2, *Affinity 8*), was a *Secondary Outcome*, that was influenced by the *Characteristics or qualities of AC members*.

*Meetings* (FG2, *Affinity 9*) that was a *Secondary Driver*, was also identified by FG2 as *Frequency* of meetings (FG1, *Affinity 4*), a *Secondary Outcome* and, hence, were merged under one heading, as *Frequency of meetings* (FG2, Affinities 4 & 9), a *Secondary Driver/Outcome* (refer to table 4.16). This is an indication that FG2 appreciated the need for meetings as a requisite for an effective AC, however, FG1 asserted that meetings should be frequent, in order to achieve optimal, effective AC work. AC meetings, when properly planned, create the opportunity for members to access adequate time and resources so as to execute their duties, by asking the right questions, and scrutinising internal and external audit matters that are brought to their attention. Frequent AC meetings, nevertheless, result in cooperation and collaboration between the AC and other key stakeholders of the relevant CE (refer to 5.3.2).

### 4.4.4 Theme 4: AC quality management.

The fourth theme, namely Quality management, is presented by table 4.17.

|            | Access to information and data       |  |  |  |  |  |
|------------|--------------------------------------|--|--|--|--|--|
|            | (FG2, Affinity 1): Secondary Driver  |  |  |  |  |  |
|            | Quality control (FG1, Affinity 12):  |  |  |  |  |  |
|            | Secondary Outcome                    |  |  |  |  |  |
| Theme 4:   | Quality recommendation               |  |  |  |  |  |
|            | (FG1, Affinity 13): Secondary        |  |  |  |  |  |
|            | Outcome                              |  |  |  |  |  |
| AC Quality | Effectiveness of internal controls   |  |  |  |  |  |
| Management | (FG2, Affinity 5): Secondary Outcome |  |  |  |  |  |
|            | Risk policy (FG2, Affinity 11):      |  |  |  |  |  |
|            | Secondary Outcome                    |  |  |  |  |  |
|            | Professional competence of Internal  |  |  |  |  |  |
|            | Auditors (FG1, Affinity 11):         |  |  |  |  |  |
|            | Secondary Outcome                    |  |  |  |  |  |

Table 4.17: AC quality management

(Source: Own compilation)

"Quality management or control" is that process or those agreed procedures, charted by an entity so as to ensure that the services provided comply with the set standards and requirements (The Economic Times 2022), for the benefit of the user. The implication was, that for an AC to be effective, the system should consider *Quality control* (FG1, *Affinity 12: Secondary Outcome*) measures, such as implementing a workable *Risk policy* (FG2, *Affinity 11: Secondary Outcome*). The quality measures would also influence the *Effectiveness of internal controls* (FG2, *Affinity 5: Secondary Outcome*), an important factor in attaining high quality financial reporting (Krishnan 2005) and, for that matter, high *Quality recommendations* (FG1, *Affinity 13: Secondary Outcome*) from the audit process.

### 4.4.5 Theme 5: AC financing.

The number five theme, named AC financing, is presented by table 4.18.

# Table 4.18: AC Financing

| Theme 5:  | 5: Financing of the AC               |  |  |  |  |  |
|-----------|--------------------------------------|--|--|--|--|--|
|           | (FG1, Affinity 3): Secondary Driver  |  |  |  |  |  |
| AC        | Finance function                     |  |  |  |  |  |
| Financing | (FG2, Affinity 6): Secondary Outcome |  |  |  |  |  |
|           |                                      |  |  |  |  |  |

(Source: Own compilation)

Both focus groups identified *AC financing* as a critical factor to the enhancement of an effective AC. However, to members of FG1, *Financing of the AC* (FG1, *Affinity 3*) was a *Secondary Driver* that the governing policies should adequately provide for, as a pre-requisite for efficient AC output. To FG2, the *Finance* function (FG2, *Affinity 6*), was a *Secondary Outcome*. Thus, financing of the AC should depend on the performance of the committee. These two divergent positions of the two focus groups reflect the different interests of the two groups, as AC members (supply side), and stakeholders (demand side) of AC work. Whilst the AC members (FG1) perceived their work as an indispensable professional service that must be rewarded with a premium, the AC stakeholders (FG2) did not place such premium on it. They (FG2, as consumers) preferred to spend their budget

first on, what they perceived to be, value adding, thus only providing financial resources for AC work as a residual expenditure.

### 4.5 Chapter Summary

The chapter set out to present the data gathered from the two focus group sessions, organised online, using the IQA method, and the combination of Zoom and Miro online technologies. There were 12 affinities produced by FG1 and 13 affinities produced by FG2. These affinities were separately presented and analysed, using the IQA lens, and then interpreted from the perspective of the group participants. Finally, five themes were deduced for the purpose of further literature review, in the next chapter, as a basis of drafting a framework for AC effectiveness in Ghana's public sector.

#### Chapter 5

#### **Literature Review of Focus Group Themes**

# **5.1 Introduction**

In chapter 4, five themes were formulated (refer to table 4.14–4.18), firstly by soliciting an understanding of the factors that influence AC effectiveness from AC members and AC stakeholders, who participated in two separate focus group sessions and, secondly, by filtering the affinities developed through grouping comparable and interrelated affinities. Following up in chapter 5, the five themes were interrogated, by means of a focused and extensive literature review. The reviews incorporated appropriate, theoretical perspectives, so as to appreciate and examine the phenomenon in a wider logical manner. To be consistent, the order of themes identified in chapter 4, were followed. This chapter is aligned with chapter 2, that comprise a broad review of AC literature, in order to conceptualise the study. The two main theories (default theories) underpinning this study, were Agency theory and Institutional theory (refer to 2.3). Where it was deemed relevant, other theories were used in a supplementary capacity, to explain a category of a theme. The captions in the chapter comprise the themes and the order of numbering of categories from the frameworks developed at the end of this chapter (refer to 5.7.1 & 5.7.2). The categories were designed to accommodate the rational flow of the framework. The inclusion of the categories of the frameworks (refer to 5.7.1 & 5.7.2) illuminated association of the themes with the content of the framework. The mapping of themes and categories of the framework are illustrated in table 5.1, and aligns with the affinities grouped under each theme in table 4.13. Note that all Tables in this Chapter were the author's own constructions derived from data gathered.

| Theme<br>s              | Theme 1<br>Governance<br>and Policies            | Theme 2<br>Relationship with<br>Key Stakeholders                  | Theme 3<br>The Status of<br>the ACs                                  | Theme 4<br>Quality<br>Management                        | Theme 5<br>AC Funding                 |
|-------------------------|--|---|--|---|---------------------------------------|
| Categories of Framework | Category 1<br>Policies<br>governing<br>ACs       | Category 4<br>Commitment [of<br>AC and<br>management]             | Category 8<br>Characteristics<br>or qualities of<br>ACs<br>[members] | Category 9<br>Access to<br>information<br>and data      | <b>Category 12</b><br>Financing of AC |
|                         | Category 2<br>Nature of<br>institution           | Category 5<br>Stakeholder<br>collaboration                        |  | Category 10<br>Entity risk<br>management<br>policy      |                                       |
|                         | Category 3<br>Desire to<br>bring about<br>change | Category 6<br>Political influence                                 |  | Category 11<br>Effectiveness<br>of internal<br>controls |                                       |
|                         |  | Category 7<br>Independence of<br>the Internal Audit<br>[function] |  |   |                                       |

Table 5.1: Mapping out of themes and categorisation of frameworks

(Source: Own compilation)

# **5.2** Theme 1: Governance and Policies (Categories 1 to 3)

Theme 1 (refer to 4.4.1) comprised *Policies governing ACs* (refer to 5.2.1) as the primary driver that influences all other affinities, but is not influenced by any other affinity in the system (refer to 4.2.4 & figure 4.2). The theme also included the understanding of the *Nature of the institutions* (refer to 5.2.2) as secondary driver affinity, that mainly influences other affinities and is only influenced by a smaller number of affinities. Further, Theme 1 interrogated literature relating to stakeholders' *Desire to bring about change* (refer to 5.2.3), as an affinity that is a secondary outcome and linked to *Policies governing ACs*. Thus, it was imperative for the researcher to explore the theme, through a focused ACs literature review, within the context of *Policies governing the AC* (as the primary driver) and *Nature of the institutions* (as a secondary driver), that automatically affect a desire to

*Bring about change* (a primary outcome), positively or otherwise. Therefore, the setting concerned understanding the literature relating to the legal and best practices environment, with reference to ACs in the public sector and empirical literature of the phenomenon under study. The method of deliberating the affinities under this theme, was (i) defining the *Policies governing ACs* and AC effectiveness, using Agency theory (refer to 2.3.1) and Institutional theory (refer to 2.3.2), and (ii) exploring the role of the AC, using the approach of Practice theory and other relevant theories.

# 5.2.1 Policies governing ACs: Category 1.

According to Thomas and Purcell (2019:5) ACs can be used as mechanisms to monitor the risks inherent to the public sector and the executive management, where individual interest is at variance with the governance requirements as stipulated by legislation, societal standards, and community expectations, as a case of information asymmetry in Agency theory (refer to 2.3.1). For this purpose, the required laws, regulations, and guidelines that form the policies governing ACs, should be available and comprehensive, to enable the ACs to function effectively and efficiently. As indicated in paras 1.2 and 4.4.1, the main law establishing ACs in Ghana's public sector, is the PFMA (ROG 2016). However, there are other laws, regulations, standards, and guidelines that AC members and stakeholders need to understand, and apply in the performance of their duties. Therefore, in this study, *Policies governing Audit Committees* refer to all those laws, rules and regulations, guidelines, and established standards that prescribe the manner that governance mechanisms of public sector entities (CEs) should operate (refer to 4.4.1). The relevant laws and regulations that refer, specifically, to ACs in Ghana's public sector, were discussed in terms of the Institutional theory reviewed in paras 2.3.2 and 2.9. The focus groups emphasised the importance of this category of Theme 1 owing to, as they explained, the concept of the AC in Ghana's public sector being in its maturing trajectory, with limited policies and guidelines, as compared to other countries, such as South Africa, with the King reports (IoDSA 2016); Australia, with the Australia National Audit Office Best Practices Guideline (Australian National Audit Office [ANAO] 2015); and the UK, with guidance on ACs (FRC 2016), and the UK Corporate Governance Code (FRC 2018). In Ghana, the mandate of ACs in the public sector is legislated and, therefore, institutionalised (refer to 2.3.2), as observed by the Director-General of the Ghana Health Service during the inauguration of its AC, the establishment of the AC was to fulfil the responsibilities imposed on the institution, inter alia, in terms of s 86(1) of the PFMA (ROG 2016), and the PFM Regulations [ROG 2019] (Lamptey 2022a). Somehow, this was a subtle admission that public sector institutions only established its ACs as legislation imposed such (not voluntary). Consequently, these institutions, as agents of the state (refer to 2.2), have to comply with the laws, in order to achieve legitimacy of its governance requirements. as was also the case in Australia (Thomas & Purcell 2019), and serving as a good example of coercive isomorphism (refer to 2.3.2.1 & figure 1.2).

As indicated in para. 1.1, available literature suggests that the first recognition of the concept of ACs in Ghana's public sector, was the requirement in terms of s 30 of the ASA (ROG 2000), that compelled institutions, bodies, or institutions subject to auditing by the AG (CEs), to establish ARICs. The ARICs were duly established in most CEs and operated for a period. However, the ARICs became largely dysfunctional, mainly on account of its composition, that was largely controlled by public officers from the same institutions, whose public finance mismanagement was the subject of scrutiny by the AG (GAS 2014). The solution to this problem, was the provision for the establishment of ACs in terms of ss 86–88 of the PFMA (ROG 2016), as discussed in paras 2.3.2.3 and 2.5.2. Also, in compliance with the PFMA (ROG 2016), the PFM Regulations (ROG 2019) were enacted. This collection of laws and regulations, plus international AC best practices, constitute what the focus groups referred to as the "policies governing ACs" in Ghana's public sector.

#### 5.2.1.1 Theorising policies governing ACs.

As the only primary driver of all the affinities from the focus group sessions, the Policies governing ACs theme was given prominence in the literature discussion. Therefore, in contextualizing it, it was deemed appropriate to situate it within a suitable theory, i.e., Institutional theory (Meyer & Rowan 1977) [refer to 2.3.2 & figure 1.2]. This segment is in furtherance of para. 2.3.2, explaining that Institutional theory suggests that an institution improves its effectiveness when it establishes formal structures and implements generally accepted practices, such as the AC concept (Brennan & Kirwan 2015). It was argued (refer to 2.3.2.1) that the motivation for management of the various CEs to establish ACs, was a result of coercive isomorphism mandated by provisions in the PFMA (ROG 2016), the PFM Regulations (ROG 2019), and the Guidelines (ROG 2017a). In effect, the ACs were born through the creation of laws and regulations, as such CE management had no option other than to comply, or be sanctioned. The legislation of ACs in Ghana's public sector was an act of adopting international best governance practices in the public and private sectors, a case of mimetic isomorphism (refer to 2.3.2.2). This is the more reason why the requirements for ACs in the PFMA (ROG 2016), the PFM Regulations (ROG 2019), and the Guidelines (ROG 2017a) are similar to certain developed, world governance systems, in terms of composition and functions (FRC 2018; IoDSA 2016; ANAO 2015; Malik 2014). Thus, the policies for providing for ACs in CEs, are mimetic in nature (refer to 2.3.2.2).

The policies governing the AC were, further, viewed through the lens of Practice theory, following the approaches by Brennan and Kirwan (2015), and Legodi (2021). According to Brennan and Kirwan (2015), certain governance experts vigorously advocated for more attention to the actual practice of corporate governance, that supports the use of Practice theory in examining policies governing ACs. It was acknowledged that, whilst several scholars based their Practice theory analysis on Whittington's (2006) three elements of *practice, praxis* and *practitioners* (Brennan &

Kirwan 2015), others (Legodi 2021; Welch 2017; Warde 2005) considered such theory by using the three elements of *procedure*, *understanding* and *engagement*. This study adopted the former terminologies of *practice*, *practitioners* and *praxis*. It should be noted that both approaches basically concerns the same concept. *Practice* denote the common understandings, rules, languages and procedures that guide and enable certain activities, in this case ACs, to be accomplished. *Praxis* refers to activities that do not stand by themselves, but are created by human actions, and can be changed and improved (Scherer & Palazzo 2007). *Practitioners* are the actors (AC members and stakeholders) in a given situation, and their understanding of the rules and regulations (practice) is important for AC activities (praxis) to take place (Legodi 2021; Welch 2017; Warde 2005). These elements are reviewed, in turn, in the following paragraphs.

## I. AC practice.

Practices governing a discipline are the behavioural, cognitive, procedural, discursive, and physical resources that enable various players to relate, so as to achieve a mutual action (Jarzabkowski, Balogun & Seidl 2007), such as that of AC effectiveness. As mentioned in para. 5.2.1.2, practice signifies the common norms, understandings, rules, languages, and procedures that guide and enable a given human activity to occur (Brennan & Kirwan 2015). Thus, the practice, as defined in this study, refers to the laws, regulations, guidelines, and best practices governing the ACs, as intimated in paras 5.2.1 and 5.2.1.2, above. Unlike other countries, such as South Africa, Australia, and the UK (FRC 2018; IoDSA 2016; ANAO 2015), ACs sampled in this study did not have (customised) AC Charters, and the focus groups identified this as a gap contributing to the ineffectiveness of AC work in CEs. AC Charters are identified as the best practice, written documents, that outline not only the duties and responsibilities of ACs, but also the purpose, authority, and composition of ACs (IIA 2014; Turley & Zaman 2007). Although it may be argued that, in Ghana, the Guidelines serve the purpose of an AC Charter, the focus groups opined that its

content is not robustly sufficient and comprehensive enough, and not specifically adapted to each CE's mission and objectives. Thus, when they (focus groups) requested policies governing ACs (practice) for the CEs, they were referring to a comprehensive, designated document, specifically titled "Audit Committee Charter", as an enhancement to the existing legal provisions, that only listed the duties and responsibilities of ACs. It was admitted that such an AC Charter should be aligned to the original, legal requirements. Requirements that enable ACs in CEs to pursue the implementation of any recommendation contained in (i) an internal audit report; (ii) Parliament's decision on the AG's report; (iii) the AG's Management Letter; and (iv) the report of an internal monitoring unit in the CE concerned, particularly in relation to financial matters raised (ROG 2016). Thus, an AC Charter should compel the AC to prepare an annual statement showing the status of implementation of any recommendation contained in (i) an internal audit report; (ii) Parliament's decision on the AG's report; (iii) the AG's Management Letter; (iv) the report on financial matters raised in an internal monitoring unit of a CE; and (v) any other related directive by Parliament (ROG 2016:s 88). The Guidelines may be considered as a substitute for an AC Charter. Nevertheless, it appears not to address certain concerns of specific stakeholders, such as the focus group participants and, hence, the request for more robust governing principles for ACs, in the form of AC Charters, adapted to suit the nature of each particular CE (refer to 5.2.2). It was argued, by the focus groups, that a good AC Charter might address other aspects for improvement of ACs and, for this reason, the AC Charter emerged as the only primary driver, influencing all other affinities, without being significantly influenced by the same (refer to 4.2.3 & 4.4.1), since it will document virtually all policies governing an AC, adapted to the individual CE, according to its nature.

According to the IIA (2014), a typical AC Charter is a document that establishes the AC mandate, by outlining the roles and responsibilities of its members; and establishing the authority of the AC to obtain information and required resources. It also outlines the relevant roles and responsibilities of internal and external stakeholders, with an obligation to interact with the AC; it outlines the process for developing, reviewing, and updating the charter; and assigns the frequency of review. Best practices require that the AC Charter be reviewed and modified, annually. An AC Charter also lists the relevant materials as well as the agenda, that should be circulated to AC members ahead of a meeting, and requires that the minutes of every sitting of the meetings must be recorded and preserved in a given location (Legodi 2021).

# II. AC practitioners.

According to Brennan and Kirwan (2015), a difference exists between what the rules and regulations (practice), such as those contained in an AC Charter, constitute, and what actually takes place "in practice". This is the case as that which actually happens in practice is contingent on how AC members and other stakeholders (practitioners) apply their knowledge and ingenuity to translate practice (theory) into actions or "praxis" (Whittington 2006). Practitioners play key roles in combining, coordinating and interpreting practice to solve problems, in a given situation (Ahrens, Filatotchev & Thomsen 2011; Jarzabkowski et al. 2007). Practitioners are, therefore, at the centre of Practice theory, as they are the ones who identify, interpret, and adapt practice and translate it into activities or praxis (Brennan & Kirwan 2015).

Hence, for an AC to be effective, its members, i.e., the suppliers, and other AC stakeholders, i.e., the consumers (refer to para. 3), should seek an understanding of the legal requirements, policies, and best practices contained in the AC Charter (practice) to convert practice into implementable activities or praxis (Brennan & Kirwan 2015). Therefore, every AC member should obtain the practice documents that can help them understand their functions. For instance, to be knowledgeable about its work, Regulation 228(1b) of the PFM Regulations (ROG 2019) provides that, for the purpose of discharging its functions in terms of s 88 of the PFMA (ROG 2016), ACs shall have full access to the management, personnel, books, records, documents, properties, and information of a

given CE. In the circumstances where ACs fail to identify, interpret and adapt practices, and to translate it into activities (praxis), it will lead to ineffective functioning of the AC, whether in its advisory or oversight capacity, that result in cost to the public (the principal), of whom the managers of the CEs are agents (refer to 2.3.1.2). The AC should not only seek knowledge concerning its role and responsibilities as stipulated in law, but must also seek understanding of the CE's environment, operations, structure and governance system (refer to 5.2.2). ANAO (2015) recommended that AC members acquire knowledge by participating in management meetings and appropriate workshops, towards their improvement, and apprise themselves of the applicable information needed, regarding the CEs.

# III. AC praxis.

"Praxis" was defined as the "interaction between practitioners and practice" (Brennan & Kirwan 2015), where practitioners turn practice into actions. It relates to the activities by which AC work is actualised, and involves meetings, conferences, presentations, or workshops for practitioners (FRC 2018; ANAO 2015; Whittington 2006). For this reason, AC members, individually and collectively, must keep their engagements in these activities, alive. Participating in such activities, especially meetings, indicate AC diligence, that is measured by the frequency of meetings and the content of the meeting (refer to 2.7.6 & 5.4.1.3). It is important that individual members of the AC commit time and effort to the activities of the AC, to enhance its functioning (Motubatse 2016). Members of the AC should endeavour to participate in all committee activities, especially meetings, and contribute meaningfully and objectively towards the agenda of the meeting (ANAO 2015). The AC chairperson must play an active leadership role in AC activities and encourage members to be present and contribute meaningfully. Further, the AC chairperson should motivate members to attend meetings well-prepared, to be able to render informed contributions towards the agenda (Hornberger & Foster 2019). The chairperson should be professional in the conduct of meetings, in

order to derive the needed cooperation from members by interrogating issues that they face. To be effective, AC members ought to demonstrate inquisitiveness, outspokenness, and courage whilst exercising sound judgment, objectivity, and integrity in a healthy and constructive scepticism, in a high level of ethics, and display robust communication skills (IIA 2014). Meetings of the ACs are further discussed in segment 5.4.1.3.

# 5.2.2 Understanding the nature of institution: Category 2.

The focus groups noted that understanding and knowledge of the *Nature of the institution [CE]* (refer to table 4.14), in relation to which an AC is established, is crucial in enhancing the effectiveness of the AC. According to International Standards on Auditing 315, the "nature" of an entity refers to the entity's operations; its ownership and governance; the types of investments it is making and plans to make; the way that the entity is structured; and how it is financed. The nature of CEs was determined by legislation, as aforementioned in this study, and therefore meets the Institutional theory criteria discussed in para. 2.3.2. Hence, the focus groups indicated that the process of selection and the composition of AC members should consider the expertise, experience, and knowledge of individuals regarding the kind of legal environment that the CE, to which they have been appointed, exist. Also, the fact that each CE has its peculiar mandates (refer to 2.7.4), should be explicitly documented in the AC Charter, identified by the focus groups as the primary driver of all affinities (refer to 5.2.1). It thus denoted that AC members are expected to be knowledgeable about their CE's operations, especially the risks associated with the entity (KPMG 2017b; IIA 2014). Accordingly, the calibre of AC members, appointed for a particular CE, should depend on varied factors, including the complexity, nature, and scale of the CE's responsibilities, activities, and systems, including information technology systems and the size, location, and diversity of the CE (ANAO 2015). Owing to the importance of having the right mix of skills, experience, and personal attributes, it was suggested that CEs should employ an explicit, competency-based selection process in appointing new AC members. A list of the competencies the AC requires, including areas of expertise, skill sets, perspectives, and personal attributes should be developed, especially in the case of inexperienced members, and should be expressed in the AC Charter (IIA 2014). However, it should be noted that flexibility regarding the selection of AC members of a CE is limited, as it is strictly regulated, with prescribed constituents required to make nominations and appointments (ROG 2017a:s 2(3); ROG 2016:s 87). Again, this is a clear manifestation of the coercive isomorphic perspective of ACs, discussed in segment 2.3.2.1., implying that the management of the CE, as agents of the public (refer to 2.3.1.2), once employed, was bound to comply with the dictates of the law, or be sanctioned.

The mandate and nature of CEs were discussed in paras 2.9, 2.9.1, and 2.9.2. ANAO (2015) noted that the chairperson of the AC should be alert to any knowledge- and expertise deficit of AC members, regarding the entity and its activities. The chairperson should make arrangements for committee members to keep abreast of developments in the entity, the public sector, the business environment in which the CE operates, and the wider populace. It was emphasised that the AC members should possess the appropriate mix of skills and experience, relevant to the CE's responsibilities, as key to the AC's effectiveness (ANAO 2015). In order to gain an appreciable level of knowledge, relevant to the CE for which an AC was established, the members should continuously seek operational information. Through this approach, the AC members, both new and existing, experienced and inexperienced, must be empowered to acquire adequate knowledge concerning the nature of the CE that they have been appointed to serve. For instance, members should gather information concerning the CE's operations and structures, together with the standard operating procedures within which those structures are implemented. In addition, an understanding of relevant policies in relation to AC oversight and advisory responsibilities, should also be grasped. AC members should peruse previous AC minutes; interrogate auditor management letters, noting details of unresolved matters, whether the auditor's opinion is qualified or not; and read AC resolutions and recommendations presented to legally designated bodies (ROG 2019:Reg. 229). In their pursuit of knowledge about the CE, AC members should also study the CE's integrated development plans, related legislation, the latest budgets, yearly financial statements, yearly report, and service delivery and plans to implementation budget. Furthermore, the members should familiarise with the CE's risk management plans, code of conduct, performance reports, and information from management and the internal auditor in relation to the risk profile, the system of delegation and the position of internal controls. It was suggested that familiarisation visits should be part of orientation plans, where members would go to branches and installations of the institutions to acquaint with staffs, to determine their situations of operations, and inspect the equipment with which they operate (ROG 2015:s 3.5).

#### **5.2.3 Desire to bring about change: Category 3.**

As indicated in chapter 1, the concept of public sector ACs in governance architecture in Ghana, was first legislated in the year 2000. The AC was then referred to as the ARIC, in terms of s 30 of the ASA (ROG 2000) and then, later, in terms of s 86–88 of the PFMA (ROG 2016), as discussed in para. 1.1, when the name changed to that of the AC. However, according to the focus groups, to date, the phenomenon has not sufficiently matured and appears to present certain challenges to managers of CEs as well as AC members, in terms of the placement of the AC in its rightful scheme of affairs. This position of the focus groups supports the AG's report in 2020 (specifically GAS 2021c:8), that observed that a number of CEs had defaulted in establishing ACs in accordance with s 86–88 of the PFMA. Hence, the recommendation to management, with regard to those defaulting institutions, is to not only establish but also to strengthen ACs in their institutions, to ensure that audit recommendations are duly implemented. Ironically, the AG failed to acknowledge the important role the AC played, when acknowledging stakeholders who assisted during their work in

those CEs with ACs. The focus groups (refer to 4.4.1) claimed that management and stakeholders of certain CEs do not actually appreciate the roles of ACs in the governance process and, therefore, do not genuinely and consciously take actions to promote AC effectiveness in performing its duties. It was the view of the focus group participants that most management of CEs established ACs as the law compelled it to do so (refer to 2.3.2.1, 4.4.1 & 5.2.1). A number of management members, also, view the AC as a duplicity of already existing accountability mechanisms, such as the Parliament's PAC (Parliamentry Centre 2009), and its work alongside the external and internal audit processes (Khelil et al. 2016; refer to 2.10.1 & 2.10.2). These aforementioned institutional processes already exercise analogous, legal oversight of the CEs (ROG 2003a; ROG 2000). Moreover, the Guidelines maintained that the AC is a high level corporate governance committee, that functions to assist in directing and controlling CEs in its operations and decision-making in the governance process.

Currently, most CEs have established and inaugurated its ACs in compliance with the provisions on ACs in the PFMA (ROG 2016) and the PFM Regulations (ROG 2019). For these CEs to be seen as complying with these legal requirements regarding establishment of ACs, it has become a common practice for the management of the complying CEs to advertise and publish the inauguration events. These publications can be seen in the media, and as conspicuously displayed photographic scenes, accompanied by narrative texts from the inauguration events, on the websites of the CEs (Ghana Airports Company Ltd 2022; University of Ghana 2022). Also, the Internal Audit Agency, that serves as the coordinating body for ACs, usually updates its website with pictorials and narratives of events, whenever new ACs are inaugurated (Lamptey 2022a, 2022b).

The focus groups perceived the introduction of ACs to the governance structure of any CE, as the kind of change that needs to be managed by all stakeholders. It denotes change, as it adds another layer to the bureaucratic requirements of the accountability, transparency, and risk management profiling and reporting structure of existing management responsibilities (FRC 2018; refer to 2.2 &

2.3.1). For now, it is observed that public institutions hinder change, to the same extent that excessively strong corporate institutions resist change (Tanner 2023). The changes that confront the management of a CE, emanate principally from internal and external audit periodic recommendations, and the role of the AC to enforce the implementation of those recommendations, in accordance with legislation. The general human tendency to resist change, understood properly, may lead to dysfunctional behaviour in the implementation of newer systems and practices (Singh & Sangwan 2011). People, from top management to front line workers in the institutions, have to accept the changes as beneficial to their course. However, a case was made by the focus groups that management of CEs normally have tight schedules in trying to work and achieve the core mandate of its institutions, in diverse ways. In addition, it must allocate and avail time for regulators that participate to ensure that management is complying with rules and regulations, in establishing its entities. Therefore, the introduction of ACs, in addition to the internal and external audit processes, are deemed burdensome to the assurance provision process. The demands by the AC on management's time, therefore, appear to inconvenience it and it only consents to the plan of the AC as such is mandated by law.

Both the default theories, namely Agency theory (refer to 2.3.1) and Institutional theory (refer to 2.3.1), were applicable in this study. This is as the introduction and establishment of ACs, as a new phenomenon (change) in the public sector governance system, was not the desire of CE management, but rather an imposition (secondary outcome: refer to 4.4.1) of law, regulation, and guidelines (primary and secondary drivers: refer to 4.4.1) that CE management, as agents of the State (refer to 2.3.1.2) were required to implement, mandatorily i.e., coercive isomorphism (refer to 2.3.2.1). It is part of the central government's policy to enhance probity, accountability, and transparent responsibility on the part of those appointed to be in charge of the CEs, i.e., the agents of the State (refer to 2.3.1.2). According to the focus groups, the *Desire to bring about change* is imposed by the

policies *Governing the* AC, i.e., the laws, regulations, and guidelines consolidated in an AC Charter (refer to 5.2.1), as an affinity that was the primary driver (refer to 4.4.1 & 5.2.1) of the system. Also, the nature of the CE, as a secondary driver (refer to 4.4.1 & 5.2.1), determined how the changes are to be successfully implemented. Thus, the changes were the consequence of legislation, that defined the nature of the CEs. Thus management of CEs, as stewards of the State (refer to 2.3.1.2), has no option but to exercise its fiduciary responsibility by implementing whatever changes the law imposed (refer to 2.3.2).

In addition to Agency and Insitututional theories, the researcher contemplated the *Desire to bring about change* from the perspective of Lurt Lewin's 1940s three step theory of Institutional Change (Channell 2021; Cummings, Bridgman & Brown 2016). The theory breaks down Institutional Change into three steps, i.e., *Unfreeze, Change*, and *Refreeze*, compared to melting a block of ice, and refreezing it in a different shape (Channell 2021). Essentially, the success of change in an institution is contingent on how well the various stakeholders in the institution understand the need for such a change, the process involved in the implementation of the change, and the expected outcomes, as a consequence of the change being introduced. The stages applicable in the theory in this category, are discussed below.

#### Stage 1: Unfreeze.

This is said to be the most important stage of managing the change process and is aimed at preparing the institution for the impending change (Channell 2021). It is postulated that change must only happen when there is a compelling incentive to exercise the change, as in the case where the change is needed to comply with the requirements of legislation that is intended to safeguard the public interest. Since the CE's management and staff would have been accustomed to the status quo, there would be the need to persuade them, through orientation, as to the necessity for an AC, prior to its establishment. The reasons for establishing an AC should be communicated to members of the

institution, as they prepare to embrace the new order. In this circumstance, where the change is coercive, to *Unfreeze* denotes that, once the law and regulations requiring the establishment of ACs were passed, all CEs had to prepare to comply with the new mandate. Effective communication at workshops and orientations, through the appropriate platforms, regarding the roles and responsibilities of the AC and how it impact on the work of CE members, could prepare them for the changes that are to be wrought. It is of foremost importance to create a direction for the impending change and solicit acceptability by and adaptability of the various stakeholders (refer to 5.3.1 & 5.3.2), prior to inaugurating the ACs. This stage is compared to melting ice from its original shape, such as a cube.

### Stage 2: Change.

This is the transformation stage of the change, i.e., the nomination, appointment and inauguration of the ACs for the various CEs, in accordance with the PFMA (ROG 2016), the PFM Regulations (ROG 2019), and the Guidelines (ROG 2017a). It is a transitional stage of the implementation process, where the key AC stakeholders (refer to 5.3) have to commit themselves to and embrace the AC. It is a difficult stage for the AC stakeholders, as it is natural that there will be instinctive resistance to the AC's oversight responsibility. To avoid resistance, it is important to regularly communicate to stakeholders regarding the benefits of the AC oversight responsibilities, explain the impact of the change on the CE, allow for a period of doubts and apathy, and provide a platform for questions and answers, to dismiss any rumours concerning the AC's work. By doing so, everyone will get involved in the process, so that they will consider themselves as part of the change and be ready for any challenges. This stage is compared to pouring the melted water in Stage 1 into a mould, to produce a new shape.

#### Stage 3: Refreeze.

The third stage is the enforcement stage, where any key challenges have been addressed and the change had occurred (Channell 2021). At this stage, all stakeholders have accepted that the establishment of the AC (the change) is inevitable, in order to comply with the requirements of the laws to gain legitimacy, that is a prerequisite for the government's continuous support of the CE (refer to 2.3.2.1). In order to safeguard that the change is sustained and successful, it is imperative to offer continuing training and support for all AC stakeholders as to their responsibility towards the AC, and to identify any encumbrances that impede the sustainability of the effectiveness of the AC, and address it. The process also involves encouraging the AC to provide feedback recommendations to management, and communicating any assistance or successes that the AC received or achieved. This stage is compared to freezing the water in the mould, to acquire ice formed in a new shape, such as a sphere.

### 5.3 Theme 2: AC Stakeholder Engagements (Categories 4–7)

Theme 2 (refer to table 4.15) consisted of four categories, based on the affinities defined by the focus groups, namely *Commitment of AC and management (Secondary Driver*: refer to 4.4.2 & 5.3.1), *Stakeholder collaboration (Secondary Driver*: refer to 4.4.1 & 5.3.2), *Political influence (Secondary Driver*: refer to 4.4.1 & 5.3.3), and *Independence of the internal audit (Secondary Outcome*: refer to 4.4.1 & 5.3.4). It should be noted that all the categories under this theme were secondary drivers, indicating that they possessed relationships that were interdependent, i.e., each affinity influenced the other. The two default theories, Agency theory and Institutional theory, discussed in para. 2.3.1, were again used in the appropriate context in discussing the categories, and where necessary, auxiliary but specific theory was evoked.

### 5.3.1 Commitment of AC and management: Category 4.

The focus groups identified *Commitment of AC members and managers* of CEs, to the work of the AC, as a factor that affects the effectiveness of the AC. "Commitment" in this sense, denotes

members availing themselves for Board/Council meetings and other activities, and integrating it as an essential part of the individual and collective schedules (ROG 2015). The AG observed that recurring irregularities resulted from a lack of appropriate sanctions against financial and administrative indiscipline, managerial ineffectiveness, and "low level of commitment" on the part of authorities responsible for enforcing relevant laws and administrative instructions (GAS 2021b). As demonstrated in chapter 2, the AC embodies a critical oversight role in terms of assising the CE managers to surmount the culture of failure, by acting on audit recommendations (refer to 2.5.1 & 2.5.2). Thus, clearly, the AC and management have huge commitments to make in ensuring that the CEs implement the recommendations contained in all audit reports, including internal audit recommendations, to achieve the desired objective of effectiveness. The commitment of the AC (being an assurance mechanism of good governance) and other stakeholders (being agents of the State) are superimposed by legislation (refer to 2.3.2), obligating all parties to act, or face sanctions as agents of the State (refer to 2.3.1.2). That is to emphasise that, as agents of government or the State, CE management must act in the interest of its principal (Agency theory), according to stipulated legislation (Institutional theory).

In addition, this category can also be explained from the perspective of a specific theory, namely Organisational Commitment theory, that postulate reasons for an employee's sense of attachment and loyalty to the organisation with which they are associated (Cohen 2013). The theory is defined in terms of the "employee's attitudes and intensions", as antecedents of behaviour. It is suggested that the employee becomes committed to the organisations, at the point of realising that their personal goals are congruent with those of the organisation, at which point they are willing to exert effort in the interest of the organisation and maintain such interest through connectivity (Cohen 2013). This theory is appropriate, as both the two key stakeholders (management and the AC) attach importance to their position and roles, that provide socio-economic benefits, supporting the CE's

probity and accountable governance objectives. A broad understanding of Commitment theory is that the more an individual behaves in a certain way toward an entity, the more attracted they feel toward that entity (Chang & Stansbie 2018). There are three approaches to Organisational Commitment theory, i.e., the *Calculative Approach*; the *Attitudinal Approach*; and the *Multidimensional Approach* (Cohen 2013). This study used the *Calculative Approach* in the analysis of this segment.

According to Cohen (2013), the *Calculative Approach*, that draws its origin from the 1960s, refers to an accumulation of an individual's valued investments, that they considered would be lost or deemed worthless if they were to exit from the entity. It is postulated that, as the individual joins the entity, they are presented with the opportunity for the accumulation of socio-economic and other investments, in the form of income, status, seniority, and friendships that, eventually, bind them to the entity, over a period of time. The threat of forfeiting such valuable, intangible assets, together with the perceived absence of viable options, elicits commitment from the employee, in favour of the entity for which they work. Thus, both members of management and the AC, once appointed as stewards in the capacities from which they draw prestige and have developed socio-economic investments, which forfeiture will adversely affect them, are employees that are likely to behave in a manner that will keep them on the job.

The expected commitment level of these two key stakeholders, is briefly discussed below.

# I. Management commitment.

Management commitment is an important principle for the successful implementation of any system or modern practice, in any institution (CE), as the systems/practice (recommendations) by auditors requires a transformed attitude by stakeholders, at all ranks of the institutional structure (Singh & Sangwan 2011). Singh and Sangwan's (2011) work, though concerned with manufacturing and engineering, can further imply that, for CEs, the successful implementation of audit

recommendations depends, critically, on commitment by management. Management possesses the substantial capability to influence, support, and lead the actual design and deployment of internal policy initiatives (refer to 5.2), throughout the CE, to implement both AC and auditor's recommendations. Management has to appreciate that support for implementing recommendations must visibly be noticed, as a commitment at all levels of the CE. A dedicated person from management should be prepared to carry the commitment banner and act as the audit recommendation implementing supervisor (ANAO 2015). Primarily, management leadership is a critical element of adoption and implementation of audit recommendations, which the AC must ensure.

It is advisable for management to formulate an institution-wide audit report recommendations implementation policy, towards effective implementation of AC's and auditors' recommendations. The policy for implementation should have a set of goals and targets, that should be very comprehensive and measurable (Singh & Sangwan 2011; Cairncross 1992). Such policies could become an integral part of the AC Charter (refer to 5.2). In this regard, an overall sense of direction is provided, as guidelines for implementable actions by the entire CE and the executive management should openly show support for such an effort, in order to be successful (Singh & Sangwan 2011).

The importance of management commitment and support cannot be overemphasised, owing to the sponsorship of resources to execute the policies required, in order to decrease the negative impact of the recurring financial irregularities and internal control weaknesses in CEs (GAS 2021b; GAS 2021c; Singh & Sangwan 2011). However, as observed by the focus groups, it is difficult for ACs to obtain management's commitment in this regard, for the implementation of the AC and auditors' reports. It has been observed that managers, who are supposed to see to the implementation of recommendations, were more interested in the opinion of the external auditors report, than the work of the AC. Thus, the discussed measures for top management commitment in the implementation of recommendations, should be emphasised (Singh & Sangwan 2011).

## II. AC commitment.

The expected commitment of ACs is embedded in its roles and responsibilities, as stipulated in the rules and regulations, and for that matter, the AC Charter of a particular jurisdiction or entity (refer to 5.2.1.2.1). Per best practices (FRC 2016; IoDSA 2016; ANAO 2015) it is required that, in order to be effective, ACs should not only commit to being diligent and organising the required regular number of committee meetings (refer to 2.7.6) but, also, must be seen to be actually engaged in performing its roles. These roles involve providing oversight and advice on the financial reporting processes, the audit processes, the entity's internal controls system, and the entity's compliance with laws and regulations (CFA Institute Research & Policy Center 2020). The AC should review management's analyses of significant matters in financial reports and judgments made in preparing the financial statements, including the effects of alternative methods. Again, the AC should evaluate the implications of regulatory and accounting judgements, involving balance sheet treatments of items. Additionally, the AC should discuss pending technical and regulatory matters, that are contained in Audit Management Letters. The AC should also be interested in management's responses to financial and internal control irregularities and steps taken to implement recommendations in the AG's and internal auditor's reports (GAS 2021c; Deloitte 2018).

In essence, the commitment of the AC could be best assessed when it acts in accordance with the provisions of the the PFMA and the Guidelines. These provisions direct the AC to pursue the implementation of any recommendations contained in internal audit reports; Parliament's decisions on the AG's report; the AG's Management Letter; the report by the CE's internal monitoring unit, in relation to financial matters raised; and any other related directives by Parliament. The legislation and guidelines also provide for the AC to review the internal controls and risk management systems

of its CE; oversee the internal audit processes, including its appointment and resourcing; study the financial statements, together with any disclosure statements; monitor the statutory external audit processes; appraise itself of any compliance and regulatory inspection reports concerning the CE, critically assess any key performance information; blow the whistle when there are any serious infractions of the laws; and communicate with stakeholders regarding its (the AC's) activities (Association of Chartered Certified Accountants [ACCA] n.d.).

Furthermore, a committed AC performance measure will depend on the way that it executes its work, efficiently and effectively. Hence, it was recommended that the AC should ensure that its terms of reference, in the AC Charter, is well-defined, with the scope of responsibilities widely understood by the AC members, as well as by others in the CE, including executive management, especially financial managers and IAFs. Also, the AC should demonstrate its ability to coordinate between the CE's management, and external and internal auditors, to avoid conflicts or repeated efforts, that could lead to a possible increase in Agency cost. Again, AC commitment is visible, when its meetings are deemed as appropriately frequent and efficient, with focus on agendas that permit adequate time and consideration for detailed debate on serious matters and, at the same time, allowing for ease of opportunity to add any other matters of concern raised by members (ANAO 2015). In addition, the chairperson of the AC should commit to producing synopses of matters, to be circulated to AC members ahead of meetings, noting major areas of focus, for deliberation. Also, provided it is not against the AC Charter or law, "a call or prep meeting" should be arranged between the AC chairperson and key stakeholders, e.g., the internal or external auditors, prior to each audit and AC meeting, so as to clarify any contentious issues (Tugman & Leka 2019; ANAO 2015).

## 5.3.2 Stakeholder collaboration: Category 5.

The focus groups noted that it is important for the AC to collaborate with its key stakeholders, to obtain the knowledge needed concerning the CE, in order to provide the appropriate oversight and

advice. A key element of stakeholder collaboration requires paying concurrent attention to the legitimate interests of all appropriate stakeholders, both in establishing institutional structures and general policies, and in one-on-one decision-making processes (Heath & Norman 2004). In executing its mandated roles and responsibilities of oversight, advice and monitoring, the AC relies on the entity's management structures, for information and collaboration (Deloitte 2018). The indispensable stakeholders within the institutional structures, include CEOs, Chief Directors, DoF, and other top-level unit Heads of the CE, as well as the external and internal auditors, regulators, and other committees. These are the AC's stakeholders, whose actions or inactions may render the AC effective or ineffective. It is vital to identify their needs, as every entity has its peculiar governance, risk management and control structures, as well as supporting policies, and processes determined by statute (ANAO 2015), that inform the AC activities in a CE. The focus groups noted that, in order to exercise its internal control and financial reporting oversight effectively, the AC should be familiar with the processes and control systems that were established by management, and also understand whether those processes and controls are well designed and operating effectively (Deloitte 2018). It is suggested that the development and implementation of effective and ethical recommendations, as is expected from ACs, is comparable to the requirement that, amongst all stakeholders, there should exist a commitment to transparency and accountability. This requirement involves the AC's ability to obtain management willingness to provide complete, precise, and timely disclosure of information within each area and in respect of the entire entity (Kennett-Hensel & Payne 2018). The following segment considers how stakeholder collaboration enhances the effectiveness of the AC.

## 5.3.2.1 AC key stakeholders.

As aforementioned, the main CE stakeholders sampled in this study, included CEOs/District Chief Executives, (Coordinating) Directors/Registrars, DoF/Finance Officer, and Directors of IA, as

well as the Secretariat dedicated to the AC, as provided for by s 11 of the Guidelines (ROG 2017a). Essentially, the AC should create and preserve effective relationships, within a CE's working and governance structure, with the major stakeholders, who influence and inform the responsibilities and operations of the AC. To achieve this, ACs should develop and maintain relationships through AC meetings, and working with major stakeholders outside of committee meetings (ANAO 2015). It should be noted that the relationships between these stakeholders, as discussed below, are dictated in the context of the AC Charter, and are to be exercised in their fiduciary capacities as agents of the State, if they seek to gain legitimacy within the instituted and legal framework (refer to 2.3.1).

## The AC Secretariat.

At the institutional level, the Secretariat is the pivot of AC activities and collaboration, in all CEs, as designated by the Guidelines and best practices (ANAO 2015). S 11 of the Guidelines direct that the Head of a CE, in consultation with the AC, should appoint a person who shall be responsible for the Secretariat and provide secretarial support to the committee (ROG 2017a). Through the secretary, the Secretariat is to liaise with the chairperson of the AC, to prepare and approve the agenda for each meeting (ANAO 2015). Also, the Secretariat is to ensure that the agenda and supporting documents are circulated to members of the AC, at least one week prior to the meeting. It is also the responsibility of the Secretariat to ensure that minutes of meetings are prepared by the secretary, reviewed by the chairperson, and circulated, within three weeks after each meeting, to each member, and appropriately preserved in a safe place (ROG 2017a; ANAO 2015). The Guidelines further require that key decisions, emanating from the meetings of the AC, are communicated to the Principal Account Holder (PAH), Principal Spending Officer (PSO), and other relevant co-opted members and officers of the CE.

The CEO.

The CEO is a key AC stakeholder in all the CEs sampled for this study. The title itself is a generic one, that also refer to the Metropolitan/Municipal/District Chief Executive or the Vice-Chancellor of a university, or the Director-General of a service. Whatever terminology is used, the CEO is the political/executive Head and the PAH of a CE, except for Ministries, where the Minister is the PAH (ROG 2016). As the PAH of a CE, the CEO is a key stakeholder of the AC, in several ways. For instance, with respect to the composition of the AC of a CE, s 87(3) of the PFMA prescribe, in part, that out of the five members, two "shall be nominated by the Principal Account Holder" (ROG 2017a). Furthermore, the position of the CEO as AC stakeholder in a CE, is reinforced by s 87(6) of the PFMA, requiring that "The Principal Account Holder shall appoint the chairperson and members of an AC", after all nominations have been made. Conversely, the AC is to ensure that the CEO, as Head of its CE, comply with the various provisions of ss 88(1)–(2) of the PFMA, by implementing reports by IA, Parliament's decision on the AG's reports and Management Letters. It is incumbent upon the AC to develop a cordial working relationship with the CEO, so as to enhance AC effectiveness. For this purpose, the AC should engage in formal and informal reporting arrangements to the CEO, on the AC's activities in key risk areas, and coverage on internal and external audits (ANAO 2015). The AC chairperson should meet with the CEO after every meeting and provide a briefing on matters addressed by the AC. An arrangement should also be made for the CEO to, periodically, brief the AC on strategic internal and external developments affecting the CE (ANAO 2015), as well as the implementation of any recommendations of internal audit reports, Parliament's decisions on the AG's Management Letter and reports, and any other report by the CE's internal monitoring units, as identified in the PFMA (ROG 2016).

DoF.

The DoF plays very important roles in AC engagement with the CE, as they are responsible for the receipt, custody, disbursement and reporting of public funds [ROG 2019:Reg. 2(1)]. In the

majority CEs, the DoF represent the Controller and Accountant General [ROG 2019:Reg. 2(2); ROG 2016:s 8(4)(j)]. Therefore, the AC needs to develop a good working relationship with the DoF, in view of the AC's financial reporting, internal controls and risk management oversight responsibilities. ANAO (2015) suggested that the AC should establish procedures for the DoF to brief the AC on significant financial reporting and accounting issues likely to affect the financial statements and the underlying systems of internal control, as well as on the CE's risk portfolio management. Whilst the AC is expected to provide oversight responsibilities relative to the CE's preparation of financial statements and related issues, the AC should also seek assurance from the DoF, to the extent that significant financial reporting and risk issues within the DoF's domain are effectively managed. It is advisable to invite the DoF to AC meetings regularly and as necessary, although they are not legally a member of the committee (ANAO 2015).

## Director of IA.

A review of the requirements for IAFs and the relationship with ACs, relative to the public sector in Ghana and the global perspective, was accomplished, in detail, in para. 2.10.2 of this study. It is, however, important to note that building a sound working relationship between the Director of the IAF and the AC of a CE, facilitates the effectiveness of the AC in performing its responsibilities (ANAO 2015; IIA 2014). Such responsibilities include the AC reviewing IA plans and reports, and resourcing the IAF. S 83(2) of the PFMA requires the Director of IA to report, functionally, to the AC of its CE. In fulfillment of this requirement and to foster good relationships, it is appropriate to always invite the Director of IA to attend AC meetings as a resource person, although they are not a legally mandated member (ANAO 2015). Moreover, s 88(1)(a) of the PFMA entreats the AC to ensure that the Head of a CE pursues the implementation of any recommendations in an IA report. The internal auditor, in their capacity as the author of such a report, will play an important role in the pursuit of this requirement, if accorded deserving and proper recognition by the AC.

## External Auditors.

The requirements for the external audit of a CE in Ghana, are stipulated by Article 187 of the Constitution (ROG 1992), and the ASA (ROG 2000), as discussed in para. 2.10.1 of this study. In this segment, such requirements are considered from the AC stakeholder's perspective. A careful perusal of the relevant statutory provisions, including the Guidelines, revealed that there appears to be no requirement of how the AG should relate to the AC of a CE, during the AG's work. In all cases, it is the AC that is required to ensure that the Head of the CE implements audit reports, including that of the AG's Management Letter, and Parliament's decision on the AG's report [ROG 2016:ss 88(1)(a)–(b); ROG 2000:s 18(2)(a)]. However, benchmarked best practices (FRC 2016; IoDSA 2016; ANAO 2015) suggest open and sincere trading of information between the AC and the AG, throughout the audit period. For instance, ANAO (2015) encouraged the AC to position itself towards frank discussions of matters of interest concerning a delicate area, with the AG, in areas relating to the duties and responsibilities of the AC. Similarly, the King IV report recommended that the AC should, occasionally, engage with assurance providers (auditors) without the presence of management, in order to create a space for prospective views and concerns that may not be appropriately raised in an open forum (IoDSA 2016).

For the AC to be effective in performing its duties, it is required of the AG to brief the AC on the proposed financial statement and performance audit coverage. The briefing should also consider the assessment of entity risks, potential overlap with IA work, and the impact of AG work on internal entity resources and management efforts (ANAO 2015).

## **5.3.3 Political influence: Category 6.**

The focus groups identified *Political influence*, a secondary driver (refer to 4.4.2), as a factor that influenced other affinities, such as *Coordination amongst stakeholders* (secondary outcome) and *Independence of the IAF* (secondary outcome). "Political influence" may be defined as an entity,

leadership, internal process, or other mechanisms that control the behaviour of members in a significant respect, that substantially affects decision-making for the entity and/or its members, and/or those representing the entity when dealing with outsiders in matters of consequence (Law Insider n.d.). It also relates to political interference, where those with influence impose their plan on decision-making, even though they are not mandated to do so (Pretorius 2017). The focus groups understood how political influence could affect the effectiveness of the AC (refer to 4.4.2). They cited s 83(3) of the PFMA, that require that two out of the five members of the AC were to be nominated by the PAH, being a legislative imposition or coercive isomorphism. This is further reinforced by s 83(6) of the PFMA, that requires that the PAH should appoint the chairperson and members of the AC, after they have been duly nominated. The group participants argued that the powers so vested in the PAH may influence the AC members, in the sense that their nomination and/or appointment or disappointment depend on the discretion of the PAH. They may not be forthright concerning support of the implementation of the recommendations at the AC level, that appear to negatively affect the reputation of the PAH. Also, the two nominees of the PAH may be doing the bidding of their sponsor, when participating in decision-making of the AC that may adversely affect that sponsor. Also, on account of the political sensitivity associated with AG reports regarding issues of corruption, misappropriation, and financial infractions (GAS 2021b; GAS 2021c), the nominees of political Heads, who are the PAHs in many CEs, will attempt to manipulate decisions that adversely expose their appointing authorities. These scenarios potentially place the AC members in a perceived conflict of interest position that cannot be practically managed in the manner prescribed by certain best practices (ANAO 2015), as the conflict of interest is legislatively inherent to the nomination and appointment processes.

The focus group, also, perceived an apparent overlap of the two-tier system of financial oversight involving the PAC of Parliament at the national level, and the AC, at the CE level. According to the

focus groups, this causes CE management to regard its AC's participation in the accountability and probity process, as unimportant. It is of critical importance to note that the constitutional arrangement holds that the AG's report is submitted to Parliament through the Speaker, in accordance with Article 187(5) of the Constitution (ROG 1992) and s 20(1) of the ASA (GAS 2021c; ROG 2000). The AG's report normally includes details of the financial irregularities identified, resulting from the breakdown of the CE's internal controls, and provides recommendations, where appropriate (GAS 2021a; GAS 2021c). The implementation of such recommendations, it is assumed, would help rectify the identified weaknesses in the CE's financial management control systems (GAS 2021a; GAS 2021c). The PAC, then, subject the reports of each CE to scrutiny, during a public hearing process, in accordance with Order 165(2) of the Standing Orders of Parliament of Ghana (Parliamentry Centre 2009), where management of affected CEs are invited to answer queries that concern significant matters, mainly relating to financial irregularities (Parliamentry Centre 2009). Therefore, from the CE's management perspective, the role of its AC merely mimic what the PAC does at the national level on a much more significant scale, hence, the activities of the AC become a repetition, if not a waste of resources, especially for the CEs.

#### 5.3.4 The Internal Audit: Category 7.

Internal auditing is partly discussed in the aforegoing paras 2.10.2 and 5.3.2.1, however, the focus groups underscored its importance to improving AC effectiveness and, hence, it is briefly considered here, owing to its proximity in function to that of the AC (Alzeban & Sawan 2015; Sarens et al. 2009; Goodwin 2003). To the extent that the IAF is a legal collaborator of AC work in any given institution, whether public or private (IoDSA 2016; ANAO 2015; IIA 2014), the focus groups considered that the competency and independence of the IAF in a CE, would affect the effectiveness of the AC. This position is reinforced by s 83(2) of the PFMA's requirement that the head of the IAF should functionally report to its CE's AC (ROG 2016). Therefore, The IAF is a critical resource unit for the AC, as it provides services concerning risk management, internal controls, and

governance practices in the CE. Thus, for the IAF to be effective in a CE, it has to render independent assurance and advisory services, that will advance the operations of the CE (IIA 2014), and the IAF is the provider of assurance, assessing whether the CE managers are complying with legislation, policies, internal controls, and assessed risks (IIA 2014).

For the AC to confidently rely on the assurances provided by the IAF in its reports, the AC should satisfy itself that sufficiently skilled internal audit resources were available to execute the needed work captured in the IA plan, including the provision of support and input to the AC work. In the instance where the AC is not satisfied with the adequacy of resources availed to the IAF in order to perform its duties satisfactorily, the chairperson of the AC should raise the matter with the PAH of the CE (ANAO 2015). Nevertheless, it is the responsibility of the Director of the IAF to effectively lead the unit, to be successful in its monitoring and advisory role in the CE (IIA 2014). It is recommended that the IAF should have an IA Charter, which is a formal document that specify the authority, purpose, roles, and responsibilities of the IAF, and was ratified by the AC (FRC 2016; IoDSA 2016; ANAO 2015). The AC should ensure that all assurance and consulting services provided by the IAF, comply with the approved IA Charter, a risk-based internal audit plan, A resource plan, and the IA budget for effective IA work (Legodi 2021; IIA 2014). Also, there should be regular communication between the AC and the IAF, in the form of reports in an agreed format, on the outcome of work performed, and it should include management's responses to IA recommendations and other suggestions for improvement. Furthermore, such communication is properly in place, if exclusive meetings are conducted between the AC and the IAF, without the presence of management or other observers. Such meetings provide the AC with the opportunity to raise issues, pose questions and obtain feedback from the IAF. This promotes the recognition of the operational and functional independence of the IAF (ANAO 2015).

## 5.4 Theme 3: The Status of the ACs

Theme 3 (refer to table 4.16 and figure 5.1) consisted of one category with five affinities, designated as (1) *Characteristics of ACs* (FG1, *Affinity 1*) as *Secondary Driver* (refer to 5.4.1.1); (2) *Continuous training of committee members* (FG 2, *Affinity 3*) as *Secondary Driver* (refer to 5.4.1.2); (3) *Frequency of meetings* (FG1, *Affinity 4*) as *Secondary Outcome* (refer to 5.4.1.3); (4) *Authority of the AC* (FG1 & FG2, *Affinities 9 & 10*) as *Secondary Driver and Outcome* (refer to 5.4.1.4); (5) *Independence of the AC* (FG2, *Affinity 8*) as *Secondary Outcome* (refer to 5.4.1.5). The rationality of classifying the different affinities to form this theme, is described in para. 4.4.3. Each affinity is reviewed herein below, with reference to the relevant literature.

## 5.4.1 Characteristics of AC members: Category 8.

In paras 2.7 and 2.8 of this study, the researcher considered the characteristics that render ACs effective, whether in the public or private sector. In this segment, further consideration and emphasis are assigned to AC effectiveness, relative to what the focus groups identified as the characteristics that improve the status of the AC and render it effective in its roles, with reference to the specific affinities identified by the focus groups, as restated in para. 5.4, above. AC quality is measured in terms of three dimensions, i.e., its size, its independence, and its expertise (Krishnan 2005). The approach here is a review, with regard to the relevant literature and theory.

## 5.4.1.1 Characteristics of AC members.

*Characteristics of AC members* emerged as the catch phrase for Category 8. At the same time, it is the designated phrase for Affinity 1, under Theme 3, as it represents all the affinities identified by the focus groups, that caused Theme 3 to have only one category. The specific characteristics, considered previously, were AC independence (refer to 2.7.3), AC expertise (refer to 2.7.4), AC size refer to 2.7.5), and AC diligence (refer to 2.7.6). Para. 2.8 is devoted to AC characteristics as the determinants of corporate governance effectiveness, whereas para. 2.8.1 deals with the combined

AC characteristics for effectiveness. This segment comprises a follow-up on the previous discussions, with specific reference to AC characteristics as viewed by the focus groups, and as determined by Ghanaian legislation, or best practice, internationally.

With regard to AC independence (refer to 5.4.1.5) in terms of CEs, ss 87(2)–(3) of the PFMA requires that the majority of the members (3) of an AC shall be independent members, nominated by the Internal Audit Agency and ICAG, from amongst persons who are not employed by the relevant CE. The minority (2) of the members, are to be nominated by the PAH. Further, s 87(4) of the PFMA dictate that the chairperson of an AC shall be elected from amongst the independent members of the AC. To ensure that these statutory requirements are guaranteed, Annexure 1 of the Guidelines detail the composition of the AC for the various categories of nominations to each CE, i.e., MDA/MMDAs (ROG 2017a).

In a similar vein, by providing that the majority of AC members should be members of the ICAG and employees of the Internal Audit Agency, the PFMA, ss 87(2)–(3), seeks to ensure that the professional and ethical competence and expertise of the members of the AC (refer to 2.7.4) are not compromised. In this regard, Regulation 224 of the PFM Regulations, i.e., "Qualification for appointment to an Audit Committee" states that a person is qualified for appointment as a member of an AC, if that person has the professional expertise and has work experience in accounting, auditing and public financial management. In fulfilment of this requirement, Annexure 2 of the Guidelines provide a matrix that stipulates the relevant qualifications and experience, to guide the nominating institutions in appointing members to the AC. However, the focus groups pointed out that, regardless of these guarantees embedded in the appointment process of the ACs, they doubted the availability of the required professional and skilled combination of AC members. According to them, both the independent and non-independent members of the ACs often lack the required

combination of skills and expertise, as a result of only professionally qualified but skilfully inexperienced persons being appointed to the AC, on occasion.

The size of the AC was discussed in para. 2.7.5 of this study. S 87(1) of the PFMA requires that an AC should consist of five members, made up of three independent members and the other two from within the particular CE served. S 87(5) of the PFMA further stated that the AC, in the performance of its functions, could co-opt a senior management staff member to serve on the AC. The Guidelines clarified that a co-opted member shall be a staff member of the CE, and shall have the same privileges as appointed members of the AC, however, they shall not have voting rights.

AC diligence was also discussed in para. 2.7.6 and mentioned in para. 5.2.1.2.1 of this study. It is suggested that the effectiveness of the AC is a function of diligence or the determination with which the AC members perform their obligations (Abbott et al. 2004). AC diligence depends on how it plans and executes those plans of work and how it exercises its powers in accordance with legislation and the AC Charter (ROG 2017a; ANAO 2015; IIA 2014). For instance, and as referred to in para. 5.4.1.4, the AC is empowered by Regulation 228(1)(a) to investigate matters in relation to suspected cases of fraud or misuse of public funds (ROG 2017a). To achieve this objective, Regulation 228(1)(b) authorises the AC to have full access to management, personnel, books, records, documents, properties, and information of its CE. Unfortunately, despite these powers granted it, the ACs have not been able to exercise adequate diligence, resulting in recurrent financial infractions and misappropriation of public funds, as annually reported by the AG (GAS 2021b; GAS 2021c). This raises concerns regarding the AC's diligence in its duties, in reducing the impact of financial quantum and recurrence of these infractions and misappropriations in the CEs.

## 5.4.1.2 Continuous training of AC members.

The focus groups identified and recommended that there was the need for continuous training of AC members, to constantly appraise them in the performance of their duties and responsibilities,

given the dynamic nature of the legal and institutional environment. From the onset, and throughout the tenure of an AC and its members, the nomination and appointing authorities should consider the need for a mix of the skills, experience, knowledge and professional qualifications of members, to meet the requirements of the policies governing ACs. This is to ensure competence and professionality in AC members' output (refer to 2.7.4; FRC 2016). It is recommended that the AC should comprise members with competencies relevant to the sector in which their CE operates, in and that at least one member of the AC should possess recent and relevant financial experience (FRC 2018; IIA 2014). As part of the process of ensuring that the AC is equipped with the necessary mix of competencies, s 13 of the Guidelines requires the Internal Audit Agency to facilitate the induction of the AC of a CE, and ensure that members of the AC receive orientation and relevant information to assist them in the discharge of their performances and responsibilities (ROG 2017a). To be relevant, AC orientation should cover their roles, terms of reference, expected time commitment by members, and an overview of the CE's operations and strategy, identifying the main business and financial dynamics and risks of the CE (FRC 2016; Lary & Taylor 2012).

ANAO (2015) recommended that new members of the AC should be briefed by the AC chairperson and a designated senior officer. It went on to state that information provided to new members should be tailored to meet their individual needs. Areas of importance for the orientation of new recruits may include details of the CE's governance structure and the AC Charter, together with recent minutes detailing outstanding matters; copies of legislation, policy documents and instructional manuals, and the most recent annual report relating to the entity and relevant AC work; and the CE's institutional plan, code of conduct, statement of values, and entity and risk management strategies. Other orientation areas may, inter alia, include a summary of the entity's risk managing portfolio, and controls (statutory audit), and external stewardship policies. New members should also receive orientation on the IA Charter, the plans and strategies of the annual IA,

AC meeting schedules, and a summary of any outstanding issues from recent internal and external auditors' reports. In addition, if the new member is an independent member, it may be necessary to provide more detailed information by different responsible managers within the entity, to help the newcomer to acquire the required knowledge of the entity, necessary for their effective performance (ANAO 2015).

In a similar vein, the FRC (2016) recommended that training should be provided to existing AC members on a continuing and timely basis. Such training should include an appreciation of the principles of and developments in public corporate reporting and regulation. It is also important that the training should aim at updating members' understanding of financial statements, applicable accounting standards and recommended practice; the legal and regulatory framework for the company's business; the role of internal and external auditing; and risk management.

## 5.4.1.3 Audit Ccommittee meetings.

It is common cause that meetings are the most critical tools in the life of a statutory governance mechanism, such as the AC, as binding decisions are primarily taken during committee meetings (FRC 2018; Alzeban & Sawan 2015; IIA 2014; Madi, Ishak & Manaf 2014). Given its importance, meetings are usually legislated by stipulating who and what minimum number of members constitutes a quorum for a meeting, for proceedings to take place and for decisions to be legally binding (ROG 2019:Reg. 227). Meetings are generally required to be organised for a minimum number of times in a year, e.g., once every quarter (Buallay & Al-Ajmi 2020; ROG 2017a; FRC 2016; Ma, Kilgore & Wright 2012; Goodwin 2003). To facilitate an effective decision-making process, proceedings at meetings should be moderated by the chairperson, who should employ their skills to ensure equal and fair participation of all members present, devoid of dominance by influential members (Hornberger & Forster 2019). ANAO (2015) suggested that the AC chairperson should ensure that there is an agenda for all meetings, that conforms to the requirements of the

policies governing the AC, i.e., the AC Charter. PwC (2023) recommended that information relating to forthcoming meetings be sent to members, in advance. Such information should include details of the agenda, and reports on matters arising from previous meetings on which action were to be taken, as well as new issues that are to be discussed at the meeting. The AC Charter and regulations would normally dictate the period of information circulation to members prior to the date of a meeting.

The frequency of meetings is a measure of AC diligence, as quality and regular meetings of the AC safeguard the proper functioning of the financial reporting process and best enquiry of the accounting and internal control design (Hassan et al. 2017). The focus groups also identified meetings as a measure of AC effectiveness in the CEs, and noted that the frequency of AC meetings enables the AC to be diligent in performing its mandatory oversight and advisory roles (Deloitte 2018; ROG 2017a; ANAO 2015). The importance of frequent AC meetings, as a characteristic and measure of AC effectiveness, has been discussed extensively in private and public sector AC literature (Abu & Jaffar 2020; Appuhami & Tashakor 2017; Gendron & Bédard 2006). For instance, the performance of the AC chairperson is measured by the ability to plan and manage committee meetings effectively, and whether they devote adequate time to prepare for AC meetings, and engage with the chief executive and board, senior management, and other stakeholders, outside committee meetings (ANAO 2015; IIA 2014). In a similar manner, the valuation of the performance of the individual AC members should consider whether the member regularly attends meetings, or was only absent pursuant to valid and reasonable, preapproved permission. Besides this, it is meaningful to consider whether the member challenges the status quo by being prepared to take unpopular but constructive positions at meetings, where required, or whether the member consistently prepares for AC meetings with a demonstration of the quality of their participation (IIA 2014). It is also required that an annual AC report should indicate, in performance terms, details of meetings, including the

number of meetings organised during the relevant period, and the number of meetings each member attended.

According to s 10 of the Guidelines, and consistent with best practice (IoDSA 2016; ANAO 2015; IIA 2014) in Ghana, ACs are guided to meet at least once every quarter in a year, with the option of organising one or more special meetings to review the CE's annual financial statements and performance statements, or to meet other specific responsibilities of the AC. A meeting shall be called by the chairperson or one of the independent members nominated by the AC to act on behalf of the chairperson, or if asked to do so by the PSO, and such a person shall decide whether a meeting is required, when requested by another member or the Head of the IAF to do so. S 10.1 of the Guidelines further directs that the AC develop a meeting schedule that includes the dates, location, and proposed agenda items for each meeting for the impending year, covering all AC functions outlined in the Guidelines (ROG 2017a). Each AC shall draw its own rules regarding the conduct of its meetings. Concerning the issue of a quorum, s 10.2 of the Guidelines capped it as any three of the members, including the chairperson and one independent member (ROG 2017a). The PSO, Head of IA, and Head of Finance/Accounts will be in attendance and shall be entitled to the same privileges as appointed members of the AC. The AC may invite any other CE official to attend a meeting, so as to assist it with discussions on particular issues (ROG 2017a; ANAO 2015).

The requirements for a CE's AC meetings, its frequency, agenda, quorum, attendance, and conduct is mandatory and coercive in Institutional theory terms (refer to 2.3.2.1). It should be noted that the work of the AC involves more than just attending committee meetings. Significant work is often done outside of committee meetings, by members, and especially the chairperson, working with major stakeholders on matters relating to the committee's responsibilities (ANAO 2015).

#### 5.4.1.4 Authority of the AC.

The focus groups underscored the importance of the ACs being clothed with adequate and efficacious authority, in order to effectively exercise its functions, as provided for in legislation and best practices. This position was supported by DeZoort et al. (2002), who evinced that AC power within the organisation is derived from a combination of written authority and clear support by top management. Regulation 228 of the PFM Regulations (ROG 2019) and s 9 of the Guidelines (ROG 2017a) provide for the power and authority of the CE's AC, by stipulating that the AC, in the exercise of its duties, shall investigate matters in relation to suspected cases of fraud or misuse of public funds; and have full access to the management, personnel, books, records, documents, property, and information of a particular CE. In addition, the PFM Regulations (ROG 2019) and the Guidelines (ROG 2017a) provide that, where the AC suspects any case of fraud or misuse of public funds, the chairperson should promptly report the case to the PSO or the PAH, for investigation. Notwithstanding these provisions, the focus groups opined that the authority of the AC, as statutorily stipulated, lack the rigour and punching power similar to that vested in the AG in terms of s 17 ("Disallowances and Surcharges") of the ASA (ROG 2000), capable of enhancing the enforceable authority of the AC when executing its duties and responsibilities. The focus groups justified this rationale by arguing that the AC has enormous mandatory roles and responsibilities, that is to ensure that the Head of a CE pursues the implementation of recommendations contained in IA reports; Parliament's decisions on the AG's report; the AG's Management Letter; and the report of the particular CE's internal monitoring unit, in relation to financial matters raised [ROG 2017a:s 8.1; ROG 2016:s 88(1)(a)]. Malik (2014) agreed with this position, arguing that enhancement of the power and responsibility of the AC, such as in terms of the SOX Act (refer to chapter 2), play a crucial role in ensuring reliable financial reporting, internal controls, external auditing, and risk management through diligent AC oversight responsibilities.

#### 5.4.1.5 Independence of the AC.

The focus groups identified "independence" as being one of the key factors that affect the effectiveness of the AC. The independence of ACs is discussed in para. 2.7.3 and under para. 5.4.1.1. It is considered again, owing to its importance in enhancing AC effectiveness in the CEs, within the context of the focus groups' notion that AC independence should be safeguarded (refer to 4.4.3). In other words, the independence of the AC is regarded by many, including the members of the focus groups, as an important characteristic of an effective AC, as it promotes transparent accountability by and the responsibility of AC members (Thomas & Purcell 2019; Bédard & Gendron 2010). The FRC (2016) recommended that AC members should bring an independent mind-set to bear on their duties, and that independent thinking is critical in assessing the work of management and the assurance provided by the internal and external audit functions. By definition, an "independent AC" is the committee that works devoid of management manoeuvres, manages conflict-of-interest situations professionally, is impartial, acts without any exogenous influences, and is objective and unbiased (IoDSA 2016; ANAO 2015; IIA 2014). The focus groups posited that, although AC independence appears to be legislated, per the provisions of the PFMA (ROG 2016), in the PFM Regulations (ROG 2019), and the Guidelines (ROG 2017a), actual AC independence is still at risk. They contended that the process of nomination and appointment to the AC, per s 87 of the PFMA, where two out of the five members of the AC are nominated and all five members, including the chairman, are to be appointed by the PAH, is inherently problematic. This is because, according to the focus groups, the process creates a natural threat of familiarisation and patronage, in that the AC members so nominated and appointed by the PAH may develop some sense of indebtedness, payable by loyalty to the PAH.

In addition to this, a number of best practice provisions have been adopted by the policies guiding ACs in Ghana's public sector (refer to 5.2.1). For example, to further safeguard the independence of

the AC, s 12 of the Guidelines dealt with conflict-of-interest issues, and required that, once every year, AC members shall provide written declarations of any material, personal interests such members may have, in relation to their responsibilities. The Guidelines continue to provide that, at the start of each AC meeting, members are required to declare any material, personal interests that may apply to particular matters on the meeting agenda, in order that the chairperson may determine whether a member, or the chairperson, should be excused from the meeting or from the AC's consideration of the related matter on the agenda, in line with best practices (IoDSA 2016; ANAO 2015). Such declarations are deemed to enhance independence, as conflict-of-interest issues that threaten independence, are revealed.

It is also recommended that, to monitor the independence of the AC, there should be an annual self-assessment of the independence of members, through the administration of a self-assessment questionnaire, and reporting of the results to the appropriate authority. The assessment should not be restricted to individuals, but should apply to the entire committee, so as to promote holistic AC independence and ethical conduct (ANAO 2015; Deloitte 2015). This recommendation is in conformity with s 16 of the Guidelines, that provide that the Internal Audit Agency should, periodically, undertake a review of the AC performance, and that the report of the review will be submitted as part of the Internal Audit Agency's annual report to the President of the Republic. It is further recommended that, to enhance the independence of the AC, membership should be rotational (ANAO 2015). For this reason, the Guidelines state that the independent members of the AC shall serve no longer than two terms of two years each, and that the Internal Audit Agency shall, periodically, review the performance of the AC members and recommend (where appropriate) the removal or replacement of AC members.

## 5.5 Theme 4: AC Quality (Category 9, 10 and 11)

Theme 4 consisted of *Access to information* (*Secondary Driver*), [*Entity*] *Risk management policy* (*Secondary Outcome*) and *Effectiveness of internal controls* (*Secondary Outcome*), grouped by the focus group as "AC Quality". The focus groups posited that the quality of an AC is enhanced if the committee has an effective chairperson; a supportive and appropriate secretariat; well planned meetings, conducted efficiently, with members having access to entity staff and information; and manages the actual and potential conflicts-of-interest effectively. The affinities constituting this theme are discussed below.

#### 5.5.1 Access to information: Category 9.

The focus groups discussed the effects of a lack of adequate information sharing between the CE and the AC. According to Tugman and Leka (2019), the importance of effective communication flow to and from the AC, cannot be overemphasised. Such information should include written and in-person reporting, and formal and informal communication with management, internal and external audit, the finance function, and the board. The AC should seek useful insight from management on emerging risks on the horizon and focused updates on what is happening in the entity, moving beyond the basics of what it does to focus on specific challenges, risks and opportunities. It is further recommended that the AC should be able to obtain brief and comprehensible meeting materials from management, the finance function, and internal and external audit (Tugman & Leka 2019; ANAO 2015). The volume of material needed for AC work can be deterring and, as such, the written information presented to the AC should communicate only the most salient and relevant information. In this regard and as stated elsewhere, Regulation 228 of the PFM Regulations (ROG 2019) and s 9 of the Guidelines (ROG 2017a) authorise the AC to have full access to the management, personnel, books, records, documents, property, and information

pertaining to its CE, yet the focus groups observed the stinginess of certain internal CE stakeholders in availing the appropriate information at the required time.

It is argued that, to allow for effective information gathering, the AC should be afforded unhindered access to the auditors (internal and external), exclusively, without management participation, and to engage in constant dialogue with the auditors, aside from the normal audit session, to deal with matters on a continuing basis and not only during the audit window (Tugman & Leka 2019; ANAO 2015). In addition, an effective AC is permitted to have direct access to teams and departments, including those outside of finance, when appropriate, but ensuring that the AC does not exceed its governance oversight and advisory responsibilities (Tugman & Leka 2019). These recommendations are potent, to the extent that the AC is composed of only independent AC members, nominated by external stakeholders, not the current hybrid, mandated composition of the AC, in accordance with s 87 (3) of the PFMA, where two out of the five members should hail from within the CE and are nominated by the PAH.

ACs should not access information for the sake of flexing its muscle or for uses that are not beneficial to the CE (KPMG 2017a; ANAO 2015). Rather, information should be collected, reviewed, and actually utilised to enhance performance. It is, therefore, considered that effective groups, such as the AC, are those that review relevant information and utilises it appropriately in the decision-making process (Kennett-Hensel & Payne 2018). In as much as information is critical to it, the AC should not abuse information availed it in the course of performing its responsibilities.

## 5.5.2 Risk management policy: Category 10.

In a survey by KPMG (2017b) it was found that the effectiveness of risk management programmes generally, together with legal and regulatory compliance, cyber security risk, and the entity's programmes as a whole, topped the list of issues that are of prior concern to ACs. The focus groups identified an inadequate risk management system and the designation of qualified staff to implement such a system, as an issue, at certain CEs (refer to 4.4.4). However, s 7(2) of the PFMA places the onus of establishing an effective system of risk management on the PSO, in respect of the resources and transactions of a CE (ROG 2016). To understand the need for the existence of a robust risk policy at the CEs, an attempt was made to define "risk". A risk is the possibility of an event occurring, that has the propensity and capability of preventing institutions from achieving its planned objectives, resulting in adverse outcomes (losses) to those institutions (Ruxandra 2018; Cardona et al. 2012). Risk is usually inherent to the institution's financial, strategic, operational, compliance , and reporting system (Balgah & Kimengsi 2022). Institutions are encouraged to regularly assess, analyse, review, and manage current and future risks, and to document the results in a Risk Register, together with the associated internal controls (Deloitte 2018). For instance, s 90 of the PFMA mandates the governing bodies of public corporations and state-owned enterprises in Ghana to establish and maintain, amongst other responsibilities, risk management and internal control systems, to ensure that those CEs manage its resources prudently and operate efficiently, in order to achieve the objectives for which the CEs have been established (ROG 2016). The focus groups noted that a number of CEs do not consciously develop and review their risk profile, let alone continuously review and update it. in terms of s 8.2.2 of the Guidelines, the AC has the role of ensuring that the risk management process of the CE is comprehensive and effective. In addition, the AC is required, by s 8.2.8 of the Guidelines, to review IA plans, IA Charters, and risk assessment reports, including the fiscal risk, of its CE.

## 5.5.3 The AC's role in effective internal controls: Category 11.

The focus groups underscored the need for CEs to improve its systems of internal controls, so as to render it effective. "Internal control" is defined as a process, effected by an entity's BoD, management, and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in the categories of (1) Effectiveness and efficiency of operations; (2) Reliability of financial reporting; and (3) Compliance with applicable laws and regulations (Committee of Sponsoring Organizations of the Treadway Commission [COSO] 2017). COSO's framework emphasised that management of the institutions (CEs) is responsible for developing an appropriate system of internal controls, however, every employee is responsible for adhering to and complying with those practices. In this regard, s 7(2) of the PFMA requires the PSO of a CE to establish, amongst other assurance measures, an effective system of internal control systems in respect of the resources and transactions of the CE (ROG 2016). However, over the years, the AG has consistently identified several weaknesses and breaches of internal controls, in several audit reports on CEs (GAS 2021a; GAS 2021c).

The IIA (2014) contended that it is the role of the AC to review and provide oversight on the organisation's internal control framework, and update itself on all significant matters arising from work performed by any governance, risk, and control assurance providers. The AC's role is also to review the entity's internal financial controls, i.e., the systems established by management to identify, assess, manage, and monitor financial risks, as part of its expected roles and responsibilities (FRC 2016). S 88(a)–(iv) of the PFMA also mandated the AC to ensure that the Head of its CE pursues the implementation of any recommendation contained in the report of the CE's internal monitoring unit, particularly in relation to financial matters raised [ROG 2017a:s 8.1.2(d)].

## 5.6 Theme 5: Financing the AC (Category 12)

The issue of the source and sustainability of financing the AC, its members and activities, was a major concern for the focus groups, since this has the potential to affect the effectiveness, or otherwise, of the committees (refer to 4.4.5). The FRC (2016) pointed out that ACs have wide ranging, time-consuming and, occasionally, intensive work schedules. It further noted that AC members, especially the chairperson, carry a substantial amount of responsibility, that requires that

they commit a significant extra amount of time to the work. The main issue of contention for the focus groups concerned the remuneration of AC members and how much of an AC's budget the sponsoring authority is prepared to commit to AC work activities, so as to achieve the value-formoney objective set out for that CE. ANAO (2015) recommended that, on appointment of independent AC members, the appointment contract should clearly spell out the roles, and terms and conditions of the appointment, in order that members fully understand their obligations and the benefits attached, prior to committing themselves to do the work. S 86(2)(c) of the PFMA requires that a regulation should be enacted for the funding of the AC, and this requirement was satisfied by Regulation 226(1) and (2) of the PFM Regulations (ROG 2019). It stipulates that the remuneration of the chairman and members of ACs shall be specified in a Guideline issued by the Minister, in consultation with the Internal Audit Agency (ROG 2019; ROG 2016). In compliance with this provision, s 14 of the Guidelines provides that the activities of an AC shall be funded by the annual budget of a CE. Furthermore, it states that the level of remuneration paid to the AC members shall be equivalent to sitting allowances paid to Board members or senior management, whichever is higher and prevails. The FRC (2016) also recommended that the level of remuneration paid to AC members should take into consideration the level of compensation paid to members of the Board of the institution. Moreover, the chairman's responsibilities and time demands will, generally, be heavier than the other members of the AC, and this should be reflected in their remuneration. Independent members' remuneration should reflect the individual member's special skills and experience, the time they spend to effectively meet their responsibilities: including time spent preparing for meetings: attendance at meetings, and interaction with management outside AC meetings. A special consideration is to be given to the chairperson for executing other responsibilities (ANAO 2015). From the foregoing, it is clear the the issue of AC financing has been

prescribed by legislation, through Institutional theory, by coersive isomorphism (refer to 2.3.2.1), and by best practice, through mimetic isomorphism (refer to 2.3.2.2).

From the above discussion, it is apparent that the issue of remuneration is of critical importance in enhancing the effectiveness of ACs in the public sector. "Remuneration" refers to the total compensation paid to an employee and comprises basic pay, plus any bonuses, commission payments, overtime pay, or other financial benefits that is paid to an employee by the employer (Investopedia Team 2023). AC remuneration was thus perceived, by the focus groups, as payments targeted at AC members, for executing their duties and responsibilities, as required by laid down policies. AC remuneration should therefore be part of the reward system that conveys the right message concerning what is important in terms of expected behaviour and outcome, thus facilitating the attraction and retention of the skilled and competent individuals needed (Armstrong & Murlis 2007). In addition to Institutional theory, invoked in the previous paragraph, this study also justified the importance of AC remuneration from the perspective of Vroom's Expectancy theory, i.e. that workers will be demotivated in the absence of *expectancy, instrumentality* and *valence* (Daouk-Öyry & El-Farr 2023; Vroom 1964). The Expectancy theory variables are applied in the next paragraph.

*Expectancy* explains that engaging in a work activity results in performance (Alkhwaldi & Al Eshoush 2022; Baciu 2017). It is postulated that, when workers' skill, experience and capabilities are utilised, relative to achieving their objectives, they become highly motivated (Johari & Jha 2020; Nimri, Bdair & Bitar 2015). The focus groups were of the view that AC members commit their skills and competencies to the committee work and, therefore, their remuneration should reflect those qualities. *Instrumentality* refers to the terms in respect of which the performance of the workers should be compensated. AC members are to be rewarded with payment for the time expended in planning and their presence at meetings, and that lack of commensurate remuneration negatively

affects the performance of the AC, thus rendering it ineffective (Oussii & Taktak 2018). *Valence* refers to the worker's level of significance or value, that is linked to the remuneration (Baciu 2017). *Valence* is the notion that the worker is motivated to perform, if the compensation is enticing enough (Lloyd & Mertens 2018), and that better payment for work performed culminates in efficiency in managing the workforce (Brown, O'Kane, Mazumdar, & McCracken, 2019). This understanding of *valance* is needed, because if the remuneration is less than expected, it would lead to demotivation, with its negative consequences on performance. The focus groups claimed that people are reluctant to accept nominations to the ACs of certain CEs, as they deem the remuneration package to be inadequate, failing to compensate for their skills, competencies, and the value of effort they exert on their work. The focus groups also acknowledged that a CE budget line, for the remuneration of the AC, as imposed by the Guidelines, is a drain on the CE's scarce resources. ACs must, therefore, justify the expenditure, by performing to the expectation of the managers of the CE.

## **5.7 Draft AC Frameworks**

In the following two segments, the two frameworks constructed from the focus group sessions and the literature reviews, are presented.

## 5.7.1 A framework for public sector ACs in Ghana: Draft.

The text highlighted in **bright green** indicates that participants in the survey did not disagree with or contest the draft actions and, hence, all such draft actions were maintained as final, without modification. The text highlighted in **pink** indicate modification to the draft actions, as a result of cogent comments by respondents in the survey.

# Table 5.2: Draft framework for public sector ACs in Ghana

| A FRAMEWORK FOR PUBLIC SECTOR AUDIT COMMITTEES IN GHANA  |                              |                       |  |
|--|------------------------------|-----------------------|--|
| DRAFT ACTIONS  | FINAL ACTIONS                | REFERENCES            | LEGISLATION /<br>GUIDANCE  |
| 1. Governance and policies   | Governance and policies      | References            | Legislation/<br>Guidance   |
| <ol> <li>ACs should strongly advocate for<br/>an AC Charter that consolidates all<br/>legal requirements and guidelines,<br/>issued by the Minister, relating to AC<br/>practice in Ghana's public sector,<br/>adapted and aligned to suit the nature<br/>of every specific CE.</li> <li>The AC should:         <ol> <li>seek understanding of and<br/>comply with the AC Charter of<br/>the CE it serves; and</li> <li>propose appropriate, credible,<br/>timely, fair and unbiased advice,<br/>that would enhance the work of<br/>the CE, in line with AC Charter.</li> </ol> </li> <li>AC Practice         <ol> <li>The AC Charter should instruct<br/>that:                 <ol> <li>the AC Charter;</li> <li>agendas for the AC meetings be<br/>composed in agreement with the<br/>requirements of the AC Charter;</li> <li>minutes of meetings be properly<br/>recorded and safely preserved;<br/>and                     <ol> <li>the AC conducts self-assessment,<br/>annually.</li> </ol> </li> </ol> </li> </ol></li></ol> | All draft actions maintained | Refer to 4.4.1, 5.2.1 | S 30 ASA (ROG<br>2000); Ss 86–88 of<br>the PFMA (ROG<br>2016); The<br>Guidelines (ROG<br>2017a); the PFM<br>Regulations (ROG<br>2019); ANAO<br>(2015). |
| B. AC Practitioners  |                              |                       |  |
| <ul> <li>4. The AC chairperson should:</li> <li>i. have strong communication<br/>skills, to bring an understanding<br/>of the committee's work to<br/>relevant CE stakeholders; and</li> <li>ii. initiate and attend private<br/>meetings and periodic telephonic</li> </ul>   | All draft actions maintained |                       |  |

| calls with the relevant CE<br>stakeholders, to obtain<br>understanding of CE activities.   |                              |  |
|--|------------------------------|--|
| <ul> <li>5. The AC Charter should provide that<br/>every new AC member:</li> <li>i. participates in programmes (such<br/>as induction and training) that<br/>would enhance their knowledge of<br/>their new role;</li> <li>ii. participate in planned meetings and<br/>workshops with the CE<br/>stakeholders, to acquire appropriate<br/>information required for the new<br/>role;</li> <li>iii. peruse current minutes of AC<br/>meetings to obtain understanding<br/>of the issues discussed in the AC;</li> <li>iv. understand the material<br/>(information pack) provided and<br/>contribute to the meetings; and</li> <li>v. maintain good relations with the<br/>key stakeholders of the CE.</li> </ul> | All draft actions maintained |  |
| <i>C. AC Praxis</i><br>6. The AC Charter should provide for<br>the appointment of a chairperson who<br>is highly experienced; professional;<br>sceptical; confident, with high<br>integrity; organised and proactive;<br>has strong communication and<br>interpersonal skills; and is willing to<br>devote the time and energy,<br>necessary   | All draft actions maintained |  |
| <ul> <li>necessary.</li> <li>7. The AC chairperson should have: <ol> <li>vast experience in leadership and knowledge of financial management, accounting, audit, governance, risk, industry, organisational culture and management behaviour;</li> <li>communication , presentation , writing and reporting skills;</li> <li>the ability to facilitate meetings, lead discussions, and encourage other members to attend meetings and participate meaningfully in meetings; and</li> <li>The competencies to build</li> </ol></li></ul>  |                              |  |

| relationships with management,                                  |                              |                       |                  |
|---|------------------------------|-----------------------|------------------|
| other stakeholders of the CE and                                |                              |                       |                  |
| fellow AC members.  |                              |                       |                  |
| ichow Ac members.   |                              |                       |                  |
| 2. Nature of institution  |                              | References            | Legislation/     |
|   |                              |                       |                  |
|   |                              |                       | Guidance         |
| 1. AC member-appointments should                                |                              | Refer to 4.4.1, 5.2.2 | IIA (2014); KPMG |
| be based on the member's expertise,                             |                              |                       | (2017a); ANAO    |
| experience, and knowledge regarding                             |                              |                       | (2015).          |
| the kind of legal and operational                               | All draft actions maintained |                       |                  |
| environment as well as associated                               | in the actions municumed     |                       |                  |
| risks of that particular CE, i.e., a                            |                              |                       |                  |
| competency-based selection process                              |                              |                       |                  |
| should be adopted in appointing new                             |                              |                       |                  |
| AC members.   |                              |                       |                  |
| 2. The chairperson should have                                  |                              |                       |                  |
| authority to arrange for committee                              |                              |                       |                  |
| members to keep abreast of                                      |                              |                       |                  |
| developments in the CE, the public                              |                              |                       |                  |
| sector, and the business environment                            |                              |                       |                  |
| in which the CE operates.                                       |                              |                       |                  |
| 3. AC members should continuously                               |                              |                       |                  |
| seek information and knowledge                                  |                              |                       |                  |
| concerning their CEs and other areas                            |                              |                       |                  |
| of expertise.   |                              |                       |                  |
| 3. Desire to bring about change                                 |                              | References            | Legislation/     |
|   |                              |                       | Guidance         |
|   |                              |                       | Guidance         |
| 1. The newly inaugurated AC should                              |                              |                       | S 86–88 of the   |
| prepare for and strategise how to                               | All draft actions maintained |                       | PFMA (ROG        |
| navigate any form of resistance or                              | All draft actions maintained |                       | 2016);           |
| threat of entry into the CE.                                    |                              |                       |                  |
| 2. The AC chairperson should not                                |                              |                       | the PFM          |
| 2. The AC chairperson should not only emphasise their mandatory |                              |                       | Regulations      |
| oversight responsibilities, but also the                        |                              |                       | (ROG 2019).      |
| benefits the CE would derive from                               |                              |                       |                  |
| the AC assurance and advisory                                   |                              |                       |                  |
| services, as stipulated in the AC                               |                              |                       |                  |
| Charter.  |                              |                       |                  |
| A Commitment of AC Land   |                              | References            | Legislation/     |
| 4. Commitment of AC [and management]                            |                              | Kelefences            | Legislation/     |
| managementj   |                              |                       | Guidance         |
|   |                              |                       |                  |

| <ol> <li>AC members must avail<br/>themselves for meetings and other<br/>AC activities.</li> <li>The AC should pursue the<br/>implementation of recommendations<br/>contained in IA reports, Parliament's<br/>decisions on the AG's report, the<br/>AG's Management Letter; and the<br/>report of any internal monitoring unit<br/>in the CE.</li> </ol>  | All draft actions maintained | Refer to 4.4.1; 5.3.1.    | GAS (2021b);<br>GAS (2021c);<br>ROG (2015).   |
|---|------------------------------|---------------------------|---|
| 5. Stakeholder collaboration  |                              | References                | Legislation/  |
|   |                              |                           | Guidance  |
| <ol> <li>In carrying out its mandated roles<br/>and responsibilities of oversight,<br/>advisory and monitoring, the AC<br/>needs to rely on the CE's structures<br/>for information and collaboration.</li> <li>The AC Secretariat should be<br/>functional and resourced adequately,<br/>to actively respond to the needs of the<br/>AC.</li> <li>The AC should develop a cordial<br/>working relationship with the CEO<br/>and top management, especially the<br/>DoF and the IAF of the CE, to enhance<br/>AC effectiveness.</li> <li>The AC should position itself for<br/>frank discussions concerning matters<br/>dealing with the AG, in areas relating<br/>to the duties and responsibilities of<br/>the AC.</li> </ol> | All draft actions maintained | Refer to 5.3.2 & 5.3.2.1. | Deloitte (2018);<br>ANAO (2015);<br>ROG (2017);<br>Regulation 2(1)<br>of the PFM<br>Regulations<br>(ROG 2019);<br>ROG (2000). |
| 6. Political influence  |                              | References                | Legislation/  |
|   |                              |                           | Guidance  |
| 1. The AC should professionally<br>resist any form of political bait that<br>would cloud their objectivity and<br>independence in the performance of<br>their duties.   | All draft actions maintained | Refer to 4.4.2 & 5.3.3.   | Ss 83(3) & 83(6) of<br>the PFMA (ROG<br>2016).  |
| 2. The AC chairperson and members<br>should not be intimidated by<br>powerful and overbearing   |                              |                           |   |

| management, especially members<br>who were nominated by the PAH.   |                              |                                   |   |
|--|------------------------------|-----------------------------------|---|
| 7. The Internal Audit  |                              | References                        | Legislation/<br>Guidance  |
| The AC Charter should mandate the<br>AC to ensure that:<br>i) the IAF renders independent<br>assurance and advisory services,<br>that would advance the operations<br>of the CE;<br>ii) there is regular communication<br>between the AC and the IAF, in the<br>form of reports, in the agreed upon<br>format, on the outcome of the<br>agreed-upon work plan;<br>iii) exclusive meetings are held<br>between the AC and the IAF, without<br>the presence of management or other<br>observers; and<br>iv) the head of the IAF reports<br>functionally to the AC of its CE. | All draft actions maintained | Refer to 2.10.2 , 5.3.2.1 & 5.3.4 | S 83(2) of the<br>PFMA (ROG<br>2016); ANAO<br>(2015); IIA (2014).   |
| 8. Characteristics of AC members   |                              | References                        | Legislation/<br>Guidance  |
| <ul> <li>The AC Charter should authorise:</li> <li>i) the AC chairperson, to confirm the independence of members, in accordance with the provisions of the PFMA and the Guidelines;</li> <li>ii) the nominating entities to ensure that persons appointed as AC members possess the professional expertise and work experience in the areas of accounting, auditing and public financial management; and</li> <li>iii) members to undergo continuous training, and the AC to constantly appraise them in the performance of their duties and responsibilities.</li> </ul>  | All draft actions maintained | Refer to 2.7, 2.8, 4.4.3 & 5.4.1. | S 87(2)–(4) of the<br>PFMA (ROG<br>2016); the<br>Guidelines (ROG<br>2017a); the PFM<br>Regulations (ROG<br>2019). |
| 9. Access to information   |                              | References                        | Legislation/<br>Guidance  |
| 1. The AC should seek useful insight from management on emerging risks,  |                              | Refer to 5.5.1.                   | The Guidelines (ROG 2017a); the   |

| <ul> <li>and focused updates on developments<br/>in the CE, moving beyond the basics<br/>of what it does, to focus on specific<br/>challenges, risks and opportunities.</li> <li>2. The AC should have full,<br/>unhindered access to the<br/>management, personnel, books,<br/>records, documents, properties, and<br/>information of its CE.</li> </ul>  | All draft actions maintained   |                         | PFM Regulations<br>(ROG 2019).   |
|--|--|-------------------------|--|
| 10. Entity risk management policy  |  | References              | Legislation/<br>Guidance   |
| The AC should ensure that the risk<br>management process of the CE is<br>comprehensive and effective.  | The AC should assess the risk<br>management process of the CE and<br>advise on its comprehensiveness<br>and effectiveness. | Refer to 4.4.4 & 5.5.2. | Ss 7(2) & 90 of the<br>PFMA (ROG<br>2016); Ss 8.2.2 &<br>8.2.8 of the<br>Guidelines (ROG<br>2017a).  |
| 11. AC role in effective internal controls   |  | References              | Legislation/<br>Guidance   |
| <ul> <li>The AC Charter should mandate: <ol> <li>the AC to review and provide</li> <li>oversight on the CE's internal control</li> <li>framework and to update itself on all</li> <li>significant matters arising from work</li> <li>performed by any governance-, risk-, and control assurance providers.</li> </ol> </li> <li>the AC to review the CE's internal financial controls, i.e., the systems established by management to identify, assess, manage, and monitor financial risks.</li> <li>the AC to ensure that the Head of its CE pursues the implementation of any recommendation in reports of</li> </ul> | All draft actions maintained   | Refer to 4.4.4, 5.5.3.  | COSO (2017); IIA<br>(2014); FRC<br>(2016); Ss 7(2) &<br>88(a)–(iv) of the<br>PFMA (ROG<br>2016); S 8.1.2(d)<br>of the Guidelines<br>(ROG 2017a). |
| any internal monitoring unit.  12. Financing the Audit   |  | References              | Legislation/   |
| Committee  |  |                         | Guidance   |
| The AC Charter should prescribe:<br>1. the AC's terms and conditions of<br>appointment contract, in order that   |  | Refer to 4.4.5, 5.6.    | ANAO (2015);<br>Regulation 226 (1)<br>& (2) of the PFM   |

| members fully understand their         |                              |                   | Regulations (ROG   |
|--|------------------------------|-------------------|--------------------|
| obligations and benefits, prior to     |                              |                   | 2019); S 14 of the |
| committing themselves.                 |                              |                   | Guidelines (ROG    |
|  |                              |                   | 2017a).            |
| 2. that management assume adequate     |                              |                   |                    |
| responsibility for the remuneration of | All draft actions maintained |                   |                    |
| the chairperson and AC members,        | An urart actions maintaineu  |                   |                    |
| through the annual budget of its CE,   |                              |                   |                    |
| with subvention from central           |                              |                   |                    |
| government.                            |                              |                   |                    |
| government.                            |                              |                   |                    |
| 3. that CE management ensures that     |                              |                   |                    |
| the level of remuneration paid to AC   |                              |                   |                    |
| members is equivalent to sitting       |                              |                   |                    |
| allowances paid to Board members or    |                              |                   |                    |
| senior management of the CE            |                              |                   |                    |
| (whichever is higher, prevails).       |                              |                   |                    |
| (whichever is higher, prevails).       |                              |                   |                    |
| 4. that the remuneration of the AC     |                              |                   |                    |
| chairperson should reflect the weight  |                              |                   |                    |
| of their responsibilities and time     |                              |                   |                    |
| demands.                               |                              |                   |                    |
| demands.                               |                              |                   |                    |
| 5. that the independent members'       |                              |                   |                    |
| remuneration should reflect the        |                              |                   |                    |
| individuals member's special skills    |                              |                   |                    |
| and experience, time spectal skins     |                              |                   |                    |
| effectively meet responsibilities, and |                              |                   |                    |
| time spent interacting with            |                              |                   |                    |
| management outside of AC meetings,     |                              |                   |                    |
| doing AC work.                         |                              |                   |                    |
| doing ne work.                         |                              |                   |                    |
|  | 1                            | (Source: Own comp | ilation)           |

(Source: Own compilation)

## 5.7.2 AC framework for management of public sector institutions: Draft.

The text highlighted in bright green indicates that participants to the survey did not disagree with or contest the draft actions and, hence, all draft actions were maintained as final, without modification. The text highlighted in pink indicate modification to the draft actions, as a result of cogent comments by respondents in the survey.

# Table 5.3: AC framework for public sector managers: Draft

| DRAFT ACTIONS  | FINAL ACTIONS                | REFERENCES                       | LEGISLATION /<br>GUIDANCE   |
|--|------------------------------|----------------------------------|---|
| 1. Policies governing the AC   | Policies governing the AC    | References                       | Legislation/  |
|  |                              |                                  | Guidance  |
| <ol> <li>Management of a CE without an<br/>AC Charter, must ensure that the<br/>CE formulates such a charter,<br/>adapted to cover all relevant laws,<br/>regulations, guidelines, and best<br/>practices.</li> <li>All CEs without an AC should<br/>establish such, as stipulated in<br/>terms of s 86–88 of the PFMA.</li> </ol>   | All draft actions maintained | Refer to 4.4.1, 5.2.1 & 5.2.1.1. | S 30 of the ASA (ROG<br>2000); ss 86–88 of the<br>PFMA (ROG 2016); the<br>Guidelines (ROG<br>2017a); the PFM<br>Regulations (ROG<br>2019); ANAO (2015). |
| A. AC Practice   |                              |                                  |   |
| <ul> <li>3. The management of all CEs should:</li> <li>i. ensure that the AC Charter stipulates the responsibilities of the CE management regarding the AC;</li> <li>ii. seek understanding of the policies governing AC roles and responsibilities in the public sector;</li> <li>iii. ensure that there is a provision in the AC Charter for a standing agenda item in the Board/Council ordinary meetings, where the AC chairperson reports on AC engagements with the CE.</li> </ul> |                              |                                  |   |
| <ul> <li><i>B. AC Practitioners</i></li> <li>4. Management of CEs should<br/>ensure that the AC: <ol> <li>is composed of the right calibre<br/>of AC members, nominated<br/>and appointed in line with the<br/>law;</li> </ol> </li> </ul>   | All draft actions maintained |                                  |   |

| <ul> <li>ii. organise regular workshops<br/>and orientation programmes<br/>for AC members, to apprise<br/>them of issues relevant to their<br/>work; and</li> <li>iii. keep a very cordial relationship<br/>with the management, as a key<br/>stakeholder of the CE.</li> </ul>   |                              |                                       |   |
|---|------------------------------|---------------------------------------|---|
| <i>C. AC Praxis</i><br>5. Management of the CE should<br>be open to the AC members and<br>warmly welcome them into the<br>organisation.   | All draft actions maintained |                                       |   |
| 6. Management should provide<br>the AC with the resources<br>necessary in the performance of<br>its mandate.  |                              |                                       |   |
| 2. Nature of institution  |                              | References                            | Legislation/                              |
|   |                              |                                       | Guidance                                  |
| <ol> <li>Management should arrange<br/>orientation for the AC, concerning<br/>the CE's nature and scale of<br/>complexities, as well as the<br/>responsibilities, activities, and<br/>systems including information<br/>technology and systems.</li> <li>Management should support the<br/>AC chairperson to keep members<br/>abreast of developments in the<br/>entity, the public sector, and the<br/>business environment in which<br/>the CE operates.</li> </ol> | All draft actions maintained | Refer to 4.4.1 & 5.2.2.               | IIA (2014); KPMG<br>(2017a); ANAO (2015). |
| <ul> <li>orientation for the AC, concerning<br/>the CE's nature and scale of<br/>complexities, as well as the<br/>responsibilities, activities, and<br/>systems including information<br/>technology and systems.</li> <li>2. Management should support the<br/>AC chairperson to keep members<br/>abreast of developments in the<br/>entity, the public sector, and the<br/>business environment in which</li> </ul>   | All draft actions maintained | Refer to 4.4.1 & 5.2.2.<br>References |   |
| <br><ul> <li>orientation for the AC, concerning<br/>the CE's nature and scale of<br/>complexities, as well as the<br/>responsibilities, activities, and<br/>systems including information<br/>technology and systems.</li> <li>2. Management should support the<br/>AC chairperson to keep members<br/>abreast of developments in the<br/>entity, the public sector, and the<br/>business environment in which<br/>the CE operates.</li> </ul>                        | All draft actions maintained |                                       | (2017a); ANAO (2015).                     |

| hindrance, as stipulated in the AC Charter.  |                              |                           |   |
|--|------------------------------|---------------------------|---|
| 4. Commitment of management  |                              | References                | Legislation/<br>Guidance  |
| The AC Charter should charge<br>management to:<br>1) commit time and effort to the<br>activities of the AC, in order to<br>enhance its functioning;<br>2) actively engage in<br>implementing the<br>recommendations of the AC,<br>pursuant to those contained in IA<br>reports, Parliament's decisions on<br>the AG's report, the AG's<br>Management Letter, and the<br>report of any internal monitoring<br>unit in the CE.   | All draft actions maintained | Refer to 4.4.1 & 5.3.1.   | GAS (2021b); GAS<br>(2021c); ROG (2015);<br>ROG (2016).   |
| 5. Stakeholder collaboration   |                              | References                | Legislation/  |
|  |                              |                           | Guidance  |
| <ul> <li>The AC Charter should provide<br/>for:</li> <li>1. management of the CE to<br/>establish structures for<br/>information-sharing, and<br/>collaboration with the AC to<br/>execute its mandated roles of<br/>oversight, advice and monitoring,<br/>effectively?;</li> <li>2. management to ensure that the<br/>AC Secretariat is functional and<br/>adequately resourced, to be<br/>actively responsive to the needs of<br/>the AC; and</li> <li>3. the AG to consider the AC's<br/>output when performing its duties<br/>and responsibilities to the CE.</li> </ul> | All draft actions maintained | Refer to 5.3.2 & 5.3.2.1. | Deloitte (2018); ANAO<br>(2015), ROG (2017);<br>Regulation 2(1) the PFM<br>Regulations (ROG<br>2019); ROG (2000). |
| 6. Political influence   |                              | References                | Legislation/  |
|  |                              |                           | Guidance  |

| The AC Charter should provide<br>safeguards, enabling management<br>to institute:<br>1. measures to prevent staff from<br>interfering in AC work, for the<br>purpose of influencing decisions<br>in their favor; and<br>2. measures to deal with top<br>management and any other<br>person, that interfere improperly<br>with AC functions. Measures<br>may include reporting the<br>interfering officers to higher<br>authorities for sanctions  | All draft actions maintained | Refer to 4.4.2 & 5.3.3.           | Ss 83(3) & 83(6) of the<br>PFMA (ROG 2016).                    |
|---|------------------------------|-----------------------------------|--|
| 7. The Internal Audit [function]  |                              | References                        | Legislation/   |
|   |                              |                                   | Guidance   |
| 1. The AC Charter should include<br>provisions stipulating the<br>relationship between the AC and<br>the IAF.   | All draft actions maintained | Refer to 2.10.2, 5.3.2.1 & 5.3.4. | S 83(2) of the PFMA<br>(ROG 2016); ANAO<br>(2015); IIA (2014). |
| <ol> <li>The AC Charter should provide direction to the Director of the IAF, to ensure that:         <ol> <li>the unit provides independent assurance and advisory services, that would enhance the operations of the CE and the AC;</li> <li>there are skilled and sufficient resources available to the IAF, so as to execute the needed work, as captured in the IA plan, including providing support and input to AC work;</li> <li>there is regular communication between the AC and IAF, in the form of reports in the agreed upon format on the outcome of work performed;</li> <li>exclusive meetings are conducted between the IAF and the AC, without the presence of management or other observers; and</li> </ol> </li> </ol> |                              |                                   |  |

|  |                              |                         | 1                        |
|--|------------------------------|-------------------------|--------------------------|
| v) the IAF reports functionally to                         |                              |                         |                          |
| the AC, and administratively to                            |                              |                         |                          |
| the management of the CE.                                  |                              |                         |                          |
| 9. Access to information                                   |                              | References              | Legislation/<br>Guidance |
| The AC Charter should provide:                             |                              | Refer to 5.5.1.         | The Guidelines (ROG      |
| 1. for CE management to avail                              |                              |                         | 2017a); the PFM          |
| relevant information to the AC,                            | All draft actions maintained |                         | Regulations (ROG         |
| when required;   |                              |                         | 2019).                   |
| 2. that CE management allow the                            |                              |                         |                          |
| AC to have full access to the                              |                              |                         |                          |
| management, personnel, books,                              |                              |                         |                          |
| records, documents, property, and                          |                              |                         |                          |
| other information requested.                               |                              |                         |                          |
| 10. Entity risk management                                 |                              | References              | Legislation/             |
| policy   |                              |                         | Guidance                 |
| The AC Charter should:                                     |                              | Sections 4.4.4, 5.5.2   | Ss 7(2) & 90 of the      |
| 1. provide that CE management                              |                              |                         | PFMA (ROG 2016); Ss      |
| ensures that its risk management                           | All draft actions maintained |                         | 8.2.2 & 8.2.8 of the     |
| processes are comprehensive and                            |                              |                         | Guidelines (ROG          |
| effective, relative to the nature of                       |                              |                         | 2017a).                  |
| the CE; and  |                              |                         |                          |
|  |                              |                         |                          |
| 2. task CE management to                                   |                              |                         |                          |
| implement tailored risk                                    |                              |                         |                          |
| management plans and systems,<br>that are sensitive to its |                              |                         |                          |
| environment and realities, that are                        |                              |                         |                          |
| reviewed, and that respond                                 |                              |                         |                          |
| appropriately to the risk                                  |                              |                         |                          |
| assessment reports.  |                              |                         |                          |
| -  |                              | <b>D</b> 0              |                          |
| 11. AC role in effective internal controls                 |                              | References              | Legislation/<br>Guidance |
| The AC Charter should:                                     |                              | Refer to 4.4.4 & 5.5.3. | COSO (2017); IIA         |
| 1. task the CE management to                               |                              |                         | (2014); FRC (2016); Ss   |
| take responsibility for developing                         | All draft actions maintained |                         | 7(2) & 88(a)-(iv) of the |
| an appropriate system of internal                          |                              |                         | PFMA (ROG 2016); S       |
| controls, and ensure                                       |                              |                         | 8.1.2(d) of the          |
| implementation;  |                              |                         | Guidelines (ROG          |
|  |                              |                         | 2017a).                  |
| 2. task every employee to                                  |                              |                         |                          |
| undertake to be responsible for                            |                              |                         |                          |
| adhering to and complying with                             |                              |                         |                          |
| internal control practices in the                          |                              |                         |                          |
| CE, relative to the effectiveness of                       |                              |                         |                          |
| AC work.   |                              |                         |                          |
|  |                              |                         |                          |

| 12. Financing the AC   |                              | References            | Legislation/  |
|--|------------------------------|-----------------------|---|
| The AC Charter should provide<br>that:<br>1. the terms and conditions of<br>appointment contracts of AC<br>members are in line with the<br>PFMA, the PFM Regulations and<br>the Guidelines;  | All draft actions maintained | Refer to 4.4.5 & 5.6. | Guidance<br>ANAO (2015);<br>Regulation 226 (1) & (2)<br>of the PFM Regulations<br>(ROG 2019); s 14 of the<br>Guidelines (ROG<br>2017a). |
| 2. CE management takes<br>responsibility for remunerating<br>AC members through funding in<br>the annual budget;   |                              |                       |   |
| 3. the level of remuneration paid<br>to the AC members is equivalent<br>to sitting allowances paid to<br>Board members or senior<br>management of the CE<br>(whichever is higher, prevails);   |                              |                       |   |
| 4. the remuneration of the AC chairperson reflects the weight of their responsibilities and time demands, performing AC work;  |                              |                       |   |
| 5. independent members'<br>remuneration reflects the<br>individual member's special skills<br>and experience, time spent to<br>effectively meet responsibilities,<br>and time spent interacting with<br>management outside of AC<br>meetings, performing AC work;<br>and |                              |                       |   |
| 6. the Ministry of Finance<br>subsidises CEs with low IGF, to<br>pay the remuneration to AC<br>members, so as to ensure equity<br>across all sectors.  |                              |                       |   |

(Source: Own compilation)

# 5.8 Chapter Summary

This chapter reviewed literature relating to the themes, formulated from affinities derived from focus group sessions, conducted and reported in chapter four. It also buildt on the literature review

that was executed in chapter two. These reviews enabled two frameworks that could enhance the effectiveness of ACs in Ghana's public sector, formulated based on the outcomes of focus group discussions. Two frameworks were drafted, i.e., one for the ACs and one for the managers of public sector institutions, also refered to as CEs.

#### **Chapter 6**

# Presentation and Analysis of the Survey Data: Validating and Refining the Frameworks

# **6.1 Introduction**

The purpose of this chapter is to validate and refine the draft frameworks developed in chapter five (refer to 5.7.1 & 5.7.2), through analysis and interpretion of data gethered from the questionnaire that was administered. The questionnaire was designed to achieve the fourth research objective (RO<sup>4</sup>), as expressed in para. 1.3, that was "To obtain validation from key stakeholders in the public sector as to the appropriateness of the proposed framework constructed under RO<sup>3</sup>". This chapter builds on chapter 5, where two draft frameworks were proposed, i.e., one for ACs (refer to table 5.2), and the other for CEs (refer to table 5.3) in Ghana's public sector, towards the achievement of the third research objective (RO<sup>3</sup>). The proposed frameworks emanated from the IQA methodology described in chapter 3 (refer to 3.6), the focus groups sessions conducted and reported on in chapter 4, and the focused literature review of chapter 5.

The chapter is organised in three parts, in line with the questionnaire structure. Part A presents the profile of the respondents in the survey, Part B deals with the presentation and analysis of the Draft Framework for ACs, and Part C deals with the presentation and analysis of the Draft AC Framework for CEs. The draft frameworks were the results of the main data collection from focus groups, the questionnaire was not meant to overwrite the findings of the focus groups, but to confirm its validity. Respondents who disagreed with any proposed action in the framework, were provided the opportunity to furnish a reason(s) for such. The researcher then considered the reason(s), in refining the final framework, and the respondents' reasons in support of proposed actions were used, where applicable, to strengthen the final framework. Note that all Tables and Figures in this Chapter were the researcher's own constructions derived from data gathered.

#### 6.1.1 Respondents' informed consent.

As part of the fulfilment of the ethical requirements in relation to the survey questionnaire, respondents were briefed, with an abridged, combined respondents' information and consent request, as an introduction to the questionnaire. Subsequently, the respondents were provided two options to indicate whether they consented to participation in the online survey. Those who consented were directed to proceed, whilst those who did not consent had their participation terminated. In all, 14 purposefully sampled respondents were invited to the online survey segment, through a Google Form link sent to them by WhatsApp message (refer to 3.6.1 & 3.6.4.2). Out of these, 12 consented and two declined to participate, as was discussed in para. 3.6.1.

#### 6.2 Part A: Respondent's Profile

The researcher sought to establish the background and credibility of respondents, in terms of their knowledge of and power in respect of the phenomenon under study.

# 6.2.1 Status on AC.

The current status of respondents' relationship with the AC of a CE, was investigated. Out of the 12 respondents, six were current, externally nominated AC members, five were executive management members of their CEs, and the remaining respondent was a former secretary to an AC.

#### 6.2.3 Locus of representation on the AC.

The respondents, some of whom were not members of an AC, were requested to indicate their constituency of nomination or representation on the AC, or locus of standing in relation to the AC phenomenon. The results were that, out of the 12 respondents, six were representatives of the ICAG, and three were Technocrat Non-AC members, i.e., senior executive management class, of

which one was a Regional Auditor from the AG's office. The remaining three respondents, respectively, were a representative of a CE on an AC, a representative of the Internal Audit Agency on an AC, and a secretary of an AC.

# 6.2.4 Number of years of work experience.

The number of years of work experience was probed, to verify the richness of experience and expertise of respondents. The results, regarding the number of years of related work experience in the public sector, ranged from a minimum of six years to a maximum of 33 years. In a similar vein, the number of years of experience with AC related work, ranged from one year, to a maximum of 10 years.

# 6.2.5 Highest qualification.

A question was posed regarding the highest academic and professional qualification of respondents, with the purpose to establish their ability to contribute to the richness of the phenomenon. In terms of highest academic qualification of respondents, two hold Doctorate degrees, another two hold Master's degrees, whilst eight held undergraduate qualifications.

In the case of professional affiliation, 10 of the respondents indicated that they held various professional memberships, i.e., eight were members of ICAG, with one of the eight holding additional professional membership of the Chartered Institute of Taxation, Ghana (cITG); one was a member of ACCA; and another respondent was a member of the Chattered Institute of Administrators and Management Consultants, Ghana (CIAMCG). This is represented in table 6.1.

| <b>Professional Affiliation</b> | Frequency | %   |
|---------------------------------|-----------|-----|
| ICAG (cITC)                     | 8         | 0.8 |
| ACCA                            | 1         | 0.1 |
| CIAMCG                          | 1         | 0.1 |
| Total                           | 10        | 100 |

**Table 6.1: Professional affiliations of respondents** 

(Source: Own compilation)

## 6.2.6 Current work place designation.

Regarding the current designation or position of the respondents, at their places of employment, the responses were captured and is presented in table 6.2.

| Current Role at Work                  | Frequency | %    |
|---------------------------------------|-----------|------|
| Lecturer/Senior Lecturer              | 2         | 16.7 |
| Accounting/Financial Officer          | 3         | 25   |
| Head of IAF                           | 5         | 41.7 |
| Regional Auditor, Ghana Audit Service | 1         | 8.3  |
| Assist CEO                            | 1         | 8.3  |
| Total                                 | 12        | 100  |

 Table 6.2: Current designation at work

(Source: Own compilation)

As can be gleaned from table 6.2, two of the respondents were Senior Lecturers, teaching Accounting and Finance at public universities in Ghana. Three respondents were Heads of an accounting and/or finance sections of their CEs, whilst serving as AC members of other CEs. Also, there were five respondents who were Heads of the IAFs of their CEs, some of whom were also serving as AC members in other CEs. For the remaining two, one was a Regional Auditor of the Ghana Audit Service, and the other was an Assistant CEO of a CE.

# 6.2.7 Type of organisation of employment.

The type of organisation (CEs) where respondents served as AC members or worked as office holders, are presented in table 6.3.

#### Table 6.3: Type of CE

| 9  |
|----|
| 1  |
| 1  |
|    |
| 2  |
| 1  |
| 14 |
|    |

(Source: Own compilation)

From table 6.3 above, it can be observed that respondents served in 14 different CEs, as AC members or officer holders. It should be noted that the total number was greater than total number of respondents, as some AC members served on more than one AC.

#### 6.2.8 Conclusion on profile.

From the aforegoing, it was established that the selected respondents possessed the knowledge of and power regarding the phenomenon under study and, hence, were capable and competent to contribute the richness of their experiences and expertise to the study, by assisting the researcher in validating and refining the draft framework for ACs in Ghana's public sector. Parts B and C below present the outcome of the questionnaire responses.

#### 6.3 Part B: A Framework for ACs of CEs

In this part, each category (refer to chapter 5) in conjunction with the proposed actions identified in the draft framework for ACs (refer to table 5.2), was analysed, based on the survey responses received. These categories were derivatives of the focus group themes, developed in chapter 4.

# 6.3.1 Category 1: Policies governing ACs

This category was based on the only primary affinity in the network, that influenced all affinities in the network (refer to 4.2.4). There were seven main proposed actions, with sub-divisions or units, in this category. The proposed actions, as validated under this category, were reported and analysed individually, as depicted below.

#### Cat 1: Proposed Action 1 of AC Framework (table 5.2).

This proposed action was the underlying proposal for all proposed actions in the framework for ACs, as it was predicated on the primary driver, that the focus groups established, in chapter 4. The proposed action is set out in the textbox below.

ACs should strongly advocate for an AC Charter that consolidates all legal requirements and guidelines, issued by the Minister, relating to AC practice in Ghana's public sector, and adapted and aligned to suit the nature of every specific CE.

In response to this, all 12 respondents agreed with the proposed action, indicating that there should be a unified AC Charter, adapted to suit the peculiar nature of each CE.

Three comments were made by respondents, in support of this proposed action:

C<sub>1</sub>: "To streamline processes and maintain the scope of the AC" (favourable).

C<sub>2</sub>: "It will consolidate all laws, regulations and guidelines" (favourable).

C<sub>3</sub>: "Currently there are [is] conflicting information in the guidelines and that of the PFM Act and [regarding the] regular concerned election of chairperson and also the formation of sub AC" (favourable).

These comments reiterated, by consensus, the need for an AC Charter to reconcile the supposed "conflicting information" of policies governing ACs in Ghana's public sector. The researcher was prevented from further interrogation, since  $C_1$  failed to specify any particular conflict that existed in the Guidelines and the PFMA. Therefore, Proposed Action 1 had been maintained in the final Framework for ACs in the public sector.

# Cat 1: Proposed Action 2 (i & ii) of AC framework (table 5.2).

With regard to Proposed Action 2 (i & ii), all 12 respondents agreed with the two separate questions, validating the proposed actions in the draft framework, in this section. This implied that proposed Action 2 (i & ii) of the AC Framework were maintained, without modification in the final framework for ACs.

#### Cat 1: Proposed Action 3 (i-iv) of AC framework (table 5.2).

Three respondents commented on these proposed actions, with the aforementioned actions depicted in the textbox below.

3. The AC Charter should instruct that:

i. the AC's work plan align with the AC Charter;

- ii. agendas for the AC meetings are composed in agreement with the requirements of the AC Charter;
- iii. minutes of meetings are properly recorded and safely preserved; and
- iv. The AC conducts self-assessment, annually.

Eleven (11) respondents agreed, whilst one respondent partially agreed with the Proposed Action 3(i). Since there was no disagreement or adverse comments on these actions, Action 3(i) was maintained in the final framework for ACs. For Proposed Action 3(ii), seven respondents agreed to the proposed action, whilst five partially agreed with the proposed action. As with Proposed Action 3(i), since there was no disagreement and no reasons were ascribed to the five partial agreements, Proposed Action 3(ii) was maintained in the final framework. Regarding Proposed Action 3(iii), all 12 respondents agreed to the proposed action and, hence, the action was retained in the final framework for ACs. In the case of Proposed Action 3(iv), 11 of the respondents agreed, whilst one respondent partially agreed. Proposed Action 3(iv) was also, therefore, confirmed so as to be retained in the final framework for ACs.

There were three comments in relation to Proposed Action 3. Two of them were made in favour of this proposed action, and one was in opposition:

C1: "This enables the AC to receive feedback on their [its] performance" (favourable).

C2: "This is important to evaluate their [its] own performance" (favourable).

C<sub>3</sub>: "That will be self-review and may not be entirely accurate" (adverse).

Thus, in the case of  $C_3$ , which specifically relate to Proposed Action 3 (iv), and since most respondents agreed or partially agreed with the action, it was retained in the final framework for ACs. That is to say, in spite of the adverse comment made by  $C_3$ , the respondents generally agreed

that ACs should conduct self-assessment, annually, as it enables an AC to evaluate its own performance and to receive feedback on its performance (refer to  $C_1 \& C_2$  above). More so, best practice and empirical literature concerning performance evaluation and human resource management practice, support self-assessment (Samuelsson, P. & Nilsson, L.E., 2002). It is important to clarify that the self-review-threat emanates from any oversight body being active in the operations of an entity and then having to perform oversight, essentially of work that it was involved in. On the other hand, a self-assessment of own performance is different from the self-review-threat, proffered by the comment  $C_3$ , and is a widely accepted action in performance evaluation and human resource management practice, as aforementioned.

#### Cat 1: Proposed action 4 (i & ii) of AC framework (table 5.2).

Proposed Action 4 contained two separate but related statements, depicted in the text box below.

4. The AC chairperson should:

- i. have strong communication skills, to convey an understanding of the committees' work to appropriate CE stakeholders;
- ii. initiate and attend private meetings and periodic telephonic calls with the appropriate CE stakeholders, to obtain understanding of the CE activities.

For Proposed Action 4(i), 10 respondents agreed with the proposed action, whilst two respondents partially disagreed with the proposed action. The proposed action was therefore retained in the final framework for ACs. Similarly, concerning Proposed Action 4(ii), 11 agreed and one of the respondents partially agreed with the proposed action. The following comment was made by a respondent, in favour of Proposed Action 4(ii):

C<sub>1</sub>: "It may help build confidence of stakeholders of CEs in the work of the AC so that free flow of information and communication could be achieved" (favourable).

In view of the above and enhanced by a favourable comment ( $C_1$ ), Proposed Action 4(ii) was maintained in the final Framework for ACs, without any modification.

# Cat 1: Proposed Action 5 (i-iv) of AC framework (table 5.2).

For Proposed Action 5 in this category, five separate proposed actions were presented, depicted in the text box below.

| 5. The AC Charter should provide that every new AC member: |  |  |
|--|--|--|
| i.   | participates in programmes, e.g., induction and training, that would enhance their |  |
|  | knowledge of their new role;   |  |
| ii.  | participate in planned meetings and workshops with the CE stakeholders, to         |  |
|  | acquire the appropriate information required for the new role;                     |  |
| iii.   | peruse current minutes of AC meetings, to obtain understanding of the issues       |  |
|  | discussed in the AC;   |  |
| iv.  | understand the material (information pack) provided and contribute to the          |  |
|  | meetings;  |  |
| v.   | maintain good relations with the key stakeholders of the CEs.                      |  |

With regard to these proposed actions, all 12 respondents agreed with Proposed Actions 5(i), (ii), & (iv), indicating full support across respondents. Thus, these actions were maintained in the final framework for ACs. For Action 5(iii), 11 respondents agreed and one partially agreed with the proposed action. For Action 5(v), 10 respondents agreed and two of the respondents partially agreed with the proposed action. Two favourable comments were received, in support of the proposed actions:

C1: "To enhance effective performance of their activities" (favourable).

C<sub>2</sub>: "Training program[me]s for AC members build their capacity for better performance of their roles" (favourable).

Therefore, the Proposed Action 5 (i–v) were retained in the final framework for ACs.

# Cat 1: Proposed action 6 of AC framework (table 5.2).

Only one action was required, indicated in the text box below.

The AC Charter should provide for the appointment of a chairperson who is highly experienced; professional; sceptical; confident, with high integrity; organised and proactive; has strong communication and interpersonal skills; and is willing to devote the time and energy, necessary.

All 12 respondents agreed with the statement, which sought to validate the proposed actions in the framework under this section. This implied that Proposed Action 6 was retained in the final framework for ACs. A favourable comment was made in support of the proposed action:

C<sub>1</sub>: "Mostly the way by which the chairman is elected should also be considered by the charter, by [placing] more importance to understanding the nature of business of the CE." (favourable).

Cat 1: Proposed Action 7 (i-iv) of AC framework (table 5.2).

The statements underlying Proposed Action 7 in the draft framework, are depicted in the textbox below.7. The AC chairperson should have:

- vast experience in leadership and knowledge of financial management, accounting, audit, governance, risk, industry, organisational culture and management behaviour;
- ii. communication, presentation, writing and reporting skills;
- iii. the ability to facilitate meetings, lead discussions, and encourage other members to attend meetings and participate meaningfully in meetings;
- iv. competencies to build relationships with management, other stakeholders of the CE, and fellow AC members.

For Proposed Action 7(i), nine respondents agreed to the proposed action, with three respondents who partially agreed to the proposed action. Ten (10) respondents agreed to Proposed Action 7(ii,) whereas the remaining two partially agreed to the proposed action. Concerning Proposed Action 7(iii), 11 respondents agreed to the proposed action, whilst one partially disagreed, no reason was provided. All respondents agreed with the Proposed Action 7(iv). Given that, in all cases the majority agreed with the proposed actions without any contestation or adverse comments, the entire Proposed Action 7 was retained in the final framework for ACs, without modification.

#### 6.3.2 Category 2: Nature of institution.

The *Nature of institution* [CEs] was identified as *Affinity 8* and classified as a *Secondary Driver*, under Theme 1 (refer to 4.4). The category had three proposed actions, that are discussed below.

#### Cat 2: Proposed Action 1 of AC framework (table 5.2).

There was only one statement in the questionnaire, concerning Proposed Action 1 under Category 2, depicted in the textbox below.

AC members' appointments should be based on expertise, experience and knowledge regarding the kind of legal and operational environment, as well as associated risks of that particular CE, i.e., a competency based selection process should be adopted in appointing new AC members.

In this case, respondents who agreed with the proposed action totalled 11, whilst only one respondent partially agreed. Proposed Action 1 in this category was, therefore, retained in the final framework for ACs, without modification.

#### Cat 2: Proposed Action 2 of AC framework (table 5.2).

Proposed Action 2 in Category 2 was based on a singular proposed action, depicted in the textbox below.

The chairperson should have authority to arrange for committee members to keep abreast of developments in the CE, the public sector, and the business environment in which the CE operates.

In response to Proposed Action 2, 10 respondents agreed, whereas the remaining two respondents partially agreed. Thus, Proposed Action 2 in this category was maintained in the final framework for ACs, without modification.

# Cat 2: Proposed Action 3 of AC framework (table 5.2).

Proposed Action 3 of this category is depicted in the textbox below.

AC members should continuously seek information and knowledge about their CEs, and other areas of expertise.

The responses to Proposed Action 3 showed that 10 respondents agreed to the proposed action, whilst the remaining two respondents partially agreed. Thus, proposed Action 3 in this category was maintained in the final framework for ACs, without modification.

Overall, in Category 2, respondents commented favourably in support of the proposed actions, thus validating the inclusion of the actions in the final framework for ACs. The comments made in reference to the action statement were:

C<sub>1</sub>: "This is necessary for effective performance of their activities" (favourable). C<sub>2</sub>: "The [C]charter should also provide [an] avenue for stakeholders to communicate with the AC[,] as well as send information to AC situation[s] happening [in] the CE" (favourable).

#### 6.3.3 Category 3: Desire to bring about change.

The *Desire to bring about change* was an affinity (*secondary outcome*) identified by the focus groups, and further reviewed in para. 5.2.3, that lead to the generation of two proposed actions for the framework for Acs, validated as indicated below.

#### Cat 3: Proposed Action 1 of AC framework (table 5.2).

For Proposed Action 1 in this category, the statement in the questionnaire is depicted in the textbox below.

The newly inaugurated AC should prepare and strategise on how to navigate any form of resistance or threat of entry into the CE.

This proposed action was agreed upon by nine of the respondents. Of the remaining three, two disagreed, whilst one partially agreed with the proposed action. Thus, proposed Action 1 under this category was maintained in the final framework, without modification. Unfortunately, the dissenting respondents did not state any reasons in the additional information field provided for such.

# Cat 3: Proposed Action 2 of AC framework (table 5.2).

Proposed Action 2 in Category 3 was based on a singular proposed action, depicted in the textbox below.

The AC chairperson should not only emphasise the AC's mandatory oversight responsibilities, but also convey the benefits that the CE would derive from the assurance and advisory services, as stipulated in the AC Charter.

For this category, all 12 of the respondents agreed to this proposed action and, therefore, it was maintained in the final framework for ACs, without modification. The respondent comment in support of the inclusion of the proposed action under this category, is indicated below.

C<sub>1</sub>: "Management of the CE should understand the relevance of the AC[,] in order to prevent

any resistance[,] by way of access to information" (favourable).

#### 6.3.4 Category 4: Commitment of ACs.

This category, *Commitment of ACs*, was an affinity (*secondary driver*), discussed in para. 5.3.1, resulting in the generation of two proposed action statements for the proposed framework.

#### Cat 4: Proposed Actions 1 and 2 of AC framework (table 5.2).

There were two action statements in this category of the draft framework, presented to survey respondents. These are depicted in the textbox below.

1) AC members must avail themselves for meetings and other AC activities.

2) The AC should pursue the implementation of recommendation(s) contained in IA reports, Parliament's decisions on the AG's report, the AG's Management Letter; and the report of any internal monitoring unit in the CE.

For both Proposed Actions 1 and 2 under this category, all 12 respondents agreed to the proposed actions and, therefore, it was maintained in the final framework for ACs. One respondent, however, commented that:

C<sub>1</sub>: "*The* [*AC*] *charter should also include action that may constitute non*[-]*commitment of*[by] *management and AC members and remedial action* [*on them*]." (favourable).

This concern was addressed under Category 4 of the proposed framework for CEs (refer to 6.4.4 of Part C in this chapter).

#### 6.3.5 Category 5: Stakeholder collaboration.

*Stakeholder collaboration* was a *secondary driver* affinity, defined by the focus groups and further considered in para. 5.2.3. Six action statements were derived under this category, presented for validation to the questionnaire respondents.

#### Cat 5: Proposed Action 1 of AC framework (table 5.2).

Proposed Action 1 in this category is depicted in the textbox below.

In executing its mandated roles and responsibilities of oversight, advice and monitoring, the AC needs to rely on the CE's structures, for information and collaboration.

Eleven (11) of the respondents agreed to this proposed action, whilst one respondent partially agreed. Consequently, Proposed Action 1 in this category was retained in the final framework for ACs, without modification. No comment was made by respondents, in this case.

# Cat 5: Proposed Action 2, 3 and 4 of AC framework (table 5.2).

There were three other proposed actions in this category, depicted in the textbox, below.

2. The AC Secretariat should be functional and resourced adequately, to actively respond to the needs of the AC.

3. The AC should develop a cordial working relationship with the CEO and top management, especially the DoF and the IA of the CE, to enhance AC effectiveness.

4. The AC should position itself for frank discussions of matters dealing with the AG, in areas relating to the duties and responsibilities of the AC.

In response to these proposed actions, all 12 respondents agreed with Proposed Actions 2, 3 and 4 in this category, hence, all three were maintained in the final framework for ACs, without any modification. The following comments were made by respondents in support of proposed actions in Category 5:

- C<sub>1</sub>: "This is necessary for appropriate resolving of the issues raised" (favourable).
- C<sub>2</sub>: "*The* [C]*harter should also include* [a] *provision that will facilitate the meeting of external auditors and AC members*[,] *at least once a year*" (favourable).

# **6.3.6 Category 6: Political influence.**

*Political influence* was defined as *Affinity 12* by the focus groups, and was a *secondary driver*. It was further discussed in para. 5.3.3, resulting in two proposed actions, proposed in the framework for ACs.

#### Cat 6: Proposed Actions 1 and 2 of AC framework (table 5.2).

With regard to Proposed Actions 1 and 2 of this category, as captured in the textbox below, all 12 respondents agreed with both actions in this category, hence, both were retained in the final framework for ACs, without modification.

1. The AC should professionally resist any form of political bait, that will cloud its objectivity and independence in the performance of its duties.

2. The AC chairperson and AC members should not be intimidated by powerful and overbearing management, especially the AC members who were nominated by the PAH.

Further, the following comment was made by respondents in support of proposed actions, in Category 6:

C<sub>1</sub>: "Political colours should [not] form the basis for nominating the internal members of the AC[,] but [nomination should] rather [be] based on experience, knowledge about the entity, [and] educational qualifications[,] among others" (favourable).

#### 6.3.7 Category 7: The IA.

Professional competence of Internal Auditors was identified as an affinity, that was a *Secondary Outcome* and was defined and discussed further in para. 5.3.4, presented and analysed below.

#### Cat 7: Proposed Action 1(i & ii) of AC framework (table 5.2).

All the respondents agreed with Proposed Action 1(i & ii) in this category, hence, it was maintained in the final framework for ACs, without any modification.

#### Cat 7: Proposed Actions 1(iii &1 iv) of AC framework (table 5.2).

The specific statements are depicted in the textbox below.

1. The AC Charter should mandate the AC to ensure that:

iii. exclusive meetings are conducted between the AC and the IAF, without the presence of management or other observers;

iv. the Head of the IAF reports functionally to the AC of its CE.

In the case of Proposed Action 1(iii), whereas 10 respondents agreed with the proposed action, one respondent partially agreed, and another one disagreed without providing any reason. Therefore, this proposed action remained without modification, maintained in the final framework for ACs.

For Proposed Action 1(iv), 10 respondents agreed to the proposed action, and two respondents partially agreed. Hence, this proposed action was maintained in the final framework for ACs. The following comments were made by respondents, in respect of Category 7:

C<sub>1</sub>: "*The Head of IAF should report functionally to the AC and administratively to the PSO*" (favourable).

C<sub>2</sub>: "Approval of the budgetary provision of the IAF of the CE should also be covered by the [C]harter" (favourable).

C<sub>3</sub>: "*The Head of IAF reports to the CEO of the CE*[,] *not the AC*" (favourable).

It should be noted that  $C_1$  and  $C_3$  were direct responses to proposed Action 1(iv), in the textbox above.  $C_1$  was in partial agreement with Proposed Action 1(iv), in terms of the Head of IAF reporting functionally to the AC.  $C_1$  was also correct in suggesting that the Head of the IAF reports administratively to the PSO, as that is in line with the provisions of the law as quoted below. However,  $C_3$ , partially agreeing with proposed Action 1(iv), is not supported by legislation (refer to 5.3.4), as s 83(2) of the PFMA specifically provides that: "The head of the IAF shall report administratively to the Principal Spending Officer and functionally to the Audit Committee of that covered entity." (ROG 2016). Proposed Action 1(iv) was thus based on this provision of the law, as a result of the discussions in para. 5.3.4 of chapter 5. The concerns raised by  $C_2$  above, was further addressed in para. 5.6 of chapter 5, and also in Category 7 of proposed Action 1(ii), below (refer to 6.4.7).

#### 6.3.8 Category 8: Characteristics of AC members.

*Characteristics and qualities of AC members* was defined as an affinity which is a *secondary driver* and discussed further in para. 5.4.3. It is key in the network of affinities, as it influences other affinities and could be influenced by others. The proposed actions identified under this category, are discussed below.

#### Cat 8: Proposed Actions 1(i &ii) of AC framework (table 5.2).

The proposed action statements that were validated are depicted in the text box below.

The AC Charter should direct: i) the AC Chairperson to confirm the independence of members in accordance with the provisions of the PFMA and the Guidelines; ii) the nominating entities to ensure that persons appointed as AC members possess the professional expertise and work experience in the areas of accounting, auditing and public

financial management.

For the Proposed Action 1(i) in this category, nine respondents agreed to the proposed action, and three respondents partially agreed. Therefore, this proposed action was maintained in the final framework for ACs. Similarly, 11 of the respondents agreed to Proposed Action 1(ii), whilst one respondent partially agreed. Thus, Proposed Action 1(ii) in this category was maintained in the final framework for ACs.

There was a third proposed action in this category (refer to table 5.2), that was also subjected to validation through the questionnaire. All 12 agreed with the proposed action, hence, it was maintained in the final framework for ACs.

One comment was made in support of the actions proposed in this category:

C<sub>1</sub>: "This enable them to [be cognisant of] current issues and developments that would facilitate effective performance of their activities" (favourable).

# 6.3.9 Category 9: Access to information.

#### Cat 9: Proposed Actions 1(i & ii) of AC framework (table 5.2).

All the respondents agreed with proposed Action 1(i) in this category, hence, it was maintained in the final framework for ACs. Proposed Action 1(ii) in this category of the framework was stated as depicted in the textbox below.

The AC should have full, unhindered access to the management, personnel, books, records, documents, properties, and information of its CE.

Regarding this proposed action, 11 respondents agreed to the proposed action, whilst one respondent partially agreed with the proposed action. Therefore, proposed Action 1(ii) was maintained in the final framework for ACs. However, two comments were made:

C<sub>1</sub>: "*The importance* [of] *information for effective performance of the activities of the AC*[,] *cannot be overlooked*" (favourable).

C<sub>2</sub>: "The AC should not be considered as an Audit Unit within the organisation. The AC is required to implement the recommendations in IAF Reports[,] as well as that of the Auditor-General" (adverse).

It was considered that comment  $C_1$  was an expression of approval of all the proposed actions in this category, whilst  $C_2$  represented dissent, specifically in respect of Proposed Action 1(ii). The opinion expressed by  $C_2$  was deemed technically correct, as the role of the AC is clearly defined and is different from the role of the IAF. However, Proposed Action 1(ii) was rooted in law, as discussed in para. 5.5.1. Specifically, Regulation 228, s 1(b) of the PFM Regulations (ROG 2019) stipulates: "For the purpose of discharging its functions under subsection (1) of section 88 of the Act [PFMA], an Audit committee shall... have full access to the management, personnel, books, records, documents, property and information of that covered entity".

In addition to this provision, s 9 of the Guidelines reiterate the importance of Proposed Action 1(ii) in this category, hence, it was maintained in the final framework for ACs, without any modification.

#### 6.3.10 Category 10: Entity risk management policy.

Under this category, only one proposed action was proffered. It emanated from *Affinity 11*, *Risk policy* (a *secondary outcome*) and was further mapped out and categorised under Theme 4 (refer to 5.1) and discussed in para. 5.5.2. The proposed action in this category is depicted in the textbox below.

The AC is to ensure that the risk management process of the CE is comprehensive and effective.

Out of the 12 respondents, 11 agreed to the proposed action, whilst one respondent disagreed with the proposed action. Therefore, this proposed action was maintained in the final framework for ACs. However, with regard to the dissenting response, the following comment was made:

C<sub>1</sub>: "*The audit committee cannot ensure, but* [it] *can only advi*[s]*e*" (adverse).

The researcher agreed with  $C_1$ , as the understanding of the focus groups concerning the definition of the role of the AC in relation to the risk assessment and the management process of a CE, were understood as mandatory oversight activities. However, in practice, those roles could better be exercised as advisory, since the mandates of comprehensive and effective risk assessment and management are the responsibility of management, and not the AC. In view of this and to avoid ambiguity, the action statement was modified in the final framework for ACs, as depicted in the yellow textbox below.

The AC should assess the risk management process of the CE, and advise on its

comprehensiveness and effectiveness.

# 6.3.11 Category 11: AC role in effective internal controls.

This category had three proposed actions, analysed below.

Cat 11: Proposed Actions (i), (ii) & (iii) of AC framework (table 5.2).

In this category, there were three proposed action statements. All the respondents agreed to the proposed actions. Thus, all three proposed action statements were maintained in the final framework of ACs.

# 6.3.12 Category 12: Financing the AC.

With regard to this category, five proposed action statements were formulated. For Proposed Action 1, all 12 respondents agreed to the proposed action. Thus, Proposed Action 1 was maintained in the final framework for ACs, without any modification. The rest were analysed, as depicted below.

Cat 12: Proposed Actions (ii), (iii), (iv) & (v) of AC framework (table 5.2).

The AC Charter should prescribe:

ii. that management assumes adequate responsibility for the remuneration of the chairperson and AC members through the annual budget of its CE, with subvention from central

government;

iii. that CE management ensures that the level of remuneration paid to AC members isequivalent to sitting allowances paid to Board members or senior management of the CE (whichever is higher, prevails);

iv. that the remuneration of the AC chairperson reflects the weight of their responsibilities and time demands; and

v. that the independent members' remuneration reflects the individual member's special skills and experience, time spent to effectively meet responsibilities, and time spent interacting with management outside of AC meetings, doing AC work.

For Proposed Actions (ii) and (iii) above, 11 of the respondents, in each case, agreed to the proposed actions, whereas one respondent, in each case, partially agreed with the proposed actions. Similarly, concerning Proposed Actions 4 and 5 above, nine of the respondents, in each case, agreed to the proposed actions, whilst three respondents, in each case, partially agreed with the proposed actions. Therefore, all proposed actions under this category were maintained in the final framework for ACs, without any modifications.

The following comments were made in relation to the partial agreements, recorded from the responses received, and analysed above:

C<sub>2</sub>: "*There should be uniformity of rate*[s] *payable in terms fuel, transport and out of station allowance*" (favourable).

C<sub>1</sub>: "The work of the AC is not a regular and continuous type of thing. The AC considers audit reports when such reports are available. When allowances are introduced, some members begin to consider the CE as their regular place of work in order to get more allowances." (partially favourable).

#### 6.4 Part C: AC framework for CE.

The purpose of this part is to analyse each category (discussed in chapter 5), in conjunction with the proposed actions identified in the draft framework for CEs in table 5.3, based on the online survey responses received. These categories were derivatives of the focus group themes, developed in para. 4.4. In this part, as in Part B, the numbering of the categories were matched to the numbering in the draft AC

Framework for CEs (refer to table 5.3). The category headings are similar to those indicated in Part B.

#### 6.4.1 Category 1: Policies governing ACs.

In this category, there were six proposed action statements, some divided into subparagraphs, indicated below.

Cat 1: Proposed Actions 1, 2, 3(i, ii &iii), 4(i, ii & iii), 5 and 6 of the AC framework for CEs (table 5.3).

With regard to Proposed Actions 1, 2, 3(i, ii & iii), 4(i & iii), and 6, all 12 respondents agreed with the proposed actions, hence, it was maintained in the final AC Framework for CEs, without modification. These proposed actions are not repeated in textboxes, owing to the unanimity in responses, without any comments from respondents, that indicated that the respondents concurred with all of these proposed actions.

On the other hand, Proposed Actions 4(ii), and 5 received a measure of partial agreements and were analysed as indicated below.

Cat 1: Proposed Actions 4(ii) of AC framework for CEs (table 5.3).

Proposed Action 4(ii) in this category, that received one partially agreed response, was presented as indicated in the textbox below.

4. Management of CEs should ensure that the AC:

ii. Organise regular workshops and orientation programmes for AC members, to apprise them of issues relevant to their work.

In response to this proposed action, 11 of the respondents agreed and one respondent partially agreed to the proposed action. Hence, the action was maintained in the final AC Framework for CEs, without modification.

Cat 1: Proposed Action 5 of AC framework for CEs (table 5.3.).

Proposed Action 5 in this category was a lone statement, depicted in the textbox below.

Management of the CE should be open to the AC members, and warmly welcome them into the organisation.

In response, 11 of the respondents agreed with the proposed action, and one respondent partially agreed, hence, the action was retained in the final AC Framework for CEs, without modification.

#### 6.4.2 Category 2: Nature of institution.

There were two proposed actions in this category, analysed below.

#### Cat 2: Proposed Actions 1 and 2 of AC framework for CEs (table 5.3).

Proposed Action 2 in this category, that had one dissenting respondent, was presented as depicted in the textbox below.

2. Management should arrange orientation for the AC, with regard to the CE's nature and scale of complexities, as well as the responsibilities, activities, and systems, including information technology and systems.

In response to this, 11 respondents agreed with Proposed Action 2, and onerespondent partially agreed to the proposed action. Hence, the proposed action was maintained in the final AC Framework for CEs, without modification. In the case of Proposed Action 1 of this category, all 12 respondents agreed with the proposed actions, hence, both proposed actions were maintained, according to the majority of votes, in the final AC Framework for CEs, without modification.

#### 6.4.3 Category 3: Desire to bring about change.

In this category, there was only one proposed action. All the respondents agreed with the proposed action. Hence, the Proposed Action 1 was maintained, by consensus, in the final AC Framework for CEs, without modification.

#### 6.4.4 Category 4: Commitment of management.

Cat 4: Proposed Actions 1 and 2 of AC framework for CEs (table 5.3).

There were two proposed action statements in this category. Responding, all 12 respondents agreed with Proposed Action 1. In the case of Proposed Action 2, 11 of the respondents agreed with the proposed action, and one respondent partially agreed. Proposed Action 2 was presented as depicted in the textbox below.

2. The AC Charter should charge management to actively engage in implementing the recommendations of the AC, pursuant to those contained in IA reports, Parliament's decisions on the AG's report, the AG's Management Letter; and the report of any internal monitoring unit in the CE.

Both proposed actions in the category were maintained in the final AC Framework for CEs, without modification.

#### 6.4.5 Category 5: Stakeholder collaboration.

There were three proposed action statements in this category. All the respondents agreed with Proposed Action 1 and was thus maintained, by consensus, in the final AC Framework for CEs, without modification. The remainder was analysed as indicated below.

# Cat 5: Proposed Actions 2 and 3 of AC framework for CEs (table 5.3).

Proposed Actions 2 and 3 in this category were presented as depicted in the textbox below.

The AC Charter should provide for:

2. management to ensure that the AC Secretariat is functional and adequately resourced, to be actively responsive to the needs of the AC;

3. the AG to consider the AC's output when executing its duties and responsibilities towards the CE.

In response to Proposed Action 2, 10 respondents agreed with the proposed action, whilst two partially agreed. In the case of Proposed Action 3, eight of the respondents agreed to the proposed

action, whilst four respondents partially agreed. Thus, both Proposed Actions 2 and 3, in this category, were maintained in the final AC Framework for ACs, without modification.

#### 6.4.6 Category 6: Political influence.

#### Cat 6: Proposed Actions 1 and 2 of AC framework for CEs (table 5.3).

In this category there were two proposed actions. For Proposed Action 1, all 12 respondents agreed with the proposed action. In respect of Proposed Action 2, 11 of the respondents agreed to the proposed action, and one respondent disagreed with the proposed action, that was presented as depicted in the text box.

The AC Charter should provide safeguards by enabling management to institute measures to deal with top management and any other person that interfere improperly with AC functions.

Unfortunately, the respondent who disagreed did not ascribe any reason to the dissent, for possible interrogation. Thus, both proposed actions in this category were maintained in the final AC Framework for CEs. without modification.

#### 6.4.7 Category 7: The IA.

In this category, two major proposed actions were formulated. Proposed Action 1 was a single statement, however, Proposed Action 2 was sub-divided into five parts (i,ii, iii, iv and v) in the draft framework as well in the corresponding survey questionnaire, and analysed as indicated below.

#### Cat 7: Proposed Actions 1 of AC framework for CEs (table 5.3).

Proposed Action 1 in this category was presented as depicted in the textbox below.

The AC Charter should include provisions, stipulating the relationship between the AC and the IAF.

For Proposed Action 1 under this category, 11 of the respondents agreed to the proposed action, and one respondent partially agreed. For this reason, this proposed action was maintained in the final AC Framework for CEs, without modification.

#### Cat 7: Proposed Action 2 (i, ii, iii, iv and v) of AC framework for CEs (table 5.3).

For Proposed Actions 2 (i, ii & iii) in this category, all the respondents agreed with the proposed actions. Thus, by consensus, Proposed Actions 2 (i, ii & iii) were maintained in the final AC Framework for CEs, without modification.

In the case of Proposed Actions 2 (iv & v), the responses were varied. These were analysed and are depicted in the text box below.

The AC Charter should provide direction to the Director of the IAF, to ensure that:
 iv) exclusive meetings are conducted between the IAF and the AC, without the presence of management or other observers;

v) the IAF reports functionally to the AC, and administratively to the management of the CE.

In this case, for Proposed Action 2(iv), nine respondents agreed with the proposed action, whilst two partially agreed. The remaining respondent disagreed with proposed Action 2(iv), without giving any reason for the dissent. In the case of Proposed Action 2(v), 11 of the respondents agreed to the Proposed Action, whilst one respondent partially agreed. Thus, both Proposed Actions 2(iv) and 2(v) in this category were, also, retained in the final AC Framework for CEs, without modification (refer to 6.3.7, Category 7, for a related discussion on a respondent comment, C<sub>2</sub>).

#### 6.4.8 Category 8: Access to information.

Two proposed action statements were contained by this category.

#### Cat 8: Proposed Actions 1 and 2 of AC framework for CEs (table 5.3).

Proposed Action 1 returned responses of agreement from all 12 respondents. In the case of Proposed Action 2, 11 of the respondents agreed with the proposed action, whilst one respondent

partially agreed. Thus, by majority verdict, both proposed actions in this category were maintained in the final AC Framework for ECs, without modification.

Proposed Action 2, that was partially agreed with in this category, was presented as depicted in the textbox below.

The AC Charter should provide:

2. that the CE's management allow the AC to have full access to the management, personnel, books, records, documents, property, and other information requested.

A comment was made in contention of Proposed Action 2:

C<sub>1</sub>: "*The AC does not perform audit functions. It also reviews audit reports*" (Adverse).

However, as was explained in s 6.2.9 above, Proposed Action 2 in this category was based on specific provisions, i.e., Regulation 228, s 1(b) of the PFM Regulations (ROG 2019) and s 9 of the Guidelines (ROG 2017a) and, hence, was retained. The comment was, however, considered in the recommendations, in the next chapter.

#### 6.4.9 Category 9: Entity risk management policy.

In this category there were only two proposed actions, analysed below.

#### Cat 9: Proposed Actions 1 and 2 of AC framework for CEs (table 5.3).

For proposed Action 2, all the respondents agreed with the proposed action. In respect of Proposed Action 1, 11 of the respondents agreed to the proposed action, whilst one respondent partially agreed with the proposed action, depicted in the textbox below.

The AC Charter should provide that: 1. management of the CE ensures that its risk management processes are comprehensive and effective, relative to the nature of CE.

No comment was made in relation to these proposed actions, hence, Proposed Actions 1 and 2 were retained in the final AC Framework for CEs, without modification.

#### 6.4.10 Category 10: AC role in effective internal controls.

Two proposed action statements were made in this category, discussed below.

#### Cat 8: Proposed Actions 1 and 2 of AC framework for CEs (table 5.3).

Proposed Action 1 received responses of agreement from all 12 respondents. Regarding Proposed Action 2, 11 of the respondents agreed to the proposed action, whilst one respondent partially agreed. Therefore, both proposed actions in this category were maintained in the final Framework for ACs, without modification.

Proposed Action 2, that was partially agreed with in the category, was presented as depicted in the textbox below.

The AC Charter should:

2. task every employee to undertake to be responsible for adhering to and complying with internal control practices in the CE, relative to the effectiveness of the AC's work.

# 6.4.11 Category 11: Financing the AC.

In this category, there were two proposed actions. With regard to Proposed Action 1, 10 respondents agreed and two respondents partially agreed with the proposed action. In respect of Proposed Action 2, 11 respondents agreed to the proposed action and one respondent dissented, without providing any reason. Thus, both proposed actions in this category were maintained in the final AC Framework for CEs, without modification.

The proposed action statements in this category were presented as depicted in the textbox below.

The AC Charter should provide that:

1. management of the CE assumes the responsibility of remunerating AC members through funding in the annual budget;

2. the Ministry of Finance subsidises CEs with low IGF, to pay the remuneration for AC members, so as to ensure equity across sectors.

A comment was made in contention of the proposed actions:

C<sub>1</sub>: "When ACs are paid some level of allowances, some members turn the premises of the CE to be a regular place of work in order to earn more" (Adverse).

The comment was considered in the recommendations for this study, in the next chapter.

#### **6.5 Chapter Summary**

The chapter reported on the questionnaire responses to the proposed actions in the draft frameworks, constructed for ACs and management of CEs in Ghana's public sector. It analysed each, individual proposed action in the framework, based on respondents' responses, to decide whether to maintain or improve on the proposed actions. Overall, except in one instance of refinement, the proposed actions for both frameworks were validated and retained in the final frameworks.

#### Chapter 7

## **Conclusions and Recommendations**

### 7.1 Introduction

The primary research objective (RO) of this study was to construct a proposed framework to enhance the effectiveness of ACs in Ghana's public sector (refer to 1.3). This final chapter concludes the study and proposes recommendations.

### 7.2 Synopsis of the Study

The study derived its inspiration from the research problem, as expressed in para. 1.2, that revealed the pervasiveness and persistent financial irregularities and infractions in Ghana's public sector financial management system, as reported in the AG's annual audit reports of MDAs/MMDAs. It was identified that these problems occur, even though ACs existed in these CEs and were mandated to oversee, inter alia, the implementation of internal controls, risk management, performance management and compliance issues. These ACs are part of the important governance and monitoring mechanisms, ensuring that the CEs are on the right path of effective public financial management, in accordance with legislation, such as the PFMA. Given this context, the effectiveness of ACs in CEs needed to be subjected to a measure of scrutiny, in order to improve its effectiveness, if needed. Thus, the primary objective of the study, as stated in para. 1.3, was to construct a framework, proposing to enhance the effectiveness of ACs in Ghana's public sector institutions (CEs).

To attain the primary objective of the study, four supporting, secondary research objectives were designed (refer to 1.3), revisited in para. 7.3, below. The researcher used a qualitative research methodology, drawing from a constructivist and interpretivist viewpoint (refer to 3.2) with regard to

data collection and analysis (refer to chapter 4). The data was sourced from multiple human participants' worldview, concerning understandings of the research phenomenon (refer to 3.5 and 3.6). Interpretation of the data was executed by the researcher, using participants' understanding of the phenomenon to obtain meaning and formulate knowledge, in the context of the participants' contribution and the literature review.

#### 7.3 Key Outcomes Outlines of the Study

The main findings and conclusions of the study, regarding each secondary research objective, are presented below.

### 7.3.1 Secondary research objective 1 (RO<sup>1</sup>).

The secondary research objective 1 (refer to 1.5) is depicted in the textbox below.

**RO<sup>1</sup>**: To interact with members and stakeholders of ACs of CEs, to obtain an understanding of the perceptions and experiences of the factors influencing the effective functioning of ACs in Ghana's public sector.

Objective RO<sup>1</sup> was achieved, as reported in chapter 4, by deploying the tried and tested IQA research methodology of qualitative data collection and analysis, from trusted and credible sources, using two online focus group sessions, composed of different categories of AC stakeholders (refer to 3.6.2). The empirical investigation was conducted in order to obtain evidence from the experiences of AC members and AC stakeholders in CEs (refer to 3.6.1), so as to gain an understanding of the factors that influence the effectiveness of ACs in the public sector. The results of the focus group sessions yielded a total of 13 affinities and 46 sub-affinities for FG1 (refer to 4.2) and 12 affinities and 26 sub-affinities for FG2 (refer to 4.3). Thus, according to the focus group participants, these were the factors (affinities) that influence the effectiveness of ACs in CEs in the public sector in Ghana. These were the affinities that informed the nature of the focused literature

review, discussed in chapter 5, and guided the areas for investigating the literature and exploring the possible categories to be contained in the proposed framework.

Out of the 25 affinities, connected and comparable affinities were clustered together, resulting in five themes, namely: Theme 1: Governance and policies, Theme 2: Stakeholder engagement, Theme 3: The status of the AC members, Theme 4: Quality management, and Theme 5: AC financing [funding] (refer to table 4.13). The salient points of these themes are summarised below.

# 7.3.1.1 Theme 1: Governance and policies.

The participants agreed that the main factors that influence the effectiveness of ACs in CEs, are:

- Policies governing the AC;
- Nature of institution [CE];
- Desire to bring about change;
- Governance.

These factors were discussed in detail, in paragraph 4.4.1.

### 7.3.1.2 Theme 2: AC stakeholder engagement.

The factors identified under this theme, that were deemed to influence the effectiveness of ACs,

are:

- Commitment of AC members?;
- Management commitment;
- Stakeholder collaboration;
- Political influence;
- Coordination amongst stakeholders;
- Independence of the internal audit [function].

These factors were discussed in detail, in para. 4.4.2.

# 7.3.1.3 Theme 3: The status of the AC.

The factors determined by the participants, are:

- Characteristics or qualities of AC members;
- Continuous training of committee members;
- Professionalism and authority of members;
- Independence of the AC;
- Frequency of meetings.

These factors were discussed in detail, in para. 4.4.3.

# 7.3.1.4 Theme 4: AC quality management.

The participants identified the following factors:

- Access to information and data;
- Quality control;
- Quality recommendations;
- Effectiveness of internal controls;
- Risk policy;
- Professional competence of Internal Auditors.

These factors were discussed in detail, in para. 4.4.4.

# 7.3.1.5 Theme 5: AC Financing.

The following factors were determined:

- Financing of ACs;
- Finance function.

These factors were discussed in detail, in para. 4.4.4

# 7.3.2 Secondary research objective 2 (RO<sup>2</sup>).

This research objective (refer to 1.3) is depicted in the textbox below.

 $\mathbf{RO}^{2}$ : To establish and theorise, through literature review, the determinants of AC effectiveness that could be applied to Ghana's public sector (refer to chapters 2 and 5).

Secondary objective 2 (RO<sup>2</sup>) was achieved in two phases, discussed in chapters two and five. In chapter two, the objective was first achieved through the contextualization of the study, by reviewing existing literature on the AC phenomenon and its effectiveness. This included a review of appropriate theoretical perspectives. AC literature that relates to the private sector were mainly reviewed, as the basis for disaggregating to a focus on public sector ACs in developing countries, specifically Ghana, on account of the insufficiency of such literature on public sector ACs. In effect, the chapter explored professional, technical, legislative and academic literature, in order to examine the concepts of the AC and AC effectiveness, as a process of contextualising the main study objective.

The two main theoretical perspectives from which the AC concept was reviewed and explained, were Agency and Institutional theories. The review revealed that the concept of the AC originated in the USA in the late 1930's, in response to corporate scandals, resulting from managers' (agents') betrayal of the trust reposed in them by shareholders (the principals). Thus, the AC concept was to mitigate the negative effects of information asymmetry, created between the owner (the principal) and the manager (the agent) of an enterprise. The review also found that ACs were committees of the BoD, who represented the shareholders, with oversight responsibility of the managers of an enterprise. Even though the objective of the study concerned public sector organisations, private sector literature was mainly used as a basis in the review, owing to limited literature pertaining to the public sector AC, especially in Ghana. A study of literature also revealed that the public sector adopted the AC concept as a good governance mechanism, in order to deal with issues of accountability and transparency, comparable to shareholders' interest in wealth maximisation, in the private sector.

Furthermore, the literature revealed that, over time, ACs had assumed an important position in the governance structure of organisations, whether private or public, with similar make-ups, i.e., it exhibits institutional isomorphism in many roles and characteristics. It was understood that ACs had various duties and responsibilities, crucially those of financial oversight and advisory roles, and monitoring of risks that confront the organisation and the audit process. Therefore, to be effective in its duties and responsibilities, an AC should be properly constituted, resourced, authorised, and be diligent. The AC must also possess certain characteristics for it to be, and be seen as, effective. Key amongst these characteristics, are independence, expertise, size and diligence.

Similar to the situation in other parts of the world, e.g., the RSA, USA and UK, ACs are currently established in all public sector institutions (CEs) in Ghana, in accordance with the PFMA (ROG 2016). This Act, together with related Acts, regulations and guidelines, form the central reference literature in the review of AC literature regarding the public sector in Ghana.

The second phase of the objective  $(RO^2)$ , was achieved via a focused literature review, denoted in chapter 5. It was designed to contribute to the knowledge gap by further exploring the key factors identified by the focus group participants, that were thematically categorised (refer to 4.4 and 5.1). The structured manner of the literature review in chapter 5, resulted in findings that were made for best potential practices that could enhance ACs' effectiveness in the public sector. Thus, the focused approach used from the focus groups' perspective, revealed matters presented according to the themes, below.

#### 7.3.2.1 Theme 1: Governance and policies.

In terms of this theme, the *primary driver* in the system produced by the focus groups was discussed, i.e., *"Policies governing ACs"* in Ghana's public sector. As a result, the affinity was categorised as number one of the themes, and became the pivot point of the frameworks that

developed for both ACs and the management of CEs. Two theories were used in the review, namely Institutional and Practice theories.

With regard to Institutional theory, it was suggested that:

- institutions improved its effectiveness when it established formal structures and generally accepted practices, such as the AC concept;
- the motivation for the management of the various CEs to establish ACs, was as a result of coercive isomorphism, mandated by provisions in the PFMA, the PFM Regulations and the Guidelines (ROG 2019; ROG 2017a; ROG 2016);
- ACs came into existence through the creation of laws and regulations and, as such, the management of the various CEs have no option than to comply, or be sanctioned;
- the legalisation of ACs in Ghana's public sector is an act of adopting international best governance practices in the public and private sectors, a case of mimetic isomorphism.

In terms of Practice theory, the review was guided by the three elements of *practice, practitioners* and *praxis*.

### Practice:

- refers to the laws, regulations, guidelines, and best practices governing the ACs, that should be codified in an AC Charter;
- the focus groups identified an AC Charter as the best practices, written document that outlines not only the duties and responsibilities of ACs, but also its purpose, authority and composition;
- the focus groups' request for policies governing ACs (*practice*) for the CEs, was essentially requesting a comprehensively designated document, specifically titled "AC Charter", as an enhancement and embodiment of the existing legal provisions and adopted best practices. *Practitioners:*

- practitioners play key roles in combining, coordinating, and interpreting practices to solve problems in a given situation;
- for an AC to be effective, its members and other AC stakeholders should seek understanding of the legal requirements, policies, and best practices contained in the AC Charter (*practice*) to convert the practices into implementable activities;
- the AC should not only seek knowledge concerning its roles and responsibilities as stipulated in law, but must also seek understanding of the CE's environment, operations, structure and governance system.

Praxis:

- this is the interaction between practitioners and practice, where practitioners turn practices into actions;
- it requires activities by which AC work is actualised, that involve meetings, conferences, presentations, or workshops for practitioners. Individual and collective participation by AC members is a prerequisite for effectiveness;
- the AC chairperson should be professional and motivate members to participate in all AC activities, through their presence and contributions.

In Category 2 of this theme, Understanding nature of institution, it was determined that:

- The nature of a CE was determined by the legislation establishing it and is an application of Institutional theory;
- The AC should possess an understanding and knowledge of the CE it serves;
- The process of selection and composition of AC members should consider the expertise, experience, and knowledge of individuals regarding the legal environment of the relevant CE;

- The calibre of AC members appointed for CEs should depend on varied factors, such as the complexity, nature, and scale of the CE's responsibilities, activities, and systems, including information technology systems, and the size, location, and diversity of the CE.
- AC members should continuously seek information regarding its CE, as a way of acquiring adequate knowledge of same.

In terms of Category 3 of Theme 1, Desire to bring about change, it was determined that:

- The AC established via ss 86–88 of the PFMA (ROG 2016) replaced the ARIC, previously established via s 30 of the ASA (ROG 2000);
- The AC phenomenon in Ghana had not yet matured sufficiently and appears to present several challenges to CE managers as well as AC members, in terms of positioning the AC in its rightful place;
- A number of managements and stakeholders of CEs do not actually appreciate the role of the AC in the governance process and, therefore, do not genuinely and consciously take actions to promote its effectiveness in the performance of its duties;
- The establishment of ACs is rather a recent development, and adds another layer to the bureaucratic requirements of accountability and transparency, and the risk management profiling and reporting structure of existing management responsibilities;
- The two default theories, namely Agency theory and Institutional theory, were applied in the review in terms of this category. These were enhanced by Lurt Lewin's three step theory of Institutional Change, comprising the steps *Unfreeze, Change*, and *Refreeze*.

# 7.3.2.2 Theme 2: AC stakeholder engagements.

The categories reviewed under Theme 2 were: *Commitment of AC and management, Stakeholder collaboration*, Political influence, and *Independence of the IA [function]*. The key findings are summarised below.

#### *Commitment of AC and management:*

- "commitment" denotes members of a Board/Council or committee availing themselves for meetings and other activities, and integrating it as an essential part of their individual and collective schedules;
- a low level of commitment by authorities responsible for enforcing relevant laws and administrative instructions, contributes to financial and administrative indiscipline, in CEs;
- both the AC and CE management are prevailed upon to fully commit to ensuring that the CE implements the recommendations contained in all audit reports, including IA recommendations, so as to achieve the desired objective, of being effective;
- the Organisational Commitment theory, the calculative approach, postulates that the accumulation of an individual's valued investments that they consider would be lost or deemed worthless if they were to exit from the entity, renders them committed to the organisation.

## *Stakeholder collaboration*:

- it is important for the AC to work in collaboration with its key stakeholders, in order to obtain the knowledge needed regarding the CE, so as to provide appropriate oversight and advice;
- the AC is tasked to pay concurrent attention to the legitimate interests of all appropriate stakeholders, both in the establishment of institutional structures and general policies, and in one-on-one decision-making processes;
- collaboration involves the AC's ability to obtain management's willingness to provide complete, precise, and timely disclosure of information pertaining to each area, and all over the entity;

- the key AC stakeholders within CEs, include CEOs/District Chief Executives, (Coordinating) Directors/Registrars, DoF/Finance Officers, and Directors of IA, as well as the Secretariat dedicated to the AC, as provided for in the Guidelines;
- the external auditor's work affects ACs, however there appears to be no guidance in existing legislation of the way that the AG should relate to the AC of the CE in the course of the AG's work.

## *Political influence*:

- this is where an entity, leadership, internal process, or other mechanism control the behaviour
  of members in a significant manner that substantially affects decision-making of the entity
  and/or its members, and/or of those representing the entity when dealing with outsiders in
  matters of consequence;
- the powers vested in the PAH to nominate a number of and appoint all AC members, may influence the AC when it comes to decisions that adversely affect the PAH, in the sense that the perception is created that the nomination and/or appointment of AC members largely depend on the discretion of such PAH;
- an overlap of (a two-tier system) financial oversight appears to exist, involving the constitutionally mandated PAC of Parliament at the national level, and the AC at the CE level, mandated by an act of Parliament. This causes certain CE stakeholders to regard the work of the AC as irrelevant.

## Independence of the IAF:

• IAF work is important to improving AC effectiveness, on account of its proximity in function to the AC;

- it was agreed that the competency and independence of the IAF in CEs affect the effectiveness of the AC and, hence, the provision of s 83(2) of the PFMA, that require the Head of the IAF to functionally report to the AC;
- the AC should ensure that all assurance and consulting services, provided by the IAF, comply with the approved IA Charter, a risk-based IA plan, a resource plan, and an IA budget for effective IA work.

## 7.3.2.3 Theme 3: The status of the ACs.

In terms of this theme, the status of the AC set in the structure and concept of the entity was examined pertaining to the areas of the characteristics, that also included continuous training, meetings, authority, and independence. These are summarised as below.

#### Characteristics:

- the main characteristics deemed to contribute to AC effectiveness, include *independence* (refer to 2.7.3 & 5.4.1.5), *expertise* (refer to 2.7.4), *size* (refer to 2.7.5) and *diligence* (refer to 2.7.6);
- other characteristics include *continuous professional training*, *frequency of meetings*, and *authority of the AC* (refer to 2.8, 2.8.1 and 5.4.1).

This signifies that, for an AC to be effective, the AC should be, and be seen as, independent, possess the requisite expertise needed, especially financial expertise, and exemplify diligence in its work activities and output. In addition, the size of the AC should be composed to reflect the nature and complexities of the CE. Further to these characteristics, there should be programmes for continuous professional training of AC members, so as to update them on developments in the legal-and operational environment of the CE. The AC was also perceived to be effective when meetings are organised frequently, in accordance with statutory requirements, and members avail themselves for and contribute effectively to meetings. Finally, the AC's authority must be properly defined to

bestow legitimacy that empowers it to act in a manner that achieves the objectives of the AC mandates.

### 7.3.2.4 Theme 4: AC quality: Categories 9, 10 and 11.

Theme 4 was reviewed in terms of three categories, derived from the focus groups affinities, as *Access to information* (refer to 5.5.1), [*Entity*] *Risk management policy* (refer to 5.5.2), and *AC role in effective internal controls* (refer to 5.5.3). These are summarised below.

#### Access to information:

- the meaningful flow of information is required between the AC and the CE's key stakeholders;
- the AC should seek insight from CE management regarding any emerging risks on the horizon;
- the AC should have unhindered access to internal and external auditors, exclusively. without management participation;
- the AC should engage in constant dialogue with the auditors, aside of the normal audit session, so as to deal with matters on continuous basis and not only during the audit window;
- information collected should be reviewed and utilised to enhance performance of the CE.

#### [Entity] Risk management policy:

- certain CE's do not have comprehensive risk policy assessment systems and, for that matter, no Risk Register is maintained;
- CE risk management systems should be of great concern to the AC;
- the CE should designate qualified staff to implement such risk management policies and systems;
- the CEs should regularly assess, analyse, review, and manage current and future risks, and document the results in a Risk Register, together with the associated internal controls.

### AC role in effective internal controls:

- the focus groups underscored the need for CEs to improve its systems of internal controls, to forestall financial irregularities and infractions.
- the objective is to ensure effectiveness and efficiency of operations, reliability of financial reporting, and compliance with applicable laws and regulations;
- CE management is responsible for developing an appropriate system of internal controls;
- the AC has a responsibility to review and provide oversight on the CE's internal control system, and update itself on all significant matters arising from work performed by any governance, risk, and assurance providers.

## 7.3.2.5 Theme 5: Financing the AC: Category 12.

The source and sustainability of financing or funding the AC, its members and activities, were regarded as crucial by focus group participants. The key review findings are summarised below.

*Financing the AC*:

- AC work requires enormous time value and resources;
- AC's should be appropriately remunerated;
- the appointment contract of AC members should spell out the roles, terms, and conditions of the appointment, in order that members fully understand their obligations and the benefits attached to the appointment, prior to committing themselves to do the work.
- the PFMA provides that the remuneration of the AC chairperson and members be specified by a guideline issued by the Minister, in consultation with the Internal Audit Agency;
- The Guidelines provide that the activities of an AC shall be funded by the annual budget of the CE;
- the amount of remuneration of AC members is to be equivalent to sitting allowances of Board members or senior management of the CE (whichever is higher, prevails);

- focus groups were of the view that AC members commit their skills and competencies to the committee work and, therefore, their remuneration should compensate for this, through its quality;
- AC members are to be rewarded, with payment, for the time expended in the planning of and their presence at meetings, and lack of commensurate remuneration negatively affects the performance of the AC, thus rendering it ineffective;
- people are reluctant to accept nominations to ACs of certain CEs, as they deem the remuneration package to be inadequate to compensate for their skills, competencies and the value of effort they exert with regard to their work.

### 7.3.3 Secondary research objective 3 (RO<sup>3</sup>).

The third secondary research objective is depicted in the textbox below.

To construct frameworks, proposed to enhance the effectiveness of ACs in Ghana's public sector.

The objective (RO<sup>3</sup>) was achieved at the end of chapter 5, where two frameworks were constructed. One for ACs and the other for CE management (refer to 5.1 & 5.2). It should be noted that the primary research objective for the study (RO) was to construct a framework, proposing to enhance the effectiveness of ACs in Ghana's public sector institutions (CEs) [refer to 1.3]. However, a supplementary framework, for managers of CEs, emerged (refer to table 5.3), as a result of the information that was obtained from the focused literature review, in chapter 5. This was an advantage as, whilst the proposed framework for ACs spelled out actions that the AC should (by itself) execute so as to enhance its effectiveness, the framework proposed for CE management, as the main stakeholder of ACs, prescribe actions that managers should perform to enhance the effectiveness of the AC of their (the managers') CE.

### 7.3.4 Secondary research objective 4 (RO<sup>4</sup>).

Secondary research objective 4 ( $RO^4$ ) is depicted in the textbox below (refer to 1.3).

To obtain validation from key stakeholders in the public sector, as to the appropriateness of the proposed frameworks constructed in terms of RO<sup>3</sup>.

The objective was achieved through online questionnaires, based on the themes and its categories, and presented to purposefully sampled participants, who had knowledge of and power over the AC phenomenon in Ghana's public sector. The questionnaire presented the participants with certain action statements and they were required to indicate whether they agree, partially agree or disagree. The survey also provided participants with the option to comment on any of the action statements, as they deemed appropriate. In all, the greater majority of participants agreed or partially agreed with the actions statements proposed in the frameworks. As a result, there was no need for further commentary concerning this objective. Chapter 6 was dedicated to the reporting of data and analysis of the questionnaire survey results.

#### 7.4 Recommendations

Recommendations are proffered to ACs and AC stakeholders, for consideration. The findings of the literature study and empirical studies, from the focus groups and interviews, can be beneficial in numerous ways, should it be applied by the relevant parties.

#### 7.4.1 ACs.

ACs in Ghana's public sector institutions (CEs) are critical to the public financial governance management system, especially in reducing persistent and recurrent financial irregularities and infractions, perennially at the centre of the AG's reports. These ACs are better positioned to curtail the financial irregularities and infractions, in order to ensure transparency and accountability, and towards public sector stewardship. It is, therefore, important to enhance its effectiveness by strengthening the policies (Acts of parliament, regulations, guidelines, and international best practices) that govern AC's operation, by codifying those policies in a document, namely the AC Charter, that is modified and adapted in accordance with the nature of the particular CE that AC serves.

## 7.4.2 Management of CEs.

CE management could assist ACs to enhance its effectiveness, in various ways, including:

- taking steps to establish an AC (if not yet established) in accordance with the provisions of legislation, regulations and guidelines;
- advocating for the consolidation of policies governing ACs, in an AC Charter;
- facilitating the efficient functioning of the AC, by acting on AC recommendations;
- seeking understanding of how the AC could provide additional assurance services in an advisory role, to reduce recurrent and persistent financial irregularities and infractions;
- facilitating the functions of the AC, by adopting relevant actions in the framework;
- adequately resourcing the AC secretariat at the CE, to be effective in delivering its functions;
- establishing a very cordial relationship with the AC members, for greater cooperation, towards mutual effectiveness and efficiency;
- facilitating the work of the AC, by rendering information easily accessible to the AC.

## 7.4.3 Other key stakeholders.

Other stakeholders of the AC should study the framework and consider implementing the suggested actions, listed below.

- There should be a body established by an Act of parliament or by regulation, i.e., an apex body to supervise the work of public sector ACs, that is not the Internal Audit Agency.
- The Minister of Finance should invest greater interest in the work of the AC, by reviewing the Guidelines for ACs at reasonable intervals.

- The PAC of Parliament should show interest in the work of the AC, by delegating a measure of its authority and powers to the ACs, at the CE level. This could be done by provisions in the standing orders of parliament which guides PAC work
- Parliament should elevate the functions and authority of ACs at CE level, so as to enforce entity-specific recommendations by the AG and the PAC.
- Specifically, the PAC should authorise and empower ACs, at the CE level, to execute its recommendations of the AG's annual reports.
- The AC Charter and legislation should require the AG to actively collaborate with the AC at the CE level, during the annual external audit.
- The financing of ACs should be heavily subsidised by central government to avoid the AC from financially depending on its CE.
- To minimise political interference in the work of the ACs, appropriate sactions should be provided in the relevant laws and regulations against interfering persons.

### 7.5 Contributions

#### 7.5.1 AC Charter for CEs.

The critical contribution of this study was the proposal for the compilation of an AC Charter that would, inter alia, comprise the relevant provisions of the main legislation that establishes ACs in the CEs, in Ghana. That signifies combining, in one authoritative document, all the relevant provisions of the PFMA (ROG 2016), the PFM Regulations (ROG 2019), and the Guidelines (ROG 2017a), coercive isomorphism. This AC Charter for CEs should also adopt standard and international best practices, mimetic isomorphism, that would enhance the effectiveness of ACs in the CEs.

#### 7.5.2 Literature contributions.

This research contributed to public sector AC literature, especially in Ghana. As demonstrated in chapter 2 of this paper, limited academic or empirical public sector audit committee literature was available for review. The researcher had to depend largely on private sector literature for the review, as the basis for disaggregating, in order to focus on public sector ACs in developing countries, specifically Ghana. The results of this study contribute to the knowledge through the review of literature in terms of focused factors, that were identified by the focus groups using IQA methodology.

#### 7.6 Future Research Areas

It is suggested that further research be conducted, where the final frameworks developed are tested via deductive reasoning, to obtain input from a broader spectrum of and more powerful and authoritative stakeholders, at the national level. e.g., the Director General of the Internal Audit Agency and the AG.

## 7.7 Chapter summary

This chapter concluded and summarised the main findings of the study. The chapter summarised the main research finding, that achieved the primary and secondary objectives of the study. Based upon the findings and achievement of the study objectives, recommendations were suggested to ACs, CE management, and other key AC stakeholders. This was followed by the contributions of the study and, finally, suggested areas of future reseach.

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# ANNEXURES ANNEXURE 1 Refer to next page.

# UNISA COLLEGE OF ACCOUNTING SCIENCES RESEARCH ETHICS REVIEW COMMITTEE

Date: 9 June 2023

Dear Mr MB Kudo,

ERC Reference # : 2022\_CAS\_020\_Amendment Name : MB Kudo Student no: 64070433

Decision: Ethics Approval from 5 August 2022 to 4 August 2025

**Researcher:** Mr. Matthew Brains Kudo **Supervisor:** Prof. Lourens J Erasmus

(<u>4070433</u> @mylife.unisa.ac.za) (<u>erasmlj1@unisa.ac.za</u>)

Working title of research: <u>A Framework to Enhance Audit Committee Effectiveness in Ghana's Public Sector</u>

Qualification: PhD and non-degree

Thank you for the application for research ethics clearance by the Unisa College of Accounting Sciences Research Ethics Review Committee for the above mentioned research. **Ethics approval is granted for the collection of data by means of focus groups and online questionnaires.** The certificate is valid for the period **5 August 2022 to 4 August 2025**.

The **low-risk application** was **approved** on **5 August 2022 (amended 9 June 2023)** in compliance with the Unisa Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment.

The proposed research may now commence with the provisions that:

- 1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.
- Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the CAS RERC.
- 3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
- 4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of

participants' privacy and the confidentiality of the data, should be reported to the Committee in writing, accompanied by a progress report.

- 5. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.
- 6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.
- No fieldwork activities may continue after the expiry date (4 August 2025). Submission of a completed research ethics progress report will constitute an application for renewal of Ethics Research Committee approval.

#### Note:

The reference number **2022\_CAS\_020** should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.

Yours sincerely,

### Signature: **Prof Lourens Erasmus**

### Signature: Dr Chisinga Chikutuma



Digitally signed by Dr CN Chikutuma DN: cn-Dr CN Chikutuma, o=Unisa: College of Accounting Sciences, ou=Head: Office for Graduate Studies and Research, email=chikucn@unisa.ac.za, c=ZA Date: 2023.06.13 08:32:26 +02'00'

Chair of CAS RERC

Research By delegation from the Executive Dean: College of Accounting Sciences

Head: Office for Graduate Studies and

E-mail: <u>chikucn@unisa.ac.za</u> Tel:(012)429-3401

E-mail: <u>erasmlj1@unisa.ac.za</u> Tel:(012)429-8844

### ANNEXURE 2: PERMISSION LETTER TO THE COVERED ENTITIES

Email: 64070433@mylife.unisa.ac.za OR kutsidok@yahoo.com Tel: +233244245830



Dear Sir/ Madam,

### Request for permission to conduct research on audit committees at your institution

My name is Matthew Brains Kudo. I am registered for a Doctor of Philosophy (PhD) degree at the University of South Africa (Unisa). My supervisor is Professor Lourens Erasmus, a professor in the Department of Financial Governance, College of Accounting Sciences. We wish to invite members of your audit committee, members of senior management and head of internal audit, to participate in a study entitled "A Framework to Enhance Audit Committee Effectiveness in Ghana's Public Sector".

Two online focus groups are planned. One comprising of audit committee members (supply-side) and the other comprising of key stakeholders (demand-side). An information leaflet, informed consent form and date and time of the focus group will be sent to individuals who indicate their participation, by replying to the e-mail address of the researcher. A draft framework that emanates from the focus group discussions will also be validated with interviews.

I will be grateful if you could assist me to distribute the invitation to participate, to members of your audit committee and senior management. Their rich knowledge on factors that may enhance the effectiveness of audit committees in Ghana's public sector, may strengthen one of the pillars of sound corporate governance.

Please be assured that participation in the focus groups or interview is voluntary, and the responses of all participants will remain anonymous in the write-up of the study. However, it needs to be acknowledged that total confidentiality or anonymity is not possible amongst focus group members.

If you wish to be informed of the final research findings or gain any further information about the study, please contact the researcher, Matthew Brains Kudo on +233 244245830 or kutsidok@yahoo.com. Please note also that the researcher is a lecturer at the Department of Accounting and Finance at the Ho Technical University, Ghana. Should you have concerns about the way in which the research has been conducted, you may contact Prof Lourens Erasmus, Tel: 012 429 8844 / Cell: +27 72 622 1054 E-mail: erasmlj1@unisa.ac.za.

Yours sincerely

Homaticolo

Matthew Brains Kudo

### ANNEXURE 3:

# Email: 64070433@mylife.unisa.ac.za OR kutsidok@yahoo.com Tel: +233244245830

### **PARTICIPANTS INVITATION**

Dear Participant,

Thank you for your willingness to be part of this IQA focus group.

Please find the participant information and participant consent sheet attached to this email.

Please, see below all the information needed for the IQA online focus group:

**Topic:** A Framework to Enhance Audit Committee Effectiveness in Ghana's Public Sector **Date:** 16 September 2022

Time: 10:00 Ghana time

Join Zoom Meeting: https://us06web.zoom.us/j/89914960175 [Meeting ID: 899 1496 0175]

Preparation: Kindly sign up with MIRO @ www.miro.com on your computer

### Please note the following carefully:

- We will start at 10.AM exactly it will be very much appreciated if you can join promptly at the beginning of the session and stay to the end.
- Your singular presence counts in making up the minimum number required for the group session.
- You need a computer and a good internet connectivity.
- All participants need to sign up with MIRO @ www.miro.com before the session.
- There will be an independent facilitator (Carl du Preez) who will lead the session.
- The researcher will act as observer and assistant.

Please do not hesitate to contact the researcher on 0244245830 or kutsidok@yahoo.com for further information and clarification if needed.

I count on your kind cooperation.

Kind regards

Researcher's signature:

Date: 8th July, 2022

# ANNEXURE 4: PhD RESEARCH FOCUS GROUP PARTICIPANTS INFORMATION SHEET

Ethics clearance reference number: 2022\_CAS\_020

### Title: A Framework to Enhance Audit Committee Effectiveness in Ghana's Public Sector

### **Dear Prospective Participant,**

My name is Matthew Brains Kudo and I am doing research towards a Doctor of Philosophy (PhD) at the University of South Africa (Unisa). My supervisor is Professor Lourens Erasmus, a professor in the Department of Financial Governance, College of Accounting Sciences. We are inviting you to participate in a study entitled "A Framework to Enhance Audit Committee Effectiveness in Ghana's Public Sector". I requested the secretary of the Audit Committees of the Departments or Agencies, Metropolitan, Municipal or District Assemblies, of which you are an Audit Committee member or key stakeholder (Director/District Coordinating Director, Finance officer/Director, Director of Internal Audit, Presiding Member), to share this invitation with you. Due to principles of confidentiality, the name of the entity is not mentioned here.

### WHAT IS THE PURPOSE OF THE STUDY?

The purpose of this study is to construct a framework within which the effectiveness of Audit Committees in Ghana's public sector institutions (i.e. Covered Entities) could be appraised.

### WHY AM I BEING INVITED TO PARTICIPATE?

You have been selected to participate in a focus group session because you are either an Audit Committee member or a key stakeholder (CEO, Director, Finance Officer/Director, Director of Internal Audit, and Presiding Member) of the Audit Committee of a selected Covered Entity. The online focus group session will comprise of up to 20 participants with an estimated duration of no longer than three hours.

### WHAT IS THE NATURE OF MY PARTICIPATION IN THIS STUDY?

The data collection involves two focus group discussions that will be conducted online and recorded for subsequent analysis. As a participant, you will join other AC members or key stakeholders respectively, from sister institutions (Covered Entities) to form a focus group. Focus groups are formed with clusters of individuals who may have varied opinions and experiences with the phenomenon under study (in this case Audit Committee Effectiveness) but who more critically share a common perspective. There will be a

facilitator who will direct proceedings. For the focus group, a single question will be formulated that the group participants are required to discuss in a silent brainstorming session controlled by the facilitator. The participants' perspective on those factors that make Audit Committees effective, within the context of Ghana's public sector is to be obtained. The factors identified and their relationship with one another, will form the basis to discuss specific issues in a focused literature review. The data generated from the focus group sessions and the focused literature review will serve as tools which will be used to draft a framework that may enhance the effectiveness of ACs in Ghana's public sector. To validate and enhance the draft framework, it will be presented for scrutiny to key stakeholders.

### CAN I WITHDRAW FROM THIS STUDY EVEN AFTER HAVING AGREED TO PARTICIPATE?

Participating in this study is voluntary and you are under no obligation to consent to participation. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a written consent form. You are free to withdraw at any time and without giving a reason. However, your full participation to the end is highly needed for the success of this study and therefore we implore you to get fully involved.

### WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

There is no financial or material benefits in participating in this online focus group, apart from sharing your rich knowledge with the researcher. The knowledge shared will form part of the final research output.

# ARE THERE ANY NEGATIVE CONSEQUENCES FOR ME IF I PARTICIPATE IN THE RESEARCH PROJECT?

The only foreseen consequence is the inconvenience in taking time off your busy schedule to participate in the focus group session.

# WILL THE INFORMATION THAT I CONVEY TO THE RESEARCHER AND MY IDENTITY BE KEPT CONFIDENTIAL?

The researcher will anonymise all data in the write-up of the research. Your answers may be reviewed by people responsible for making sure that the research is done properly, including the transcriber, external coder, and members of the Research Ethics Review Committee. Otherwise, records that identify you will be available only to people working on the study, unless you give permission for other people to see the records. People working with the data will sign confidentiality agreements.

Please, note that your anonymous data may be used for purposes, such as a research report, journal articles and/or conference proceedings. A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report. Please keep in mind that it is sometimes impossible to make an absolute guarantee of confidentiality or anonymity, e.g. when focus groups are used as a data collection method. For this reason, I advise you not to disclose personally sensitive information in the focus group.

### HOW WILL THE RESEARCHER(S) PROTECT THE SECURITY OF DATA?

The recording of the session will be kept on a password protected computer for 15 years, after which it will be deleted. Anonymised data may be uploaded on a data repository for future research use. Any use of the data will be subject to further Research Ethics Review and approval if applicable.

### WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?

Participating in the focus group is voluntary and does not involve any financial or material benefits to the participant. Participants in the online sessions can apply to be reimbursed for internet data expended. You will also receive a formal acknowledgement and appreciation for participating in this academic oriented research.

### HAS THE STUDY RECEIVED ETHICS APPROVAL

This study has received written approval from the Research Ethics Review Committee of the College of Accounting Sciences at Unisa. A copy of the approval letter can be obtained from the researcher if you so wish.

### HOW WILL I BE INFORMED OF THE FINDINGS/RESULTS OF THE RESEARCH?

If you would like to be informed of the final research findings or gain any further information about the study, please contact the researcher, Matthew Brains Kudo on +233 244245830 or kutsidok@yahoo.com. The findings are accessible for 15 years. Should you have concerns about the way in which the research has been conducted, you may contact Prof Lourens Erasmus, Tel: 012 429 8844 / Cell: 072 622 1054 E-mail: erasmlj1@unisa.ac.za.

Thank you for taking time to read this information sheet and for participating in this study. Thank you.

Homaticolo

Matthew Brains Kudo

### **ANNEXURE 5**

### CONSENT TO PARTICIPATE IN THIS STUDY

I, \_\_\_\_\_\_ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).

I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

I agree to the recording of the focus group session.

I have received a signed copy of the informed consent agreement.

Participant full Name .....

Participant Signature......Date......Date.....

Researcher's Name & Surname: Matthew Brains Kudo

Researcher's signature:

Honvalticolo

Date: 8<sup>th</sup> July, 2022

### ANNEXURE 6

In case of reply the number and the date of this

letter should be quoted

My Ref. No. HTH/RPPME/

#### Our Core Values:

✓ Commitment
 ✓ Accountability
 ✓ Dedication
 ✓ Integrity
 ✓ Professionalism
 ✓ Innovation
 ✓ Teamwork
 ✓ Safe Care

HO TEACHING HOSPITAL P O BOX MA-374

HO

GPS ADDRESS: VH-0080-7239

Tel:+233-(036) 2027318-20/2028207

Fax:+233-(036) 2027323

Website: <u>www.hth.gov.gh</u> Email: <u>info@hth.gov.gh/</u> <u>hvolta@yahoo.com</u>

11<sup>th</sup> August 2022

### TO WHOM IT MAY CONCERN

### **LETTER OF INTRODUCTION**

I hereby introduce to you the bearer of this letter, **Matthew Brains Kudo**, a PhD Student of the **University of South Africa**. He is carrying out a study titled: **"A Framework to Enhance Audit Committee Effective in Ghana's Public Sector."** 

This study has been approved by the Management of the Hospital after Ethical approval was received from the UNISA College of Accounting Sciences Research Ethics Committee with Protocol Identification number **2022\_CAS\_020**. The Ethical approval is valid till **4**<sup>th</sup> August 2025.

Please accord him all the necessary assistance as this study will help improve upon the quality of auditing and contribute to knowledge and practice of audit in general. In addition, inspect his student identification card for validation.

Also, ensure names and identification numbers are anonymized by the student. This is to protect the confidentiality and privacy of participants.

If in doubt, kindly contact the Research Department; Room N32 on the administration block, or Telephone 024485\*\*\*\*. Also, kindly report any misconduct of the Principal Investigator to the Research Department for necessary actions, please.

Thank You.

[Name and signature deleted]

# **Deputy Director, RPPME**

# ANNEXURE 7: DETAILED AFFINITY RELATIONSHIP TABLE (DART)

Please complete the attached table below by indicating what you think the direction of the relationship between two affinities is. Use the affinity descriptions as done during the focus group to help you with this task.

For example:

If you think that 1 influences 2, then indicate  $1 \rightarrow 2$ 

If you think that 2 influences 1, then indicate  $1 \leftarrow 2$ 

If you think that there is no relationship between 1 and 2, then indicate 1 < > 2.

PLEASE NOTE: An arrow may only go in one direction. Although you may feel that the direction of the relationship can go both ways, you must indicate the direction you think illustrates the strongest or most important influence.

PLEASE NOTE: Use a specific example from your own experience to illustrate your point rather than a vague statement.

Thank you for the time and effort that you are willing to put into this research project.

Below is the list of the affinities you are requested to consider. Please also refer to the list of affinity descriptions (as done during the focus group) for completing the table below. Remember that an arrow can go either left or right, but not in both directions.

| Affinities Principles   | Possible relationships                          |  |  |
|---|---|--|--|
| <ol> <li>Characteristics or qualities of Audit<br/>Committee members</li> </ol>   | If Affinity 1 influences Affinity 2 then:       |  |  |
| 4. Coordination among stakeholders  | 1 → 2   |  |  |
| 5. Financing of Audit Committee   | If Affinity 2 influences Affinity 1 then:       |  |  |
| <ol> <li>Frequency of meetings</li> <li>Independence</li> </ol>   | If Anning 2 midences Anning 1 then.             |  |  |
| 8. Independence of the internal audit   | 1 ← 2   |  |  |
| <ul> <li>9. Management commitment</li> <li>10. Nature of institution audited</li> <li>11. Policies governing Audit Committee</li> </ul> | If there is no relationship between affinities: |  |  |
| <ul> <li>11. Policies governing Audit Committee</li> <li>12. Political influence</li> </ul>   |   |  |  |
| <b>13.</b> Professional competence of Internal Auditors   | 1 < > 2   |  |  |
| 14. Quality control   |   |  |  |
| 15. Quality recommendation  |   |  |  |

Date: 21/09/2022

Name: Deleted

| Affinity pair |                              |         | Give an example in natural language using an IF/THEN statement to explain the relationship according to your personal experience |  |  |
|---------------|------------------------------|---------|--|--|--|
| 1             | ÷                            | 2       |  |  |  |
| 1             | +                            | 3       |  |  |  |
| 1             | ÷                            | 4       |  |  |  |
| 1             | $\rightarrow$                | 5       |  |  |  |
| . 1           | $\rightarrow$                | 6       |  |  |  |
| 1             | $\rightarrow$                | 7       |  |  |  |
| . 1           | $\rightarrow$                | 8       |  |  |  |
| 1             | $\rightarrow$                | 9       |  |  |  |
| 1             | $\rightarrow$                | 10      |  |  |  |
| 1             | $\rightarrow$                | 11      |  |  |  |
| 1             | $\rightarrow$                | 12      |  |  |  |
|               | $\rightarrow$                |         |  |  |  |
| 1             | $\rightarrow$                | 13      |  |  |  |
| 2             |                              | 3       |  |  |  |
| 2             | $\rightarrow$                | 4       |  |  |  |
| 2             | <u>←</u>                     | 5       |  |  |  |
| 2             | $\rightarrow$                | 6       |  |  |  |
| 2             | $\rightarrow$                | 7       |  |  |  |
| 2             | $\rightarrow$                | 8       |  |  |  |
| 2             | $\rightarrow$                | 9       |  |  |  |
| 2             | $\rightarrow$                | 10      |  |  |  |
| 2             | ÷                            | 11      |  |  |  |
| 2             | ÷                            | 12      |  |  |  |
| 2             | ÷                            | 13      |  |  |  |
| 3             | $\rightarrow$                | 4       |  |  |  |
| 3             | $\rightarrow$                | 5       |  |  |  |
| 3             | $\rightarrow$                | 6       |  |  |  |
| 3             | $\rightarrow$                | 7       |  |  |  |
| 3             | $\rightarrow$                | 8       |  |  |  |
| 3             | ÷                            | 9       |  |  |  |
| 3             | $\rightarrow$                | 10      |  |  |  |
| 3             | ÷                            | 11      |  |  |  |
| 3<br>3        | ÷                            | 12      |  |  |  |
| 3             | $\rightarrow$                | 13      |  |  |  |
| 4             | ÷                            | 5       |  |  |  |
| 4             | ÷                            | 6       |  |  |  |
| 4             | ÷                            | 7       |  |  |  |
| 4             | ÷                            | 8       |  |  |  |
| 4             | <del>(</del>                 | 9       |  |  |  |
| 4             | →                            | 10      |  |  |  |
| 4             | <del>```</del>               | 11      |  |  |  |
| 4             | ÷                            | 12      |  |  |  |
| 4             | $\rightarrow$                | 13      |  |  |  |
| 5             | $\rightarrow$                | 6       |  |  |  |
| 5             | $\rightarrow$                | 7       |  |  |  |
| 5             | $\rightarrow$                | 8       |  |  |  |
| 5             | <del>```</del>               | 9       |  |  |  |
| 5             | $\rightarrow$                | 9<br>10 |  |  |  |
| 5<br>5        | <del>7</del><br><del>4</del> | 10      |  |  |  |
| J             | $\mathbf{r}$                 |         |  |  |  |

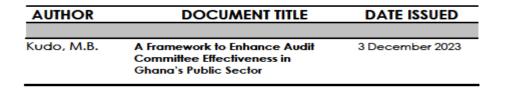
| 5      | ←  | 12 |  |
|--------|--|----|--|
| 5      | $\rightarrow$  | 12 |  |
| 5      | 7  |    |  |
| 6      | ÷  | 7  |  |
| 6      | $\rightarrow$  | 8  |  |
| 6<br>6 | +<br>+   | 9  |  |
| 6      | +  | 10 |  |
| 6<br>6 | $\rightarrow$  | 11 |  |
| 6      | $\leftarrow$   | 12 |  |
| 6      | +  | 13 |  |
| 6<br>7 | $\rightarrow$  | 8  |  |
| 7      | $\begin{array}{c} \leftarrow \\ \rightarrow \\ \rightarrow \\ \end{array}$ | 9  |  |
| 7      | $\rightarrow$  | 10 |  |
| 7      | $\rightarrow$ $\rightarrow$  | 11 |  |
| 7      | $\leftarrow$   | 12 |  |
| 7      | $\rightarrow$  | 13 |  |
|        | ←  | 9  |  |
| 8<br>8 | $\rightarrow$  | 10 |  |
| 8      | ÷  | 11 |  |
| 8<br>8 | +<br>+   | 12 |  |
| 8      | ←  | 13 |  |
| 9      | $\rightarrow$ $\leftarrow$   | 10 |  |
| 9      | ÷  | 11 |  |
| 9<br>9 | +<br>+   | 12 |  |
| 9      | ÷  | 13 |  |
| 10     | ←  | 11 |  |
| 10     | ÷  | 12 |  |
| 10     | ÷  | 13 |  |
| 11     | ÷  | 12 |  |
| 11     | ÷  | 13 |  |
| 12     | $\rightarrow$  | 13 |  |

# **ANNEXURE 8**



### **ANNEXURE 9**





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