

# **SIGNALLING INTERNAL AUDIT EFFECTIVENESS**

by

**Jabile Brenda Pooe**

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at the

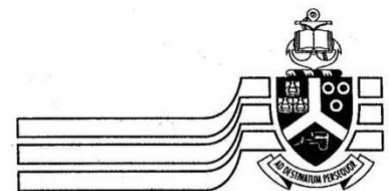
**UNIVERSITY OF PRETORIA**

Promoter: Prof. K. Barac

Co-promoter: Prof. K. Plant

Co-promoter: Dr. B. Steyn

**DEPARTMENT OF AUDITING**

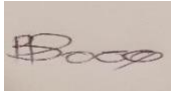


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## **ABSTRACT**

Internal audit effectiveness (IAE) has been the subject of academic research for many years. Extant IAE literature provides clues on IAE indicators or factors and ways to measure them. However, the question still remains: Is signalling IAE associated with higher company performance? Hence, this study set out to investigate the relationship between signalled IAE factors and company performance of the top 100 companies listed on the Johannesburg Stock Exchange in South Africa for the period 2012–2016. Being located within the post-positivist worldview, the study draws on agency and signalling theories and employs content analysis, multiple correspondence analysis (MCA) and regression analysis for data collection and analysis.

Following the literature review, 54 IAE indicators or factors were identified and used to construct the IAE signalling frame. The latter guided the content analysis of integrated reports and other annual reports in which each IAE indicator was scored against the frame. After this, MCA was employed to reduce the 54 IAE indicators to 19 signalled IAE factors. Regression analysis was then used to determine the relationship between the signalled IAE factors and company performance. The regression analysis results showed a mix of positive and negative relationships between signalled IAE factors and company performance.

The hypothesis was accepted for seven signalled IAE factors, rejected for three and was not significant for nine. The positive relationship between signalled IAE factors and company performance implies that disclosing IAE factors reduces information asymmetry in the agency relationship, and such signals improve investor confidence and company performance. The negative relationships were associated with compliance with regulatory measures. From a signalling theory perspective where disclosure addresses information asymmetry, the signalling of this information may not be value-adding because such information may possibly be assumed to be in place and may already have been factored in by internal and external stakeholders in their performance evaluation. As one of the first attempts at exploring IAE disclosure using a self-constructed IAE signalling frame and employing MCA as a factor extraction

method, the study contributes to IAE discourse and research and could guide managers on the areas of IAE signalling that bear a relationship to company performance.

**Keywords:** internal audit function, internal audit effectiveness, signalling, company performance, integrated reporting, content analysis, multiple correspondence analysis.

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## LIST OF ABBREVIATIONS

<b>AC</b>	Audit committee
<b>ADX</b>	Abu Dhabi Securities Exchange
<b>AFS</b>	Annual financial statement
<b>AR</b>	Annual report
<b>ASX</b>	Australian Securities Exchange
<b>BLUE</b>	Best linear unbiased estimates
<b>BoD</b>	Board of Directors
<b>BSC</b>	Balanced scorecard
<b>CA</b>	Correspondence analysis
<b>CAE</b>	Chief audit executive
<b>CBOK</b>	Common Body of Knowledge
<b>CEO</b>	Chief executive officer
<b>CFIA</b>	Competency Framework for Internal Auditors
<b>CFO</b>	Chief financial officer
<b>CIIA</b>	Chartered Institute of Internal Auditors
<b>COBIT</b>	Control Objectives for Information and related Technology
<b>COSO ERM</b>	The Treadway Commission of Sponsoring Organisations Framework on Enterprise Risk Management
<b>COSO IC</b>	The Treadway Commission of Sponsoring Organisations Framework on Internal Control
<b>CPD</b>	Continuous professional development
<b>CSA</b>	Control self-assessment
<b>CSR</b>	Corporate social responsibility
<b>CTA</b>	Cash generated from operations and total assets
<b>D/A</b>	Debt-to-asset ratio
<b>D/E</b>	Debt-to-equity ratio
<b>EA</b>	External audit
<b>ECIIA</b>	European Confederation of Institutes of Internal Auditing
<b>ERM</b>	Enterprise risk management
<b>GLS</b>	Generalised least squares
<b>GRR</b>	Governance and risk report

<b>IA</b>	Internal audit
<b>IAE</b>	Internal audit effectiveness
<b>IAF</b>	Internal audit function
<b>IC</b>	Internal control
<b>ICB</b>	Industry classification benchmark
<b>ICGN</b>	International Corporate Governance Network
<b>IIA</b>	Institute of Internal Auditors
<b>IIASA</b>	Institute of Internal Auditors South Africa
<b>IIARF</b>	Institute of Internal Auditors Research Foundation
<b>IIRC</b>	International Integrated Reporting Council
<b>IoDSA</b>	Institute of Directors South Africa
<b>IPPF</b>	International Professional Practice Framework
<b>IR</b>	Integrated report
<b>&lt;IR&gt; Framework</b>	International Integrated Reporting Framework
<b>IT</b>	Information technology
<b>JSE</b>	Johannesburg Stock Exchange
<b>King I</b>	The King Code of Governance Principles for South Africa 1994
<b>King II</b>	The King Code of Governance Principles for South Africa 2004
<b>King III</b>	The King Code of Governance Principles for South Africa 2009
<b>King IV</b>	The King Code of Governance Principles for South Africa 2016
<b>King Code</b>	King Report and King Code collectively
<b>King Report</b>	King Report on Governance for South Africa
<b>MBV</b>	Market-to-book value
<b>MCA</b>	Multiple correspondence analysis
<b>MFMA</b>	Municipal Finance Management Act, No. 56 of 2003
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>OLS</b>	Ordinary least squares
<b>PFMA</b>	Public Finance Management Act, No.1 of 1999
<b>QAIP</b>	Quality assurance and improvement programme
<b>ROA</b>	Return on assets
<b>ROE</b>	Return on equity
<b>SA</b>	South Africa
<b>SARB</b>	South African Reserve Bank

<b>SM</b>	Senior management
<b>SOR</b>	Statement of Responsibility of the Internal Auditor
<b>SOX</b>	Sarbanes-Oxley Act of 2002
<b>SPSS</b>	Statistical Package for Social Sciences
<b>Standards</b>	International Standards for the Professional Practice of Internal Auditing ( <i>Standards</i> )
<b>UK</b>	United Kingdom
<b>UP</b>	University of Pretoria
<b>USA</b>	United States of America
<b>VIF</b>	Variance inflation factor
<b>3LoD</b>	Three Lines of Defense model

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# CHAPTER 1

## INTRODUCTION AND BACKGROUND TO THE STUDY

### 1.1 INTRODUCTION

The aim of this study was to investigate the relationship between signalled internal audit effectiveness (IAE) factors and company performance. Effectiveness is when a desired or intended result is achieved (Dittenhofer, 2001:445; IIA, 2016d). An effective internal audit function (IAF) needs to render assurance and consulting services that add value and improve an organisation's operations to be in line with the definition of internal auditing (IIA, 2016b). In essence, effective IAFs should render value-added services within a company, where the value received exceeds the cost of the service in a manner that enhance company performance. Prior literature is yet to comprehensively identify the factors that enable an IAF to be effective or consider the relationship between signalled IAE factors and company performance.

In the absence of a comprehensive guide to factors and indicators of IAE, this study used prior literature to develop a comprehensive list of IAE indicators (IAE signalling frame) which can be used to signal IAE. The IAE signalling frame was used to guide the content analysis and score the IAE signals as disclosed by the sampled companies. This investigation was conducted using a sample of 89 from the top 100 companies listed on the Johannesburg Stock Exchange (JSE) in South Africa (SA) for the period 2012–2016. The main sources of data used to identify signalled IAE factors were the integrated report (IR) and other annual reports (ARs). The other ARs comprise the annual financial statements (AFS) and the governance and risk reports (GRRs).

The study was conducted in four stages, starting with a review of the literature on IAE and a focus on its indicators, factors, drivers, and measures, to identify the organisational, relational and internal audit (IA) quality indicators of IAE and the way they are measured. These identified indicators were used to develop an IAE signalling frame consisting of 54 indicators. Secondly, the study extracted the IAE signals reported among South African listed companies using information signalled in the IRs

and ARs, as indicated by the IAE signalling frame. Thirdly, the initial 54 IAE indicators were further reduced to 19 IAE signalled factors with the aid of multiple correspondence analysis (MCA). Lastly, through regression analysis, the study determined the relationship between the signalled IAE factors and company performance.

The study used agency theory and signalling theory. From an agency theory perspective, IA as a governance mechanism can be a bonding cost that the board and management use for improved internal monitoring. However, internal auditing is expected to operate effectively, in a manner that adds value and as such the value-adding components should exceed the bonding cost, indirectly improving company performance. Signalling includes voluntary disclosure of internal knowledge on IAE factors by the board and executive management to signal that the company is superior to other companies and thus more valuable.

The chapter is organised as follows: Section 1.2 positions the study in the literature. Specifically, it briefly discusses the growing importance of the internal audit function (IAF) within companies and the need for the function to be effective. The section also analyses how the IAF, as a corporate governance mechanism, can be linked to company performance. Furthermore, the section shows the connection between the voluntary disclosure of IAE and company performance. In this regard, the role of IRs is underscored. Section 1.3 justifies the motivation, articulates the problem and the need for this study. Section 1.4 proceeds to highlight the research questions and objectives and it is followed by a brief discussion of the research design and methods in section 1.5. A summary of the study's contributions is presented in section 1.6. Delimitations of the study, presented in section 1.7 provide an indication of how the study answered the main and subordinate research questions. Section 1.8 outlines the way the thesis is organised by providing a brief preview of each chapter. Section 1.9 clarifies some of the key terms used throughout most of the study and the final section concludes the chapter.

## 1.2 POSITIONING THE STUDY IN THE LITERATURE

Companies rely increasingly on the IAF for direction in strategic matters of governance, risk management and internal control (Argento, Umans, Håkansson & Johansson, 2018; IIA, 2012a; Kasim & Hanafi, 2012; Saud & Marchand, 2012). Aksoy and Bozkus (2012:1283) argue that the IAF can enhance a company's capability and productivity by expertly assisting management to develop and maintain an "effective internal control environment and by conducting efficient and effective audits". A more effective internal control environment is bound to improve company performance, suggesting a relationship between IAE and company performance. There is also a growing expectation that the IAF should play a critical role in the area of organisational efficiency and effectiveness (Dada, Adeyemi, Adebayo & Ogunidipe, 2018; Ernst & Young, 2008:5; Marx & Voogt, 2010:18). Emphasis on the need for IA as a value-adding function has led to increased research into the factors that improve its performance (Arena & Azzone, 2007; Leung, Cooper & Robertson, 2003; Shahimi, Mahzan & Zulkifli, 2016). In this regard Mihret and Yismaw (2007:472) posit that IAE is central to IA quality performance and is determined by the IAF's ability to provide useful findings and recommendations (Lenz & Hahn, 2015:7).

IAE is a broad concept, as is reflected by the numerous indicators that have been advanced as influencing IAE. These include the structure and status of the IAF, the scope of work and size, independence and professional qualifications of internal auditors, the role and quality of work as well as the IAF's relationship with the audit committee (AC), senior management (SM) and external auditors, among others (Lenz & Hahn, 2015). Interestingly Holt (2012) shows that disclosing the IAF's structure, role and audit reports benefits companies by increasing the perceived credibility of financial reporting.

This study focuses on the relationship between signalled IAE factors sent in IRs and ARs, to reduce information asymmetry and signal superiority, and company performance. Connelly, Certo, Ireland and Reutzel (2001:39) explain that in instances where information asymmetry exists, signalling theory is useful to describe the signal sent as well as the receiving of the signal. This study focuses on the sending of signals;

an assessment of the receiving of signals by outside stakeholders is an area for future research. The question of how the various signalled IAE factors are related to company performance remains an important one in the IAE debate, especially where the IAF is viewed as a value-adding corporate governance mechanism (Botha & Wilkinson, 2019:414; Shahimi *et al.*, 2016:723). Although previous studies have investigated some IAE factors, evidence of empirical studies investigating the signalling of IAE factors remains scant. Hence, this study addresses the knowledge gap by developing a comprehensive list of IAE factors that can be signalled to reduce information asymmetry. In addition the study assesses the relationship between signalled IAE factors and company performance helping to contribute to the body of knowledge by identifying which factors are the best to signal.

Many researchers have studied IAE as a phenomenon and used different methods and instruments to measure IAE (Arena & Azzone, 2009; Bota-Avram & Palfi, 2009; Dittenhofer, 2001; Karagiorgos *et al.*, 2011; KPMG, 2013; KPMG & IoDSA, 2009; Papastathis, 2003; Soh & Martinov-Bennie, 2011). Literature reveals two predominant perspectives: the supply-side perspective, where the internal auditors, mainly the chief audit executive (CAE), assess their own performance in terms of their role and effectiveness, and the demand side, where the assessment is made by their stakeholders who are beneficiaries of IA services (Lenz & Hahn, 2015:15). These assessments are generally more subjective using self-assessment or survey instruments to obtain the different perspectives. Some assessments were initiated by internal auditors to measure the IAF's efficiency and others were directed outwardly at stakeholders in a form of satisfaction surveys (IIA, 2015:10). Although the literature portrays different methods and instruments for measuring IAE, most studies used limited factors and more subjective perception measures to assess IAE. This study used a comprehensive IAE frame to measure signalled IAE.

The company is characterised by agency costs which have a bearing on financial performance (Jensen & Meckling, 1976). These costs are defined as the sum of the principal's monitoring expenditure, the agent's bonding expenditure and residual loss born by the principal (Jensen & Meckling, 1976:308). Hence, agency theorists advocate the use of governance structures to lower agency costs and improve

performance (Demsetz, 1983; Fama & Jensen, 1983; Fama, 1980:295) (section 2.2.1 discusses this aspect in more detail). The IAF is an internal assurance function that assist executive management in their monitoring role and as such can be viewed as a bonding cost. As knowledge of the IAF's findings is internal knowledge it can result in information asymmetry between executive management, the board, and outside stakeholders. The link between IAE and company performance is derived from the strategic role that IA plays as an internal governance mechanism. The IAF is the third line of defense that provides assurance to management, the board and the AC on the performance and effectiveness of the first (operational management) and second lines of defense (oversight functions like risk management and compliance) (CIIA, 2019) (section 3.2.4 discusses this aspect in more detail). This internal assurance reduces internal information asymmetry and improves a company's ability to achieve its objectives which invariably includes financial performance. The link between signalling IAE and company performance is developed from the signalling theory perspective, which equates voluntary disclosure with a communication of value to investors and external stakeholders (section 2.2.2 discusses this aspect in more detail).

By investigating the relationship between signalled IAE factors and company performance, this study addresses the knowledge gap on signalled IAE factors and their relationship to company performance. To that end, this study has developed the IAE signalling frame from the literature, which helps disclose patterns of IAE signalling based on a content analysis of IRs and other ARs. Previous studies on IAE have adopted qualitative and quantitative approaches in investigating different and varying factors impacting on IAE. For example, quantitative studies looked at organisational setting, IA quality of work, IA competence and proficiency, IA processes and relationship with the executive or SM and the AC (Arena & Azzone, 2009; Alzeban & Gwilliam, 2014; Cohen & Sayag, 2010; Badara & Saidin, 2014; Ramanchandran, Subramanian & Kisoka, 2012) while some qualitative studies also delved more deeply into the relational aspects of IAE (Abuazza, Mihret, James & Best, 2015; Lenz, Sarens & Hoos, 2017; Soh & Martinov-Bennie, 2011). Some of these studies were based on the Common Body of Knowledge (CBOK) data and surveys (D'Onza, Selim, Melville & Allegrini, 2015). However, the present study consolidated the IAE indicators found in the literature to provide a more comprehensive perspective on IAE indicators.

Methodologically, most quantitative studies linked survey results with exploratory factor analysis. To better achieve the objectives of this study, a more objective content analysis was used to measure the IAE indicators (refer to the signalling frame in Table 3.2). A MCA, although uncommon in IAE disclosure studies, was used as a data reduction method reducing the 54 indicators to 19 signalled factors. Thus far, the use of MCA in this study is unique in IAE research. Section 5.3.2 discusses the MCA method and its application to this study in detail.

As indicated earlier, this study was grounded on agency and signalling theories. Agency theory, which considers goal divergence between principals and agents, is the more commonly used theory in IA research. Agency theory was used in a variety of studies to explain, for example, the possible conflict of interests between shareholders and management, the characteristics of internal auditors, the role and function of IA, its role in the promotion of corporate governance and the IA relationship with other governance structures and IAE (De Almeida, 2014; Endaya & Hanefah, 2016; Eulerich, Theis, Velte & Stiglbauer, 2013; Ismael, 2019; Ismael & Roberts, 2018; Mihret, 2014; Sarens & Abdolmohammadi, 2011; Zahirul Islam, Bhattacharjee & Zahirul Islam, 2010). Although signalling theory has been used in voluntary corporate disclosure studies, it has yet to find expression in IAE disclosure. There are very few studies in IA research that have used signalling theory (Drogalas, Arampatzis & Anagnostopoulou, 2016; Naser, Al Kandari, Al-Mutairi & Nuseibeh, 2013). This study uses signalling theory in the IAE debate because, using IRs and other ARs as a basis, it seeks to explain the relationship between signalled IAE factors and company performance, as well as to identify which IAE factors are suitable factors to signal.

The IA profession has long recognised the need for IA activities to add value to the organisations they serve. For example, Walz (1997:51) asserted that “auditors who are not able to explain and demonstrate their ability to create value are vulnerable to being tagged by management as resource spenders and not value-adders”. Furthermore, in 1999 the Institute of Internal Auditors (IIA) included value-add to the definition of internal auditing. As IAFs need to be effective in order to add value, the value of companies with effective IAFs should be higher. However, currently it is not

clear what the relationship is between signalled IAE factors and company performance.

The question of value-add by the IAF and how this is perceived is a vital one since it has a direct bearing on how major IA stakeholders perceive its legitimacy and relevance (Lenz & Hahn, 2015:7). Hence, this question has preoccupied the IA profession for a few decades. As early as 1946, Atkinson (1946:125) identified the strategic role of the IAF as an “arm to management”, assisting management in “coordinating the performance of an organisation with its objectives”, a view supported by Chambers (1980). Bou-Raad (2000) noted that the IA profession was ready to move from their traditional role of verifying information to a more strategic and value-adding role within the company. Since then, questions of the notion of the value-add of IA have been brought into sharp focus by the IA stakeholders while attracting interest from practitioners and researchers alike. As the question of IA value-add was being refined, studies began to consider more concrete and objective measures such as monetary gains or cost savings as measures of the value-add of IA (Mihret & Woldeyohannis, 2008). Furthermore, such objective measures, which mainly focused on the effectiveness and efficiency of the IAF, included the audit plan completion rate, as well as the implementation rate of audit recommendations. Over time, arguments were advanced in the literature in favour of the use of subjective measures such as stakeholder perceptions as a measure of the value-add of IA (Botha & Wilkinson, 2019; Lenz & Hahn, 2015; Sarens & De Beelde, 2006b).

There were attempts to combine the objective measures of performance and the subjective measures of stakeholder perception in determining the IA value-add. For example, the IIA was quick to adapt the balanced scorecard (BSC) developed by Kaplan and Norton (1996) to a framework for IAFs (Frigo & IIARF, 2002). The BSC is used for evaluating the effectiveness of IAFs which included objective performance measures of IA process efficiency such as the rate of audit plan completion and less objective measures such as stakeholder satisfaction surveys (IIA, 2010b) (section 3.3.2 elaborates on the BSC). However, the 2015 CBOK report highlighted “the misalignment between value-adding activities, stakeholder perspectives and current performance measures adopted” (IIARF, 2015). In essence, the debate on the IA

value-add and the appropriate measures that need to be used was far from over. In the light of the absence of a framework to evaluate the value-added by IA, Botha and Wilkinson (2019) recently proposed one that would evaluate the perceived value-added by IA, using a framework that is mainly based on stakeholder satisfaction surveys. Although there is no doubt that stakeholder perceptions count, various stakeholders consider IRs and other ARs as authoritative documents that tell the story of company performance and the reasons behind it. In addition, since company performance is almost always expressed in objective measures such as cash flow, profitability and market share, among others, this study accordingly used such measures. In this regard, Lenz (2013:27) admits that providing evidence of the value-add poses a challenge for internal auditors, as such value-add cannot always be directly linked to the performance of an organisation, however the value-add expectation is posit to lead to an indirect relationship. Hence, this study used IRs and other ARs as a basis for identifying signalled IAE factors with the objective of investigating the relationship between these factors and company performance.

This study bridges the aforementioned gaps, identified from evidence from IAE literature. The following sections provides some context by presenting an overview of the literature on four central themes in the study.

### **1.2.1 The role and importance of the internal audit function**

The definition of internal auditing by the IIA aptly captures the essence of the role and importance of internal auditing. The IIA defines internal auditing as “an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes” (IIA, 2016b). Internal auditing is also described as “an independent and objective activity that gives an entity a certain assurance regarding the degree of control over its operations, guides it in order to help it improve the business and contributes by adding an extra value that also provides a quantitative tool for analysis” (Vintilescu Belciung, Andrei & Coloiu, 2009:565). It is evident from the above definitions that the IAF is always connected to the extent to which it adds value to the company’s objectives, which include growth in



sales, profitability, level of innovation and risk management (Kotler, 1980). Thus, for the IIA to be value-adding, it needs to enhance company performance in one or more areas.

The IAF has long been regarded as an important corporate governance mechanism, one of the four cornerstones of governance (Gramling, Maletta, Schneider & Church, 2004:196), and as such Holt (2012:881) argues for mandatory disclosures similar to those imposed on external auditors, SM and the AC. Holt (2012:881) further suggests that companies should “voluntarily disclose the IAF composition, responsibilities and activities to enhance the credibility of the other disclosures” and financial results. In this regard, Subramanian and Reddy (2012:196) take the view that voluntary disclosures of this nature not only secure investor confidence but benefit other stakeholders as well in certain ways. According to Howitt (2016) the IR has created “a language for improved dialogue between management and investors, enhancing trust and inspiring long-termism”. As part of such dialogue, the board can include and endorse conclusions arising from the IAF assessment of the effectiveness of the company’s internal controls in the IR.

While having an IAF is not a direct JSE listing requirement (JSE, 2016b; Marx & Voogt, 2010:20), para 7.F.5 of the JSE listing requirements states that the applicant “must implement King Code”, albeit on an “apply or explain” basis. This makes disclosure on the application of the King Code a *de facto* mandatory requirement for JSE listed companies. Since the establishment of an IAF (chapter 7 of King III) is one of the principles of King III, the IAF can be viewed as a *quasi*-mandatory requirement. Listed South African companies also have mandatory disclosure requirements (SA, 2008; JSE, 2014). Some mandatory disclosure relates to the IAF, for example directors are required to issue a declaration pertaining to the state of internal and financial controls of the company (SA, 2008:section 94(7)(f)). There is, however, no legislative requirement for specific IAE disclosure for companies in SA. Barac and Mdzikwa (2016:107) argue that such disclosure is likely to communicate an important message to internal and external stakeholders about the company’s corporate governance performance, including the oversight role of the ACs. Hence this study seeks to investigate the disclosure of IAE signalling amongst the top 100 JSE-listed companies

and its relationship with company performance. The literature search performed for the purpose of this study did not reveal a comprehensive IAE disclosure study conducted in the South African context. That said, the few studies devoted to IAF disclosure in the South African context (Barac & Mdzikwa, 2016; Marx & Voogt, 2010) reveal limited disclosure on the IAF in the financial statements of JSE-listed companies. This study develops a comprehensive IAE signalling frame which can be used to guide companies on assessing and disclosing IAE.

### **1.2.2 Internal audit effectiveness**

As indicated above, IA seeks to improve company performance through value-added services. The complexity and volatility of the current organisational environment have led to greater expectations of the IAF, which include being more proactive in identifying operational improvement and sharing information with the rest of the company (KPMG & IoDSA, 2009:2). Given that effectiveness has to do with producing a desired or intended result, it follows that management of the IAF needs to start by framing a reasonable, achievable and relevant mission statement with appropriate goals and strategies which are in line with the “corporate structure, roles, responsibilities, management goals and strategic objectives” (Aksoy & Bozkus, 2012:1284). Therefore, IAE can be measured by how well the IAF has achieved its goals in accordance with the organisational objectives.

The literature suggests various influencers of IAE (IAE factors) as well as aspects that indicate the state or level of IAE (IAE indicators). For the purpose of this study, the terms IAE factors and IAE indicators are used interchangeably. These include indicators or factors related to IA staff quality such as personal qualities, qualifications, professionalism and competence (Abbott, Daugherty, Parker & Peters, 2016; Abuazza, 2012; Aksoy & Bozkus, 2012; Al-Matari, Al-Swidi & Fadzil, 2014; Al-Twajjry, Brierley & Gwilliam, 2003; Albrecht, Howe, Schueler & Stocks, 1988; Alzeban & Gwilliam, 2014; Arena & Azzone, 2009; Asairy, 1993; Badara & Saidin, 2014; Hutchinson & Zain, 2009; Mihret & Yismaw, 2007; Rittenberg & Miller, 2005; Soh & Martinov-Bennie, 2011; Van Gansberghe, 2005a; Van Peursen, 2005), as well as IA work quality associated with adherence to the IIAs’ International Professional Practices Framework (IPPF), IA processes, activities and services and roles of the IAF

(Abuazza, 2012; Al-Twaijry *et al.*, 2003; Albrecht *et al.*, 1988; Arena & Azzone, 2009; Dittenhofer, 2001; 2015; Mihret & Yismaw, 2007; Papastathis, 2003; Saud & Marchand, 2012).

Organisational indicators such as IA reporting lines<sup>1</sup>, independence, structure, status and internal control are considered important (Abuazza *et al.*, 2015; Aksoy & Bozkus, 2012; Badara & Saidin, 2014; Goodwin, 2004; Mihret & Yismaw, 2007; Papastathis, 2003; Ramanchandran *et al.*, 2012; Soh & Martinov-Bennie, 2011). Of note are IA relational indicators characterised by relationships with the AC, SM and EA where management support has been found to exert greater impact on IAE (Alzeban & Gwilliam, 2014; Cohen & Sayag, 2010; Endaya & Hanefah, 2016; Mihret, James & Mula, 2010; Mihret & Yismaw, 2007; Papastathis, 2003; Roussy & Brivot, 2016; Sarens & De Beelde, 2006b; Soh & Martinov-Bennie, 2011).

Since IAE is defined in terms of its context, there is no universally accepted measure of IAE and the IA value-add (Botha & Wilkinson, 2019). Literature reveals a number of methods and instruments that have been developed and used by academics and practitioners. Perceptual measures in the form of satisfaction surveys are frequently used to evaluate IAE from the point of view of either the CAE or other stakeholders like the AC, the auditee (first and second line managers) and external auditors (Boța-Avram, Pop & Boța-Avram, 2009; Chen & Lin, 2011; Desai, Roberts & Srivastava, 2010; Dittenhofer, 2001; Ernst & Young, 2007; Fadzil, Haron & Jantan, 2005; Soh & Martinov-Bennie, 2011; Tsai, Chen, Chang, Leu, Chen & Purbokusumo, 2015). Also, Holt (2012) shows that disclosing the IAF's structure, role and audit report benefits companies by increasing the perceived credibility of financial reporting, thereby suggesting the value of signalling IAE factors.

A few studies have deviated from the perceptual measures in favour of more objective form of analysis with mixed results. Hutchinson and Zain (2009) found a positive relationship between IA quality and return on assets (ROA). Berhe, Mihret and Ali (2016) used ROA and return on equity (ROE) and found no relationship between IAE and ROA and ROE in the Ethiopian public sector. Al-Matari *et al.* (2014) call for more

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<sup>1</sup> The IA reporting lines are also referred to as CAE reporting lines.

work on the direct or mediated relationship between IA and accounting-based and market-based indicators of firm performance. The current study aptly responds to that research call by using ROA and ROE as accounting ratios for company performance and market-to-book value (MBV) and Tobin's Q as market-based ratios for company performance to assess the relationship between signalled IAE factors and company performance.

Integrated reporting and its fundamental concept of communicating the value creation story by companies to their various stakeholders creates an opportunity for signalling IAE to reduce information asymmetry. The next section discusses integrated reporting and the IR.

### **1.2.3 Integrated reporting**

Integrated reporting is defined as “a process founded on integrated thinking that results in a periodic integrated report by the organisation about value creation over time and related communications regarding aspects of value creation” (IIRC, 2013:4). The primary purpose of integrated reporting is “to explain to providers of financial capital how a company creates value over time”, using “financial and non-financial information” to communicate with all stakeholders who are interested in the company's ability to create value over time (IIRC, 2013:7). Integrated reporting was further enhanced by the International Integrated Reporting <IR> Framework published by the International Integrated Reporting Council (IIRC) in 2013 (IIRC, 2013). This framework lends structure to integrated thinking and provides guidance on the requirements that need to be satisfied in order for a report to be classified as an IR. Thus, the <IR> Framework complements the holistic view of governance as a shift from reporting financial, social and environmental issues in silos to integrated reporting, which is underpinned by the notion of triple reporting as a result of integrated thinking.

Central to the IR is the notion of value creation, which is defined as “the process that results in increases, decreases or transformations of the capitals caused by the organization's business activities and outputs” (IIRC, 2013:33). These “stocks of value” include “financial, manufactured, intellectual, human, social and relationship capital, and natural” resources and their relationships (IIRC, 2013:34). Embedded in

the IR is the long-term view of performance in the capital markets, taking into consideration the short, medium and long term effects or consequences to the company and the economy as a whole (IoDSA, 2016:4 & 5). The IR is of particular interest to this study as it provides a more holistic picture of how value is created over time and, as mentioned earlier, an effective IAF plays an important role in helping the company meet its objectives, which include value creation. One would therefore expect some narrative relating to IA to be disclosed in the IR. For example, in terms of chapter 7, paragraph 12 of King III (IoDSA, 2009), the board needs to disclose a report on the effectiveness of the system of internal controls in the IR. Furthermore, the specific requirement by the JSE for listed companies to apply the King Code deems the IAF a subject of disclosure albeit on a “apply or explain” basis.

#### **1.2.4 Company performance**

Company performance is a multidimensional construct and its use in evaluating IAE has mainly been perceptual. As mentioned earlier, very few studies have linked the IAF or IAE to financial measures such as ROA and ROE resulting in a call for more studies on the direct or mediated relationship between IA and accounting-based and market-based indicators of firm performance (Al-Matari, *et al.*, 2014). This study used ROA, ROE, market-to-book value (MBV) and Tobin’s Q as accounting-based and market-based proxies for company performance. ROA represents the return generated on the total assets invested in the company (Asemgeest, du Toit, Ngwenya & Thomas, 2014:76), and higher ROA is an indication of management efficiency in running the company’s operations (Wolmarans, Du Toit, Brümmer & Tshipa, 2018). ROE compares the use of company equity and other investments (Asemgeest *et al.*, 2014:76). Thus, ROE is of great interest to investors. The MBV ratio is an indication of whether or not value has been created for the shareholders, and thus “compares the market value of the company’s investments with their cost” (Ross, Westerfield & Jordan, 1995:65). Tobin’s Q measures the effectiveness with which a company generates shareholder’s wealth through the deployment of its assets (Ross *et al.*, 1995:62). Hence, these ratios represent company performance, the dependent variable in this study.

The following section provides the motivation, problem statement and need for the study.

### **1.3 THE MOTIVATION, PROBLEM STATEMENT AND NEED FOR THE STUDY**

IAE has been studied by academics for many years. Albrecht *et al.* (1988) conducted one of the first studies on the topic and identified the “appropriate corporate environment, top management support, quality IA personnel, and quality audits” as areas which can potentially enhance the company’s IAE. A later study by Asairy (1993) found external auditors support, professional qualifications of internal auditors and their education, training and experience as important ingredients for a company’s IAE. Extant literature on IAE (for example, the studies included in the synthesis of Lenz and Hahn (2015)) provides clues on IAE indicators or factors and different measuring methods and instruments. However, the question still remains: What is the association between signalled IAE factors and company performance? Despite the wide body of knowledge on IAE factors there is still a gap in the literature highlighting the need to identify a comprehensive list of signalled IAE factors. In addition, there is a gap in the literature on the relationship between signalled IAE factors and company performance, to identify which factors are the best signals.

IAE is of interest for another reason: the definition of internal auditing purports that internal auditing adds value to an organisation but some studies have questioned the effectiveness of IA (Abuazza, 2012; Mihret & Yismaw, 2007; Al-Twaijry *et al.*, 2003). Mihret *et al.* (2010:3) posit that the value-adding role of IA depends on its effectiveness and as such IAE should be studied more carefully in order to adequately assess the value-adding potential of the IAF. Such knowledge of IAE value-add would enable the board to signal the effective use of the IAF as a governance mechanism to outside stakeholders. Furthermore, the IAF is positioned as a third line of defense, an internal monitoring mechanism, where the IAF provides assurance to the board and the AC on the performance and effectiveness of the first (operational managers) and second lines (oversight roles i.e., risk management and compliance) of defense (CIIA, 2019) (section 3.2.4 discusses this aspect in more detail). This internal monitoring reduces

internal information asymmetry and improves a company's ability to achieve its objectives.

The study was performed in SA, a country that arguably leads in the implementation of integrated reporting (Makiwane, 2012:13) and the IR as advocated by the King Code. The IR has as its purpose the explanation of how an "organisation creates value over time" to providers of financial capital (IIRC, 2013:4). The IR also "benefits all stakeholders interested in an organisation's ability to create value over time" (IIRC, 2013:4). Proponents of integrated reporting argue that its short, medium and long term view of value creation leads to better managed companies which are poised to create sustainable value for a longer period. The IR provides the "information necessary for investors to take a longer term view of a company" (Eccles & Spiesshofer, 2015:7). ARs or IRs are considered the most trusted source (Catasús, 2008; Chau & Gray, 2010). Hence the study provides insight into the use of the IR and other ARs in communicating or signalling the value-added by the IAF to the various stakeholders and adds to the discourse and research on IAE.

In response to a number of corporate scandals and failures globally where corporate governance weakness was identified as a major factor, countries have introduced a combination of governance legislation, regulation and code in order to improve governance. The South African governance code, the King Code, is hailed as one of the best governance codes globally. After reviewing the governance standards of listed companies in South Africa, Ntim (2009:201) and Mans-Kemp, Erasmus and Viviers (2016) conclude that applying the King Code has improved the corporate governance in those companies. It is against this back-drop of a sound corporate governance guidance and evidenced improvement in corporate governance of listed companies that IAE is examined.

Furthermore, the King Code, places the duty of ensuring that the company has an effective, risk-based IAF squarely on the shoulders of the governing body (IoDSA, 2009; IoDSA, 2016). In companies, the AC, a subcommittee of the board of directors, is usually tasked with overseeing the IAF (Goodwin, 2003:63; IoDSA, 2009). There is, however, no guidance provided by the Code or legislation on what disclosures should

be made as evidence of the successful discharge of the governing body's responsibility towards IAE. While the Public Finance Management Act 1 of 1999 (PFMA) and the Municipal Finance Management Act 56 of 2003 (MFMA) require public entities to have an IAF (SA, 2000; SA, 2003) and therefore make disclosure mandatory, no such legal requirement exists in either the Companies Act or the JSE listing requirements. As a result, the few studies devoted to IAF disclosure in the South African context (Barac & Mdzikwa, 2016; Marx & Voogt, 2010) reveal limited disclosure on the IAF in the annual reports of JSE-listed companies. To date, no study has focused on IAE disclosure in the South African context. This study fills this gap by developing an IAE signalling frame for use as part of voluntary disclosure by companies and as a basis for the development of further guidance on IAE disclosure.

The study's international appeal lies in the link between the company's goals and the IAF, a topic which remains of interest for various role players identified in the literature. For example Van Gansberghe (2005a) referred to interested parties involved in ownership and governance structures as well as professional bodies, while Mihret and Yismaw (2007) emphasise the importance of management support, organisational structures and auditee attributes. In a similar study by Alzeban and Gwilliam (2014), management support was revealed as a key driver of IAE. In its definition of an effective IAF, the IIA (IIA, 2012a) states that IA "helps an organisation accomplish its objectives". Company performance is concerned with organisational ability to produce results in relation to set objectives, goals or targets (Reijonene, 2008:617). This suggests a possible link between company performance and IAE. This study seeks to fill the gap by empirically establishing the relationship between signalled IAE factors and company performance.

Against this background the research problem of this study can therefore be formulated as follows:

*The relationship between signalled IAE factors and company performance is an unexplored area in the IAE debate.*



Following the above formulation of the research problem in this study, the next section introduces the ensuing research questions and objectives.

#### **1.4 RESEARCH QUESTIONS AND OBJECTIVES**

The main research question which guided this study was, *What is the relationship between signalled IAE factors and company performance?* Thus, the study's primary objective was to investigate the relationship between signalled IAE factors and company performance. The study investigated the voluntary disclosure (or signalling) of IAE factors amongst South African listed companies and the relationship of such factors with company performance. A positive relationship between the signalled IAE factors and company performance was hypothesised. Three sub-research questions were formulated to ground the research methodology. They are expressed as follows.

The first sub-research question was, *What are the IAE indicators as portrayed in the literature?* In answering the question, a literature review was conducted to identify IAE factors, drivers and indicators, resulting in a list of fifty-four (54) IAE indicators used to construct an IAE sampling frame.

The second sub-research question was, *What IAE indicators are signalled in company reports?* Data collection was performed using a content analysis of sample companies' IRs and other ARs. The content analysis was guided by the list of IAE indicators used as an IAE signalling frame. The content analysis used the IAE signalling frame to populate 54 IAE indicators (scored 1 for a signalled indicator and 0 for the absence of a signal) for the sampled JSE-listed companies over a five year period. The content analysis resulted in a dataset comprising a multi-way frequency matrix of IAE indicators for all the companies.

The third sub-research question was, *What are the factors that signal IAE?* In answering this question, MCA was performed on the dataset, resulting in the extraction of 19 IAE factors representing the IAE signals reported on by the sample companies between 2012 and 2016.

Thereafter, regression analysis was performed to address the main research question and test the hypothesis stated as:

*There is a positive relationship between the signalled IAE factors and company performance.*

In this study the dependent variable, based on various proxies, is company performance and the independent variables are the 19 IAE factors derived from the MCA.

The top 100 JSE-listed companies were selected as a population for the study as it was believed that a sample from this population would lead to an increased understanding of variations in IAE signalling and company performance. This population and the resulting sample were selected based on the knowledge of the disclosures required by the JSE and the performance status of these companies (Zikmund, 2010:400). It was expected that the top 100 JSE-listed companies would provide the necessary information in relation to the study's objective. Data were collected from a sample of 89 companies listed between 2012 and 2016. The research process is discussed next.

## **1.5 RESEARCH DESIGN AND METHODOLOGY**

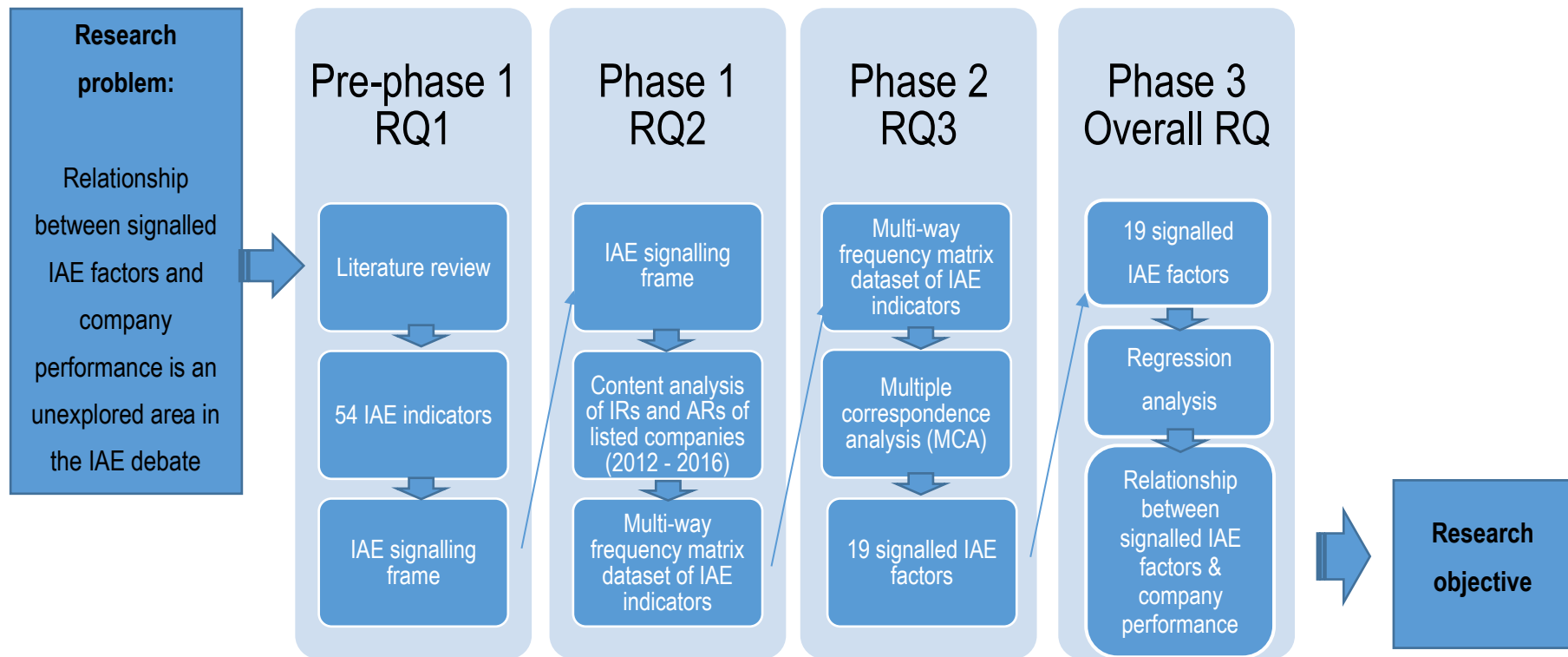
The study adopted a post-positivist paradigm and a quantitative approach which is deductive in nature, where relationships between variables are determined. The ontological position maintained in this study is that a single truth cannot be found, while the epistemological position postulates that since causes determine effects, outcomes can be determined. This position is consistent with the primary objective of this study, which investigates the relationship between signalled IAE factors and company performance. The research design was a non-experimental one, based on a literature review conducted to identify IAE indicators and content analysis of IRs and other ARs of 89 JSE-listed companies between 2012 and 2016, guided by a self-constructed IAE signalling frame. Data collection and analysis were carried out in the following three phases:

*Phase 1 - data were analysed using content analysis of IRs and other ARs:* The IAE indicators discovered in the literature were used to construct an IAE signalling frame containing 54 indicators. Data collection was performed using content analysis. This involved a detailed study and analysis of the IRs and other ARs of the sampled companies for the period 2012–2016. The aim of this analysis was to generate a dataset for further statistical analysis.

*Phase 2 - a dimension extraction and analysis procedure called MCA was used to reduce the number of indicators:* During phase 1 the content analysis of IRs and other ARs resulted in a very large matrix of categorical binary data (0 for non-disclosure and 1 for disclosure of IAE indicators) as well as biographical and financial information for each company. The dimension reduction and graphical representation of the multi-way frequency matrix of IAE factors using MCA constituted phase 2 of data analysis. MCA is a data reduction method which explores relationships among categorical variables while preserving the categorical nature of the variables (Sourial, Wolfson, Zhu, Quail, Fletcher, Karunanathan, Bandeen-Roche, Béland & Bergman, 2010:2). MCA extracted 19 signalled IAE factors, and these factors represent the IAE signals reported on by companies, the independent variables for this study.

*Phase 3 - panel data analysis was employed, together with correlation and regression analyses, for the inferential statistics:* This involved regression analysis, using generalised least squares (GLS), which determines the “relationship between a single dependent (criterion) variable and one or more independent (predictor) variables” (Gujarati, 2009:15). In this study the dependent variable is company performance while the independent variables are the 19 signalled IAE factors derived from the MCA. The study considered ROA, ROE, MBV and Tobin’s Q as proxies for company performance. Furthermore, since this study created panel data, the two panel data estimation models, random effects and fixed effects, were explored and the fixed effects model was found to be the preferred model for this study. Regression models to be tested were also derived for the study.

Figure 1.1 illustrates the alignment of the research questions and the research process.



**Figure 1.1: Alignment of research questions and process**

Source: Own illustration

The research design and methodology adopted were considered appropriate in answering the main research question and sub-research questions of the study. The following section enumerates the contributions made by the study in the areas of IA knowledge, methodology, theory and practice of IA.

## **1.6 CONTRIBUTION OF THE STUDY**

This study makes new contributions to academic discourse and capital in the area of IAE. One of the challenges in measuring IAE is that it is context-bound and linked to the company's objectives. The problem that arises, therefore, is finding ways to communicate or signal IAE to the company's stakeholders. Such signalling can help to enable better benchmarking across companies. By addressing the above research questions, this thesis makes several new contributions, as well as adding to the literature on IAE. The study is the first to develop a comprehensive frame for IAE signalling and the first to determine the relationship between signalled IAE factors and company performance using signals collected via a content analysis of IRs and other ARs of the sampled companies.

For South African companies, over time the IR has been the primary means of communicating companies' value creation to stakeholders (Eccles & Spiesshofer, 2015:4; Makiwane, 2012:23). The IR has improved the communication of value creation by merging the financial and non-financial capitals employed in the creation of company wealth. This is the first study to look at IAE disclosures in the IR and other ARs that provide insight into how well the value of the IAF is communicated to the various stakeholders. The study provides a unique database of IAE signalling in the last five years of King III (effective from March 2010 to March 2017) (IoDSA, 2009; IoDSA, 2016) which further entrenched the IAF as a corporate governance mechanism in SA, dedicating a whole chapter to IA.

The second contribution by this study is the construction of an IAE signalling frame, the first of its kind for use by South African companies. Chapter 3 explains how the frame was constructed, following a detailed systematic literature review. The IAE signalling frame enabled the systematic coding of data obtained through content

analysis of IRs and other ARs. Developed on an Excel spreadsheet, the IAE signalling frame was also used to guide reliability and consistency in the coding data and scoring of IAE indicators. As will be explained in chapter 4, the literature review identified 54 indicators (coded 1 to 54) impacting on IAE with a score of 0 (for not signalled) and 1 (for signalled) for each indicator. The IAE signalling frame is presented in Appendix 2.

The third contribution made by the study is methodological. The use of MCA as a data reduction method is uncommon and innovative in IA research. Correspondence Analysis (CA), which is the foundation of MCA, is an exploratory data technique used to analyse contingency tables and multivariate categorical data. It uses optimal scaling, a technique that converts qualitative variables into quantitative variables by assigning numerical scales to categories based on certain optimising criteria. CA also allows for the extraction of the most important dimensions, reducing dimensions to the ones that explain the most variance, thus improving model fit. MCA is an extension of CA. In view of the very high volume of categorical and binary data produced, this technique was considered suitable for this study. As a multivariate graphical technique, MCA was used due to its ability to analyse tables with three or more categorical variables while preserving the categorical nature of the variables (Sourial *et al.*, 2010:2). Chapter 4 provides a detailed explanation of this method.

The findings provide empirical support for both agency and signalling theories employed in the study, giving rise to a fourth contribution, which is a theoretical contribution. Agency theory identifies monitoring costs and bonding costs as the main costs of agency relationships (Jensen & Meckling, 1976; Ross, 1973). Although corporate governance is posited as a less costly way of dealing with agency problems (Demsetz, 1983; Fama & Jensen, 1983; Fama, 1980), the findings show that corporate governance (including the IAF as an internal governance mechanism) has a cost. This is reflected in the mixed relationship of some signalled IAE factors with company performance. The use of signalling theory in IAE research is a novel idea. The strength of signalling theory is the crucial link between voluntary disclosure and the communication of value. Signalling theory posits that companies choose to voluntarily disclose information when there is a chance of a marginal benefit or value for the company (Abhayawansa & Abeysekera, 2009). Thus, the signalling of IAE beyond that

which is recommended by governance guidelines is an indication of value (Isidro & Marques, 2016; Spence, 1973). Accordingly, a positive relationship between signalled IAE factors and company performance is hypothesised.

Furthermore, the study contributes towards the refinement of the understanding of IAE from a practical perspective. A more refined understanding of the relationship between these variables will assist managers in making decisions on resource allocation and investment in the area of IAE as well as give substance to IAE disclosures as signals. Furthermore, the link between IAE factors such as continuous professional development (CPD) to company performance reflects the value contributed by internal auditors and the IA profession. Notwithstanding the contributions made, the study suffers from a number of limitations as a result of the boundaries discussed in the next section.

## **1.7 DELIMITATIONS**

Considering the scope of this study, a number of limitations are evident. First, the focus is on IAE signalling factors and company performance. The latter is based on ROA and ROE as accounting-based performance measures while MBV and Tobin's Q represent measures for market-based performance. This study does not consider or negate other possible measures of company performance. These measures were selected as they give a perspective of performance from two different viewpoints, that of management and that of shareholders and investors. Mans-Kemp *et al.*, (2016), Ntim (2009) and Wolmarans *et al.* (2018) also used both accounting-based and market-based performance measures as dependent variables and proxies for company performance in order to gain a thorough understanding of relationships among variables under investigation.

Second, the study only used IRs and other ARs, as defined, which are approved by the company's board and published annually. More frequent IAE signals could have been communicated in other sources such as magazines, press reports, interim reports and letters to shareholders used by companies for making voluntary disclosures. But ARs are considered to be more trustworthy (Catasús, 2008; Chau &

Gray, 2010). The study focused on signals sent, and how outside stakeholders receive signals remains an area of future research.

Third, although panel data were created for each of the five years considered in the study, no comparison was done on a year-on-year basis. Instead, a fixed effect panel estimation model was used to control for changes over time (refer to section 4.10.3.4). The period considered for the study was fairly stable, being post the 2007/8 financial crisis, which had an impact on company performance and disclosure behaviour, and post the promulgation of the Companies Act of 2008. This period also excludes the two revisions of the King Code, namely King II in 2004 and King IV, which only came into force in April 2017. The IR was, however, strengthened by the <IR> Framework which was released in 2013 (IIRC, 2013). Thus, from an economic and regulatory point of view the period was uneventful and no remarkable differences in either disclosure or performance were expected from year to year.

In the fourth place, the study is set in the private sector, assessing particularly large South African listed companies. There are no legislative requirements for the disclosure of IAE in the South African private sector and IAE disclosure arises from the desire to demonstrate the application of the recommendations of the King Code, which is applicable to all entities in SA. In the fifth place, content analysis used in the study only looked at whether IAE indicators were disclosed and not at the quality of the disclosure. Therefore, no conclusions can be drawn on the quality of those disclosures. Lastly, the study made no distinction between the different sectors as defined by the JSE. The next section details the structure of the thesis.

## **1.8 THESIS ORGANISATION**

The structure of this thesis reflects the research process, as outlined below.

Chapter 1 introduces the study, provides the background to the study, delineates the theoretical framework of the study, articulates the problem statement and states the need for the study. It then outlines the research questions and objectives. This is followed by the research methodology, the contribution of the study and its limitations.



The chapter then indicates the wider relevance of IAE signalling and the relationship between signalled IAE factors and company performance. The chapter concludes with a list of key terms used.

Chapter 2 discusses and makes an argument for the relevance of the agency and signalling theories as appropriate theoretical lenses through which the study's objectives should be unpacked and interpreted. Since, as indicated above, IA is a corporate governance mechanism, this chapter discusses the notion and practice of corporate governance in detail. It also highlights the role of signalling theory in integrated reporting.

Chapter 3 delves deeply into IAE. After dealing with the definitional aspects of IAE and the IAF, the chapter provides an overview of the changing role of the IAF in companies. To that end, the chapter reflects on the impacts of the Sarbanes-Oxley Act of 2002 (SOX), King III and IV, and the financial crisis of 2007–2008 on the IA profession in general and the IAF in particular. The chapter also defines IAE, explains IAE indicators that are also presented as factors affecting IAE, shows how IAE has been measured and positions it in this study.

Chapter 4 provides a detailed outline of the research methodology used and the reasons for the selection of techniques adopted in the study. After explaining the research process, the chapter describes the research paradigm within which the study falls. The chapter explains the sample selection and then describes the three phases employed in data analysis: content analysis, MCA and regression analysis. Content analysis is used as a data collection method. The novelty of the application of MCA in this study necessitated a detailed discussion of the steps taken to ensure validity and reliability. In the case of regression analysis, the econometric approach and techniques used to estimate and test the robustness of the model are also discussed.

Chapter 5 represents the data analysis and interpretation of results. This chapter reports the results of the first two phases of data analysis, namely content analysis and MCA. Thereafter the results of the third phase of data analysis, the regression analysis, are presented and explained.

Chapter 6 presents the conclusions reached in the thesis. In particular, this chapter reflects on whether the objectives of the study as set out at the beginning were achieved. The chapters also gives a summary of the key research findings and a discussion of the knowledge, theoretical, methodological and IA professional and practice contributions, recommendations and limitations, as well as directions for future research. Finally, an overall conclusion is reached.

**1.9 KEY TERMS AND CONCEPTS**

Table 1.1 provides a definition of terms and concepts used in this study.

**Table 1.1: Key terms and concepts**

Terms and concepts	Definition
<b>Agency problems</b>	These are problems that “arise when both the principal and the agent seek to maximize their own interests which are not aligned” (An, Davey & Eggleton, 2011:573). Agency problems are sometimes referred to as principal–agent problems (Mitnick, 1973:134).
<b>Agency theory</b>	The theory that seeks to understand and explain the relationship between agents and principals (Jensen & Meckling, 1976:308; Ross, 1973:134).
<b>Audit committee</b>	A sub-committee of the board of directors responsible for finances. In SA this committee is appointed by the shareholders, reports annually to the shareholders and has statutory status (SA, 2008).
<b>Bonding costs</b>	These are a kind of agency costs incurred by agents when acting in the principal's best interests by bonding their actions to specific conditions or actions. Bonding costs include the cost of additional information disclosures to shareholders (Ross, 1973).
<b>Company performance</b>	Company performance is concerned with organisational ability to produce results in relation to set objectives, goals or targets (Reijonene, 2008:617) and includes financial, market and shareholder value performance (Anon, 2020b). Company and organisation are used inter-changeably in this study.
<b>Corporate governance</b>	This is “the system by which companies are directed and controlled” (Cadbury, 1992). This system comprises a “framework of rules and practices by which a board of directors ensures accountability, fairness and transparency in an organisation's relationship with all its stakeholders” (IoDSA, 2009).

**Table 1.1: Key terms and concepts (continued)**

Terms and concepts	Definition
<b>Correspondence analysis</b>	This is an exploratory data technique used to analyse contingency tables and multivariate categorical data. It uses optimal scaling, a technique that converts qualitative variables into quantitative variables by assigning numerical scales to categories based on some optimising criteria (Fithian & Josse, 2017:87; Hoffman & Franke, 1986:213).
<b>Information asymmetry</b>	This is the situation that exists when there is an imbalance in the knowledge of relevant factors and details between the principal and the agent, where typically the agent enjoys disproportionate access to information over the principal (Mohiuddin, 2012:45).
<b>Integrated report</b>	“A concise communication about how an organisation’s strategy, governance, performance and prospects, in the context of its external environment, lead to the creation of value over the short, medium and long term” (IIRC, 2013).
<b>Integrated reporting</b>	“A process of founded on integrated thinking that results in a periodic integrated report by the organisation about value creation over time and related communications regarding aspects of value creation” (IIRC, 2013:33).
<b>Internal audit effectiveness</b>	“The degree (including quality) to which established objectives are achieved” (IIA, 2010b). IAE is also described as a “risk-based goal-attainment concept that helps the organisation to achieve its objectives by positively influencing the quality of corporate governance” made up of complimentary practical and political dimensions (Lenz, 2013:25).
<b>Internal audit function</b>	Also referred to as the IA activity, this is “a department, division, team of consultants, or other practitioner(s) that provides independent, objective assurance and consulting services designed to add value and improve an organisation’s operations” (IIA, 2016d). This function promotes effective corporate governance, thus supporting the key governance mechanisms, namely executive management, AC and external auditing (IoDSA, 2009).
<b>Internal audit effectiveness factors</b>	Influencers (Lexico, 2019) identified in literature that contribute to IAE which are also, for purpose of this study, referred to as IAE indicators in the context of the state or level of IAE.
<b>Internal audit effectiveness indicators</b>	Aspects that indicate the state and level (Lexico, 2019) of IAE which are also, for purpose of this study, referred to as IAE factors in the context of influences that contribute to IAE.
<b>Internal auditing</b>	Internal auditing is “an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes” (IIA, 2016c).
<b>Other annual reports</b>	For purpose of this study the other ARs comprise the AFS and the GRRs

**Table 1.1: Key terms and concepts (continued)**

Terms and concepts	Definition
<b>Mandatory disclosure</b>	This is the disclosure of information in the financial records such as IRs and ARs which is required or mandated by statutory or professional authorities for the benefit of decision makers such as investors and others (IGI Global, 2020). In SA this disclosure is in terms of the Companies Act (2008).
<b>Monitoring costs</b>	These are the agency costs paid by the principal to measure, observe and control an agent's behaviour in an agency relationship. They include costs associated with the board of directors, and the costs of conducting an audit and preparing and publishing financial statements (Jensen & Meckling, 1976:325; Ross, 1973).
<b>Multiple correspondence analysis</b>	"Multiple correspondence analysis is a multivariate graphical technique designed to explore relationships among categorical variables and to preserve the categorical nature of the variables" (Sourial <i>et al.</i> , 2010:2).
<b>Senior management</b>	"A group of high-level executives that actively participates in the daily supervision, planning and administrative processes required by a business to help meet its objectives" (Anon, 2020c).
<b>Signal</b>	A signal constitutes "messages or images that are communicated from one entity to another" (Moratis, 2018:5). A signal may also constitute "any observable action, or an observable structure, which is used to indicate the hidden characteristics (or quality) of the signaler" (An <i>et al.</i> , 2011:575).
<b>Signalling</b>	Occurs when a person in the market who has information that others do not have triggers buying behaviour by those who do not have information as a result of the actions of the insider. Information can be passed passively or unintentionally between participants in the market (Anon, 2020a).
<b>Signalling theory</b>	This theory is based on the need to address the adverse decision and moral hazards resulting from information asymmetry (Mohiuddin, 2012).
<b>Voluntary disclosure</b>	This is the disclosure of information in the financial records such as IRs and ARs beyond that which is required or mandated by statutory or professional authorities for the benefit of decision makers such as investors and others (IGI Global, 2020). In SA, the King III with its "apply or explain" approach forms part of the disclosure by organisation and is rendered <i>quasi</i> -mandatory for JSE listed companies.

Source: Own compilation

## **1.10 CONCLUSION**

This chapter introduced the study and provided a background. The background highlighted the growing role, importance and expectations of the IAF. It also made an argument for a more effective IAF and offered insights on the IAE debate, noting that the relationship between signalled IAE factors and company performance is an unexplored area. The chapter explained the important place of IRs and other ARs in a company and briefly indicated how the study would evaluate company performance and the proxies to be used for that purpose. The chapter also articulated the reasons why the study was undertaken, the problem statement and the need for this study. The research questions were posed and the objectives put forward. Thereafter, the research design and methodology employed throughout the study were briefly explained. The chapter explicated anticipated contributions, within the boundaries of its delimitation. The chapter furthermore reflected on the relevance of the study in the broader context of IA practice and literature before concluding with an outline of the thesis and a list of key terms used in the study. The next chapter discusses the study's theoretical framework, corporate governance and integrated reporting.

## **CHAPTER 2**

### **THEORETICAL FRAMEWORK, CORPORATE GOVERNANCE AND INTEGRATED REPORTING**

#### **2.1 INTRODUCTION**

The previous chapter introduced the study by providing the background, articulating the problem statement and outlining the objectives of the study. The chapter also briefly introduced the research methodology employed in the present study. This chapter discusses at length the theoretical underpinnings of the study, namely agency and signalling theories. Of importance is that the chapter explains the relevance of these theories to the objectives of the study. Furthermore, the chapter reviews relevant literature on the notion and practice of corporate governance, and the role and function of the IAF as an internal corporate governance mechanism in supporting the board of directors and SM. The chapter concludes with a discussion of integrated reporting and the role of the IR as an instrument for signalling is highlighted.

#### **2.2 THEORIES UNDERPINNING THE STUDY**

Before shedding some light on the meaning of a theoretical framework, it might be instructive to consider the meaning of the notion of theory. Fox and Bayat (2007:29), define theory as “a set of interrelated propositions, concepts and definitions that present a systematic point of view of specifying relationships between variables with a view to predicting and explaining phenomena”. According to Hawking (1988:9), a theory “must accurately describe a large class of observations on the basis of a model which contains only a few arbitrary elements, and it must make definite predictions about the results of future observations”. In quantitative research, a theory is normally postulated at the beginning with a view to testing or verifying it. The idea is that once a theory has been advanced, the next step is to collect data, test them, and determine whether the theory can be confirmed or not on the basis of the results of the study.

A theoretical framework can be described as “the application of a theory, or a set of related concepts drawn from the same theory”, with a view to offering an explanation

or shedding some light on a particular phenomenon or research problem (Imenda, 2014:189). In this regard, Grant and Osanloo (2014:12) believe that the theoretical framework thus provides a very good foundation or anchor for the literature review, the research methodology and data analysis. The theoretical framework consists of the “selected theory (or theories) that underpins the researcher’s thinking” with regard to how he or she understands and plans to research the topic, including the related concepts and definitions that are relevant to the topic under consideration (Grant & Osanloo, 2014:13). Theories originate from a multiplicity of sources in each discipline, with the result that an increasing number of theories emerge and are being applied across disciplines. Over time, as more research is carried out in the various disciplines and as new disciplines are developed, new theories emerge. For example, a number of neoclassical economic theories have been used as theoretical frameworks in the fields of accounting, management and auditing. Neoclassical economic theories developed out of classical economic theory, which was developed in the 18th and 19th centuries by various economists who were concerned about markets, their nature and growth (Sowell, 2006:22). This study is based on agency theory and signalling theory since these theories are best positioned to explain the objective of the study. The next section discusses agency theory.

### **2.2.1 Agency theory**

This section provides an overview of agency theory, describes its development, reflects on some of the studies which employed agency theory in the last few decades, and discusses the relevance of agency theory to the present study.

#### **2.2.1.1 Agency theory in context**

Agency theory can be traced back to the seminal work of Berle and Means (1932), who identified the separation of ownership from control as typical of modern corporations. These authors posit that shareholders relinquish control of a corporation to professional managers who may have different goals and interests to theirs in exchange for capital returns or dividends (Berle & Means, 1932:131). Although they do not mention agency theory *per se*, Berle and Means identify what was later to become the cornerstone of agency theory, namely the assumption that principals and

agents have divergent interests (Hill & Jones, 1992:132). The fundamental difficulty of managing the divergent interests of owners and managers was later defined by Mitnick (1973) as “agency problems”. Simultaneously, Ross (1973) presented agency as an “incentive problem” related to compensation contracting. Thus Mitnick and Ross independently yet concurrently proposed a general theory of agency which was later widely publicised by the work of Jensen and Meckling (1976) who extended on their work by linking agency problems to monitoring, bonding and residual costs.

An agency relationship is described “as one where a person (the principal) engages another person (the agent) to perform some service on his/her the (principal’s) behalf” and includes the “delegation of decision-making authority to the agent” (Jensen & Meckling, 1976:308; Ross, 1973:134). Mohiuddin (2012:45) defines agency in the context of an organisation as “a contractual process whereby owners delegate some of their authorities and responsibilities to a team consisting of expert member(s) and they then expect this team to exercise their expertise in the best interests of the organisation’s operational success. Principals and agents are rational decision makers who may not have the same interests, giving rise to goal divergence or agency problems” (Mitnick, 1973:134). Agency theory is therefore a study of the agency relationship, the problems that arise from the principal–agent relationship, and mechanisms to reduce agency problems.

Mitnick (1973) extended the theory of agency by identifying the problems associated with “agency as the principal’s problem, the agent’s problem and the policing mechanisms and incentives” meant to manage these problems. The agent's problem is that he may be faced with the decision whether to “act in the principal's interest, his own interest, or find some compromise between the two when they do not coincide” (Jensen & Meckling, 1976:308). The principal's problem, on the other hand, is to motivate the self-seeking agent to act in a manner that will achieve the principal's goals (Ross, 1973). According to this theory, the principal can limit the agent’s divergence by establishing appropriate incentives for the agent or incurring monitoring costs meant to minimise opportunistic actions by agents (Jensen & Meckling, 1976:325; Ross, 1973). Agents incur bonding costs to guarantee that they will not act in any way that is detrimental to the interests of the principal (Jensen & Meckling, 1976; Shehata, 2014).



The divergence of interests which cannot be controlled by these policing mechanisms will result in a residual loss for the principal (Jensen & Meckling, 1976; Shehata, 2014). Thus, earlier agency theorists were very clear on the fact that agency has a cost, which is defined as the sum of the principal's monitoring expenditure, the agent's bonding expenditure and residual loss born by the principal which cuts into the profits of the organisation, generally referred to as agency costs (Jensen & Meckling, 1976:308). Hence, agency theorists advocate governance structures as a lower cost means of policing the implicit and explicit contracts between principals and agents (Demsetz, 1983; Fama & Jensen, 1983; Fama, 1980:295). These governance structures come at a cost referred to as agency cost. They include mandatory reporting requirements, input by the board of directors and governance mechanisms, such as IA, that can limit information asymmetry by providing assurance regarding governance, risk management and control processes.

De Zoort, Hermanson, Archambeault and Reed (2002) recommend that one way of mitigating against agency problems is to appoint a board of directors whose role should be to monitor the chief executive officer (CEO) and other executives, and approve and evaluate the company's strategy and control systems. Corporate governance principles are founded on the need for agents to demonstrate to all stakeholders that they are acting in the best interests of the company, including by providing assurance on the company's internal controls, risk and governance processes (IoDSA, 2009). When the "agent possesses an information advantage over the principal", information asymmetry "exacerbates agency problems" (An *et al.*, 2011:573). According to Von Alberti-Alhtaybat, Hutaibat and Al-Htaybat (2012), sound financial disclosure "diminishes agency problems by bridging the information gap between management and shareholders". Hence, disclosure of compliance with corporate governance principles serves as a signal to stakeholders and other potential investors that the company has their interests at heart. Some studies have found that higher financial disclosure quality is associated with effective corporate governance (Beekes & Brown, 2006; Goodwin, Ahmed & Heaney, 2009). Agency theory not only "help[s] to explain the existence of IA in organisations" (Adams 1994:10) but can also lend credence to the study of disclosure decisions made by companies (Sharma, 2013:191), as is the case with IAE information disclosure.

The agency relationship in organisations is characterised by the delegation of authority and responsibility to various parties within the organisation. For example, the board of directors and SM delegate some of responsibilities for risk management and internal control to operational management trusting that operational management will act in the best interest of the organisation. In this instance the board of directors, as representatives of shareholders, play the role of principals and operational management as agents of the board of directors. The board of directors and operational management enter into monitoring contracts to deal with agency problems including monitoring processes such as the IAF (Adams, 1994:8). It is also in the best interest of SM to ensure that a monitoring mechanism is instituted as it provides the accountability required by principals to limit adverse selection.

In terms of Three Lines of Defense model (3LoD), the IAF provides “the governing body and senior management with comprehensive assurance based on the highest level of independence and objectivity within the organisation” (IIA, 2013:5). This model positions the IAF as a monitoring activity to assess both operational management (first line of defense) and the effectiveness of risk management and internal control mechanisms (second line of defense) instituted by management. Thus the IAF is an important monitoring mechanism within the organisation (Sarens & Abdolmohammadi, 2011:1). The IAF limits agency problems by providing assurance to the board of directors that operational management is discharging its delegated duties for the benefit and success of the organisation while at the same time giving evidence of accountability by management by reducing information asymmetry between the two parties (Sarens & Abdolmohammadi, 2011:4).

### **2.2.1.2 Previous internal audit studies and agency theory**

There are a number of IA studies which have discussed and applied agency theory, which is arguably the most widely used theoretical framework in internal and external auditing. The following are examples of some of the studies which have discussed the role of agency theory in internal auditing over time.

**Table 2.1: A summary of some previous IA studies relating to agency theory**

Colbert and Jahera Jr (1988) – This study, entitled “*The role of the audit and agency theory*”, investigated the role of the IAF in the context of agency relationships where there is potential for conflict caused by the failure of a company where shareholders attribute the business failure to lack of information. They conclude by stating that auditors should be aware of areas of possible conflicts of interest, that companies will demand different types of audits and that the size of the business will determine the division of work between IA and external audit (EA).

Adams (1994) – This conceptual study, advanced agency theory as a theoretical framework that is suitable for internal auditing research. The author recommended that agency theory should be increasingly adopted in IA research as it helps to explain the role and responsibilities assigned to internal auditors and also to predict the possible effect of organisational change on the IAF. The author concludes that the use of agency theory provides a good foundation that would benefit the academic community and the internal auditing profession.

Sarens and Abdolmohammadi (2007) – This study, used the agency model to explain the size of IAFs in Belgium. The study found that agency theory has high explanatory powers and that larger IAFs are associated with a more diffused ownership structure of the company and more reporting levels within the company.

Zahirul Islam *et al.* (2010) – This study reviewed the literature in an attempt to identify various agency relationships and the problems associated with such relationships. The study was as a result of corporate governance reforms brought on by regulatory changes which fundamentally changed the roles and responsibilities of all role-players in the financial reporting of public companies in Bangladesh.

Sarens and Abdolmohammadi (2011) – Among other things, this study investigated the relationship between certain agency variables with the relative size of the IAF. In this regard, the study found the relative size of the IAF and management share ownership to be positively related. The study also discovered evidence of a substitution effect between the IAF and independent board members.

De Almeida (2014) – This study aimed to present the different explanatory theories of auditing. The author found that, compared to other theories that explain auditing, agency theory is more grounded, and offers a rational, suitable and more profound explanation, especially in the current economic environment, which is permanently characterised by conflicts of interest.

Endaya and Hanefah (2013) – The study, entitled “*Internal audit effectiveness: an approach proposition to develop the theoretical framework*” proposed agency theory as an approach to building a theoretical framework of IAE. The study reaffirmed agency theory as a useful theory in IAE research.

Eulerich *et al.* (2013) – Employing agency theory, this study entitled “*Self-perception of the internal audit function within the corporate governance system – empirical evidence for the European Union*” was informed by the seeming uncertainty regarding current knowledge on the organisation of the IAF within the internal corporate governance structure and the interaction between IA and AC. The study found that the activities of the IAF are of central importance in corporate governance.

Mihret (2014) – This study, entitled “*How can we explain internal auditing? The inadequacy of agency theory and a labor process alternative*”. The premise of this conceptual paper is that the literature has not adequately theorised the role of internal auditing in a capitalist society. Thus the paper proposed an initial theorisation of the role of internal auditing as a mechanism employed by management and the board of directors to control the labour process in the generation and realisation of surplus value.

Ismael and Roberts (2018) – Employing the agency theory, this study aimed to identify the influencers of decisions by non-financial companies listed in the United Kingdom (UK) to use the IAF as a monitoring mechanism. Agency theory was found to be useful in explaining the voluntary use of IAF as a monitoring mechanism by UK-listed companies. The study also found that the need to reduce both internal and external agency costs through strong internal control and risk management systems as an important driver for the existence of an IAF in these companies, thereby supporting the important role of the IAF.

Source: Author’s own compilation

Table 2.1 shows that agency theory is alive and well in the field of IA research. These studies point to the role of agency theory in explaining the possible conflict of interest between shareholders and management, in clarifying the role and function of internal auditors, and in shedding light on the role of the IAF in the promotion of corporate governance and its use as a monitoring mechanism. The next section discusses the relevance of agency theory to the current study.

### **2.2.1.3 Relevance of agency theory to this study**

According to Jensen and Meckling (1976), agency theory makes a few assumptions: First, that there is “information asymmetry” between the agents and principals, making it difficult for principals to monitor whether the decisions of the agents are in the best

interests of the principal or organisation. Second, that principals and agents act rationally and that they would maximise their own wealth at the expense of the other, leading to agency problems. Third, that the principal can limit divergences from his interests by establishing appropriate contractual incentives for the agent (Jensen & Meckling, 1976) and by incurring monitoring costs designed to limit the deviant activities of the agent. Fourthly, that in some cases it might be in the interest of the agent to use resources (bonding costs) to assure the principal that he/she will refrain from actions which would harm the principal in some way, and that in the event that such actions are taken the principal will be compensated accordingly.

Some critics have had some reservations about agency theory with respect to IA research, arguing that IA operates within a company without any relationship or disclosure to the shareholders (Mihret, 2014). However, the board can bond their actions to good controls by using the IAF and disclose more information on the IAF to signal the use of good governance principles. Thus in this study, ensuring IAE and disclosing IAE is posited as a bonding cost.

Furthermore, agency theory claims that incomplete and asymmetric information between principal and agent in a company will result in conflict as the principal and the agent have different interests. This conflict could be resolved or minimised by providing more information (voluntary disclosure). Hence, the extent of voluntary disclosure has been associated with the size, leverage, profitability and listing status of the company (Urquiza, Navarro & Trombetta, 2010:396). According to Urquiza *et al.* (2010:396), the larger the firm the more likely it is to reveal more voluntary information to reduce agency costs and the more profitable the company the higher the level of disclosure. Listed companies are expected to provide more information due to the higher information requirements they face, or due to agency costs. This study seeks to investigate the relationship between signalled IAE factors and company performance of the top 100 JSE-listed companies. Since this study focuses on the disclosure of IAE (signalled IAE factors) by these companies, it would be interesting to see whether the assumptions just postulated hold true. Hence, agency theory is relevant to this study.

Signalling which is posited as a means of reducing information asymmetry between principals and agents is used in the study to explain the voluntary disclosure of IAE in the IRs and other ARs by companies. The next section discusses signalling theory and its relevance to this study.

## **2.2.2 Signalling theory**

This section provides an overview of signalling theory, describes its development, reflects on some of the studies which employed signalling theory in the past few decades, and discusses the relevance of signalling theory to the present study.

### **2.2.2.1 Signalling theory in context**

In an attempt to explain job market behaviour, Spence (1973) developed signalling theory. In his essay, Spence (1973) shows how the employer does not have access to certain important information even at the point of recruitment, and how as a result the employer relies on some signals about the potential employee in making hiring decisions. These signals may include educational levels, prior experience, and others. A signal is “any observable indicator of something with unobservable” qualities or a snapshot “pointing to unobservable signaller qualities at a given point in time” (Davila, Foster & Gupta, 2003:690). According to Moratis (2018:5), a signal constitutes messages or images that are communicated from one entity to another. However, for the observable indicator to be considered a signal it must meet two criteria: “(1) the indicator must be able to be manipulated, at least partly, by an individual, and (2) the marginal cost of difficulty of obtaining the indicator must be inversely correlated with the individual’s level of ability” (Spence, 1973). In illustrating this theory, Bartlett (2012:4) cites the example of a degree, which highlights both the prerequisite criteria. First, holding a “degree is a signal of future workplace productivity because acquisition of such a credential is at least partly within an individual’s control and because it is more difficult for those individuals who lack the organisational skills, commitment, motivation and focus (or other similar such attributes that constitute productivity) to obtain a degree” (Bartlett, 2012:4).

Signalling theory was subsequently applied in other areas such as service marketing and advertising where, for example, the role of certification of a product as a signalling device was explored. In the services marketing context, certification refers to “promoting and displaying endorsement of service quality by an independent and reputable agency” (Walker & Johnson, 2009). In this regard, Mishra (2006:82) described how displaying certification “creates an incentive for firms to deliver on quality promises by using proper techniques to control delivery agents like repair mechanics”. In due course, signalling theory was applied in fields like accounting and auditing, which suggests that management may use financial disclosure to signal additional information about the company to investors (Connelly *et al.*, 2011:40). Signalling theory suggests that companies “provide information that could be used by individuals or constituent groups that are seeking to form impressions about the firm, its values and its overall future direction” (Jones & Murrell, 2001:62; Moratis, 2018:3). In respect of a company, insiders who are mainly executives, directors or managers work as signallers while the receivers are outsiders such as investors, employees and other stakeholders who may not always be aware of the insider information. The signals represent the flow of information disclosed (Mi Bae, Kaium Masud & Dae Kim, 2018). Annual and/or IRs are examples of channels companies use to transmit signals (Mi Bae *et al.*, 2018).

In unpacking signalling theory, Connelly *et al.* (2011), discussed signal value or credibility and the role of signal costs. Signal value is described as the extent to which the signal is correlated with unobservable quality (Moratis, 2018). According to Van Beusekom and Raaijmakers (2011), the credibility of a signal depends on the relevance, verifiability, cost and extra cost for low-quality firms. Relevance suggests that there has to be a clear relationship between the signal and the implied level of compliance. For a signal to be credible, it needs to be verifiable even if it comes with some cost, which should be moderate and not prohibitive (Van Beusekom & Raaijmakers, 2011:4). Ease of verification refers to the extent to which a displayed fake signal is easily shown to be false (Mavlanova, Benbunan-Fich & Koufaris, 2012). According to Isidro and Marques (2016:9), “disclosure of private information gives credibility to the signal if the information is both positive and true”. Signal frequency represents the number of times signals are transmitted while signal consistency refers

to agreement between signals from a single source (Moratis, 2018). By increasing the number of signals they send, companies are likely to enhance their signal credibility (Moratis, 2018).

The credibility of the signal will be further enhanced if the costs of signals are structured in such a way that dishonest signals do not pay (Connelly *et al.*, 2011; Van Beusekom & Raaijmakers, 2011). Signal costs are transaction costs associated with signal implementation (Certo, 2003). According to Isidro and Marques (2016:4), signalling theory establishes that efficient signals need to be observable and costly and that given the existence of a cost, some firms will be in a better position than others to bear such cost, meaning that only the high-quality firms will be in a position to signal their superior performance. High-quality companies are more likely to send high-quality signals than low-quality companies due to the signals' opportunity cost (Connelly *et al.*, 2011:53-54). Companies also primarily disclose positive performance to reveal their quality, and the disclosure takes place if the firm perceives it as beneficial (Isidro & Marques, 2016:6; Spence, 1973).

IAE signals satisfy the elements of signalling. These include the signaller, the signal, the receiver and feedback. In this case the signaller is management and the board of directors, the signal is transmitted through the IR and other ARs, the receiver is the shareholders and investors and feedback received is in a form of investor behaviour. Signalling has an element of cost involved in collecting and disclosing information which impacts on the quality of signals.

#### **2.2.2.2 Previous internal audit studies and signalling theory**

Signalling theory has been used in a number of IA studies, although not as widely as agency theory. The following are a few examples of studies which have discussed the role of signalling theory in internal auditing over time.



**Table 2.2: A summary of some previous IA studies relating to signalling theory**

Naser *et al.* (2013) – The study entitled “*Can substitution and signalling theories explain the relationship between external audit fees and the effectiveness of internal corporate governance?*” found that an effective IAF employed by non-financial Emirati companies listed on the Abu Dhabi Securities Exchange (ADX) was negatively correlated with EA fees.

Albawwat (2017) – In the PhD thesis entitled “*The influence of culture upon external auditors’ reliance on the internal audit function*”, signalling theory is used to conceptualise how external auditors judge the quality of the IAF. The latter is based four IA factors; namely, IAF’s objectivity, competence, work approach and the relevance of work for the purpose of EA.

Source: Author’s own compilation

The small number of studies shown in Table 2.2 that have applied signalling theory is an indication that the theory is still far less popular than agency theory in IA research. Even in cases where signalling theory could have been used, the authors still seem to be comfortable with the use of agency theory, e.g., Hunziker (2013). Signalling theory has been used in studies relating to voluntary corporate disclosures in general (Bini, Giunta & Dainelli, 2010; Birjandi, Hakemi & Sadeghi, 2015; Hamrouni, Miloudi & Benkraiem, 2015; Hieu & Lan, 2016; Scaltrito, 2016).

### **2.2.2.3 Relevance of signalling theory to the study**

According to Von Alberti-Alhtaybat *et al.* (2012), disclosure of compliance is the most cost-effective way of dealing with agency problems. In his review of corporate governance theory, Sharma (2013) lists signalling theory as one of the theories supporting corporate governance disclosures. The theory is based on the need to address adverse decisions and moral hazards resulting from information asymmetry. Information asymmetry stems from “separation of ownership and control”, characteristics of a modern firm, where “managers (agents) have more information about the firm than shareholders (principals) and potential investors” (Mohiuddin, 2012:45). Due to this information asymmetry problem, companies use voluntary disclosure to signal that they are better than other companies for the purposes of enhancing a favourable reputation (e.g. disclosing internal control related information enabling investors to better monitor management (Deumes & Knechel, 2008) or to attract investments (Cotter, Lokman & Najah, 2008)). Signalling has been described

as “a reaction to informational asymmetry in markets” (Watson, Shrives & Marston, 2002:291) and voluntary disclosure is one of the means for signalling (Shehata, 2014:20). Scaltrito (2016:17) describes voluntary disclosure as the “discretionary release of financial and non-financial information, which companies are not obliged to disclose by accounting standard setting bodies”.

The essence of signalling theory is to reduce information asymmetry between two parties. Signalling theory proposes that information asymmetry can be reduced if the party with more information sends signals to other interested parties and from a business perspective a company with high quality should signal its advantages to the market (An *et al.*, 2011). In this regard, Ntim (2009:87) suggests that an increase in disclosure of corporate governance compliance will signal to investors and shareholders that the organisation is well governed and that management will not exploit investors. In turn, investors will view such signalling as an indication of value and thus be willing to pay a premium for the shares (Healy & Palepu, 2001; La Porta *et al.*, 2002). Interestingly Abhayawansa and Abeysekera (2009:298) indicate that management only makes voluntary disclosures if “there is a marginal benefit to be gained from reducing the information asymmetry in the market”. This brings to the fore that voluntary disclosure is not a fortuitous exercise, but is driven by a desire to benefit the company, albeit marginally.

Disclosure signals to potential investors that they will not be exploited (Dye, 1986; Ntim, 2009) and results in a decrease in the cost of capital (Healy & Palepu, 2001:406). Interestingly, Goodwin *et al.* (2009) note that there is a relationship between corporate governance and financial disclosure. There are two types of corporate disclosures, namely mandatory and voluntary. Information disclosed to comply with the legal and regulatory requirements is considered mandatory whereas any other information disclosed over and above the mandatory disclosure is voluntary. (Shehata, 2014:18). As a result of the information asymmetry problem, companies signal certain information to investors to show that they are better than other companies in the market for the purpose of attracting investments and cultivating a favourable reputation (Verrecchia, 1983). Voluntary disclosure is one kind of signalling, where companies

disclose more information than the mandatory facts required by law and regulation in order to signal their superiority (Campbell, Shrides & Bohmbach-Saager, 2001:72).

Although the theory was previously used to explain why managers have an incentive to disclose more information in the financial statements (e.g. intellectual capital (An *et al.*, 2011) or accounting ratio (Watson *et al.*, 2002) information), it is relevant to this study, which uses mandatory and voluntary IAE disclosures to investigate signalling of IAE and its relationship with company performance. Mandatory disclosure is in terms of the South African Companies Act (SA, 2008) and JSE listing requirements (JSE, 2014). Signalling posits that mandatory IAE disclosure is necessary to reduce information asymmetry and therefore may or may not be related to company performance, while voluntary IAE disclosure is associated with the accrual of an expected marginal benefit to the organisation. Voluntary disclosure is then used as a communication channel to signal superior quality or value (Cotter *et al.*, 2011) and it can lead to various benefits, such as improving corporate image, attracting potential investors and improving relationships with stakeholders (An *et al.*, 2011).

Furthermore IAE signals sent by companies show how management bond themselves to good governance principles. Signalling can decrease information asymmetry, and in so doing reduce monitoring costs, which in turn can result in improved performance. Signalling theory postulates that companies that perform well are more likely to make voluntary disclosures as a way of distinguishing themselves from others in the marketplace (Birjandi *et al.*, 2015:178). Hence, voluntary disclosure is positively related to company performance. According to Scaltrito (2016:27), the value of a company increases in cases where the company voluntarily provides additional information, which in turn enhances the credibility of companies, and reduces uncertainty for potential investors. Since this study focuses on management's disclosure of IAE (IAE signalled factors) and the value derived internally using management efficiency related performance indicators (ROA and ROE) and externally using market related performance indicators (MBV & Tobin's Q), it will be of interest to see whether the assumptions just discussed hold true.

### **2.2.3 Summary of theories underpinning the study**

Agency theory and signalling theories have some overlap (Morris, 1987; Watson *et al.*, 2002). Information asymmetry, a necessary condition for signalling theory, is implied by positive monitoring costs in agency theory (Morris, 1987). Since the study is about signalling IAE, the two theories are used to explain the relationship between signalled IAE factors and company performance. Agency problems arise as a result of the separation of ownership and control and are mainly as a result of divergent goals (and information asymmetry) between agents and principals. Principals incur monitoring costs such as external auditing and agents incur bonding costs such as disclosing private information in IRs or ARs in an effort to reduce information asymmetry. Agency suggests reporting on corporate governance mechanisms as a means of reducing information asymmetry and distrust amongst agents and principals.

Signalling theory also recognises the existence of information asymmetry between two contracting parties. Signalling theory is used to explain some unobservable quality (IAE) through an observable quality (IAE disclosure in IRs and other ARs). Signalling has a cost and therefore only those companies that are well run, of a good quality and that perform well can afford to give quality signals. Signalling suggests communicating more information of a private nature more frequently to reduce information asymmetry. Credibility of signals is improved by disclosure of positive and true private information, frequently and consistently. Companies will voluntarily disclose information if they believe there is a marginal benefit from the disclosure. When the quality of their disclosure signals good governance and superior value.

In conclusion, this section provided an overview of the theoretical framework underpinning the study. The theories employed, namely agency and signalling theories, were shown to be relevant to the objectives of the study. Agency and signalling theories were briefly described. Previous studies in IA research which employed the respective theories were traced and highlighted. A literature review revealed that agency theory is still widely used in the field of IA research. The broad areas on which these studies focused include explaining the possible conflict of interests between shareholders and management, clarifying the role and function of internal auditors, and describing the role of the IAF in the promotion of corporate

governance. Regarding the application of signalling theory to IA research, the literature review indicated that this theory is not as widely used as agency theory although there are indications that its application is gaining traction. The next section reviews literature on corporate governance.

## **2.3 CORPORATE GOVERNANCE**

The need to control the behaviour of managers through governance mechanisms such as corporate governance is an important aspect of agency theory, which enables shareholders to mitigate agency problems and reduce any associated agency costs (Hieu & Lan, 2016:658). This section first considers various definitions of the notion of corporate governance and provides an overview thereof. This is followed by a discussion of models of corporate governance, corporate governance and the roles of the board of directors, the AC and the IAF. The section concludes with a discussion of the role of the IAF in combined assurance.

### **2.3.1 Definitions and overview**

In 1992, the Cadbury Code sparked the beginning of corporate governance reform; it was followed by an increase in the publication of other codes and guidelines which essentially promoted transparency and accountability (Mallin, 2004:19). Generally, corporate governance code design follows application at three hierarchal tiers: the international, national and individual firm levels (Claessens & Yurtoglu, 2013:4; Cuomo, Mallin & Zattoni, 2016:223). International codes are codes which are issued by transnational institutions such as the Organisation for Economic Co-operation and Development (OECD), the World Bank, the International Corporate Governance Network (ICGN) and the Pan-European Commonwealth, and are designed to stimulate and encourage the adoption of good governance practices around the world or within a specific geographic region. National codes are issued by several institutions in a country to influence corporate governance practices in that specific country. For example, institutions such as the stock exchange other professional associations may individually or collectively issue guidance (Cuomo *et al.*, 2016:223). At a micro level,

individual firms may also issue codes to communicate the company's guidelines with stakeholders (Cuomo *et al.*, 2016:223).

Although sound corporate governance mechanisms have long been accepted by various scholars as a means of resolving agency problems (De Zoort *et al.*, 2002; Demsetz, 1983; Fama & Jensen, 1983; Fama, 1980; Sánchez-Ballesta & García-Meca, 2007), it was not until the wave of Asian financial crises in 1997–98 that interest in corporate governance intensified. It became clear from this crisis that deficiencies in corporate governance affect entire economies and endanger the stability of the global financial systems (Claessens & Yurtoglu, 2013:1). Another setback came in the 2000s when corporate governance scandals caused the spectacular collapse of conglomerates in the United States and Europe, resulting in historic losses for investors, employees and other stakeholders (Thomson & Jain, 2006). Investor confidence was further eroded by the 2007–2008 global financial crises whose serious repercussions are still being felt today (Ramskogler, 2014). The above occurrences awakened households, economies and policymakers as to the potential magnitude and pervasive consequences of weak corporate governance systems (Claessens & Yurtoglu, 2013:1).

In response, guidance in the form of governance codes, regulation and legislation has been generated internationally by various institutions and governments. Examples include the UK Cadbury Report of the Committee on the Financial Aspects of Corporate Governance (Cadbury, 1992), the UK Corporate Governance Code (FRC, 2012; FRC, 2018); the Organisation for Economic Cooperation and Development (OECD) Principles of Corporate Governance (OECD, 1999; OECD, 2004; OECD, 2015); the Australian ASX Corporate Governance Council Principles and Recommendations (ASX, 2002; ASX, 2014); and United States of America (USA) SOX (USA, 2002). The Cadbury Report defines corporate governance as “the systems by which companies are directed and controlled”, and “boards of directors are responsible for the governance of their companies. The shareholders' role in governance is to appoint the directors and auditors (external) and to satisfy themselves that an appropriate governance structure is in place in the organisation. The responsibilities of the board include setting the company's strategic aims, providing leadership to put

them into effect, supervising the management of the business and reporting to shareholders on their stewardship. The board's actions are subject to laws, regulations and the shareholders in general meetings" (Cadbury, 1992).

Taking a wider view, the Australian Stock Exchange (ASX) describes corporate governance as "the framework of rules, relationships, systems and processes within and by which authority is exercised and controlled within corporations. It encompasses the mechanisms by which companies, and those in control, are held to account" (ASX, 2002). The OECD defines corporate governance as "procedures and processes according to which an organisation is directed and controlled. The corporate governance structure specifies the distribution of rights and responsibilities among the different participants in the organisation – such as the board, managers, shareholders and other stakeholders – and lays down the rules and procedures for decision-making" (OECD, 2004).

It is evident from the above that since the days of the Cadbury Report the definition of corporate governance has expanded from a control and command mechanism to one that promotes accountability to one that recognises rights and responsibilities in managing stakeholder relations for decision-making purposes. Although most governance codes were developed as a response to corporate disaster, the King Codes (1994; 2002; 2009; 2016) followed a different pattern as they were developed to enhance competitive business practices. Corporate governance involves the application of ethical and effective leadership by putting strategy into effect, providing informed oversight of implementation and performance, and disclosure (King IV, 2016; IoDSA, 2016). The emergence of the codes brought about a corresponding increase in the number of governance scholars who focused their attention on exploring a range of related issues (Aguilera & Cuervo-Cazurra, 2009:376; Cuomo *et al.*, 2016:223).

Despite increased interest in corporate governance, scholars do not seem able to agree on a single universally accepted definition (Ntim, 2017; Solomon, 2013:6). Seemingly, scholars often classify definitions according to their view of primary accountability for good governance. As a result, some definitions adopt a narrower perspective while others take a wider view. A definition is considered narrow if it is

primarily focused on shareholders and maximising their wealth (agency theory view) or broad if the definition includes a wider constituency of stakeholders (stakeholder theory view) (Solomon, 2013:6; Solomon & Solomon, 2004:12). To illustrate this dichotomy, a number of scholarly definitions of corporate governance will be considered next.

Shleifer and Vishny (1997:737), define corporate governance “as dealing with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment”. Similarly, Monks and Minow (2001) define corporate governance as the “relationship among various participants in determining the direction and performance of corporations”. The primary participants in this shareholder-centric view of governance are the shareowners, management, and the board of directors. Although these definitions hint at other stakeholders, they are considered to be narrow as they exhibit a fixation on shareholder value maximisation as opposed to enhancing the interests of other stakeholders such as customers, employees and the local community (Ntim, 2009:32).

On the other hand, Solomon (2013:7) describes corporate governance as “the system of checks and balances, both internal and external to companies, which ensures that companies discharge their accountability to all their stakeholders and act in a socially responsible way in all areas of their business activity”. The definition portrays corporate governance as a balancing act involving accountability by the company and its board of directors to a wider set of internal and external stakeholders. This dichotomy in definitions of corporate governance has resulted in the development of two major models of corporate governance (Wixley & Everingham, 2010:2), which are discussed next.

### **2.3.2 Corporate governance and agency theory**

Sánchez-Ballesta and García-Meca (2007:879) posit that one of the ways of mitigating agency problems is through corporate governance mechanisms. Corporate governance principles are founded on the need for agents to demonstrate to all stakeholders that they are acting in the best interests of the organisation, including giving assurance on the organisation’s internal controls, risk and governance



processes (IoDSA, 2009). The principle behind corporate governance is essentially to manage both the potential and existing conflicts of interest between principals and agents and seek to align these interests through incentives and monitoring mechanisms (Kung & Munyua, 2016). Such mechanisms include “corporate governance structures which define the distribution of rights and responsibilities among different participants in the corporation, such as the board, the managers, shareholders and other stakeholders” (Chinelo & Iyiegbuniwe, 2018:18).

In public companies, capital providers such as the shareholders represent the principals whereas executives and managers represent the agents. “Conflict of interests” and “different attitudes towards risk” between the owner and management constitute the two main problems in an agency relationship (Eisenhardt, 1989:58). Mohiuddin (2012:45), suggests that these problems to arise as a result of information asymmetry where managers, “in possession of the information make decisions” which are “self-serving” at the expense of shareholders’ interests. Hence, agency theorists advocate governance structures as a lower cost means of policing the implicit and explicit contracts between principals and agents (Demsetz, 1983; Fama & Jensen, 1983; Fama, 1980:295). These governance structures include the reporting requirements, the board of directors and governance mechanisms, such as IA, that can limit conflicts of interest between the managers and absent owners that arise when decisions made by managers maximise their own interest and do not maximise shareholder or ownership wealth. Managers are more likely to have access to information compared to their principals, it is evident that the agency problems can manifest themselves as information asymmetry (Jensen & Meckling, 1976).

There are costs inherent in any agency relationship. Jensen and Meckling (1976) describe agency costs as “the value loss to shareholders that arises from divergence of interests between shareholders and corporate managers”. These authors say that agency costs mainly comprise monitoring and bonding costs, which are discussed below.

### **2.3.2.1 Monitoring costs**

According to McColgan (2001:5), monitoring costs are “expenditures paid by the principal to measure, observe and control an agent’s behaviour” and may include “the cost of audits, writing executive compensation contracts and ultimately the cost of hiring and firing top managers”. These costs can also be influenced by regulations and governance codes, which ensure that the monitoring function of control systems used to reduce conflicts of interest between principal and agent is disclosed (Saltaji, 2013:50). The best level of monitoring may consist in concentrating on the contractual environment of a company (Saltaji, 2013:51). The costs associated with the board of directors, appointed by and therefore acting on behalf of shareholders to monitor and restrict the activities of management to ensure behaviour that maximises shareholder value, are also considered part of monitoring costs (Wilkinson & Plant, 2012).

### **2.3.2.2 Bonding costs**

Bonding costs are costs, borne by the agent or management, incurred to set up structures that ensure that the agent acts in the shareholders’ best interests, or compensate the shareholders accordingly if the agent does not do so. Bonding costs may include the cost of additional information disclosures to shareholders (McColgan, 2001); they can also be described as the cost of setting up and working according to the monitoring system (Jensen & Meckling, 1976). Bonding costs include costs related to attempts to provide information to external shareholders in an accurate and timely manner (Saltaji, 2013:51). Bonding costs and monitoring costs seem to be inversely proportional in that a decrease in monitoring costs equates to an increase in bonding costs. Agency problems such as conflicts of interest between shareholders and managers can be solved by means of contracts that bond managers to act in the interests of the shareholders (Saltaji, 2013:51).

### **2.3.3 Models of corporate governance**

Over time two major corporate governance systems developed, influenced by how corporates view their relationship with stakeholders (Wixley & Everingham, 2010:2). The shareholder model is derived from the view that the company exists mainly to

maximise shareholder value and managers are primarily accountable to this narrow group of stakeholders, whereas the stakeholder model holds the view that “the company exists to serve the interests of all it interacts with”, implying that profit maximisation should not be the only business motive (Wixley & Everingham, 2010:2). Thus the stakeholder model holds the company and its management accountable to all stakeholders. These two views are often criticised for being either exclusionary (serving the interests of the shareholders to the exclusion of the other stakeholders) or pluralistic, namely to allow for the differing levels of investment made by various stakeholders in the company.

Nwanji and Howell (2007:9) call the two models the “shareholdership and stakeholdership models”. The “Anglo-American corporate governance system is based on the shareholdership model” (outsider model) “while the European corporate governance system is based on the stakeholdership model” (insider model) (Nwanji & Howell, 2007:9). The Anglo-Saxon model is characterised by the dominance in the company of independent persons and individual shareholders whereas corporate governance in the Continental European model is characterised by “a high concentration of capital. Shareholders have common interests with the organisation and participate in its management and control. Managers are responsible to a wider group of stakeholders, besides shareholders, such as unions and business partners” (Ungureanu, 2012:626).

Researchers draw a further distinction based on the legal system. The shareholder model is popular in Anglo-Saxon countries such as the UK and the US where the legal system has a common law origin, whereas the stakeholder model is usually found in the countries of Continental Europe and Asia like Germany and Japan, where the legal system originated in civil or Scandinavian law (Aguilera & Cuervo-Cazurra, 2009:379; Padgett, 2012:3-5). Typically, under common law investors enjoy more protection than in a civil legal system, which makes the shareholder model more attractive to countries with equity-based economies like the UK and US (Padgett, 2012:5). As illustrated above, the choice of corporate governance model a country adopts may be influenced by its legal system.

A third system, the enlightened shareholder model, has emerged as a compromise located somewhere between the two extremes. This model recognises that the company has a primary responsibility to its shareholders while understanding that the long-term sustainability of the company depends on its discharging its responsibilities towards the other stakeholders such as its employees, suppliers, customers and society at large (Wixley & Everingham, 2010:2). The King Code points out that the enlightened shareholder model takes into account the interests of stakeholders only if those interests have a bearing on shareholder value (IoDSA, 2009:12). Advocating a similar concept, the King Code adopts a stakeholder-inclusive approach where the legitimate interests and expectations of stakeholders are naturally considered, but on the understanding that they are in the “best interest of the company” and not merely an instrument to serve the interests of the shareholder (Bouwman, 2012; IoDSA, 2009:12).

Once a governance code has been developed and adopted there are broadly two approaches to ensure its implementation, a rules-based or principles-based approach. Contrasting examples of each are the mandatory US Sarbanes-Oxley Act of 2002 that followed a rule-based “comply or else” approach and the “comply or explain” principle-based approach embodied in the UK Combined Code of 2003 and other codes worldwide including the King Code. The rules-based approach requires corporate governance to be coded in law or statute with sanctions in case of non-compliance. With the “comply or explain” basis also referred to as soft law, either a company has to comply fully with the code and state that it has done so, or it explains giving full details why it has not complied fully. Such disclosure allows investors to make their own decisions as to whether the non-compliance or deviance is justified (Mallin, 2004:22) while giving organizations flexibility in the choice of the best corporate governance structures to use to reach its objectives (Cuomo *et al.*, 2016:223).

The corporate governance approach adopted by a country has an impact on agency costs. As mentioned by Jensen and Meckling (1976, agents and principals are willing to incur bonding and monitoring costs in order to limit conflict of interest and reduce information asymmetry. One of the criticisms expressed against the “comply or else” or rules-based basis relates to cost implications. These include both indirect and direct

cost associated with compliance for the sake of avoiding sanctions but without adding value (IoD, 2009:5). Thus, there is a risk that mandatory disclosure may exceed its value and thus have a negative impact on company performance. Arguments against the principles-based approach are limited. One is the argument by Kotler (2005:2) regarding distrust as to whether organisations will do the right thing in the absence of a stick to force them to comply. Other arguments are centred on the lack of standardisation of reporting formats which may result in information not being understandable to all stakeholders (Cuomo *et al.*, 2016). Such a lack of understandable reporting may result in a lost opportunity for organisations to reduce information asymmetry and to distinguish themselves as more valuable.

#### **2.3.4 Corporate governance and the role of the board of directors**

The board of directors has been recognised as the key player in corporate governance by regulators and governance codes around the world (ASX, 2014; IoDSA, 2009; IoDSA, 2016; USA, 2002). As mentioned previously, corporate governance has been used to deal with agency problems arising from separation of ownership and control of corporations. The mechanism corporate governance employs is increased accountability by the managers through the board who have a primary responsibility and a fiduciary duty towards the company (Ezzamel & Watson, 2005). Over and above their responsibility to protect shareholders' interests and wealth, boards also manage the contract entered into with managers to ensure that they are adequately compensated relative to the market (Hoskisson, Castleton & Withers, 2009:58). Ezzamel and Watson (2005), observe that irrespective of a country's corporate governance framework, a common characteristic of the corporate failures that have led to significant losses to shareholders and other stakeholders has been the relative ease with which dishonest and firmly entrenched CEOs and other senior managers have been able to dominate the board of directors. Hence, later corporate governance reforms have emphasised the need for a mixed directorship favouring the non-executive directors and have sought to strengthen their role and influence through the various board committees that they chair. One such board committee is the AC. In SA, the AC is a statutory committee.

From the point of view of board dynamics, the OECD (2012:19) argues that boards should be entrepreneurial, challenge management decisions, identify risks and opportunities, and network with governments and society. Cossin (2012), argues that it is well-balanced boards such as these that can gain competitive advantage since they are in the best position not only to provide a bird's eye view on strategy and raise awareness of external risks but also to connect with all stakeholders, and credibly build trust with them. Consequently, a number of studies have been conducted on the effectiveness of the board of directors and its impact on firm value or performance. However, these studies have had mixed results. According to (Lawal, 2012:27), studies on board dynamics such as board size, composition, CEO duality, diversity and firm performance have yielded equivocal results for various reasons, including wrong conceptualisation and weak methodology and model specifications as well as the nature and type of performance measures used. Thus, the quality of the research on the relationship between board dynamics and firm performance provides weak support for the belief that corporate governance is vital for firm performance.

### **2.3.5 Corporate governance and the audit committee**

The AC is considered to be essential to corporate governance (Cohen, Krishnamoorthy & Wright, 2002; Stefan, Comes, Munteanu, Nistor, Stefan, Crişan & Fülöp, 2014). An important part of corporate governance is the interaction between the AC and the IAF (Scarborough, Rama & Raghunandan, 1998:52). The AC is responsible for overseeing the IAF, appointing and monitoring the performance of the CAE, approving the IA plan, and ensuring that the IAF meets the necessary quality standards (Alzeban, 2015; Khelil, Hussainey & Noubbigh, 2016:6). Previous studies have referred to a symbiotic relationship and interaction between ACs and internal auditors to prevent internal control failure and ensure the integrity and quality of financial reporting (Boubaker & Taher, 2013). Section 2.3.7 below discusses the role of the AC in combined assurance.

An AC is responsible for assessing the independence and the work performance of the IAF and improving its organisational status (Boubaker & Taher, 2013:2; Scarborough *et al.*, 1998:53). An effective AC strengthens the position of the IAF by providing an independent and supportive environment and reviewing the effectiveness of the IAF (Karagiorgos, Drogalas, Gotzamanis & Tampakoudis, 2010:19). In their study, Alzeban

and Sawan (2015) found that higher perceptions of the implementation of IA recommendations are strongly related to the presence of independent members of the AC and to those members' expertise in accounting and auditing. The results also suggest that perceptions of the implementation of IA recommendations are influenced by frequent meetings between the AC and the CAEs.

Previous studies that investigated the relationship between ACs and the IAF (Alzeban, 2015; Alzeban & Sawan, 2015; Badara & Saidin, 2013; Boubaker & Taher, 2013; Cooper, 1993; Davies, 2008; Goodwin, 2003; Johl, Johl, Subramaniam & Cooper, 2013; Lessambo, 2013; Marx & Voogt, 2010; Montondon, 1995; Raghunandan, Read & Rama, 2001; Ramanchandran *et al.*, 2012) have found AC composition to be associated with quality oversight by the AC, and positive interaction between the AC and IAE (elaborated on further in chapter 3). Specific board characteristics like independence, financial expertise, frequency of meetings and involvement in the review of the IA plan and results have a positive influence on the IA and AC interrelations. In turn these IA and AC interrelations enhance the IAF's organisational independence, status and effectiveness (Deloitte, 2018:27). The following is a brief discussion of some of the studies.

Earlier studies such as those by Scarbrough *et al.* (1998), Raghunandan *et al.* (2001) and (Goodwin, 2003) found that the composition of the AC regarding aspects such as the independence of committee members and their expertise in accounting or finance positively affects interaction between the AC and the IAF. Zain, Subramaniam and Stewart (2006) found that where the AC is more effective in terms of independence and has auditing expertise, internal auditors make a greater contribution to financial reporting. Interestingly, Alzeban and Sawan (2015) also found that AC independence is related to the implementation of IA recommendations while knowledge of accounting and auditing impacts positively on interactions. It can therefore be argued that independence and financial expertise are indicators of effective ACs that are most likely to advance interactions with the IA, improve the IA contribution to financial reporting and result in greater implementation of IA recommendations.

In contrast, Boubaker and Taher (2013) examined the association between AC characteristics (independence, financial expertise, frequency of meetings and size of AC) and the committee's interaction with the IAF in Tunisian firms and found that the size of the AC affects interaction with the IAF negatively and that the AC independence has no significant effect on AC relations with the IAF. This was attributed to lack of independence of Tunisian ACs (Boubaker & Taher, 2013). Nevertheless, the expertise and frequency of meetings of the AC were found to have a positive impact on AC interaction with the IA, in line with previous studies. In their study, Zaman and Sarens (2013) examined the informal interactions between the AC and the IAF and found informal relations to be associated with AC independence, audit chairs' knowledge and experience and IA quality. In another study, Marx and Voogt (2010) also found that unlimited private access to the AC chair and the board chair are associated with good relations between the AC and the IAF. In contrast, Barua, Rama and Sharma (2010) found a negative relationship between the presence of an audit or financial expert as a member of the AC and investment in the IAF, suggesting a complementary role between the AC and the IAF. This is surprising in view of their symbiotic relationship and common interests (accuracy of financial reporting, risk management and control).

### **2.3.6 Corporate governance and the internal audit function**

The realisation that the IAF can contribute effectively to the improvement of corporate governance (Ramamoorti, 2003:13) has led to increased interest in IA and corporate governance on the part of the public. International guidelines and scholars alike perceive that effective corporate governance, including an effective IAF as a corporate governance mechanism, improves performance and is a source of competitive advantage (Bou-Raad, 2000; Chevers, Chevers & Munroe, 2013; Karagiorgos *et al.*, 2010). The IAF has a dual role to play in governance; first, as one of the corporate governance cornerstones (Gramling *et al.*, 2004) within an organisation the IAF has a role in strengthening governance and second, it also has a role to play in its capacity as an independent assurance giver and adviser to management as it evaluates and assesses the effectiveness of governance processes (Wilkinson & Plant, 2012:19). Inasmuch as the role of the IAF has broadened since the change in its definition in 1999, Chambers and Odar (2015) are of the view that for IA to play a more significant



role in governance, the IAF should have unlimited scope and a single reporting line to the board of directors with greater emphasis on auditing governance processes.

Ramamoorti (2003:13) maintains that if properly conceived and implemented, the IAF can play a critical role in promoting and supporting effective organisational governance, a view held by a number of scholars (Carcello, Hermanson & Raghunandan, 2005; Chevers, Chevers & Munroe, 2015; Cohen *et al.*, 2002; Gramling *et al.*, 2004:196; Paape & Speklé, 2012:261) and expressed in governance codes (IoDSA, 2009; IoDSA, 2016). A few studies have indicated, however, that the quality of IA (Barac & van Staden, 2009) and the use of IA (Goodwin-Stewart & Kent, 2006) may not always be associated with good corporate governance and there is a possibility of a substitution effect (Regoliosi & d'Eri, 2014) between good governance and IA. The substitution effect refers to a situation where the “effect of individual governance mechanisms is contingent on the effect of other mechanisms, and organisations can select a configuration of governance mechanisms based on their idiosyncratic firm characteristics in order to maximize firm value” (Geng, Hennessy & Bates, 2006:127). For instance, Barua *et al.* (2010), found that the presence of a financial or auditing expert on the AC was negatively associated with investment in the IAF, suggesting a possible substitution effect between the AC and the IAF. With the exception of a few dissenting studies, scholars are persuaded that IAF should form an integral part of an organisation’s internal corporate governance mechanisms (for example Barac and Coetzee (2012:35)) and managers and management teams expect high-quality assurance and consulting services from IA on the subject of governance processes, risk management and internal controls (Arena & Jeppesen, 2015).

In SA, demand for IA is driven by normative forces in the form of legislation and regulation. In fact, Marais, Burnaby, Hass, Sadler and Fourie (2009), attribute the rapid growth of the IA profession to the mandatory requirement for an IAF by South African public sector legislation (SA, 2000) and the King Code (IoDSA, 2009), which permeates all sectors of the economy. Because such reliance is placed on the IAF, Erasmus and Coetzee (2009) stress the importance of the IAF’s communicating the value-added by the function beyond the compliance motive to ensure that IA is effective. Although the responsibility of setting up an effective IAF rests with the board,

such communication of value-added will probably ensure that the IAF maintains its independence and respect within the organisation (Soh & Martinov-Bennie, 2011:611). Chambers and Odar (2015:46) further argue that IA should go beyond compliance with processes and assessment, and should also cover the quality of the inputs to and the outputs from these processes, and identify and report any unacceptable levels of risk.

This is one of the first studies that focuses on IAE disclosure and the benefit derived from such disclosure. Similar to other corporate governance disclosure studies, the study recognises the IAF as an important internal corporate governance mechanism in the hands of the board and senior management that monitors internal controls and other processes instituted by management in the agency relationship (Barac & Coetzee, 2012; Mans-Kemp, 2014; Ntim, 2009; Wilkinson & Plant, 2012). Signalling theory, which is rarely used in IA research, is commonly used in combination with other theories like legitimacy theory in corporate governance disclosure studies. Similar to other corporate governance studies, the study employs a combination of financial measures as proxies for company performance (Mans-Kemp, 2014; Ntim, 2009; Rossi & Harjoto, 2019; Wolmarans *et al.*, 2018). For example, Ntim (2009) used ROA as an accounting-based measure of performance and Tobin's Q as a market-based measure of performance while Mans-Kemp (2014) used a combination of ROA, ROE, earnings per share, total share return and risk-adjusted abnormal returns.

Since there is no comprehensive list of IAE factors, the study contributes to research on IAE by consolidating IAE factors and indicators discovered in the literature to create an IAE sampling frame and using it to identify IAE signals in the IRs and other ARs. This frame enhances the discovery of IAF-related information beyond the King Code mandatory disclosure, thus exposing IAE signals in a way that has yet to find expression in corporate governance disclosure studies. Furthermore, the study employs MCA as a data reduction method, which is novel in corporate governance disclosure research.

### **2.3.7 Corporate governance and combined assurance**

Gramling *et al.* (2004:195) recognise that effective corporate governance has an important role in ensuring accurate management reporting and effective internal

controls. Similar to previous King reports, King IV considers the IAF to be pivotal to corporate governance (IoDSA, 2016). King IV reinforces the role of the IAF as an extraordinary internal assurance giver providing “an assessment to the board on the system of internal controls and to the AC specifically on the effectiveness of internal financial control” (IoDSA, 2016:31). One of the responsibilities of the board of directors is that of ensuring that the company has an effective risk-based IAF (IoDSA, 2016:70). While the responsibility for coordinating combined assurance is that of the audit and risk committee, the allocation and procurement of assurance services is normally left to management, with the AC playing an oversight role (Van der Merwe, 2016). King III recommends that IA play a part in providing assurance by providing “a written assessment of the effectiveness of the company’s system of internal controls”, not only over financial matters but also over operational, compliance and sustainability issues and risk management (IoDSA, 2009). Thus IA has a role to play in bolstering assurance in risk management and in the overall control environment through its assessments. This role is supported by guidance of various kinds touching on the role of IA in combined assurance.

The notion of combined assurance, introduced in King III (IoDSA, 2009), received affirmation in King IV and has been enhanced to become a more useful and effective model that seeks to address significant risks faced by the company (IoDSA, 2016:31). King IV describes a combined assurance model as one that “incorporates and optimises assurance services and functions so that as a whole, these enable an effective control environment, support and integrity of information used for internal decision-making by management, the governing body and its committees; and support the integrity of the organisation’s external report” (IoDSA, 2016:10). This model of assurance exhibits an understanding not only of assurance but also of how that assurance permeates all aspects of decision making at all levels of the organisation.

While assurance is sought from internal and external assurance providers and is coordinated by the AC, the IAF seems to be in the best position to impact most positively on assurance as well as on governance (Lewis, 2015). The AC “should ensure that a combined assurance model is applied to provide a coordinated approach to all assurance activities” (PwC, 2014). According to Decaux and Sarens (2015:57),

the aim of combined assurance is to coordinate assurance activities from various sources of assurance and to give overall “assurance on the effectiveness of risk management and internal control systems”. PwC (2014:4) admits, however, that despite numerous benefits offered by the process of combined assurance, it remains a challenge for companies to institutionalise or embed it in their processes.

As an internal assurance provider, the IAF has the potential to champion combined assurance (Forte & Barac, 2015:73). The IAF is responsible for “evaluating the company’s governance processes, performing an objective assessment of the effectiveness of risk management and the internal control framework, systematically analysing and evaluating business processes and associated controls; and providing a source of information where appropriate regarding instances of fraud, corruption, unethical behaviour and irregularities” (IoDSA, 2009). Thus the IAF has a bird’s eye view of the organisation and is able to provide insights on control, risk and governance. In line with the evolving role of IA (refer to chapter 3), King IV envisages an effective IAF that continues on its trajectory as a trusted adviser “that adds value”, contributing “insights and foresight” (IoDSA, 2016:31).

Combined assurance “is the process of internal, and potentially external parties, working together and combining activities to reach the goal of communicating information to management. To implement combined assurance, CAEs should first evaluate where they are today with regard to: conformance with the *Standards*; communication and coordination; reporting; and second line of defense functions” (IIA, 2016d). Combined assurance is also defined as “integrating and aligning assurance processes in a company to maximize risk and governance oversight and control efficiencies, and optimize overall assurance to the audit and risk committee, considering the company’s risk appetite” (IoDSA, 2009). Put simply, combined assurance ensures that there is a coordinated way of receiving assurance that the risks of the company are managed appropriately. This aligns with the latest COSO Enterprise Risk Management (ERM) framework, namely monitoring enterprise risk management performance (COSO, 2016).

Combined assurance is considered a natural part of the risk management process and seen as important for the successful attainment of company objectives (Van der Merwe, 2016). The AC should ensure the coordination of all assurance activities and coverage of all significant risks using a combined assurance model (IoDSA, 2009; IoDSA, 2016). Applied appropriately, combined assurance makes it possible for SM, the audit and risk committee and the board to make informed decisions based on “a comprehensive and holistic view of the effectiveness of governance, risk management and controls at the company” (Zhou, Simnett & Hoang, 2018:9). Also, the results of combined assurance help the board or governing bodies to make credible representations to various stakeholders about the status of governance, risk and the control environment within their organisation (Epstein & Buhovac, 2006:8).

While combined assurance is acknowledged to have a number of benefits, its implementation seems to be lagging behind. In terms of the 2015 IIA Global Internal Audit Practitioner Survey the average implementation rate was 40%. Only 59% of the respondents appear to be aware of combined assurance and Sub-Saharan Africa had one of the highest implementation rates, namely 51% (IIA, 2015). Although research on combined assurance implementation is limited, difficulty in implementing combined assurance seems to be one of the reasons mentioned. Decaux and Sarens (2015:58), identify the essential components of combined assurance implementation as “a mature risk management framework, awareness around combined assurance, a combined assurance champion, an assurance strategy, assurance provider mapping, and reporting on combined assurance findings”. Mature risk management takes an enterprise-wide, holistic approach to risk management in which strategic, operational, reporting and compliance risks are addressed simultaneously (Hoyt & Liebenberg, 2011:797) as one of the ingredients for successful combined assurance (Decaux & Sarens, 2015:58).

### **2.3.8 Summary of corporate governance**

This section shed light on the notion and practice of corporate governance. The various definitions of corporate governance were examined, and it was evident that while there is no single universal definition of corporate governance, the principles in various jurisdictions are largely similar. The section further discussed corporate governance

through the theoretical lens of agency theory. The role of monitoring and bonding costs was also clarified, as were the models of corporate governance. Relevant corporate governance mechanisms such as the board of directors, the AC and the IAF were discussed and the notion of combined assurance was also explained. The next section discusses integrated reporting.

## **2.4 INTEGRATED REPORTING**

One of the two theories underpinning this study, signalling theory was discussed extensively in section 2.2. As discussed, signalling theory was developed by Spence (1973) to explain information asymmetry in the labour market. However, the theory was then applied in a number of disciplines, including corporate reporting, where it was used to explain voluntary disclosure. By means of voluntary disclosure, companies disclose more information with a view to signalling their superiority (Campbell *et al.*, 2001; Shehata, 2014). Although companies rely on a number of sources such as magazines, press reports, interim reports and letters to shareholders for making voluntary disclosures, ARs or IRs are considered the most trusted source (Catasús, 2008; Chau & Gray, 2010). Interestingly, in other countries integrated reporting is completely voluntary, whereas in SA it is required of all companies listed on the JSE (Eccles & Spiesshofer, 2015:4). In this regard Makiwane (2012:23) points out that while integrated reporting is a relatively new concept, SA has led the way in its implementation.

The International Integrated Reporting Council (IIRC, 2013:2) states that “integrated reporting brings together material information about an organisation’s strategy, governance, performance and prospects in a way that reflects the commercial, social and environmental contexts within which it operates. It provides a clear and concise representation of how an organisation demonstrates stewardship and how it creates and sustains value.” According to the IIRC (2013:4), “the primary purpose of an integrated report is to explain to providers of financial capital how an organisation creates value over time. An integrated report benefits all stakeholders interested in an organisation’s ability to create value over time, including employees, customers,

suppliers, business partners, local communities, legislators, regulators and policy-makers.”

Typically, information about IAE would form part of the IR since it speaks to governance and is also a representation of how companies “create and sustain value”. Hence, IRs are vital for the purposes of this study since they are a reliable source that demonstrates the nature and extent of disclosure of IAE for companies listed on the JSE. Hence, the IIRC (2013:21) notes that “an IR includes sufficient context to understand the organisation’s strategy, governance, performance and prospects without being burdened with less relevant information”.

According to Flower (2015:3), IRs comprise the following four strands that need to be integrated, “(1) traditional financial statements, (2) management commentaries, (3) governance and remuneration reports and (4) sustainability reports”. Essentially, an IR is a single document that combines “an entity’s financial and non-financial performance” information (Eccles & Saltzman, 2011:57). The <IR> Framework is aimed principally at providing effective shareholder accountability (Solomon & Maroun, 2012). The King Code is at the forefront of the holistic, inclusive approach to corporate reporting and accountability with its requirement for integrated reporting where significant social and environmental information is interwoven with financial information as part of the main annual report (Solomon, 2013). In order to tell a complete story of the use of the capitals in value creation, reports should reflect this interconnection and the effect on the capitals in the context of triple-bottom line in which they operate (IoDSA, 2016:5). Thus, complementing the holistic view to governance, there has been a shift from reporting financial, social and environmental issues in silos to integrated reporting where structure is given to the notion of triple reporting as a result of integrated thinking. Building on the principles of King III and following an outcomes-based approach, King IV is more closely aligned to the <IR> Framework (IoDSA, 2016).

An effective IR reflects the relationship between “financial and non-financial information such as management commentary and governance matters” (Dumitru, Glăvan, Gorgan & Dumitru, 2013:25). Frias-Aceituno, Rodríguez-Ariza and Garcia-

Sánchez (2014:60) list six benefits of integrated reporting, namely; “(1) providing information which is in greater harmony with the needs of investors, (2) increasing the accuracy of non-financial information that is made available, (3) enhancing the level of confidence of key users, (4) improving decisions taken on resource allocation and cost management, (5) improving risk management and identification of opportunities, and (6) enhancing commitment to investors and other stakeholders and in the process facilitates skills attraction and retention”.

Advocates for integrated reporting argue that it leads to “a better managed company that is more able to create value over the short, medium and long terms, and in doing so, provide the information necessary for its investors to take a longer term view” (Eccles & Spiesshofer, 2015:7). This is consistent with signalling theory which, as explained earlier, suggests that companies should provide internal information that could be used by individuals or constituent groups that are seeking to form impressions about the firm, its values and its overall future direction (Jones & Murrell, 2001:62; Moratis, 2018:3). While in general, “investors complain that companies do not provide them with sufficient information to be comfortable taking long-term positions” (Eccles & Spiesshofer, 2015:11), signalling theory proposes that an increase in disclosure of corporate governance compliance will signal to investors and shareholders that the organisation is well governed and that management will not exploit investors (Ntim, 2009). The increase in voluntary disclosure of information in IRs will go a long way towards reducing information asymmetry between principal and agent. An IR should contain information that is material based on the company’s designated report users, otherwise the company runs the risk that information asymmetry between report users and management could cause users to question the quality and credibility of reported information (Cohen & Simnett, 2015:63; Zhou *et al.*, 2018).

The IR is an integrated and holistic representation of a company's financial and sustainability performance (IoDSA, 2009). Integrated reporting covers various aspects that relate to an overview of the company and its external environment, its governance structure and how this structure supports the company’s ability to create value, its business model and the risks and opportunities and how they affect the company’s value creation ability and how the company deals with them (IIRC 2013:27). IRs



contain both mandatory (e.g. derived from accounting standards) and voluntary disclosures (Roman, Mocanu & Hoinaru, 2019).

In SA mandatory disclosure is in terms of the Companies Act (SA, 2008). Instead of certain governance issues being legislated, King III adopts the “apply or explain” approach and contains various disclosure requirements for companies that claim application of the Code (IoDSA, 2009) (refer to Table 2.3). The management is discretionary when making these disclosures (Roman *et al.*, 2019) which are seen as voluntary disclosure. However, listed companies should comply with King III (JSE, 2014) and in terms of section 8.63 of the JSE listing requirements companies have to make “(1) a narrative statement as to how they have complied with the principles set out in King III, providing explanations that would enable stakeholders to evaluate how the principles have been applied, and (2) a statement addressing the extent of the company’s application of King III and the reasons for non-application of any of the principles in Code”. Key information (application of principles contained on the board and directors in Chapter 2 of King III) must be disclosed in the IR and more comprehensive reporting (on the other principles of King III) should be accessible on the company’s website.

**Table 2.3: Mandatory and voluntary disclosure**

MANDATORY DISCLOSURE	
Mandatory disclosure in terms of the Companies Act (SA, 2008)	
Section 29(1)(c), (d) and (e)	<p>“Disclosures in annual financial statements relating to:</p> <ul style="list-style-type: none"> <li>• The company’s assets, liabilities and equity, its income and expenses, and any other prescribed information;</li> <li>• The date of the statements;</li> <li>• The accounting period of the statements; and</li> <li>• A prominent notice indicating whether the statements have been audited or independently reviewed or none of the aforementioned and the name and professional designation, if any, of the individual who prepared or supervised the preparation of those statements”.</li> </ul>
Section 30(3)	<p>“The auditor’s report should be included in the AFS. The directors’ report (can for part of the IR or AR) of the company (or of the group) “with respect to:</p> <ul style="list-style-type: none"> <li>• Its state of affairs;</li> <li>• Its business;</li> <li>• The profit or loss;</li> <li>• Any matter material of interest to shareholders to appreciate the company’s state of affairs; and</li> <li>• Any prescribed information”.</li> </ul>
Section 94(7)(f)	<p>“The following disclosures in relation to the audit committee report (can form part of the IR or AR):</p> <ul style="list-style-type: none"> <li>• How the audit committee carried out its functions</li> <li>• Statement that the AC is satisfied that the external auditor was independent of the company;</li> <li>• Commenting in an appropriate manner on the financial statements, the accounting practices and the internal financial control of the company”.</li> </ul>
Section 97(1)	<p>“Disclosure relating to a qualifying employee share scheme”.</p>

<b>VOLUNTARY DISCLOSURE</b>	
<b>Disclosure in terms of King III (IoDSA, 2009) King III provides a code of principles and practices on a voluntary basis and follows an apply or explain approach (IoDSA, 2009)</b>	
Section 88(2)(e), 89(2)	"Disclosure relating to the company secretary".
Section 91(6)	"Disclosure relating to the external auditor".
Section 30(4)-(6)	"Disclosure relating to directors' emoluments".
Chapter 9 par 5	"An annual IR conveying adequate information about the operations of the company, its integrated sustainability and financial reporting".
Code of governance principles	"A positive statement that King III best practice recommendations were applied, or where a specific principle and/or recommendation is not applied, this should be fully explained".
Chapter 1 par 49	"Statement on the company's ethics performance".
Chapter 2	"Preparation of a remuneration report and other general disclosure requirements: <ul style="list-style-type: none"> <li>- Base pay and bonuses</li> <li>- Contracts and severance</li> <li>- Share-based and other long-term incentive schemes"</li> </ul>
Chapter 4 par 54, 55 and 56 also par 13 and 39	"Statements by the board on risk management".
Chapter 5 par 9	"IT reporting in the IR is complete, timely, relevant, accurate and accessible".
Chapter 6 par 6	"Disclosure of non-binding rules, codes and standards are regarded as applicable and adhered to on a voluntary basis".
Chapter 7 par 12	"A report by the board on the effectiveness of the system of internal controls in the IR".
Chapter 6 par 10	"Disclosure in the IR on how the board discharged its responsibility to ensure an effective compliance framework and process was established".
Chapter 7 par 1	"Whether an IAF was established and if not how adequate assurance of an effective governance, risk management and internal control environment have been maintained".
Chapter 8 par 22 and 36	"Disclosures relating managing stakeholder relationships".
Chapter 9 par 9	"Other comments on the company's financial results to make informed assessments of the company's economic value, gives insight into future prospects and key risks which may limit those prospects".
Chapter 9 par 10	"Disclosure regarding going concern".
Chapter 9 par 10	"Assurance on sustainability reporting".

MANDATORY DISCLOSURE WITH SOME FLEXIBILITY	
JSE listing requirements (JSE, 2016), section 8.63.	
Section 3.84	Listed companies must adopt King III on a “apply or explain” basis.
Section 8.63	“Disclose in the AR, a narrative statement of how the company has applied the principles set out in King III. Key information (application of principles contained on the board and directors in Chapter 2 of King III) must be disclosed in the IR and more comprehensive reporting (on the other principles of King III) should be accessible on the company’s website”.

Source: IoDSA, 2009; 2013; JSE, 2016; PwC, 2008; 2011; SA, 2008.

In summary, the preceding section reflected on integrated reporting, defined integrated reporting and outlined its benefits. Significantly, the section also highlighted the role of signalling theory in integrated reporting. Finally the section discussed mandatory and voluntary information which can be disclosed in the IR.

## 2.5 CONCLUSION

This chapter discussed the theoretical framework of the study at great length. This study is underpinned by agency and signalling theories. The chapter chronicled the background to both theories and highlighted some previous studies in IA research that applied the two theories. More importantly, the relevance of the two theories was elucidated. Since agency theory postulates that incomplete and asymmetric information between principal and agent could result in a conflict due to the different views and interests of the principal and agent, agency theory suggests that this conflict could be resolved or minimised by providing more information. Accordingly, this study will argue for the need for the disclosure of more information through IRs on IAE. Likewise, signalling theory is also deemed relevant for the study which uses deemed mandatory and voluntary IAE disclosures to investigate signalling of IAE and its relationship with company performance. The chapter established that signalling can decrease information asymmetry, and in doing so reduce monitoring costs, which in turn can result in improved performance.

The notion of corporate governance was deliberated extensively in this chapter, as were the various definitions of corporate governance. Corporate governance was also

discussed in the light of agency theory as well as its constituents, namely monitoring and bonding costs. The practice of corporate governance was further unpacked as the role and function of the board of directors, the AC as well as the IAF were discussed. Combined assurance was also explained from the perspective of corporate governance. Finally, the chapter reviewed literature on integrated reporting and IRs. Signalling theory was also revisited as the role of IRs in providing financial and non-financial information was highlighted. The next chapter explains the evolution of IA towards IAE.

## **CHAPTER 3**

### **THE EVOLUTION OF INTERNAL AUDIT TOWARDS INTERNAL AUDIT EFFECTIVENESS**

#### **3.1 INTRODUCTION**

The previous chapter provided a theoretical framework for the study. The two main theories underpinning this study, namely agency theory and signalling theory, were discussed, as was the subject of corporate governance. This chapter chronicles the changing role of and trends in the IAF over time. The chapter also discusses the changing role of internal auditing in response to significant global and South African phenomena. The chapter further explores the impact of the SOX, King III and King IV. The remainder of the chapter is devoted to an in-depth discussion of IAE, indicators of or factors affecting IAE, its measurement as well as its value proposition.

#### **3.2 THE DEFINITION AND CHANGING ROLE OF THE INTERNAL AUDIT FUNCTION**

Traditionally, the IAF was intended to take responsibility for safeguarding an organisation's assets and assisting in the production of reliable accounting information for decision-making purposes (Ebaid, 2011:108; Kwon & Banks, 2004:606). The focus was on reviewing the integrity of the organisation's accounting and financial reporting system as well as reporting the results of the review internally. As early as 1946, Atkinsson (1946:125) recognised the strategic role that IA can play in the hands of management, particularly in giving "assistance in coordinating the performance of an organisation with its objectives". This has proved to be true as the increasing complexity of the business environment has seen demands being made on internal auditors to play a more active role in assisting management in the risk management arena of governance (Mihret *et al.*, 2010; Spira & Page, 2003). There is also an increasing awareness and appreciation of the value that the IAF can add in organisations by increasing organisational efficiency and effectiveness (IIA, 2010a; Mihret *et al.*, 2010). Hence, IA as an activity is increasingly the focus of research by

professionals and academics alike (Ernst & Young, 2008:18; Karagiorgos *et al.*, 2011; Marx & Voogt, 2010b).

This section discusses the evolution of the IA profession. It goes on to consider the key regulatory reforms that have impacted IA. To that end, the influence of the IAF of the SOX, King III and King IV, as well as the global financial crisis of 2007–2008 are discussed.

### **3.2.1 Evolution of the internal audit profession**

The evolution of the IA profession is “closely related to the history of the IIA”, an organisation established in the United States of America in 1941 (Ramamoorti, 2003:2). The IIA is the primary international body tasked with the promotion and development of the practice of internal auditing (Ramamoorti, 2003:2). The IIA currently has as its mission: “to provide dynamic leadership for the global profession of internal auditing” (IIA, 2016a). Some activities concomitant to the IIA’s mission include “being the IA profession’s global voice, recognised authority, acknowledged leader, chief advocate, and principal educator” (IIA, 2016a). Furthermore, the IIA sponsors surveys with the aim of defining the CBOK of IA and introducing new topical areas related to IA practice (Abdolmohammadi, Burnaby & Hass, 2006). Thus, the IIA CBOK studies are a source of information on the changing role of IA.

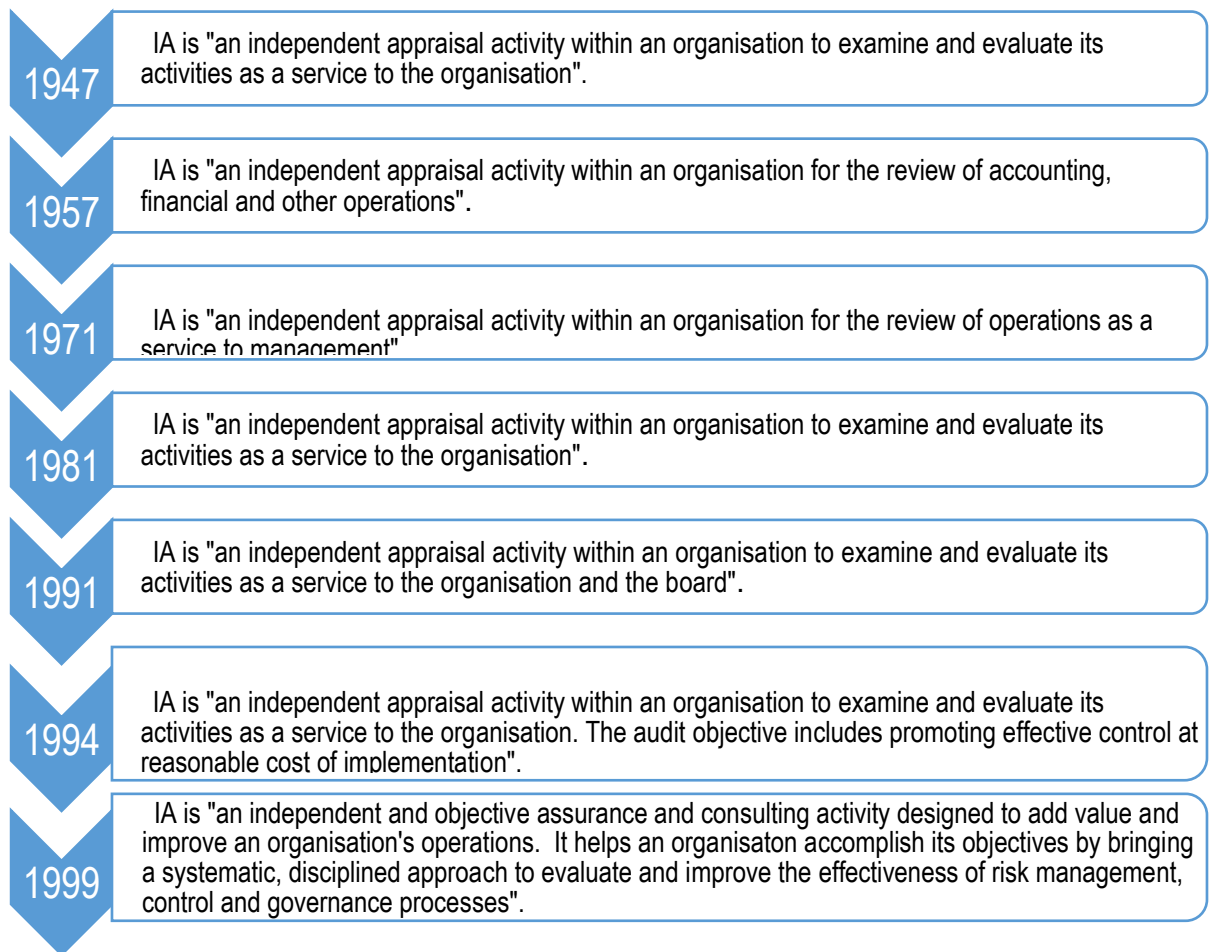
The CBOK studies can be traced back to 1972 when the first survey of IA was conducted with the objective of defining the CBOK of IA (Abdolmohammadi *et al.*, 2006). The study identified key knowledge areas and the level of proficiency in each knowledge area required by professionally proficient internal auditors. Since then CBOK studies have increased in participant’s numbers, the countries covered and the subjects of investigations, each adding to the IA body of knowledge. Interestingly, the 1999 CBOK noted the gradual movement in the focus of IA towards aligning with organisational needs and being able to create value for the organisation (Abdolmohammadi *et al.*, 2006). The study concluded that for IA to create value it must become increasingly involved in risk assessment and control strategies, among others. This conclusion resonates with the increased scope of work of internal auditors to include governance, risk management and control processes as encompassed by the

IIA's current definition of IA. The 2010 CBOK study highlighted the importance of measuring the IA value and identified common measures used in practice (Chen & Lin 2011). The most widely used measures included the percentage of work completed, the number of recommendations accepted by management, customer satisfaction surveys, sound risk management and control, and reliance by external auditors (Chen & Lin, 2011:39). IA value-add was a subject of further study by the 2015 CBOK survey (IIARF, 2015) with similar results.

The IA and its objectives were first defined in the IIA's *Statement of Responsibility of the Internal Auditor* (SOR) (Adelopo, Aras & Crowther, 2012), which was published and adopted by the IIA in 1947 (Spencer Pickett, 2010:14). The SOR has been revised a number of times in response to changes in the demand for IA services (Ramamoorti, 2003:6). Figure 3.1 illustrates some of the notable changes in the SOR and the discussion that follows traces the development of the IA profession by looking at the definition of internal auditing from the early years to the current definition. Another significant development was the promulgation of the *Standards for Professional Practice of Internal Auditing* (Standards) in 1978 (Ramamoorti, 2003:6). These Standards provided authoritative guidance to the IA profession and have since been revised a number of times. The 1999 revision of the Standards coincided with the latest revision of the Internal auditing definition and has become part of what is now called the IPPF (Spencer Pickett, 2010:3). The IPPF is the main professional framework for internal auditing that systematises authoritative guidance for the IA profession and includes mandatory guidance and strongly recommended guidance (IIA, 2016a). The mandatory guidance is contained in the "*Definition of internal auditing, the Code of Ethics and the Standards* while the strongly recommended guidance is found in position papers, implementation guidance (previously practice advisories) and practice guides" (IIA, 2016d).

By tracing the evolution of the definition of internal auditing, valuable insights can be gained with respect to the changes in its role, objectives and scope. Figure 3.1 below summarises some of the most notable evolutionary leaps in the Internal auditing definition by the IIA from its earlier SOR to the current definition contained in the *Internal Auditing Definition* (IIA, 2016b).





**Figure 3.1: The evolution of the definition of internal auditing by the IIA**

Source: Own compilation based on Spencer Picket 2010.

IA was first defined in the SOR and accepted by the IIA in 1947 as “an independent appraisal function established within an organisation to examine and evaluate its activities as a service to the organisation” (Sawyer & Dittenhofer, 1996:21). In terms of this SOR, the IAF had as its objective to “assist members of the organisation in the effective discharge of their responsibilities. To this end, IA furnishes them with analyses, appraisals, recommendations, counsel and information concerning activities reviewed” (Sawyer & Dittenhofer, 1996:21). This definition places the IAF as “an independent appraisal activity within an organisation” performing mainly a review of “accounting, financial and other operations as a service to the organisation” (Spencer Pickett, 2010:14).

The SOR has been revised a number of times to reflect the change in objectives and broadening scope of the profession. In 1957, operational responsibilities were included in addition to the accounting-compliance services (Sawyer & Dittenhofer, 1996:24). Another notable change was introduced in 1971 with the removal of the distinction between financial and other operations. This meant that the financial operations no longer enjoyed priority but had to compete for the attention of the IAF (Spencer Pickett, 2010:14). The 1981 definition occasioned a shift from management to the organisation as the main beneficiary of IAF services (Sawyer & Dittenhofer, 1996:24). This definition raised the profile of the IAF since it was now required to focus on governance issues affecting the well-being of the whole organisation instead of just the requirements of individual managers (Spencer Pickett, 2010:14).

The 1991 revision of the Internal auditing definition allowed for a wider range of assurance and consultancy services to be provided by the IAF as well as imposing stricter adherence to professional requirements. The next definition which appeared in the IIA *Standards* in 1994 required the IAF to give due consideration to the costs involved in the implementation of the recommendations made (Spencer Pickett, 2010:14). Since 1999, internal auditing has been defined as “an independent assurance and consulting activity designed to add value. It helps an organisation accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance process” (IIA, 2016b). This definition firmly establishes the IAF in the governance and risk arena in addition to its traditional role in control (Ramamoorti, 2003:13). By including the evaluation and improvement of the effectiveness of “risk management, control and governance processes” in the scope of work of the IAF, this definition captures the role of internal auditing as dictated by the demands of a dynamic and complex business environment.

The Internal auditing definition extends the continuum of services from compliance to value-adding services that IAFs can perform in fulfilling their role of helping organisations achieve their objectives. Thus as the IAF responds to the needs of the organisation and the board, its focus adapts to the objectives of the organisation. For example, in the wake of the statutory requirements of Section 404 of the SOX, IA effort

was expended in the interest of compliance with SOX at the expense of other areas considered to be value-adding (Rittenberg & Miller, 2005:28). Ebaid (2011:109) and Goodwin (2004:642) suggest that there has been a “shift” in the role of the IAF from compliance to value-added assurance and consulting services focusing on improving performance and effectiveness. However, the scope of IA in terms of the Internal auditing definition permits IA to provide a range of services, allowing IA to swing, in pendulum fashion, from compliance to value-added assurance and consulting services (Mihret *et al.*, 2010:10) without necessarily shifting its role.

A much earlier definition by Sawyer & Dittenhofer (1996:6), which provides more detail describes IA as “a systematic, objective appraisal by internal auditors of the diverse operations and controls within an organisation to determine whether (1) financial and operating information is accurate and reliable, (2) risks to the enterprise are identified and minimized, (3) external regulations and acceptable internal policies and procedures are followed, (4) satisfactory operating criteria are met, (5) resources are used efficiently and economically and (6) the organisation’s objectives are effectively achieved – all for the purpose of consulting with management and for assisting members of the organisation in the effective discharge of their governance responsibilities”. At the time, this definition not only identified the responsibilities of IA as required by the *Standards* but also highlighted further opportunities in the role that IA could play (Sawyer & Dittenhofer, 1996:6). Aspects of this definition were crystallised in the current definition in which IA is defined as providing assurance and consulting services as a service to the organisation in key areas of governance, risk and control.

In another definition presented by Vantilescu *et al.* (2009:565) IA is defined as “an independent and objective activity that gives an entity a certain assurance regarding the degree of control over its operations, guides it in order to help it improve the business and contributes by adding an extra value that also provides a quantitative tool for analysis”. This definition puts forward the idea of IA guiding the organisation rather than being a watchdog. The notion of adding extra value is supported by the 1999 definition provided by the IIA.

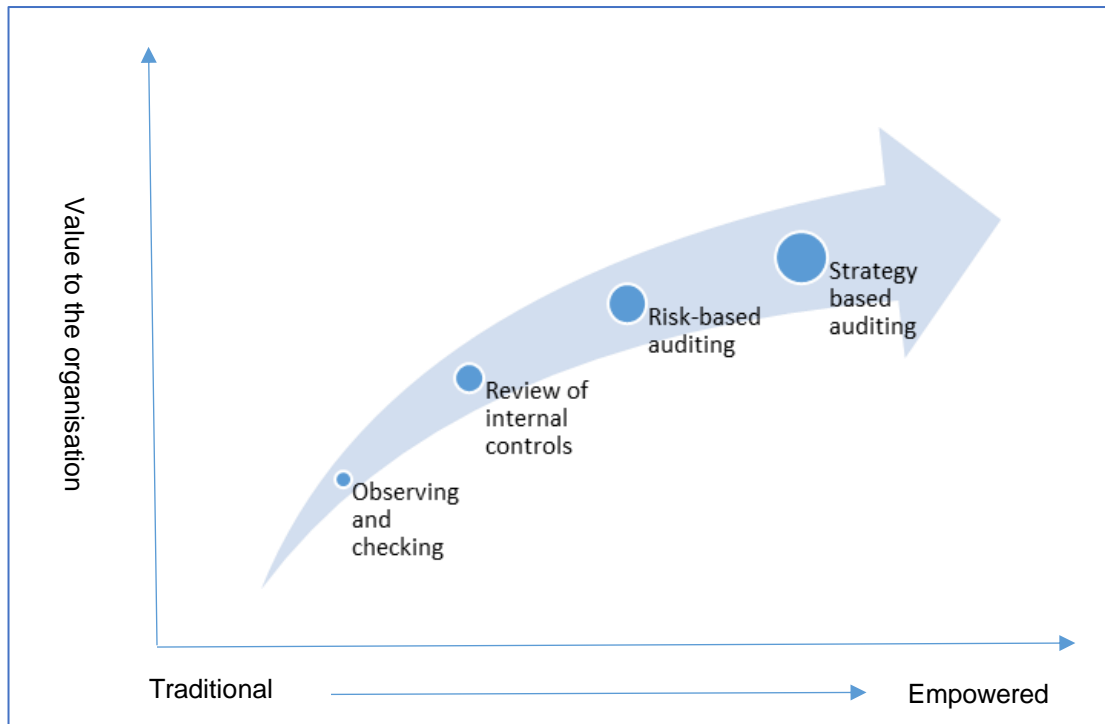
A common thread in the above definitions is that the IAF is expected to help with the achievement of organisational objectives demanding strategic alignment between the IAF and the mission and objectives of the company. Consequently, the IAF's objectives and activities should be agreed upon with management and associated with the strategic objectives of the organisation (Aksoy & Bozkus, 2012:1284). Defining IA is of interest to this study as it gives perspective to the IAF objectives and activities, thus contextualising IAE.

The importance of the new expanded role of the IAF in corporate governance has been well documented in prior research (Kontogeorgis, 2018; Ramamoorti, 2003; Spira & Page, 2003). The internal auditor's role in corporate governance has been enhanced by the enactment of regulations like SOX which require listed corporations to have an IAF. Although having an IAF is not a listing requirement in some countries, including SA (Marx & Voogt, 2010), the IAF has been promoted as a cornerstone on which effective corporate governance is built, thus supporting the key governance mechanisms, namely executive management, an AC and external auditing (IoDSA, 2009). In a somewhat forward-looking statement, the IIA (2011:xii) posits that the value of the IAF should be determined by its ability to be a force for good in the company. Hence, it is vital for the IAF to constantly scan the environment and look out for practices against which to benchmark.

A number of studies have looked at the evolution in the role of the IAF from a traditional to a more strategic role (Burrell Nickell & Roberts, 2014; De Smet & Mention, 2010; Roussy, 2013; Singh, 2011). The IIA organised the global IA survey in 2010 to capture the global trends, needs and expectations of the IA profession (IIA, 2010a). The results suggest that the role of the IAF in two specific areas, namely risk management and governance, will become increasingly important and that these areas will become accepted as the two key areas of the profession. In this regard, Spira and Page (2003:654) support the idea that a "broader approach to internal control has offered IA the opportunity to claim expertise in the crucial area of risk management". Singh (2011) recommended an improvement in the elevation of the IAF to a more strategic role. This suggests that companies stand to derive more value by elevating and expanding the role of the IAF. Hence, Ali (2016) holds the view that the IAF should follow a risk-based

approach in their audit plan which should increase focus on governance issues, improve on their relationship with their main stakeholders and optimise IA resources to enhance their technical ability. The main stakeholders of the IAF include SM and the AC and, broadly speaking, also include the board of directors, shareholders, regulators, management and employees (Rijamampianina, 2016). Recognising the different stakeholders as drivers of IAE and their varied expectations will enable the IAF to manage relationships more effectively, thereby enhancing its effectiveness (Erasmus & Coetzee, 2018).

To add value, IA must extend its traditional assurance provider role into a more proactive role as trusted adviser (PwC 2015:16). In a survey conducted by PwC (2015), IAFs perceived to be adding significant value outperformed other IAFs in risk focus, talent management, business alignment and data. These IAFs focused on the right risks at the optimal time and were strategically aligned with ERM and other lines of defence (PwC, 2015). The more demands, challenges and opportunities that are made on and presented to businesses, the more evident the need for strong “corporate governance, risk management, effective internal control and efficient operation” (IIA, n.d.:1). IA purports to add value across the board because IA has skills in risk management and has a uniquely broad-based view of the organisation, making IA a valuable resource for corporate governance (IIA, n.d.:5). However, for IA to add value it must be effective (Al-Twaijry *et al.*, 2003; Dittenhofer, 2001; Mihret *et al.*, 2010), although some scholars have questioned the very idea of IAE (Alzeban & Gwilliam, 2014; Ebaid, 2011). Figure 3.2 depicts the trends in IA activities perceived to be value-adding.



**Figure 3.2: IA activities and perceived value**

Source: Adapted from Columbus Advisory (2011)

Figure 3.2 shows that the value of IA to the organisation increases as the IAF gets more involved in strategic management, a notion that finds support in the literature discussed in the above paragraph. The IAF is viewed as adding the most value when it performs risk-based audits (also strategy-based audits) as opposed to the traditional review of internal controls. In a study based on the 2010 CBOK survey, D'Onza *et al.* (2015:192) found that internal auditors perceive that their value-add increases as they effectively contribute to the evaluation of risk management and the internal control process.

The significance of the IAF is captured by De Smet and Mention (2010) who describe internal auditors as the “sentinels of the board” whom stakeholders can rely on Roussy (2013:551) cautions against regulators’ view of IA as governance watchdogs. He argues that the roles performed by internal auditors within the IAF are not based on the principle of their being watchdogs but rather on the evaluation and improvement of governance processes. As role-players in corporate governance internal auditors are not independent and cannot be used by regulators as watchdogs. This raises questions about the gap between the role of the IAF as defined in the IPPF and what

is expected of them by their stakeholders (such as regulators, management and the board).

### **3.2.2 Impact of the Sarbanes-Oxley Act of 2002**

Following the 2007/2008 crisis in the global financial system and earlier corporate scandals, corporate governance has received increased attention from regulators and the public (Soh & Martinov-Bennie, 2011). Regulators have responded by increasing disclosure and assurance requirements for governance processes (Claessens & Kodres, 2014). In the USA the SOX (USA, 2002), which is applicable to USA organisations, their subsidiaries and business partners, is one example of such legislation. SOX has as its aim “to protect investors by improving the accuracy and reliability of corporate disclosures made pursuant to the securities laws, and for other purposes” (USA, 2002:745). Accordingly, this Act was promulgated to curb reckless behaviour on the part of those who manage and control organisations in the USA, the behaviour that has led to corporate scandals. By increasing the reporting requirements applicable to the AC, SM and external auditors (USA, 2002:777), this Act has indirectly led to an enhancement of the role and importance of the IAF within organisations (Christopher, Sarens & Leung, 2009:201).

SOX has enhanced the role of IAF in two ways: firstly it gives the IAF an opportunity to strategically use the Section 404 (USA, 2002) experience in order to heighten the visibility of IA and increase appreciation for the value-added services IA can provide (Rittenberg & Miller, 2005:28). Secondly, Section 404 of SOX (USA, 2002) requires organisations to report on the “assessment of internal controls over financial reporting”, an area in which internal auditors have developed a reputation as experts (Rittenberg & Miller, 2005:30). Thus, a need for compliance with SOX has led to the IAF’s playing a more “prominent role in ongoing monitoring and testing activities associated with Section 404 work” (Rittenberg & Miller, 2005:28). This is a good example of a coercive force in the form of regulation putting pressure on organisations to establish a structure, namely the IAF, and ensure its diffusion (Al-Twaijry *et al.*, 2003).

As mentioned earlier, the IIA advocates that IA should not only be an assurance provider, but that it should become consultative in nature so that it can add value and

improve an organisation's operations. This has meant a shift in the focus on compliance and financial audits, which is the internal auditor's traditional playground, to more value-adding operational audits and consulting engagements. It appears, though, that the required assessment of internal controls over financial reporting imposed by Section 404 has positioned IA in the internal control arena with a greater focus on compliance (Rittenberg & Miller, 2005:31). Furthermore, Rittenberg and Miller (2005:28) caution that the focus on Section 404 compliance comes at a cost to the gains made in other value-adding areas like operational audits, thereby reducing the potential contribution of the IAF. Protiviti (2009:2), surveying the impact of SOX on the IAF over a five-year period, reveals a trend towards rebalancing the IAF focus away from SOX work as organisational compliance with SOX requirements matures. This is evidenced among others by the increase in risk-based testing (Protiviti, 2009). Nevertheless, the role of IA in corporate governance through its services to the board of directors has been strengthened by SOX.

In terms of Section 302 of SOX on corporate responsibility for financial reporting, the requirements of SOX are applicable to USA companies and their consolidated subsidiaries (USA, 2002:777), rendering this piece of legislation extra-territorial. Thus, foreign subsidiaries of USA companies are also subject to the reporting requirements of Sections 302 and 404. SOX is not applicable to SA unless a South African organisation is a subsidiary of a USA company. It is, however, not the aim of this study to evaluate how the IAF in SA has been affected by SOX. Suffice it to say that SOX is acknowledged to have had an impact on the focus of the IAF's activities.

### **3.2.3 Impact of King III and King IV**

The importance of an effective IAF has been recognised by the various corporate governance codes issued over the years. Omolaye and Jacob (2018:2) maintain that if "properly conceived and implemented, the IAF can play a critical role in promoting and supporting effective organisational governance". Interestingly, King III places the responsibility for establishing an effective, risk-based IAF squarely on the shoulders of the board of directors (IoDSA, 2009:14). This has effectively made the IAF an imperative for listed organisations, although this is not a direct listing requirement (Marx & Voogt, 2010:20). Chapter 7 of the Code, which is dedicated to IA, recommends



that IA “should be an integral part of the combined assurance model, and should provide a written assessment of the system of internal controls and risk management to the board as well as a written assessment of the internal financial controls” to the AC (IoDSA, 2009:44). The Code further enhances the status of the IAF by requiring that the IAF be strategically positioned in order to fulfil its objectives (IoDSA, 2009). King III buttresses the IA profession in SA and firmly establishes the IAF as a pillar of governance and as an important partner to the board.

Under King IV the IAF still enjoys an important role in governance, as was the case with King III. Moreover, King IV recognises that the role of IA has evolved, allowing it to contribute insights into the organisation as well as foresight through the use of pattern recognition, trend assessment, analyses and scenarios (IoDSA, 2016:31). This view resonates with the IIA’s value statement, which sees IA as a “catalyst for improving an organisation’s effectiveness and efficiency by providing insight and recommendations based on analyses and assessments of data and business processes” (IIA, n.d.). King IV encourages IA to endeavour to attain the level of excellence espoused. As a third line of assurance in the combined assurance model, IA is seen as an assurance giver across a broad spectrum of a company (IoDSA, 2016:31). The IAF, together with other internal assurance givers, is required to review and express an opinion on the risk and opportunity management and internal control processes (IoDSA, 2016:9). The interactions of the IAF with other internal assurance providers therefore gain greater importance in providing assurance in the arena of governance.

The introduction of King IV resulted in a shift from the “apply or explain” to the “apply and explain” regime to compliance aimed at enhancing transparency by including disclosures of a qualitative nature (IoDSA, 2016:27). This approach requires that the application of the King IV principles and practices be accompanied by a narrative account of how judgement was exercised in giving effect to the Code’s principles and practices (IoDSA, 2016:37). As mentioned earlier, this study focuses on the period prior to King IV and therefore the empirical content of the study is not impacted by this revision.

### 3.2.4 The financial crisis (2007–2008)

While none of the root causes of the financial crisis was directly ascribed to the auditing function, as participants in the capital markets, auditors have a responsibility to reflect on the lessons learned from the crisis, examine the role of audit *Standards* and determine what they could do to improve market integrity and investor protection (Hossain, 2019). It's little wonder that after the financial crisis the IAF did not escape the scrutiny of practitioners and academics alike (CIIA, 2013; Cohen & Sayag, 2010; Lenz & Sarens, 2012a). The silence on the role of the IAF in the governance arena in the UK following the financial crisis has been construed by some as an indication of its lack of effectiveness (CIIA, 2013). Chambers and Odar (2015:36) identify an “assurance vacuum” as a result of the IIA *Standards* being too generic to cater for a complex environment like financial services and suggest a number of remedies which could help the IAF to seize the moment and fill the vacuum. For example, (IIARF, 2010:16) calls for guidance in the area of strategy oversight, arguing that assurance on the organisation's strategic direction from IA, an independent and objective assurance giver, could help avert possible governance failures (IIARF, 2010:17). Chambers and Odar (2015:36) recommend strengthening risk management, enhancing independence of the IAF by making it report to the board, giving the IAF unlimited scope, and introducing more relevant IIA *Standards*.

Following the financial crisis, Lenz and Sarens (2012b:543) note that the role of IA had become somewhat marginalised and as a result other players had moved in to occupy the space that had once belonged to IA, a view also held by Chambers and Odar (2015:36). In this regard, PwC (2015:4) recommended that IA should “continue to evolve in its focus and significantly improve its performance or risk losing relevance as other risk functions become more vital contributors to the organisation's risk management”. The IIA has therefore been called upon to move faster to fill the vacuum. Critics remain sceptical about whether IA has responded to the increased expectations raised by the global financial crises (Bekiaris, Efthymiou & Koutoupis, 2013:59; Rijamampianina, 2016:166). In this regard, Chambers and Odar (2015) maintain that the expectations for IA remain low and that it has not been “fit for purpose”. They believe that IA should start exploring corporate governance as a critical area of the

audit process. That way the IAF will give the board more assurance than is currently the case.

Bekiaris *et al.* (2013:59) recommend that following the financial crisis, the IAF should offer a new value proposition which should include providing assurance on risk management over and above the traditional role of ensuring that all controls are in place. Bekiaris *et al.* (2013:59) add that the IAF should adopt a holistic conceptual approach to audit, risk assessment and risk management, and move beyond a narrow focus of simply conducting tests. Hossain (2019) attributes the global financial crisis partly to excessive risk taking. Risk management is identified as a major component of the new corporate governance framework (Radičević, Trivanović & Stanojević, 2017:6). According to the Institute of Internal Auditors Research Foundation (IIARF) (2010:16), some lessons from the global financial crisis include that the IAF should improve its own processes and ensure that adequate resources such as skilled auditors, clearly communicated audit plans and objectives, and adequate work quality and quantity are provided, and that independence is maintained. Strategy oversight is another important way in which the IAF can enhance its value.

The 3LoD of the European Confederation of Institutes of Internal Auditing (ECIIA) is a response to the efficiency of corporate governance in times of crisis and instability of the global market. According to IIA (2013:3), the 3LoD “distinguishes among three groups (or lines) involved in effective risk management. These comprise of (1) functions that own and manage risks, (2) functions that oversee risks and (3) functions that provide independent assurance”.

Figure 3.3 illustrates the 3LoD:



**Figure 3.3: The IIA 3LoD**

Source: CIIA (2019:2).

The following can be noted from Figure 3.3:

- i. “The first line of defense in risk management represents the operational management and internal control system, which is based on the identification, assessment and management of risk, and the control measures applied to eliminate it. This line of defense is meant to take corrective action in the functioning of processes and controls.
- ii. The second line of defense relates to risk management, compliance, implementation and enforcement of the risk management system. Of necessity, this function reports to higher levels of management
- iii. The third line of defense has to do with the functions that provide objective and independent assurance and information that is timely, relevant, accurate and supportive – precisely those functions that arise from IA activities” (IIA, 2013).

### **3.2.5 Summary of the changing role of the internal audit function**

In summary, it is evident that IA has shifted from a traditional to a more empowered, strategy-based role in which it provides value-adding services to the organisation and

its stakeholders. Its role has undergone a change, as reflected in the broad definition and objectives, which the IPPF defines as including assurance and consulting services in the control, governance and risk domain with the aim of assisting management. The 1999 definition of internal auditing as discussed above is broad as it mandates the IAF to provide an array of value-adding assurance and consulting services as well as play a meaningful role in governance, risk and control processes.

Although IA primarily provides assurance, the IIA definition of internal auditing requires that the IAF should add value by playing a significant role in strategic areas of corporate governance, risk management and control. Literature indicates that IA must continue to evolve in its focus and significantly improve its performance for such value-add to be realised by stakeholders. This raises the question of when IA adds most value. IA is seen to be adding value when it goes beyond just observing to providing assurance and insight and playing the role of a pro-active trusted adviser. IA that engages in risk-based and strategy-based audits is seen to be adding more value.

The role of IA has been impacted by, among others, SOX, the global financial crisis and in SA the King Code on Governance. When faced with the steep reporting requirements of Sections 302 and 404 of SOX, management could use the expertise of the IAF to help them achieve their compliance objectives. This in turn has raised the profile of IA by giving them a platform from which increased appreciation for the value-added services IA can provide could be demonstrated. However, it is argued that helping organisations comply with the provisions of SOX has again positioned the IA in the compliance arena at the expense of more value-adding assurance and consulting activities. Nevertheless, an act of rebalancing seems to be occurring organically as organisations' compliance structures are institutionalised (Roussy, 2013).

In SA, the role of the IA has been impacted by the King Code which perceives IA to be a strategic partner in the governance arena. As a principles-based code, the King Code is not legally binding but ascribes to the "apply or explain" approach to compliance. King III enhances the role of IA in a number of ways, recommending that IA should be an integral part of the combined assurance model. The global financial crisis led to a

reorganisation in the governance arena. More is expected of the IAF; for example, it is expected to provide guidance on strategic oversight. Nevertheless, it remains questionable whether IA has met these expectations. For example, the UK financial services came up with a financial service charter which virtually left IA out of the governance assurance arena. There is a perception that IA is not effective and that the IIA cannot respond quickly enough to guide the profession in more complex and specialised areas like financial services. This has led to an assurance vacuum which the IA profession must fill or risk being marginalised by other assurance givers. A number of suggestions have been made on how the IA profession can fill the vacuum and remain legitimate as an assurance giver in these dynamic times. IA can only occupy that space if it is viewed as effective by stakeholders. The next section explains IAE by looking at the definition of IAE, key concepts related to IAE, key factors and indicators of IAE, schools of thought on IAE measurement and lastly IAE and the IA value proposition.

### **3.3 INTERNAL AUDIT EFFECTIVENESS**

Since companies place reliance on the IAF to provide strategic direction in the dynamic areas of internal control, risk management and corporate governance (IIA, 2004; Saud & Marchand, 2012), Mihret *et al.* (2010:3) contend that the value-adding role of IA rests on the supposition that IA is effective and as such IAE should be studied more carefully in order to adequately assess value-adding possibilities of the IAF. Despite increased interest by scholars in IAE, the extant literature has failed to provide definitive answers on IAE. Although some studies have questioned the effectiveness of IA (Abuazza, 2012; Mihret & Yismaw, 2007), the majority of them (discussed in this chapter) support the need for and the role of an effective IAF. Even so, there are different schools of thought on how to measure IAE as well as the factors associated with IAE. Before exploring these areas, it may be instructive to begin by defining IAE. Next the section discusses the key indicators of or factors affecting IAE and its different measures.

### 3.3.1 Definition and overview of internal audit effectiveness

Defining IAE has not been an easy task due the fact that IAE is contextually bound since the IAFs from different organisations may have different mandates and missions (Lenz & Hahn, 2015:7). As such, any definition of IAE may not be applicable and relevant to every scenario. Defined broadly, effectiveness is the attainment of a set goal or outcome (Dittenhofer, 2001:445). Thus Dittenhofer (2001:445), defines IAE as “the achievement of goals and objectives using the factor measures provided for determining such achievement”. The IIA (2010a) defines IAE “as the degree (including quality) to which established objectives are achieved”. An effective IAF analyses company’s systems and procedures with a view to enhancing company performance (Saud & Marchand, 2012:16), thereby demonstrating its fitness for purpose (Mihret & Yismaw, 2007:471).

A somewhat different depiction by (Lenz, 2013:24), defines IAE as a “risk-based goal-attainment concept that helps the organisation to achieve its objectives by positively influencing the quality of corporate governance” and that is made up of complimentary practical and political dimensions. The practical dimension relates to a risk-based goal-attainment concept which has to do with whether there are any improvements, cost savings or risks averted as an outcome of IAF activities while the political dimension has to do with the fact that IAE is judged from multiple perspectives in organisations which have numerous and not always congruent goals (Lenz, 2013:25).

Two aspects are worth noting from the definition: firstly, it infers that the relationship between goals or objectives, outputs and outcomes is the main concern of IAE. An example of an audit output is an audit report full of recommendations for improvement where the outcome would be the effect of implementing the recommendation in the report (Lenz, 2013:28). The second aspect that we can take from the Lenz (2013:24) definition refers to its influence on corporate governance. An effective IAF should touch on the areas that have a bearing on risk management and corporate governance (Lenz & Hahn, 2015:7). Accordingly, the impact of the IAF on corporate governance should always be the ultimate measure of the IAF’s effectiveness. Not surprisingly, this view is supported by King III (IoDSA, 2009), who positions the IAF as an important pillar of corporate governance.

In the light of the above, IAE has to do with the achievement of a desired condition or the degree (including quality) to which an objective has been achieved. IAE is context-bound and is concerned with relationships between goals or objectives, outputs and outcomes. IAE can also be measured by its influence on corporate governance. Although IAE is context-bound, there are a number of indicators or factors which have been identified as impacting on IAE. These indicators or factors are dealt with in the next section.

### **3.3.2 Indicators of or key factors affecting internal audit effectiveness**

The growing importance of IA as a value-adding function has led to increased research into factors that improve its performance (Arena & Azzone, 2007; Dellai & Omri, 2016; Leung, Cooper & Robertson, 2003; Mihret & Yismaw, 2007:472; Shahimi *et al.*, 2016). The literature points to a number of key factors that affect IAE. These include the quality and scope of IA work, competency of IA staff, organisational factors, interpersonal relationships, corporate governance and management support. Table 3.1 provides a summary of key literature in IA research.



**Table 3.1: Summary of key literature in IA research**

IAE indicators	Key studies	Elements 1
<b>Organisational indicators</b>	Papastathis (2003) Al-Twajry, Brierley and Gwilliam (2003) Goodwin (2004) Van Gansberghe (2005) Mihret and Yismaw (2007) Sarens and Abdolmohammadi (2007) Arena and Azzone (2009) Mihret, James and Mula (2010) Soh and Martinov-Bennie (2011) Abuazza (2012) Aksoy and Bozkus (2012) Lenz and Sarens (2012) Ramachandran, Subramanian & Kisoka (2012) Badara and Saidin (2013) Enofe, Mgbame, Osa-Erhabor and Ehiorobo (2013) Eulerich, Velte, Theis and Stiglbauer (2013) Al-Matari, Al-Swidi and Fadzil (2014) Alzeban and Gwilliam (2014) Badara and Saidin (2016) Coetzee and Erasmus (2017) Temesgen and Estifanos (2018)	IAF independence IAF reporting lines IAF structure Internal organisation, policies and procedures IAF status or profile IAF budgetary status IAF size IAF In-house versus outsourced Performance measurement Internal control
<b>Relational indicators</b>	Albrecht, Howe, Schueler and Stocks (1988) Asairy (1993) Al-Twajry, Brierley and Gwilliam (2003) Sarens and Beelde (2006) Mihret and Yismaw (2007) Arena and Azzone (2009) Badara and Saidin (2014) Cohen and Sayag (2010) Alzeban and Gwilliam (2014) Soh and Martinov-Bennie (2011) Abuazza (2012) Aksoy and Bozkus (2012) Ramachandran, Subramanian & Kisoka (2012) Endaya and Hanefah (2013) Eulerich, Velte, Theis and Stiglbauer (2013) Alzeban and Sawan (2015) Dawuda, Aninanya and Alnaa (2015) Mustika (2015) Endaya and Hanefah (2016) Roussy and Brivot (2016) Coetzee and Erasmus (2017) Lenz, Sarens and Hoos (2017) D'Onza and Sarens (2018)	CAE and SM IA and external auditors IA and AC cooperation AC support Response to IAF findings Commitment to strengthen IA Awareness of benefit of IA Support for IAF recommendations Stakeholder relations

**Table 3.1: Summary of key literature in IA research (continued)**

IAE indicators	Key studies	Elements 1
<b>IA Process - quality of work</b>	Albrecht, Howe, Schueler and Stocks (1988) Dittenhofer (2001) Al-Twajry, Brierley and Gwilliam (2003) Papastathis (2003) Spira & Page (2003) Mihret and Yismaw (2007) Arena and Azzone (2009) Abuazza (2012) Razek (2014) Abuazza (2015) Mustika (2015) Mungal and Slippers (2015) Coetzee and Erasmus (2017) Suryana (2018) Temesgen and Estifanos (2018)	Adherence to IPPF IAF processes IAF activities Scope of work Due professional care
<b>IA Process- IA staff quality</b>	Albrecht, Howe, Schueler and Stocks (1988) Al-Twajry, Brierley and Gwilliam (2003) Van Gansberghe (2005) Van Peursen (2005) Mihret and Yismaw (2007) Arena and Azzone (2009) Hutchinson and Zain (2009) Cohen and Sayag (2010) Soh and Martinov-Bennie (2011) Aksoy and Bozkus (2012) Abuazza (2012) Al-Matari, Al-Swidi and Fadzil (2014) Badara and Saidin (2014) Razek (2014) Alzeban and Gwilliam (2014) Arum (2015) Coetzee and Erasmus (2017) Shamki and Alhari (2017)	Professionalism Qualifications Objectivity Competence Experience Expertise Staffing resources
1 = While listed indicators relate to the identified key studies, all factors are not necessarily covered by each individual study.		

Source: Own compilation

Table 3.1 provides a summary of factors which have been empirically proven to have an impact on IAE. These are: organisational factors, interpersonal relationships, the quality of IA work and staff. The next section discusses the sub-categories and indicators in each category

### 3.3.2.1 Organisational indicators

IAE is influenced by the dynamics prevailing in the organisation where the IAF operates (Mihret *et al.*, 2010). Organisational setting includes the overall context of the company, organisational profile, and policies and procedures that guide the operation of the company being audited (Temesgen & Estifanos, 2018:22). In order to improve IAE, Enofe, Mgbame, Osa-Erhabor and Ehiorobo (2013:165), believe that there should be clear policies and procedures in place against which organisational practices can be measured. Furthermore, the size of the company is another important organisational factor which has been positively associated with size of the IA team, its resources, competencies (Lenz & Sarens, 2012a; Sarens & Abdolmohammadi, 2007) and scope (Abuazza *et al.*, 2015:564).

The corporate governance environment is decisive in determining IAE. Karagiorgos *et al.* (2011) found that the control environment, risk assessment, control activities, information and communication and monitoring are tested by IA and the study concluded that the efficient functioning of all components of an internal control system has an impact on the success of businesses. The Treadway Commission of Sponsoring Organisations Framework on Internal Control (COSO IC) states that board oversight is vital for effective internal control (COSO, 2013). Evidence from various studies supports this statement (Alzeban & Sawan, 2015; Arena & Azzone, 2009; Ramanchandran *et al.*, 2012). The elements supporting the corporate governance environment include the level of interaction between the IAF and the AC (number of meetings and private meetings) (Alzeban & Sawan, 2015; Ramanchandran *et al.*, 2012), the ACs' interest in IAF activities (Arena & Azzone, 2009) and awareness of the value-add of an effective IAF (Abuazza, 2012).

The organisational setting is also important in ensuring IAF status and independence within the organisation (Aksoy & Bozkus, 2012). This includes clarity on IAF reporting lines both functional and administrative. The IAF is considered to be more effective when it reports functionally to the AC and administratively to the executive management, normally the CEO (Abuazza, 2012; Aksoy & Bozkus, 2012; Al-Twajjry, Brierley & Gwilliam, 2003; Soh & Martinov-Bennie, 2011), where the AC is responsible

for appointing, dismissing and evaluating the performance of the CAE (Alzeban & Gwilliam, 2014) as well as approving the IAF charter, plan and budget (Arena & Azzone, 2009; Badara & Saidin, 2014; Ramanchandran, Subramanian & Kisoka, 2012; Sarens & De Beelde, 2006; Soh & Martinov-Bennie, 2011). The IAF structure relating to its size (the number of internal auditors), age (number of years in existence), and whether it is in-house, out-sourced or co-sourced is an indicators of IAE (Feizizadeh, 2012; Goodwin, 2004; Soh & Martinov-Bennie, 2011). The larger and older the IAF the more it is likely to have the requisite experience, talent and resources necessary to function effectively. In-house IAF is favoured for its ability to understand the organisation's internal processes but may suffer from the draw-back of limited expertise and experience in specialised areas.

### **3.3.2.2 Relational indicators**

In view of the number of stakeholders served by the IAF through its assurance and consulting services, it is imperative that the IAF build good relationships with the various stakeholders (D'Onza & Sarens, 2018:3). The stakeholders with whom the IAF should build good relationships are mainly internal. Arena and Azzone (2009) found that IA team characteristics, IA processes and activities as well as organisational links influence IAE. Further, according to Mustika (2015:114), a good relationship between internal and external auditors is vital for the success of IAFs. A study by D'Onza and Sarens (2018:10) underscores the need for collaborative and constructive relationships with auditees. The relationship between the AC and the IAF is an important one, where the one can strengthen the other. For example, the AC can protect the IAF's independence and ensure that audit recommendations are implemented by management (Dawuda, Aninanya & Alnaa, 2015:35).

Management support has been posited as an important factor for IAE (Alzeban & Gwilliam, 2014; Endaya & Hanefah, 2013; Endaya & Hanefah, 2016; Lenz & Hahn, 2015; Mihret & Yismaw, 2007; Roussy & Brivot, 2016). Endaya and Hanefah (2013:98) argue that for the IAF and individual internal auditors to be effective they need the support of the board and SM as this support impacts on the resources allocated to the IAF, their appreciation of the IAF and confidence evidenced by the implementation of

recommendations made by the IAF. In their study which was conducted in Quebec, Roussy and Brivot (2016:727) note that the ability of the IAF to add value, characterised by the writing of pertinent reports, depends on their being privy to strategic information in the custody of SM. Empirical evidence from Endaya and Hanefah (2016:170) supports the notion that SM's support is a significant moderating factor between the characteristics of internal auditors and IAE. Similarly, Lenz and Hahn (2015) posit that support of the IAF from SM is a critical enabler for IAE. Support from SM (a salient feature of the control environment) is an important factor influencing IAE. Implementation of IA recommendations can be perceived to indicate management support (Endaya & Hanefah, 2013:93).

### **3.3.2.3 Internal audit process - quality of internal audit work**

Lenz and Hahn (2015:7) posit that central to IAE is IA quality of work, which is determined by the IAF's capability to provide useful findings and recommendations. Aksoy and Bozkus (2012:1283), further argue that the IAF can enhance an organisation's "capability and productivity" by expertly assisting management in developing and "maintaining an effective internal control environment and by conducting efficient and effective audits". A good IA process will improve the accuracy of the financial statements and consequently the confidence of the stakeholders in the quality of the financial statements (Suryana, 2018). Compliance with the IPPF is an important element of the quality of IA work and is a value-adding activity (Al-Twaijry *et al.*, 2003). Furthermore, the better the quality of IA work, the more reliance the external auditors can place on the IA's work (Mustika, 2015).

According to Papastathis (2003), IAE is "determined by the activities, complexity and specialisation of the IA personnel". Due professional care is also considered an important element of the quality of IA work (Mihret & Yismaw, 2007). Temesgen and Estifanos (2018:22) posit that when the IAF is objective in its work and produces balanced and constructive audit reports, the effectiveness of an IA is bound to improve. The quality of IA is determined by the office's "ability to plan, perform and communicate the results" of the audit with a view to providing useful audit findings and recommendations (Enofe *et al.*, 2013:164). The quality of the audit work is also

reflected in the quality of the documentation produced, such as audit reports. Simple errors such as formatting and spelling errors unnecessarily detract from the substance of the audit report, thereby reflecting badly on and compromising the IAF (Mungal & Slippers, 2015:64). Audit reports should be precise, concise and informative. Studies that support the role of the quality of IA on IAE are well established (Alzeban & Gwilliam, 2014; Cohen & Sayag, 2010; Drogalas, Karagiorgos & Arabatzis, 2015).

#### **3.3.2.4 Internal audit process - competency of internal audit staff**

Aksoy and Bozkus (2012) identified the qualifications of IA staff, IAF status within the organisation, reporting lines, and relationship with the AC of the board of directors as important in ensuring IAE and objectivity. The most frequently recurring themes in IAE literature were identified by Lenz and Hahn (2015:8) as the CAE's role and function along with the internal auditors' skills and competence. Other elements which are crucial insofar as the quality of IA staff is concerned include objectivity, experience and qualifications (Al-Matari *et al.*, 2014:36). This is corroborated by the finding of Hutchinson and Zain (2009) that IA staff experience and accounting qualifications impacted IAE. In their more recent study, Shamki and Alhajri (2017:151) found an association between IAE and auditors' experience. Based on the empirical results, Arum (2015) concluded that improving internal auditor competency and internal auditor objectivity improves IAF effectiveness.

The next section discusses the various methods and instruments used in the measurement of IAE.

#### **3.3.2.5 Measuring internal audit effectiveness**

Traditionally, IAE has been measured by evaluating the quality of IAFs against the IPPF as predetermined criteria (Dittenhofer, 2001:443; Fadzil *et al.*, 2005:845). While compliance with the *Standards* is laudable and desirable, it is not an adequate measure of IAE. To be truly effective, internal auditors must go further than mechanically complying with the *Standards* or determining the presence of procedures used by the auditee and ascertaining management's controls and governance mechanisms (Dittenhofer, 2001:445). Underscoring the superiority of effectiveness

over efficiency, Chen and Lin (2011:45) observe that although it is important for the IAF to use its resources efficiently, the outcome of their work is more important, i.e. it is more important for IAFs to provide value to their organisations. This is in line with the definition provided by Lenz (2013:24) of IAE as a goal-attainment concept linked to organisational objectives. Thus, the IAF can improve the perception of its major stakeholders by providing proof of attaining organisational goals and objectives.

The increased focus on the IAF has led to a number of studies on the evaluation of its performance and effectiveness (Bota-Avram & Palfi, 2009; Dittenhofer, 2001; Papastathis, 2003; Soh & Martinov-Bennie, 2011). IAE is frequently measured in terms of its efficiency. These measures include the annual IAF work plan, which covers completion of planned audits and timely completion of the work plan, as well as measures of acceptance and adoption of IAF recommendations (Ernst & Young, 2007; Soh & Martinov-Bennie, 2011:616). In providing a review of the empirical literature on IAE, Lenz and Hahn (2015:8) identified two predominant perspectives: supply-side and demand-side research. The supply-side perspective is one where the internal auditors, mainly the CAE, assess themselves in terms of their role and effectiveness while the demand side refers to assessment made by other stakeholders who are beneficiaries of IA services (Lenz & Hahn, 2015:15). While self-evaluation has some benefits, it is hardly objective and much of the research on IAE is presented from the perspective of the internal auditors. Hence, internal auditors have been criticised for being overly optimistic in the assessment of their role in and contribution to the achievement of corporate goals (Lenz & Sarens, 2012a:537).

The IAF, as a support function, has to continually prove its value-add in order to be seen to be legitimate by its major stakeholders (Lenz & Hahn, 2015:7). Lenz (2013:27) argues that providing evidence of their added value is not an easy task for internal auditors, as their value-added cannot always be directly linked to the performance of an organisation. This is so because the value of support functions is difficult to assess, since perceptual and not quantitative measures are typically used as criteria. Also, the quality of the IAF is difficult to measure as it is a credence good (Causholli, 2009), meaning the quality of the IAF is not recognised or experienced by the stakeholders. Furthermore, Soh and Martinov-Bennie (2011:618) lament the slow evolution of

performance evaluation mechanisms for IAE in contrast to the ever-changing role played by the IAF and conclude that this misalignment between the role and evaluation of the IAF is likely to cause confusion for stakeholders' ability to evaluate the effectiveness of the IAF.

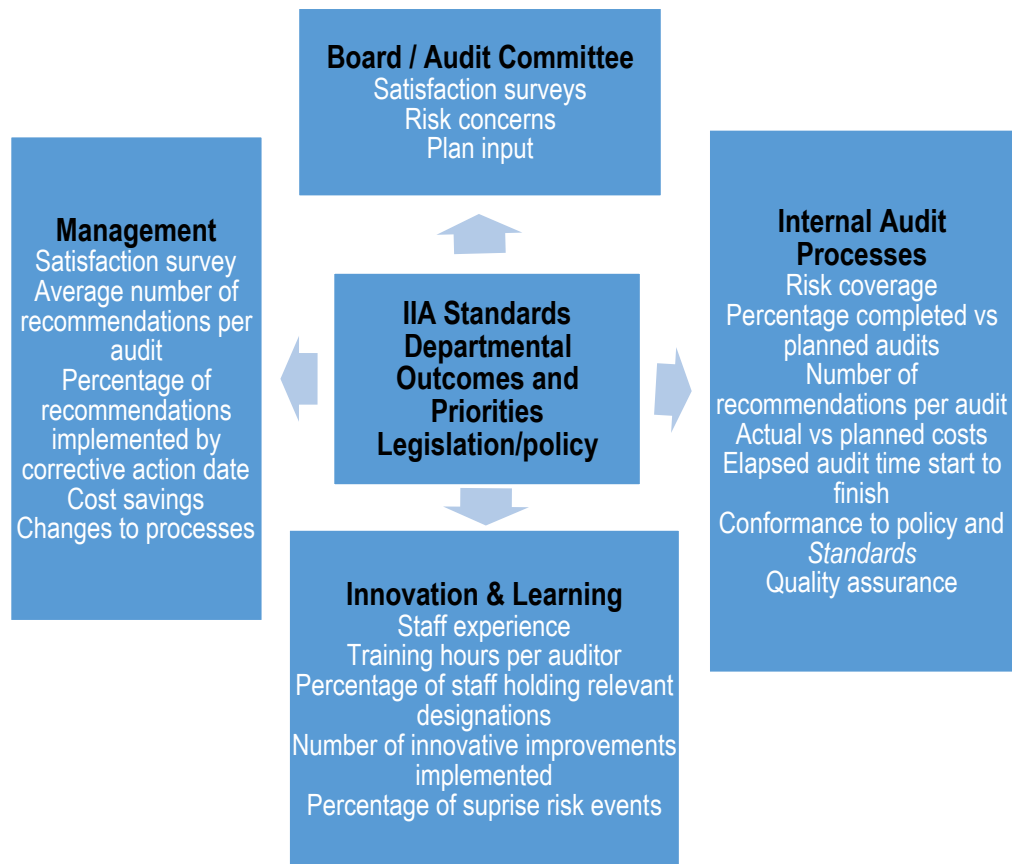
A number of studies have measured IAE in terms of the IAF's ability to plan, undertake and finally present findings in an objective way to the intended user (Balzan & Baldacchino, 2007; Cangemi & Singleton, 2003; Dittenhofer, 2001). Cangemi and Singleton (2003) developed a "four-step IA evaluation programme, based on compliance with department, corporate and IPPF. This evaluation programme involves compiling a summarised review of all IA assignments using a quality assurance checklist, a detailed review by seniors of randomly selected assignments, an annual self-assessment conducted by the quality assurance coordinator and a tri-annual external review" (Balzan & Baldacchino, 2007:752). Using this methodology to measure IAE evaluates the achievements of the IAF against predetermined objectives or criteria. Balzan and Baldacchino (2007:752) recognise that even though this approach is "results-oriented", its success is contingent on the "measurability and subjectivity of the criteria chosen".

Recognising the importance of evaluating whether IA is delivering on its value proposition, the IIA as a body tasked with looking after the interests of the IA profession has in the past issued direction in its IPPF. Notably, the Practice Guide on Measuring Internal Audit Effectiveness and Efficiency (IIA, 2010b) suggests various qualitative and quantitative measures, including using performance matrices, surveys and interviews, and quality assurance reviews. These include inward-facing reviews which are initiated by the IAF to measure its internal efficiency and outward-facing measures like satisfaction surveys which are conducted from the point of view of stakeholders who are inclined towards measuring IAE (IIA, 2015:10). A further distinction can be drawn between output and outcome measures.

These measures are combined in the IIA BSC, which consists of an evaluation from the AC, external customers and the IAF on its processes, innovation and capabilities, as well as an evaluation from management and auditees (IIA, 2010b:4). A BSC



ensures that the measurement of IA performance is linked to the organisation’s mission and strategy. The IIA BSC is depicted in Figure 3.4 below.



**Figure 3.4: The IIA Balanced Scorecard for IA departments**

Source: Adapted from Measuring internal audit effectiveness and efficiency (IIA, 2010b:4)

In the 2015 CBOK survey (IIA, 2015), the IIA identified five key performance measures or indicators used by the IAF and their organisations to measure IA performance. These were percentage of audit plan completion, closure of audit issues within reasonable time frames/, completion of mandated coverage, client satisfaction goals and the fulfilment of specific expectations set and agreed to with key stakeholders.

Chen and Lin (2011:49) identify six methods commonly used to assess IAF performance. These include “(1) assessment by percentage of the audit plan completed; (2) acceptance and implementation of recommendations; (3) surveys/feedback from the board/AC/SM; (4) customer/auditee surveys from audited departments; (5) assurance of sound risk management; and (6) reliance by external

auditors on the IAF". In contrast, Desai *et al.* (2010:538), developed an IA assessment model based on three factors used by external auditors when evaluating the strength of the IA function, namely competence, work performance and objectivity.

Tsai *et al.* (2015) used the following five factors to measure IA performance: "(1) output: the end result or products of the IAF, including assurance audits, auditing process and advisory services; (2) quality: the quality of the auditing process, end result and auditing staff; (3) efficiency: the efficiency of using auditing time and resources versus costs, such as use of information technology (IT) or other technology; (4) impact: the ultimate impact of an IAF on an organisation's effectiveness, including the achievement of departmental goals and the IAF's contribution to the entire enterprise's risk management; and (5) environment: the factors which impact the work of the IAF indirectly, including organisational communication and trust development among various stakeholders" (Tsai *et al.*, 2015:731).

In their study Mihret *et al.* (2010) proposed a novel approach, namely using the rate of return on capital, a financial measure of IAE, as opposed to the commonly used perceptual measures. In a study conducted in Malaysia, Hutchinson and Zain (2009) examined the relationship between IA (audit experience and accounting qualifications) and organisation performance, ROA with growth opportunities and AC independence. This is one of very few studies which equated IAE with a financial performance measure. By using a financial performance measure to provide evidence of added value and IAE, this study hopes to promote IA as a legitimate function that adds to the bottom line. Hence, the study seeks to determine the relationship between signalled IAE factors and company performance.

In summary, the literature reveals that different methods and instruments are used to measure IAE. Some are linked to IA efficiency, which is measured by compliance with IPPF, planned audits and work plan completion, as well as the degree of adoption of the IAF's recommendations and auditors' perceptions. By contrast, others are results-orientated where IAE is measured by the achievement of organisational goals and objectives, taking into account quality, efficiency, impact and environmental factors. Since the IAF has various stakeholders who have different expectations, IAE is

measured from different perspectives, namely those of management, the AC and external auditors in addition to the IAF's self-evaluation. Very few studies have linked IAE to objective measures of company performance.

### **3.3.3 Positioning internal audit effectiveness in this study**

#### **3.3.3.1 Internal audit effectiveness and the role of agency and signalling theories**

Bota-Avram and Palfi (2009) point to the difficulty of finding relevant methods of measuring IAE due to the numerous methods and instruments available. This is reflected in the varying schools of thought on how IAE should be measured. The problem is compounded by the multiple stakeholder expectations characteristic of the IAF. IAE is often measured from the various stakeholder perspectives, in line with their own expectations. Hence, there are instruments that measure IAE from the perspective of management, the board, the AC, external audit (EA) and the internal auditors themselves. Although different role players may view the contribution of IAF from their divergent<sup>2</sup> perspectives, Adams (1994:10) emphasised that the IAF can help to reduce agency cost by reducing for example the monitoring cost linked to external audits and by enhancing the credibility of internally generated information. The use of various instruments by principals and agents is a typical example of "agency problems", characterised by the fundamental difficulty of managing the divergent interests (Mitnick, 1973). This is not unexpected, as different role players tend not to have the same interests, which gives rise to goal divergence or agency problems (Mitnick, 1973). In mitigation of these agency problems, section 2.2.1.3 notes that the board can, for example, bond their actions to good controls by using IA and disclose more on IA to signal good governance principles. It was further noted that this information asymmetry as a consequence of agency problems can be minimised by providing more information (Urquiza *et al.*, 2010:396). Consolidating and simplifying the measures of IAE will therefore reduce agency costs. Thus, agency theory is very helpful in guiding

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<sup>2</sup> Divergent interests among various stakeholders can lead to agency problems in line with the divergent goals of stakeholders, which can be managed using monitoring costs incurred by outside stakeholders such as an external audit, as well as bonding costs, where the internal stakeholders agree to bond their actions by instituting strong internal controls that include an effective IAF.

the principals and agents in managing potential agency problems when it comes to deciding on the measures of IAE.

The question of how IAE is measured has been a burning question for internal auditors and their stakeholders. In a report issued by KPMG and the Institute of Directors SA (IoDSA) in 2009 (KPMG & IoDSA, 2009) these measures are consolidated into a single instrument with different sections for the various internal stakeholders to assess the IAF as well as a section for self-assessment by the IAF. This performance evaluation instrument was designed to assist the AC in their oversight role over the IAF (KPMG & IoDSA, 2009:1). It is reassuring to observe that on close examination the available measures reflect an assessment of the factors identified earlier as impacting on IAE. The measures of IAE constitute signals that represent the flow of information disclosed (Mi Bae *et al.*, 2018). Consolidating and simplifying IAE measures will go a long way towards improving disclosure, and thus reducing information asymmetry. As discussed in section 2.2.2.3, the benefit is that, according to signalling theory, improved quality of disclosure leads to the reduction of information asymmetry or uncertainty for potential investors and enhances the credibility of the signals, which will probably result in improved company value (Isidro & Marques, 2016). The more reliable and accurate the signals, the more credible they will be. Hence, the question should not be about different IAE measures for different stakeholders, but about whether the company has primarily disclosed positive performance for the benefit of the company (Isidro & Marques, 2016:6; Spence, 1973). Hence, signalling theory serves as an important lens to determine the signals to be used for measuring IAE.

### **3.3.3.2 Revisiting indicators of internal audit effectiveness**

This study set out to fill the gap determining the relationship between signalled IAE factors and company performance. Following a detailed literature review of the indicators or factors of IAE presented elsewhere in this chapter, a summary of IAE indicators and the related elements was tabulated and similar elements were grouped into broad categories informed by the literature. This information is presented in Table 3.2 and serves as the basis of the IAE signalling frame (refer to section 4.5.3.3), a key component in the study's data collection process. Table 3.1 consists of four categories;

(1) organisational indicators, (2) relational indicators, (3) indicators related to the IA process and (4) IA performance measurement. These comprise eleven sub-categories. Organisational indicators include IAF status in the organisation (1), IAF structure (2) and IAF independence (3); while relational indicators include AC support, (4), SM support (5), IAF support to others (6) and indicators related to the IA process comprise of IAF competence (7), IAF service and role (8) and IAF work quality (9). IA performance measurement include IAE outcome (10) and IAE output (11). The following is a brief discussion of the key studies included in Table 3.2 and which form the basis of the IAE signalling frame.

*i. Internal audit effectiveness and organisational indicators*

Organisational settings have been found to have a significant impact on IAE. These indicators include prevailing organisational dynamics such as the IAF profile in the organisation's structure (Alzeban & Gwilliam, 2014; Mihret *et al.*, 2010; Mihret & Yismaw, 2007; Papastathis, 2003; Soh & Martinov-Bennie, 2011), the CAE position in the organisation, whether the IAF is an in-house institution, or is out-sourced or co-sourced (Feizizadeh, 2012; Goodwin, 2004; Soh & Martinov-Bennie, 2011), and size and age of the IAF (; Alzeban & Gwilliam, 2014; Al-Twaijry, Brierley & Gwilliam, 2004; Arena & Azzone, 2009; Goodwin, 2004; Ramanchandran *et al.*, 2012). Indicators relating to the independence of the IA such as reporting lines of the IAF within the organisation (Abuazza, 2012; Aksoy & Bozkus, 2012; Al-Twaijry *et al.*, 2003; Soh & Martinov-Bennie, 2011), the appointment and dismissal of the CAE (Alzeban & Gwilliam, 2014) and the number of meetings with the AC (Arena & Azzone, 2009; Cohen & Sayag, 2010; IIA, 2011; Ramanchandran *et al.*, 2012; Soh & Martinov-Bennie, 2011) also serve as indicators. Private meetings with the chair of the AC (Alzeban & Gwilliam, 2014; Soh & Martinov-Bennie, 2011), approval of the IA charter, plan and budget and performance review by the AC (Arena & Azzone, 2009; Badara & Saidin, 2013; IIA, 2015; Ramanchandran *et al.*, 2012; Soh & Martinov-Bennie, 2011; Van Gansberghe, 2005b) are further organisational indicators

*ii. Internal audit effectiveness and quality of internal audit work*

The quality of the IAF's work is influenced by organisational setting and IA process. Compliance with the IPPF, risk-based approach to auditing, communication and report quality, scope of the work and due professional care (Abuazza, 2012; Al-Twaijry *et al.*, 2003; Albrecht *et al.*, 1988; Arena & Azzone, 2009; Dittenhofer, 2001; 2015; Mihret & Yismaw, 2007; Papastathis, 2003; Saud & Marchand, 2012) are features of IA work quality that are considered to add value. For this reason IA staff and work quality were included in the IAE signalling frame

*iii. Internal audit effectiveness and relational indicators*

The relationship between IAE and the AC as one of the main customers of IA services has been a subject of a number of studies (Aksoy & Bozkus, 2012; Al-Twaijry *et al.*, 2003; Alzeban & Sawan, 2015; Arena & Azzone, 2009; Lenz *et al.*, 2017; Sarens & De Beelde, 2006b; Soh & Martinov-Bennie, 2011). Some of the relational indicators identified as crucial for IAE are AC support, including AC support for IAF findings (Alzeban & Sawan, 2015; Sarens & De Beelde, 2006b; Soh & Martinov-Bennie, 2011), implementation by management of IA recommendations (Endaya & Hanefah, 2016; Roussy & Brivot, 2016), encouragement and co-ordination of the interaction between IA and the EA (Alzeban & Gwilliam, 2014), and IA invitation to meetings (Cohen & Sayag, 2010; Endaya & Hanefah, 2016; Ramanchandran *et al.*, 2012; Soh & Martinov-Bennie, 2011). IAE has also been associated with the value that IAF brings by supporting other assurance providers, both internal and external. Thus IA co-operation with EA (Asairy, 1993; IIA, 2015), the reliance of EA on work performed by IA and the sharing of working papers are considered to be indicators of an effective IAF (Alzeban & Gwilliam, 2014). Another telling factor serving as an indicator of IAE is the support that IA gives internal assurance providers like risk management.

*iv. Internal audit effectiveness and management support*

SM support has been discovered to be one of the most important determinants of IAE. As an advisory service to management, IA requires their support in providing resources and access to the information they need to perform their function, (Mahzan & Hassan,

2015; Roussy & Brivot, 2016). It comes as no surprise, therefore, that management support features as an important indicator in IAE research (Abuazza, 2012; Al-Twaijry *et al.*, 2003; Albrecht *et al.*, 1988; Alzeban & Gwilliam, 2014; Endaya & Hanefah, 2016; Lenz *et al.*, 2017; Mihret & Yismaw, 2007; Sarens & De Beelde, 2006b).

*v. Internal audit effectiveness and competency of internal audit staff*

The quality of IA staff is considered essential for IAE. The competence of individual IA staff members has long been advanced as an important indicator in IAE. Competence includes the educational and technical skills and the experience required to perform a function. A number of studies have highlighted professional qualifications, experience, education and training. Other aspects of staff quality concern the individual characteristics of the internal auditors. These include their professionalism, objectivity and independence (Abbott *et al.*, 2016; Abuazza, 2012; Aksoy & Bozkus, 2012; Al-Matari *et al.*, 2014; Al-Twaijry *et al.*, 2003; Albrecht *et al.*, 1988; Alzeban & Gwilliam, 2014; Arena & Azzone, 2009; Asairy, 1993; Badara & Saidin, 2014; Hutchinson & Zain, 2009; Mihret & Yismaw, 2007; Rittenberg & Miller, 2005; Soh & Martinov-Bennie, 2011; Van Gansberghe, 2005a; Van Peursen, 2005).

*vi. Internal audit performance measurement*

IAE is advocated as a function that advances organisational objectives and goals. Since organisational objectives are context-bound, methods of evaluating IAE are varied. A distinction is drawn between output-related measures such as percentage of completed work, compliance with the IPPF, work plan completion and outcome-related measures such as the implementation of IAF recommendations (Boğa-Avram *et al.*, 2009; Chen & Lin, 2011; Dittenhofer, 2001; Ernst & Young, 2007; Fadzil *et al.*, 2005; Soh & Martinov-Bennie, 2011; Tsai *et al.*, 2015). The evaluation of IAE is also measured from the perspective of different stakeholders or customers of IA services. These include the AC, SM, external auditors and self-assessment by the IAF. Various instruments are therefore used; these include surveys/feedback from the board/AC/SM, customer/auditee surveys from audited departments, assessments of the quality of the auditing process, end result and auditing staff, the efficiency of using auditing time and resources versus costs, such as use of IT or other technology,

assurance of sound risk management, and reliance by external auditors on the IAF (Chen & Lin, 2011; Desai *et al.*, 2010:538).

IAE can also be viewed from the perspective of the services they offer and the role they play in the organisation. The Internal auditing definition, which gives a broad mandate to the IAF, outlines two services offered, namely assurance and consulting (IIA, 2016b). It also determines the areas in which IA plays a role in helping an organisation achieve its goals, which are control, governance and risk management (IIA, 2016b). IAE can therefore be evaluated by the extent to which they fulfil their mandate in terms of the definition and the service and role played by the IAF in the organisation.

In summary, the most frequently recurring themes in IAE literature have been identified by Lenz and Hahn (2015:8) as the CAE's role and function along with the internal auditors' skills and competence; organisational politics; and top management support. These themes or broad categories and related indicators were used in the IAE signalling frame as indicators of IAE. Table 3.2 provides a summary of indicators of IAE or the factors affecting IAE and their key elements as distilled from the literature review



**Table 3.2: Indicators and key elements of IAE**

Category	Sub-category	IAE indicator	Studies
Organisational	(1) IAF status in the organisation	1. IAF profile in the organisations structure	Al-Twajjry <i>et al.</i> (2004), Goodwin (2004), Mihret & Yismaw (2007), Alzeban & Gwilliam (2014), CBOK (2015), Coetzee & Erasmus (2017).
		2. CAE position in organisation	Al-Twajjry <i>et al.</i> (2004), Goodwin (2004), Soh & Martinov-Bennie (2011), CBOK (2015), Coetzee & Erasmus (2017).
		3. CAE educational & professional qualifications, experience	Albrecht <i>et al.</i> (1998), Al-Twajjry <i>et al.</i> (2004), Arena & Azzone (2009), Mihret <i>et al.</i> (2010), Soh & Martinov-Bennie (2011), Ramanchandran <i>et al.</i> (2012), CBOK (2015), Endaya & Hanefah (2016).
	(2) IAF Structure	4. In-house IAF, co-sourced, outsourced	Goodwin (2004), Soh & Martinov-Bennie (2011), Feizizadeh (2012), CBOK (2015).
		5. IAF size	Al-Twajjry <i>et al.</i> (2004), Goodwin (2004), Arena & Azzone (2009), Ramanchandran <i>et al.</i> (2012), Alzeban & Gwilliam (2014), CBOK (2015).
		6. IAF age	CBOK (2015).
	(3) IAF Independence	7. CAE reports to AC functionally	Al-Twajjry <i>et al.</i> (2004), Goodwin (2004), Arena & Azzone (2009), Ramanchandran <i>et al.</i> (2012), Alzeban & Gwilliam (2014), CBOK (2015), Coetzee & Erasmus (2017).
		8. CAE reports to CEO administratively	Al-Twajjry <i>et al.</i> (2004), Soh & Martinov-Bennie (2011), CBOK (2015), Coetzee & Erasmus (2017).
		9. AC appoints/dismisses the CAE	Alzeban & Gwilliam (2014), CBOK (2015).
		10. Unlimited scope of IAF	Al-Twajjry <i>et al.</i> (2004), Goodwin (2004), Mihret & Yismaw (2007), CBOK (2015), Coetzee & Erasmus (2017).
		11. AC approves IAF charter, plan and budget	Sarens & Beelde (2006), Arena & Azzone (2009), Soh & Martinov-Bennie (2011), Ramanchandran <i>et al.</i> (2012), Badara & Saidin (2013), CBOK (2015).

**Table 3.2: Indicators and key elements of IAE (continued)**

Category	Sub-category	IAE indicator	Studies
<b>Relation al</b>	(4) AC support	12. Number of meetings with AC	Arena & Azzone (2009), Cohen & Sayag (2010), Soh & Martinov-Bennie (2011), Ramanchandran <i>et al.</i> (2012), CBOK (2015).
		13. Private meetings with AC chairperson	Soh & Martinov-Bennie (2011), Alzeban & Gwilliam (2014), CBOK (2015).
		14. AC/SM special request for CAE	Cohen & Sayag (2010), CBOK (2015).
		15. AC support for IAF findings & recommendations	Sarens & Beelde (2006), Soh & Martinov-Bennie (2011), Roussy & Brivot (2016).
	(5) SM support	16. Management implements IA recommendations	Mihret & Yismaw (2007), Arena & Azzone (2009), Abuazza (2012), Endaya & Hanefah (2016),
		17. AC/SM encourage & co-ordinate IA-EA interaction	Alzeban & Gwilliam (2014)
		18. Budgetary status & resources	Mihret & Yismaw (2007), Cohen & Sayag (2010), Feizizadeh (2012), Alzeban & Gwilliam (2014),
	(6) IAF support to others	19. External auditors & IA cooperation in audits	Soh & Martinov-Bennie (2011), Abuazza (2012), Badara & Saidin (2013), CBOK (2015), Alzeban & Gwilliam (2014), Coetzee & Erasmus (2017).
		20. EA relies on IA work	Abuazza (2012), Alzeban & Gwilliam (2014), Chen & Lin (2011).
		21. IA coordination with other parties	Coetzee & Erasmus (2017).

**Table 3.2: Indicators and key elements of IAE (continued)**

Category	Sub-category	IAE indicator	Studies
IA Process es	(7) IAF Competence	22. Internal auditors objectivity/independence	Al-Twajiry <i>et al.</i> (2004), Endaya & Hanefah (2016).
		23. Educational, professional qualifications of internal auditors	Al-Twajiry <i>et al.</i> (2004), Alzeban & Gwilliam (2014), Mahzan & Hassan (2015), Endaya & Hanefah (2016), CBOK (2015).
		24. Work experience and expertise of internal auditors	Al-Twajiry <i>et al.</i> (2004), Soh & Martinov-Bennie (2011), Feizizadeh (2012), Alzeban & Gwilliam (2014), Mahzan & Hassan (2015), CBOK (2015), Coetzee & Erasmus (2017).
		25. CPD (avg hours annual training)	Feizizadeh (2012), Alzeban & Gwilliam (2014), Mahzan & Hassan (2015), Endaya & Hanefah (2016), CBOK (2015).
	(8) IAF Service and Role	26. Assurance (strategic & operational)	Al-Twajiry <i>et al.</i> (2004), Goodwin (2004), Mihret & Yismaw (2007), CBOK (2015), Coetzee & Erasmus (2017).
		27. Consulting (strategic & operational)	Coetzee & Erasmus (2017)
		28. Ad hoc engagements	Coetzee & Erasmus (2017)
	(9) IAF work quality	29. Compliance with <i>Standards</i>	Dittenhofer (2001), Al-Twajiry <i>et al.</i> (2004), Mihret <i>et al.</i> (2010), Abuazza (2012), Feizizadeh (2012), CBOK (2015).
		30. Effective planning	Mihret & Yismaw (2007)
		31. Risk-based audit plans	Spira & Page (2003), Coetzee & Lubbe (2013), CBOK (2015).
		32. Strategy aligned audit activities	Feizizadeh (2012), CBOK (2015).
		33. Unrestricted & free access to all data, data pools & activities	Cohen & Sayag (2010), Alzeban & Gwilliam (2014), Endaya & Hanefah (2016), CBOK (2015).
		34. Adoption of Control Self-Assessment (CSA) Techniques	Spira & Page (2003), Goodwin-Stewart & Kent (2006), Sarens & De Beelde (2006), Arena & Azzone (2009), Feizizadeh (2012),
		35. Quality assurance and improvement program (QAIP)	Mihret & Yismaw (2007), Mahzan & Hassan (2015), Endaya & Hanefah (2016), CBOK (2015).
		36. Performance evaluation	Feizizadeh (2012), Badara & Saidin (2013), CBOK (2015).
		37. Effective communication	Mihret & Yismaw (2007), Mahzan & Hassan (2015), Endaya & Hanefah (2016), CBOK (2015).
		38. Use of IT tools & techniques	Feizizadeh (2012), CBOK (2015)
		39. Useful findings & recommendations	Mihret & Yismaw (2007), Mahzan & Hassan (2015)
		40. IA report quality	Al-Twajiry <i>et al.</i> (2004), Endaya & Hanefah (2016), CBOK (2015).

**Table 3.2: Indicators and key elements of IAE (continued)**

Category	Sub-category	IAE indicator	Studies
<b>IAE measurement</b>	IAE Outcome	41. Reliable financial statements	Dittenhofer (2001), Endaya & Hanefah (2016).
		42. Sound financial controls	Dittenhofer (2001), Endaya & Hanefah (2016).
		43. Auditee compliance with laws & regulations	Dittenhofer (2001), Endaya & Hanefah (2016).
		44. Auditee compliance with policies & procedures	Dittenhofer (2001), Endaya & Hanefah (2016).
		45. Recommendations implemented	Dittenhofer (2001), Endaya & Hanefah (2016), Coetzee & Erasmus (2017).
		46. Reasons for non-implementation	Coetzee & Erasmus (2017)
		47. Client satisfaction	CBOK (2015), Coetzee & Erasmus (2017).
		48. Satisfaction of stakeholder specific expectation	CBOK (2015), Coetzee & Erasmus (2017)
		49. Training ground for management positions	Coetzee & Erasmus (2017)
		50. Reduction of EA fees	Coetzee & Erasmus (2017)
		51. Cost savings	CBOK (2015).
	IAE Output	52. Percentage of audit plan completed	CBOK (2015).
		53. Budget to actual audit hours	CBOK (2015).
		54. Completion of mandated coverage	CBOK (2015).

Source: Own compilation

### **3.3.4 Internal audit effectiveness and the internal audit value proposition**

IAE is closely linked to the IA value proposition. In terms of the IIA, the value of IA is characterised by a combination of three elements: assurance, insight and objectivity (IIA, 2012b:4). These elements are not extraneous but can be traced to the definition of internal auditing. For instance, assurance relates to “an objective examination of evidence for the purpose of providing an independent assessment on governance, risk management and control processes to help an organisation” reach its strategic, financial, compliance and operational objectives (IIA, 2016d:21). Insight pertains to the IA in its consultancy role as a catalyst as it contributes to the improvement of organisational efficiency and effectiveness through recommendations based on systematic analysis and assessment of data and business processes (IIA, 2012b:4). Objectivity refers to IA value which results from the IA’s commitment to attributes of integrity, accountability and independence essential in its quest to be an objective and independent source of advice to those charged with governance and SM (IIA, 2012b:4). IAE lies in the IAF’s ability to fulfil its mission statement “to enhance and protect organizational value by providing risk-based and objective assurance, advice and insights” (IIA, 2020b)

### **3.3.5 Summary of internal audit effectiveness**

The IIA definition of internal auditing and the broader IPPF suggest a more comprehensive role for IA, encompassing the welfare of the whole organisation. The current expectation of IA extends beyond assisting members of management in carrying out their responsibilities to consulting on strategic issues of governance, risk and control. IA needs to be effective in adding value to the organisation.

The fact that IA is bound by its context or organisational environment makes it difficult to define IAE. IAE is bound by organisational objectives that vary from one organisation to another and from one period to the next. Furthermore, the IAF has multiple stakeholders with different expectations. Thus, IAE is broadly defined as the achievement of a desired condition, outcome or result. It can also be defined “as the degree (including quality) to which established objectives are achieved” (IIA, 2010a). The literature suggests various indicators of IAE or factors that influence

IAE. These include indicators related to IA staff quality such as personal qualities, qualifications, professionalism and competence, as well as IA work quality associated with adherence to the IPPF, IA processes, activities as well as services and roles of the IAF. Organisational indicators such as IA reporting lines, independence, structure, status and internal control are considered important. Of note are IA relational indicators characterised by relationships with the AC, SM and external auditors where management support has been found to exert greater impact on IAE.

Since IAE is defined in terms of its context, there is no universally accepted measure of IAE. Hence, a number of methods and instruments have been developed and used by academics and practitioners. Perceptual measures are frequently used to evaluate IAE from the point of view of either the CAE or the recipient of audit services. Very few studies have used financial performance measures such as ROA, ROE, MBV and Tobin's Q to evaluate IAE. In this study an attempt is made to fill that gap by determining the relationship between signalled IAE factors and company performance.

### **3.4 CONCLUSION**

The primary objective of this chapter was to introduce IA, its evolution towards effectiveness, the debates around its effectiveness, and measures of IAE. To that end, the chapter reviewed the changing role of the IAF in organisations at great length. The various definitions of IA by the IIA were explored and reflected upon, from 1947 to 1999. Over time the definition reflected changes in the role and function of IA, as it expanded and became a more value-adding function and started impacting on the assurance and consulting services as well as influencing governance, risk and control processes. Furthermore, the chapter demonstrated how the SOX and the King Code, in the case of SA, have enhanced the role of the IAF by recommending the establishment of an IAF for listed companies and by requiring them to report on the assessment of internal financial controls over financial reporting. The financial crisis revealed a need for the IA profession to provide pointed guidance on complex environments such as the financial services sectors in order to remain relevant in the

assurance arena. The chapter also reflected on the role of agency theory and signalling theory in ensuring the right measures of IAE. Following an extensive review of the literature, the chapter also discussed factors affecting IAE. These indicators form the basis of the IAE signalling frame. As illustrated in the next chapter this frame was used in the content analysis conducted to determine IAE disclosures from the IRs and other ARs of the top 100 companies listed on the JSE. The next chapter discusses content analysis and all other aspects of the research design and methodology.

## **CHAPTER 4**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **4.1 INTRODUCTION**

The previous chapters introduced the study, discussed its theoretical frame and presented IAE as a phenomenon. Chapter 2 discussed agency and signalling theories underpinning the study, corporate governance and its evolution internationally and in SA and integrated reporting. Chapter 3 showed how the role of IA evolved, its effectiveness and the possible value derived by companies for disclosing IAE information. The aim of this chapter is to present the research design and methodology used to achieve the research objectives of the study. First, this chapter outlines the research process followed, then discusses the research paradigm within which the study is situated as well as the research approach adopted. Next, the research methodology is outlined. Sample selection, the data collection process, the reliability and validity aspects of the study as well as the ethical considerations are discussed. Lastly, the various forms of data analyses employed in the study are described.

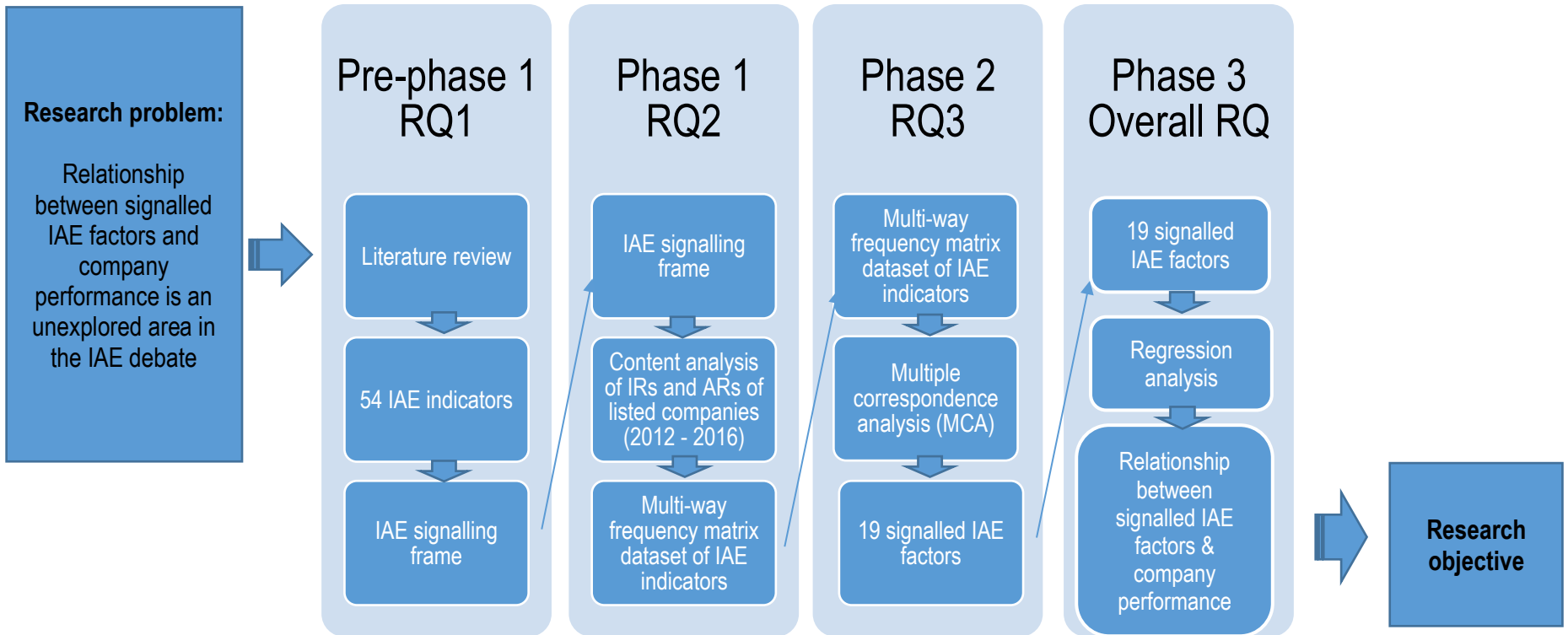
#### **4.2 THE RESEARCH PROCESS**

IAE has been widely researched but remains a nebulous concept. Since the IAF has various stakeholders who have different expectations, IAE is measured from different perspectives; that of management, the AC and external auditors (the demand-side) in addition to the IAFs' self-evaluation (the supply-side) which can be subjective (Lenz, 2013; Lenz & Hahn, 2015). As a result, the literature reveals a litany of factors associated with effective IAFs (refer to chapter 3) and very few studies have linked IAE to an objective measure of effectiveness such as financial or company performance measures. The objective of this study is to address the aforementioned knowledge gap by answering the following main research question:

*What is the relationship between signalled IAE factors and company performance?*



Research is a process (Mouton, 2013) comprising various steps as illustrated in Table 4.1. The starting point was the identification of the research problem; namely *the relationship between signalled IAE factors and company performance is an unexplored area in the IAE debate*. Based on the area of concern reflected in the research problem, the study's research objective and questions were formulated. Breaking down this study's objective provides clues on the research paradigm and methodology. The research was conducted in different phases (refer to Figure 4.1). Firstly, IAE as the subject of this study, has been studied by academics and practitioners from various perspectives resulting in numerous factors and indicators being identified. A systematic literature review was conducted to identify IAE factors and indicators and they were operationalised by the construction of an IAE sampling frame (Pre-phase 1). Secondly, the study focuses on disclosure of IAE signals, and document or content analysis (Phase 1) was considered a most appropriate method for analysis. The IAE sampling frame was used to guide and document IAE signals discovered during this phase. Third, the study investigates a relationship and for purpose of this study a MCA (Phase 2) was conducted to reduce data (limited the number of IAE variables) and a regression analysis (Phase 3) followed to determine the association between company performance and the IAE variables. In the final step the findings of the study are reported and these are presented in Chapter 5.



**Figure 4.1: Alignment of research questions and process**

Source: Own illustration

Figure 4.1 is presented in Table 4.1 to illustrate the research process and the sections relevant to this chapter.

**Table 4.1: The research process**

Steps	Detail on the research process
<b>Step 1</b>	Identify and formulate the research problem
<b>Step 2</b>	Determine the research questions and objectives
<b>Step 3</b>	Determine the research paradigm (refer to section 4.3)
<b>Step 4</b>	Develop a research methodology (approach, design and method) (refer to section 4.4)
<b>Step 5</b>	Conduct data collection Phase 1: Content Analysis (refer to sections 4.8)
<b>Step 6</b>	Perform data analysis Phase 1: Content Analysis (refer to section 4.10.1) Phase 2: MCA (refer to section 4.10.2) Phase 3: Regression analysis (refer to section 4.10.3)
<b>Step 7</b>	Report on research findings (refer to chapters 5)

Source: Own compilation

Various decisions were made in the research process and these related to the philosophical underpinning of the study, the research approach adopted, the research design (the type of study or plan to answer the research question (Mouton, 2013)) and method as strategy followed to implement the plan. The next sections justify the appropriateness of a post positivist paradigm and explain the research methodology (research approach, design and method) followed in this study.

### **4.3 RESEARCH PARADIGM**

Research paradigms refer to different “beliefs about the world around us” (ontology) and “the nature of knowledge or how we come to know” (epistemology) (Sekaran & Bougie, 2013:28 & 29). According to Bergman (2010:173) “a paradigm is an organising framework of the concepts, theories, assumptions, beliefs, values and principles that inform a discipline on how to interpret the subject matter of concern”. Olsen, Lodwick and Dunlap (1992:16), define a paradigm as “a pattern structure and framework or system of scientific and academic ideas, values and assumptions”. Research paradigms reflect one’s belief about the world. According to Terre Blanche and Durrheim (1999) the research paradigm “is an all-encompassing system of

interrelated practice and thinking that define the nature of enquiry and has three major dimensions, namely: ontology, epistemology and methodology”.

Ontology is “a branch of philosophy concerned with articulating the nature and structure of the world” (Wand & Weber, 1993:20). Ontology refers to “the researcher’s assumptions regarding the nature of reality, while epistemology refers to the manner in which knowledge is gained about that reality” (Ryan, Scapens, Theobald & Beattie, 2002). Thus, the researcher’s ontological assumptions will have a bearing on the nature and formulation of the research questions, and consequently the choice of the research design and method.

Epistemology is the study of the nature of origins of knowledge (Babbie, Mouton, Vorster & Prozesky, 2007:642). It is “used to describe how an individual comes to know something; how an individual knows the truth or reality” (Kivunja & Kuyini, 2017:27). It “focuses on the nature of human knowledge and comprehension” that extends, broadens and deepens the researcher’s understanding in a particular field of research (Kivunja & Kuyini, 2017:27). In part, epistemology explains the relationship between the researcher and the knowledge that challenges the researcher to understand how he/she knows what he/she knows. Hence, epistemology concerns itself with what can and should be regarded as knowledge in a field such as internal auditing.

This study is positioned from an ontological position that a single truth cannot be found (Cresswell, 2014:7) with reference to IAE. The epistemological position is that causes determine effects or outcomes can be measured, thus the relationship between signalled IAE factors and company performance can be determined.

#### **4.3.1 Underlying philosophical perspectives**

Research philosophy refers to the views individuals hold about the world as well as their opinions concerning the reality that is being examined (Bryman, 2012). The underlying philosophical assumptions of research paradigms can be classified as positivism, interpretivism, and critical postmodernism. Cresswell (2014:6) refers to

philosophical worldviews (paradigms) and distinguishes between post positivism, constructivism, transformative and pragmatism.

According to Sekaran and Bougie (2013:29) positivists believe that the only way to get the truth is to use science and scientific research and tend to disregard other subjective human variables such as feelings and emotions. Positivism is based on an epistemological position that uses “methods of natural sciences to study social reality” and an ontology that social reality is “external” and “objective” (Bryman & Bell, 2014:28). For positivists, an observable social reality is preferred since such an inquiry can be generalizable “as a physical or natural scientific inquiry” (Remenyi, Williams, Money & Swartz, 1998:32). Hence, positivism forms the basis for quantitative research, which largely employs variables, mathematical propositions and hypotheses, and quantitative data, among others. This philosophical posture presupposes that research must be objective and value free (Ryan, 2006:13).

A post-positivism worldview represents “thinking after positivism, and challenges the traditional notion of absolute truth of knowledge” (Cresswell, 2014:7). The philosophy behind this worldview is that causes, which need to be identified and assessed, determine or influence outcomes (Cresswell, 2014:7). Knowledge that is developed through this lens is based on careful observation and measurement of objective reality that exists or a naturally occurring phenomena in the world (Cresswell, 2014:7). Theories that explain phenomena are also tested or verified and refined in an effort for a better understanding of the world. Thus a post positivist researcher would first have a theory that would be tested, followed by data collection to support or refute the theory and lastly, revision of the theory based on the findings and conducting further tests (Cresswell, 2014:7).

Interpretivism presupposes that reality consists of people’s subjective experiences of the world and is thus based on the epistemological and ontological belief that reality is socially constructed (Denzin, Lincoln & Lincoln, 2003:9). Interpretivism postulates that there is nothing like objective knowledge, that all knowledge and meaning are in fact results of interpretation (Reeves & Hedberg, 2003:32). Interpretation can also be

employed as a lens for a specific mode of analysis, in which case it seeks to make sense of textual data which may otherwise be unclear (Zikmund, 2010; Zikmund & Babin, 2013). According to Zikmund and Babin (2013:98) phenomenology refers to a philosophical approach to study human experiences based on the assumption that human experiences are themselves inherently subjective.

Constructivism is closely related to interpretivism and is typically used in qualitative research (Cresswell, 2014:8). Constructivism is the meaning individuals form or construct about the reality around them (Galbin, 2014:89).

This study is positioned in the post-positivist worldview with an ontological position that a single truth cannot be found (Cresswell, 2014:7) and the epistemological position that causes determine effects or outcomes that can be measured. These perspectives assist with meaningful interpretation when answering this study's main research question; *What is the relationship between signalled IAE factors and company performance?* From an agency theory point of view, IAE disclosure increases transparency, one of the principles of good governance (IoDSA, 2009), and reduces agency problems by addressing information asymmetry between the principals (shareholders) and management (agents). Signalling theory posits that information asymmetry can be reduced when a company chooses to voluntarily disclose IAE information if there is an indication of a marginal benefit for the company

#### **4.4 RESEARCH METHODOLOGY**

The research methodology was shaped by the research problem. Concerning this path through which the study was conducted, the research approach, design and method are discussed next.

##### **4.4.1 Research approach**

Research methodology refers to the general approach followed during the investigation of research topics (Ahrens & Chapman, 2006; Silverman, 2000).

Research approaches are broadly categorised as quantitative, qualitative, and mixed methods (Ryan *et al.*, 2002). Quantitative research focuses mainly on “investigating numbers and is based on the ontological assumption that reality is objective and external to the researcher” (Burns & Grove, 1993:777). Such research is “deductive, guided by assumptions inherent in the positivism paradigm” (Burns & Burns, 2008:13). Quantitative research in nature also investigates the cause and effect relationship between variables and relationships. Therefore dependent and independent variables, typically numeric estimates of the population represented by a sample, are used in quantitative research (Cresswell, 2009) as it seeks to identify relationships between variables in order to construct explanations by combining these relationships into general theories (Boomsma, 2013). Researchers using this type of enquiry typically “have assumptions about testing theories deductively, building in protections against bias, controlling for alternative explanations, and being able to generalize and replicate the findings” (Cresswell, 2014:4). Quantitative research by its nature has all the dictates of a positivist and post positivist worldview.

Qualitative research on the other hand involves an “interpretivist, naturalistic approach to the subject matter and attempts to interpret phenomena in terms of the meaning people bring to them” (Denzin *et al.*, 2003). While qualitative research is guided by assumptions from the interpretivist paradigm, it is inductive and uses interpretations by the subjects involved in the research (Zikmund & Babin, 2013:97). The qualitative research method relies heavily on text and images, has unique steps for data analysis as well as a drawing on a variety of methods for inquiry (Cresswell, 2009). Qualitative research “focuses on the (meaning) of words. Research methods used in qualitative research include interviews, observations, documentary analysis and discourse analysis” (Flick, 2011). Qualitative research’s ontological orientation is more constructive in nature (Bryman & Bell, 2014:31).

This study employs deductive research and follows a quantitative research approach. This is useful to determine a relationship between variables (Collins, 2010:42) even though the same level of richness and depth is not obtained as in qualitative research (Cresswell, 2014:45). Many previous studies on the relationship between disclosure

(e.g. corporate governance) and company performance were deductive studies and quantitative in nature (Mans-Kemp *et al.*, 2016; Mans-Kemp, Erasmus & Viviers, 2017; Ntim, 2009; Scaltrito, 2016; Subramanian & Reddy, 2012).

#### **4.4.2 Research design**

A research design is defined as a blueprint for conducting research and it explains the philosophies, strategies of inquiry and methods the research will follow (Cresswell, 2009). According to Malhorta (2007:10) a research design is a framework detailing “the methods and procedures for collecting and analysing information” in a research project. This study used a non-experimental design.

#### **4.4.3 Research methods**

Various methods or techniques were used in the research process to collect and analyse data and these comprise three phases. Similar to other studies in the South African context (Mans-Kemp *et al.*, 2017; Ntim, 2009) a document analysis or conceptual analyses was used to collect data which was analysed by means of a content analysis. This represents phase 1. During phase 2, dimensions were reduced through MCA and in phase 3 the relationship between signalled IAE factors (IAE disclosure) and company performance was determined by using regression analysis.

#### **4.4.4 Research formalities**

Ethical concerns can emerge at various stages of the research process but are of particular importance where human participants are involved (Saunders & Lewis, 2012:208). In this study, where the research design entailed a content analysis of secondary data in a form of company specific reports, there were no participants involved. Nevertheless the ethical clearance was obtained to ensure that research was conducted in line with the protocols of the UP (refer to Appendix 10 for the ethical clearance letter). Furthermore, although data examined was in the public domain (iRESS and company websites), the researcher ensured that the results of the study



were treated with confidentiality and anonymity. With regards to reporting in accounting research, care was taken by using reported information honestly and objectively (Smith, 2003:98) in line with the positivist research paradigm.

**4.4.5 Summary of the adopted research methodology**

Table 4.2 summarises the theoretical framework of the study. Positioning in a post positivist worldview and using agency and signalling theory, the present study employs deductive research and follows a quantitative approach in a non-experimental design. Various methods or techniques, applied in three phases, were used in the research process to collect and analyse data.

**Table 4.2: The theoretical framework of the study**

Research paradigm	Theoretical perspective	Approach	Methods
Post-positivist	Agency theory Signalling theory	Quantitative (deductive)	<b>Phase 1</b> Content analysis, <b>Phase 2</b> MCA <b>Phase 3</b> Regression analysis

Source: Own compilation

The following section introduces content analysis. It discusses background information on content analysis, the research method used in phase 1, by presenting a conceptual framework.

## 4.5 UNDERSTANDING CONTENT ANALYSIS

Content analysis is a systematic reading, not necessarily from the author's or reader's point of view, of a body of texts, images and symbols (Krippendorff, 2013). Content analysis has been used by various researchers to answer questions of a disclosure nature in the South African context (Abdo & Fisher, 2007; Barac & Mdzikwa, 2016; Barac & Moloi, 2010; Mans-Kemp *et al.*, 2016; Marx & Voogt, 2010; Ntim, Opong, Danbolt & Thomas, 2012; Scholtz, 2014). This approach is consistent with literature showing that content analysis is a preferred method to collect data from some form of text such as the IRs or other ARs (Babbie, 2013:296).

The following sections discuss three steps of the Krippendorff (2013:35) conceptual framework for content analysis namely (1) formulation of the research problem, (2) selecting the body text, and (3) context of the analyst's choice and analytical constructs.

### 4.5.1 Formulation of the research question

Content analysis starts with a research question since a researcher can explore the meaning that comes to mind while reading the text and it enables the researcher to read texts with a specific purpose in mind. A research question also grounds content analysis empirically (Krippendorff, 2013). The main research question formulated, which guided this study is:

*What is the relationship between signalled IAE factors and company performance?*

The first sub-research question, *What are the IAE indicators as portrayed in the literature?* was addressed by the literature review on IAE. The sub-research questions, which grounded content analysis empirically, can be expressed as follows:

*Sub-research question 2: What IAE indicators are signalled in company reports?*

### *Sub-research question 3: What are the factors that signal IAE?*

The research questions are in a sense, akin to a set of hypotheses. Unlike scientific hypotheses which are based on direct observation, the “research questions of content analysis are answered through inferences drawn from texts” (Krippendorff, 2013:36). Hence, the following hypothesis is postulated to answer the main research question:

*There is a positive relationship between signalled IAE factors and company performance.*

#### **4.5.2 Selecting the body of text**

According to Krippendorff (2013:36) content analysis often starts with data not intended for a particular research question. This study used IRs and other ARs (such as the AFS and GRRs) of JSE-listed companies for the period 2012–2016 as the primary documents for analysis – and these documents were not specifically produced for this study. Dumay and Cai (2015:215) regard ARs as “highly useful sources of information” explaining why the majority of content analysis research papers use ARs as the primary source of data. Companies, produce and publish their IR and other ARs on a regular basis to communicate information that could be of interest to various stakeholders, yet these companies are unaware of how these reports are being analysed (sample companies for this study are discussed in sections 4.6 and 5.2).

#### **4.5.3 Context and analytical constructs**

In content analysis, context refers to “all the knowledge that the researcher applies to given texts”, which may include the theoretical lens used and propositions made (Krippendorff, 2013:37). In effect, context is about the basis upon which the researcher makes sense of the body of text. Since it is likely that the reader will not know the researcher’s context, Krippendorff (2013:37) persuasively argues that a researcher needs to make the context explicit. Analytical constructs operationalise what the researcher knows about the context and these, even though not perfect,

should be able to model the chosen contexts (Krippendorff, 2013). The analytical construct in this study is aligned with the hypothesis stated above in section 4.5.1.

#### **4.5.3.1 Theory**

This study uses agency and signalling theories as a lens through which the relationship between signalled IAE factors and company performance is investigated. Agency theory has been widely used in auditing research to explain relationships between agents (the board of directors/management) and principals (shareholders). The main objective of agency theory is to reduce problems associated with the agency relationship characteristics of the organisation. Amongst others, information asymmetry between managers and shareholders is one of the common problems in the agency relationship (Jensen & Meckling, 1976). Corporate governance has been advanced as a measure that decreases agency problems (Sánchez-Ballesta & García-Meca, 2007:879) where management bond themselves to good governance. More interesting, past research uses agency theory to explain the IAF as an internal corporate governance mechanism aimed at reducing information asymmetry associated with the agency relationship and shows it contributes to company performance (Bou-Raad, 2000:183; Chevers *et al.*, 2015:54-55; Karagiorgos *et al.*, 2010:18).

Signalling theory has been used to explain the reason managers have the incentive to disclose more information in the financial statements. Signalling theory is relevant to this study which uses mandatory and voluntary IAE disclosures to investigate signalling of IAE and its relationship with company performance. Signalling can decrease information asymmetry, and in doing so reduces monitoring costs, which in turn can result in improved performance. According to Scaltrito (2016:27) the “value of the company increases in cases where the company voluntarily provides additional information”, which in turn “enhances the credibility of firms, and reduces the uncertainty for potential investors”. Hence, voluntary disclosure is positively related to company performance and quality (Birjandi *et al.*, 2015:178). Accordingly, this

study argues that management will more likely make voluntary IAE disclosures which reduce information asymmetry (Abhayawansa & Abeysekera, 2009:298).

#### **4.5.3.2 The unit of analysis**

According to Kumar (2018:70), “a unit of analysis is the person or object from which the researcher collects data”, and includes individuals, groups of individuals, organisations, and objects that are the aim of the investigation. In this study, the top 100 JSE-listed companies over the period 2012–2016 are the units of analysis.

The main unit of observation in the study was IRs. Such reporting is considered to be a rich source of information and the main communication of value to the investors as it contains information on both financial and non-financial performance (Eccles & Saltzman, 2011). Besides the traditional annual financial performance, IRs include governance performance, sustainability reports and management commentaries on current and future prospects of the organisation (Flower, 2015:3). While JSE-listed companies were required to issue IRs from 1 March 2010 (Abeysekera, 2013:229), many companies still produced multiple reports (Barkhuizen, 2015). Thus most companies produced IRs as well as other ARs (which include AFS and GRRs). Some companies disclosed the same governance information in IRs and in the other ARs (this can be considered as duplication), while others only included cross references. As a result, where corporate governance information was reported in the AFS or in GRRs (a separate governance report in the AR), those reports were also examined. The latter are referred to as other ARs for the purpose of this study.

#### **4.5.3.3 Using an internal audit effectiveness signalling frame**

A frame similar to an index requires a set of selected items to determine the level of a company’s compliance to the pre-selected items or the level of disclosure. Although an “index is constructed through a simple accumulation of scores assigned to individual attributes” (Babbie *et al.*, 2007:137), the items in a frame can be individually analysed. In this study, an instrument called IAE signalling frame was constructed

because there was no such published index or frame available to address the study's research questions.

According to Kavitha and Nandagopal (2011:35), an unweighted disclosure index (or frame) is one in which "there was no bias in assigning the weights to each disclosure item" and all items in the sampling frame are assumed equally important. The self-constructed IAE signalling frame from this study is an unweighted disclosure frame. A detailed systematic literature review of the factors affecting IAE was conducted (refer to Chapter 3) and these were used as indicators of IAE. The list of IAE indicators formed the basis of the frame which facilitated the systematic coding of data obtained through content analysis of IRs' (the main unit of observation) and other ARs. 54 indicators were identified in literature as impacting on IAE (coded 1 to 54) and a score of 0 (for not disclosed) and 1 (for disclosed) was attached to each indicator. Thus the IAE signalling frame used a dichotomous scoring procedure which recorded the presence or absence of disclosure. As the IAE signalling frame measures the existence of disclosure, it does not necessarily signify the quality of disclosures (Kavitha & Nandagopal, 2011:37). The IAE signalling frame is presented in Appendix 2.

#### **4.5.4 Summary of content analysis**

This section explains content analysis by using three steps of the conceptual framework of Krippendorff (2013:35). The section defined the context and analytical constructs pertaining to the development of the IAE signalling frame, a self-constructed unweighted frame used to code IAE factors and score IAE disclosure of sampled companies. The unit of analysis (individual company) and unit of observation (IRs and other ARs) were distinguished. The next section deals with selecting the sample of the study.

## 4.6 SAMPLE SELECTION

Clow and James (2014:226) define a target population “as the entire group of people or events” or interesting phenomena “that the researcher wishes to investigate”. The aim is to select cases from the population which would lead to an increased understanding of variations in the phenomenon studied and to generalise the results (Zikmund, 2010:400). In this study, the population was made out the top 100 (by market capitalisation) JSE-listed companies as at 31 December 2016. This population was selected for two reasons, first; the JSE is well-regulated and requires disclosure of compliance, or otherwise, with the Companies Act, and the principles espoused in the King Code on corporate governance (at the time of the study it was King III)<sup>3</sup> as annexed to the JSE listing requirements (JSE, 2016). Second, since the study seeks to determine the relationship between signalled IAE factors and company performance, large companies are more likely to disclose IAE since they have a greater number of stakeholders and their financial performance has been found to be positively correlated to corporate governance disclosures (Marx & Voogt, 2010).

A number of studies on corporate governance disclosures were conducted on listed companies. Notably, the quality of disclosure has been associated with a number of factors such as signalling good performance as a way to differentiate good performance from average performance of companies (Connelly *et al.*, 2011) and quality disclosure is expensive (Isidro & Marques, 2016:4). Large companies where agency problems are likely more acute have been the focus of South African accounting, auditing and control related studies on governance (Steyn, 2018:301). This study focuses on the top listed companies, and one could argue that they experience agency problems and can afford quality disclosures, and that such disclosures are expected from them to provide high quality signals. Hence, the top performing companies have been selected as the most suitable participants in a number of corporate governance studies. For example, Marx and Voogt (2010);

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<sup>3</sup> There was no fundamental departure in the principles of King III in King IV. There was however a consolidation of 75 principles into 17 principles in King IV for ease of application (IoDSA, 2016:7).

Eccles, Pillay and De Jongh (2009); Barac and Moloji (2010); Seakamela (2011); Williams, Deodutt and Stainbank (2016) used the top-40 listed on the JSE.

A list representing the top 100 JSE-listed companies for the period 2012–2016 was compared year on year to determine whether the same companies remained on the top 100 list for the period under review. None of the top 100 companies were liquidated during this period. Since the study uses panel data over 5-year period, the sample of companies were selected on the following basis: (1) company performance data was available on IRESS for most of the 5 years in the period under review and (2) company IRs and other ARs were available on company websites for the same period. Companies that did not meet the criteria were excluded from the study. The profile of the sample companies is described in section 5.2, while survivorship bias is discussed next.

#### **4.7 SURVIVORSHIP BIAS**

The top 100 JSE-listed companies change from year to year. Failure to account for the delisting or addition of companies making up the top 100 JSE companies during the period under study can constitute a statistical bias (Garcia & Gould, 1993:52) and can manifest survivorship bias (Gilbert & Strugnell, 2010:31). Survivorship bias occurs when a historical study includes only surviving objects in the dataset instead of the complete dataset for the period under review (Gilbert & Strugnell, 2010). This may lead to wrong conclusions especially when evaluating performance over a period of time as the structure of the delisted companies may be different from that of the surviving ones. Gilbert and Strugnell (2010:41), suggest that survivorship bias be considered in empirical studies that involve performance of listed shares unless the study expressly focuses on currently listed shares. For this study, the top 100 JSE-listed companies as at 31 December 2016 based on market capitalisation was purposively selected as the population and data on the performance of these companies was collected for a period of five years (2012–2016).



Survivorship bias was considered in this study as the top 100 JSE-listed companies change from year to year. The top 100 JSE-listed companies for the period 2012–2016 were compared year on year to determine firstly, whether companies remained on the top 100 listed companies for the period under review. Since this study spans over five years it was important to have data for each company for all the years under review. Secondly, whether any of the top 100 companies was delisted during the period under review. A number of companies had dropped out of the top 100 listed companies but were still in operation and still listed on the JSE. This was mainly due a decline in the commodity prices which started in 2011 affecting the mining industry internationally (Bellmann & Hepburn, 2017) and the negative effects of the prolonged industrial action (2014) in the mining sector in SA (Bohlmann, Van Heerden, Dixon & Rimmer, 2015). Therefore, mining companies like Lonmin Plc and Royal Bafokeng Platinum Ltd dropped out of the top 100 list during this period. Another company worth mentioning is African Bank Investment Ltd which dropped out of the top 100, and was placed under curatorship in 2014.

The period under review (2012–2016) witnessed a number of companies delisting as a result of mergers in the real estate industry. All merged companies were part of the sample. One company JD Group Ltd merged into Steinhoff International Holdings NV. Steinhoff International Holdings NV has been found to be riddled with accounting irregularities (Butters, 2019:29) but was still trading on the JSE as at 31 December 2016. No top 100 companies were liquidated during the period under review.

Against this background, risk of survivorship bias for this study is limited. The next section presents an overview of the data collection process followed in the study.

#### **4.8 DATA COLLECTION PROCESS**

The main data collection process used by this study is content analysis. As explained in section 4.5, it “is a systematic research technique for making replicable and valid inferences from texts to the related contexts of their use” (Krippendorff, 2013:24). According to Bowen (2009:30) documents “provide supplementary research data and

a means of tracking change and development”. Documents can be analysed through a “traditional (quantitative) content analysis, which focuses on a word, a phrase or sentence count, or by a more sophisticated, ‘interpretative’ (qualitative) approach which involves focusing on the language used and the context in which the documents emerged” (Boomsma, 2013). This study employs the more traditional approach during which the IR is the primary document, and other ARs of selected companies were analysed.

In this study, content analysis involves studying the companies’ IRs or other ARs for the years 2012–2016 and to use the information disclosed in these reports to elicit pertinent information relating to IAE disclosure. Owing to the nature of the source of data used as indicated, employing content analysis as a method of data analysis is appropriate. This view is in concert with literature in that content analysis becomes most appropriate whenever data is to be collected from some form of text such as the IRs and other ARs (Babbie, 2013:296).

A self-constructed IAE signalling frame was used for data collection purposes. Based on a detailed systematic literature review of the factors affecting IAE (refer to Chapter 3) indicators of IAE were identified. Initially 83 indicators were identified but after further refinement (grouping items that measure the same concepts together) a total of 54 IAE indicators were retained (refer to Table 3.2 in section 3.3.4.2) and formed the basis for the construction of an IAE signalling frame (refer to Appendix 2). The IAE signalling frame was built on an Excel spreadsheet and consists a list of 54 IAE indicators grouped into four categories; (1) organisational factors, (2) relational factors, (3) IA process related factors and (4) IA performance measurement. These categories were split into eleven sub categories (as identified in section 3.3.2 and explained in section 5.3.3), namely; (1) IAF status in the organisation, (2) IAF structure, (3) IAF independence, (4) AC support, (5) SM support, (6) IAF support to others, (7) IAF competence, (8) IAF service and role, (9) IAF work quality, (10) IAE outcome and (11) IAE output. A scoring key describing what each item means was prepared in order to guide understanding of and ensure consistency in the scoring of IAE disclosure items. Based on the system of Gompers, Ishii and Metrick (2001), the

scoring was designed to reflect a one (1) for disclosure of an IAE indicator and zero (0) for non-disclosure.

In order to maintain uniformity in the data collection process, the same signalling frame was used throughout the gathering of data from the IRs and other ARs. Thus, the identification of IAE indicators from relevant literature was the first step in investigating the relationship between signalled IAE factors and company performance followed by the construction of the IAE signalling frame, an instrument which facilitated the systematic coding of data obtained through content analysis of IRs' (the main unit of observation) and other ARs.

As indicated above a list of 54 IAE indicators were identified in literature as impacting on IAE (coded 1 to 54) and a score of 0 (for not disclosed) and 1 (for disclosed) was attached to each indicator. The IAE signalling frame is presented in Appendix 2. The content analysis of the IRs and other ARs is detailed further in the section 4.10.1.

#### **4.9 RELIABILITY AND VALIDITY OF THE DATA**

Validity is the strength of the conclusions drawn from the study (Kavitha & Nandagopal, 2011:38). According to Neuendorf (2002:112) validity refers to “the extent to which a measuring procedure represents the intended, and only the intended, concept”. One way to ensure validity is to collect, analyse, and cross-check “a variety of data on a single factor or aspect of a question from multiple sources, and perhaps perspectives” (White & Marsh, 2006:38). This is referred to as triangulation, which improves credibility and confirmability. Confirmability relates to objectivity and is measured by assessing inter-coder reliability and determining if the data supports the conclusions. For inter-coder reliability, conceptual consistency between observation and conclusion between coders is more important than numeric correspondence (White & Marsh, 2006:38).

Inter-coder reliability refers to “the degree of similarity between different examiners: whether for example, two or more examiners, without influencing one another, give

the same marks to the same set of scripts” (Neuendorf, 2002; Neuendorf, 2017). Similarly, inter-coder reliability represents the extent to which different reviewers assign the same score to a particular variable (Chong & Romkey, 2016:3). Having a high level of agreement between coders would make the results more meaningful (Neuendorf, 2002:12). Although in ideal circumstances, a large number of coders may be used to measure inter-coder reliability, often two coders are enough to produce acceptable levels of inter-coder agreement (Chong & Romkey, 2016:3; Jonsson & Svingby, 2007:135). Kavitha and Nandagopal (2011:38) have observed that most disclosure studies focus on inter-coder reliability and scores are finalised once the two coders have analysed the AR.

In this study reliability and validity were ensured through inter-coder checking. The pilot study was coded by the researcher and another coder (a supervisor). The results were compared and discrepancies were resolved. Four coders (three supervisors and the researcher) checked the validity of the results of the main study by repeating the coding and the scoring performed by the researcher. In total (pilot and main study), the IRs and other ARs of thirty-two (32) companies were coded and scored using the IAE signalling frame to ensure inter-coder reliability. These companies were randomly selected for a re-performance exercise and no material discrepancies were found.

Secondary data utilised in research should be “accurate, reliable, precise, unbiased, valid, appropriate and timely and accurately reflect what is being studied” (Tasić & Bešlin Feruh, 2012). As such data needs to be assessed for validity and reliability. The guideline by Saunders and Lewis (2012) was used to assess data validity and reliability (refer to Table 4.3 and Table 4.4 respectively).

**Table 4.3: Criteria for assessing data validity**

Factors	Remarks
<b>Subject selection</b>	The sampled companies were selected from the top 100 JSE-listed companies. Market capitalisation was used as a criteria. The unit of analysis (individual company) and unit of observation (IRs and other ARs) were distinguished (refer to section 4.5.3.2).
<b>History</b>	The period under review was characterised by the maturity of application of King III (since 2009) and the Companies Act (since 2008). Since King III, the IR has become a well-established, comprehensive reporting mechanism. There were no other notable or major exogenous factors that occurred during the research period (2012–2016) that may have affected company reporting (refer to section 2.4).
<b>Testing</b>	The data collection process was not influenced by the sampled companies. Company financial information, the IRs' and other ARs were obtained from reliable secondary sources including company websites which are publicly available (refer to section 4.5.2).
<b>Mortality</b>	There were no top 100 JSE-listed companies liquidated during the research period. There were a number of companies delisting as a result of mergers, these merged companies were included in the sample (refer to section 4.7).
<b>Ambiguity about causal direction</b>	The aim of the research was to investigate the relationship of between signalled IAE factors and company performance and not to prove causality (refer to section 4.5.1).

Source: Adapted from Saunders and Lewis (2012)

Table 4.3 applies criteria for assessing data viability, while Table 4.4 presents the assessment of reliability of secondary data used in the study.

**Table 4.4: Data reliability**

Factors	Remarks
<b>Subject error</b>	Data was collected for one specific company at a time, for all years under review, using the same data sources (refer to section 4.8).
<b>Subject bias</b>	Data was collected from company websites and reliable secondary sources. The subject was not involved in data collection, eliminating subject bias (refer to section 4.8).
<b>Observer error</b>	Observer error was limited because company IRs and other ARs were obtained from reliable secondary sources, the iRESS database and the company website.
<b>Observer bias</b>	An IAE signalling frame and a coding key were used to guide the coding and scoring of signalled IAE indicators to mitigate the risk of observer bias. A pilot and main studies involved inter-coder checking for the consistency and reliability of coding and subsequent scoring of IAE disclosure. The researcher was the only data collector for the main study (refer to section 4.9).

Source: Adapted from Saunders and Lewis (2012)

The results above indicate that data is sourced from reliable sources and a valid process was followed to ensure the reliability of the research findings emanating from the data.

In summary, the above sections described elements of the research design of the study. Sample selection, survivorship bias and the data collection process were expounded. The reliability and validity of secondary data used in the study were also explained. The next section presents an overview of the three phases in the data analysis process. It commences by providing more detail on the content analysis framework used and how the IAE signalling frame which was introduced in section 4.5 is used to collect data, classify data from the IRs and other ARs and finally to score the IAE disclosure of selected companies.

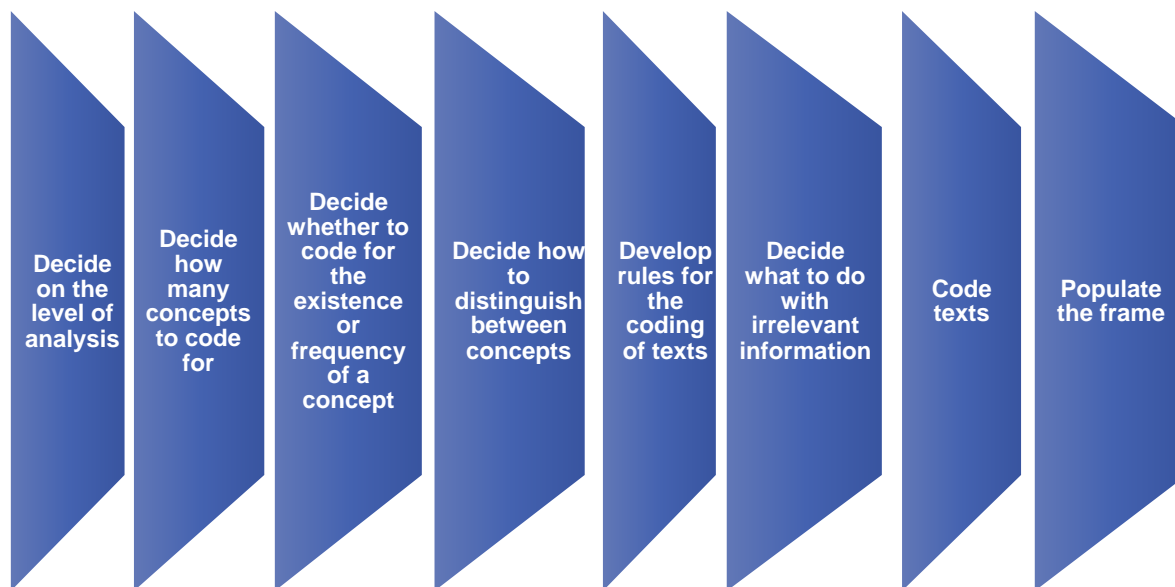
#### **4.10 DATA ANALYSIS**

A phased approach was followed in this study to analyse data. These three phases, content analysis (Phase 1), MCA (Phase 2) and a regression analysis (Phase 3) are further elaborated on in the next sections.

##### **4.10.1 Phase 1: Content analysis**

In this study the IRs and other ARs from a sample of the top 100 companies listed on the JSE over the period between 2012 and 2016 were analysed to elicit information on IAE disclosure as detailed in the IAE signalling frame created in phase 1. The aim of this analysis was to generate data in the form of IAE signalling frame scores and company financial data for further statistical analysis.

The secondary data from the IRs and other ARs were analysed using the following steps from Babbie *et al.* (2007:492) illustrated in Figure 4.1:



**Figure 4.2: Content analysis steps**

Source: Adapted from Babbie *et al.* (2007:492)

#### **4.10.1.1 Decide on the level of analysis**

This step involves deciding whether the analysis will be done at a level of one specific word, a key phrase or a string of words (Babbie *et al.*, 2007:492). In this study, the analysis was done at a single word or key phrase level. For example, similar to the studies by Mans-Kemp *et al.* (2016) and Barac and Moloji (2010), keywords based on literature were used to search the IR and other ARs, for IAF information. The main search keywords used were: IA, internal and external audit, combined assurance, assurance, findings, recommendations, opinion, complaints, non-compliance, fines, penalty/penalties, meetings, satisfied. The IAE signalling frame shows the complete list of keywords used for the search (refer to Appendix 2). Care was taken to ensure correct spelling to allow for recalling of correct information as well as ensuring that all keywords were searched. In this study, all documents were analysed using Qiqqa, a research and reference manager used to search, read and annotate PDFs. Since Qiqqa calls up all the words separately, for instance, ‘internal audit’ would result in all instances of where ‘internal’ appears and where ‘audit’ appears separately and together. The search was therefore thorough as one could read in all instances where the word ‘audit’ was mentioned in the report. A lot of information had to be reviewed to find what was relevant to the study.

#### **4.10.1.2 Decide how many concepts to code for**

Once the level of analysis has been decided, the next step is to decide on the number of concepts to code since conceptual analysis follows the literature review and therefore the relevant codes or key terms can be decided beforehand (Babbie *et al.*, 2007:492). The list of 54 IAE indicators discovered in the literature (refer to chapter 3) were broadly organised into organisational factors, relational, IA processes and IAE measurement factors. These were split into 11 sub-categories as follows: organisational factors include the status (1), structure (2) and independence of the IAF (3); while relational factors encompass the AC support (4) and SMs' support for the IAF (5) and the IAFs' support of other assurance partners (6). For IA processes, the factors are the internal auditors' competence (7), the IAFs' service and role (8) as well as the quality of work (9). IAE measurement was split into outcome performance measures (10) and output performance measures of IAE (11). From the literature review, a number of items were defined that helped characterise each factor. In total, 54 items peculiar to the factors in the eleven sub-categories were coded (refer to Appendix 2 for the IAE categories, sub-categories and indicators used for coding).

#### **4.10.1.3 Internal audit effectiveness signalling frame and coding**

The next step involves deciding “whether to code for existence or frequency of a concept” (Babbie *et al.*, 2007:492). When coding for existence, the researcher determines whether something occurs or not whereas coding for frequency means that a researcher takes note of how often something occurs (Babbie *et al.*, 2007:492). Since this study is about the disclosure of IAE, coding was carried out for the existence of disclosure or not. A binary code was used where zero (0) represented no disclosure and one (1) represented disclosure of IAE indicators. The IAE signalling frame was used as a basis for coding IAE disclosure of companies. A coding key was also developed to guide the coding.



#### **4.10.1.4 Decide how to distinguish between concepts**

This step requires the researcher to decide whether she/he will only code instances where the data appears as coded, or whether meaningful instances of a specific code's data can be generalised (Babbie *et al.*, 2007:492). For this study, coding instances were carried out for the data which appeared as coded, such that no meaning was necessarily extrapolated from the text.

#### **4.10.1.5 Develop rules for the coding of texts**

The next step is to develop rules with a view to set parameters for each code. Coding parameters are set to ensure consistency in coding (Babbie *et al.*, 2007:493). A coding key which forms part of the IAE signalling frame (refer to Appendix 2) was developed to provide an explanation of what information was coded for each IAE indicator to ensure that words, phrases and sentences are coded correctly and consistently. For example, the IAE indicators coded under the sub-category IAF reporting lines included information on whether the CAE functionally reports to the AC. Another decision made was on the classification of the typical services offered by the IAF. These were separated into assurance, consulting and ad hoc services. Assurance services included assurance engagements pertaining to governance, risk, control, and IT while consulting related to consulting services on assurance, governance, control, IT, fraud. Ad hoc services include special projects on a variety of areas that IAF was involved in. This ensured consistency in the coding.

#### **4.10.1.6 Decide what to do with irrelevant information**

Following the above-mentioned step, there will be data that has been identified but not relevant to the study. The key word search yielded other information relating to audit or auditing which pertained to external auditing which was not relevant to the IAF. This information was therefore discarded and not coded. Any other additional information that was relevant to the understanding of the IAF was included under other information at the bottom of the spreadsheet as a note or general comment.

#### **4.10.1.7 Code texts**

Coding will necessarily be numerical, whether it is for counting the frequency of certain words or coding for latent content “based on the overall judgement of the researcher” (Babbie, 2013:301). The IAE signalling frame (refer to section 4.10.1.3) with the embedded coding key (refer to section 4.10.1.5) was used to code the reports for disclosure of the 54 IAE indicators (refer to section 4.10.1.2). The coding key was used to guide populating the frame by assigning either a zero (0) for no disclosure and one (1) for disclosure.

The Excel template where the IAE signalling frame and coding key is, also contained sections for biographical and financial information of the company. The biographical codes for the companies were as follows: Name of company, industry, primary listing, year-end date and largest shareholders. The financial codes that were created are, ROA, ROE, debt-to-asset ratio (D/A), debt-to-equity ratio (D/E), MBV, Tobin’s Q, cash generated from operations and total assets (CTA).

#### **4.10.1.8 Populate the frame**

The IAE signalling frame was constructed using an Excel spreadsheet template to collect information and the coding key was used to guide the reliability of the extraction and summation of data linked to IAE disclosure in the company’s reports (this is explained in section 4.10.1.7). The information was extracted into a spreadsheet for each company for each of the five years where evidence of disclosure was then copied on to the columns labelled IR, AFS or Governance (Risk) report (GRR) (other ARs) The black font colour was used for referencing extracts from the IR, red for the AFS and green for the GRR (refer to Appendix 2.1).

Company financial information was mostly sourced from the research domain of the iRESS, a database available on the UP library portal as well as from the AFS available on company websites. The scores were then summarised and transferred to the company summary sheet (refer to Appendix 2.2). The summary sheet allowed for the checking of possible errors by looking at the trend in the scoring. Seeming

inconsistencies were re-examined and confirmed. The process was repeated for all the years under review for each company and the information is consolidated into a spreadsheet for all companies (refer to Appendix 3).

Financial performance is measured from the perspectives of a number of stakeholders, some internal and others external to the company. Internally management and other internal stakeholders are interested in the operational performance and accounting-based measures. External stakeholders like shareholders and investors are more interested in market performance and market-based performance measures. A number of performance related governance disclosure studies (Mans-Kemp *et al.*, 2016; Ntim, 2009; Rossi & Harjoto, 2019; Wolmarans *et al.*, 2018) utilised market-based and accounting-based performance measures as proxies for company performance.

According to Bowen (2009:31), document analysis offers a number of advantages including efficiency in terms of time and cost-effectiveness; availability of information; exactness of information; lack of obtrusiveness, meaning that data source is never affected by the “research process; and that documents provide broad coverage as they cover a long span of time, many events, and many settings”. On the other hand, the limitations of documents include lack of sufficient detail as they were developed for a purpose other than research, and may not always be easily retrievable (Bowen, 2009:31).

Six challenges were encountered when relevant paragraphs and phrases from IRs and other ARs were extracted. First IAE information was dispersed, disclosed in the IR's, the AFS and sometimes the GRR (or other ARs). This meant that more reports had to be analysed than just the IR for IAE information as the IR often made reference to more information to be found in the other ARs. Second the volume of some of the IRs and other ARs varied; some reports were in the excess of 300 pages, which was extensive and time consuming to analyse. Third it took between 60-90 minutes on average to analyse one year of a company. Fourth some historical reports were not always readily available on the company websites. Fifth companies with primary

listing on stock exchanges with different corporate governance regimes to SA had little or no information on IA, audit fees and shareholding. Sixth the translation of foreign currency financial information where the exchange rates were not disclosed in the financial statements had to be considered. The closing rate was downloaded from the South African Reserve Bank (SARB) website and averages were calculated based on data from the (SARB) website.

In summary, during phase 1 of the study, an IAE signalling frame was developed (refer to Appendix 2) to aid the analysis of the IAE disclosure of the top 100 JSE-listed companies. The IAE signalling frame template included a section on biographical and financial information for each company. The content analysis of company IRs and other ARs was used to populate the IAE signalling frame. The next section discusses phase 2 of the data analysis process, namely; the analysis of IAE disclosure data by means of MCA.

#### **4.10.2 Phase 2: Multiple Correspondence Analysis**

The result of phase 1 of the data analysis (discussed above in section 4.10.1) produced a very large matrix of categorical, binary data (0 for non-disclosure and 1 for disclosure of IAE indicators) for each company for each of the five years. Phase 2 commences with the dimension reduction and graphical representation of the multi-way frequency/matrix of IAE indicators using MCA. The problem with large multi-way contingency tables is that they are exactly that, large and therefore difficult to analyse and see patterns in the data. Dimension reduction is necessary in order to reduce the number of random variables under consideration by obtaining a set of principles or key variables that explain the data. These key variables are grouped into dimensions. MCA is able to do this and has the added advantage of presenting the results in graphical format, which is easier to interpret (Sourial *et al.*, 2010:8).

MCA was used in this study as it analyses tables with three or more categorical variables. This technique is suitable for the current study as the content analysis of IRs' and other ARs produced a very large matrix of categorical, binary data (0 for non-disclosure and 1 for disclosure of IAE indicators). MCA is an extension of CA, an

exploratory technique widely used to analyse large contingency tables and multivariate categorical data (Hoffman & Franke, 1986:213) or binary data (McGillivray, Johansson & Apollon, 2008:50). It uses optimal scaling, a technique that converts qualitative variables into quantitative variables by assigning numerical scales on categories based on some optimising criteria. MCA, as CA “is designed specifically for the analysis of categorical variables, it is conducted at the level of the response categories themselves rather than at the variable level” (Sourial *et al.*, 2010:2).

CA is used “for contingency tables (for pairs of categorical variables that are cross tabulated) and allows for the study of similarities between rows or columns, and associations between rows and columns” (Fithian & Josse, 2017:87). The “cross-tabulation of categorical data is still the most commonly encountered and simple form of analysis in research” (Bendixen, 2003:1). According to Bendixen (2003:2), examining “row and column profiles closely allows the researcher to understand the relative position of the columns and rows to each other”, creating a way to discern important characteristics. The most appealing feature of this technique is its ability to transform complicated tables into simple graphical presentations (Hoffman & Franke, 1986). As multivariate graphical technique CA is designed to “explore relationships among multiple variables” and to preserve the categorical nature of the variables (Sourial *et al.*, 2010:2). Furthermore, CA allows for the extraction of the most important dimensions, reducing dimensions to the ones that explain the most variance, thus improving model fit.

The *Chi*-square test of independence can be applied to a contingency table in determining “whether there is a statistically significant dependence between the rows and columns” (Bendixen, 2003:2). While the “nature of the dependency between the rows and columns of the contingency table is evident from the graphical depiction of row or column profiles” (Bendixen, 2003:3). MCA computes the relative frequencies for the IAE multi-way table, so that the sum of all entries on the table amounts to 1.0. It then shows how “one unit of mass” is distributed across the cells of the table. The row and columns totals of the IAE table (matrix) are considered row mass and column

mass. In MCA the rows and columns are not completely independent of each other and this requires the extraction of dimensions (Bendixen, 2003:7). MCA comprises two steps. The first step is to determine whether the rows and columns are significantly dependent. This is done by examining the trace as it “appears in the eigenvalue report. The square root of the trace may be interpreted as a correlation coefficient between the rows and columns. As a rule of thumb, any value of this correlation coefficient in excess of 0.2 indicates significant dependency” (Bendixen, 2003:7). The second step is “to determine the appropriate number of dimensions using accumulated inertia” (Rodriguez-Sabate, Morales, Sanchez & Rodriguez, 2017:7). This is “achieved by examining the inertia in the eigenvalue report. The sum of the eigenvalues is equal to the trace. The ratio of the eigenvalue of any axis to the trace represents the proportion of the total inertia (or *chi*-square value) explained by that axis” (Bendixen, 2003:7).

Inertia accounts for the variance explained by the dimensions and is “defined as the weighted sum of the squared chi-square distance between each row profile and the average row profile” (Sourial *et al.*, 2010:5). “Relative inertia represents the inertia of each variable in each dimension normalized between 0 and 1”, while cumulative or total inertia is the “inertia of each dimension added to” succeeding ones, totalling 1 (Rodriguez-Sabate *et al.*, 2017:10). It is inertia that assists determining how well a dimension explains the movement or variance in the data (Husson & Josse, 2014:166). The dimensions are ranked in descending order in terms of the eigenvalues where the largest contributor is named Dimension 1 and the next Dimension 2 and so on to the least contributor at the bottom of the table (Rodriguez-Sabate *et al.*, 2017:7). Since the aim of MCA is data reduction, inertia help determine which dimensions retain most of the information on a lower dimensional space and therefore should be retained (Bendixen, 2003:8; Rodriguez-Sabate *et al.*, 2017).

Furthermore, insights into the relationships within a dimension can be determined by examining the bi-plots of the dimensions. The “further away the response is along the dimension from the origin the greater the importance on that dimension” (Sourial *et al.*, 2010:4). Thus the location of the response gives insight into firstly the dimension

in which the response falls into and secondly which items in the dimension are grouped or load together (Sourial *et al.*, 2010:4). A number of considerations are made in defining the number of dimensions to retain. Higgs (1991:186) suggested that at least 70% of the variation explained by the dimension. Various studies have employed a combination of measures in addition to the cumulative inertia to determine whether to retain a dimension or not. These include scree test (Costa, Santos, Cunha, Cotter & Sousa, 2013; Rodriguez-Sabate *et al.*, 2017; Sourial *et al.*, 2010), eigenvalues above 0.2 (Costa *et al.*, 2013; Rodriguez-Sabate *et al.*, 2017; Sourial *et al.*, 2010), Cronbach's alpha score (Costa *et al.*, 2013), and two-dimensional pictures of data (Costa *et al.*, 2013; Fithian & Josse, 2017; Higgs, 1991; Rodriguez-Sabate *et al.*, 2017; Sourial *et al.*, 2010).

The Statistical Package for Social Sciences (SPSS), a statistical package was used to extract dimensions from the 54 indicators in the IAE signalling frame. This resulted in 19 signalled IAE factors from the dimensions identified. In phase 3 of the study, the relationship between signalled IAE factors (represented by the extracted IAE dimensions) and company performance is explored. This is done by means of the regression analysis of the panel data of IAE scores and market and accounting company performance indicators.

#### **4.10.3 Phase 3: Regression analysis**

Regression analysis is “a statistical technique which determines the relationship between a single dependent (criterion) variable and one or more independent (predictor) variables” (Palmer & O'Connell, 2009:23). According to Alexopoulos (2010:14) the purpose of regression is “to predict Y (dependent variable) on the basis of X (independent variable) or to describe how Y depends on X”. The assumptions for employing regression includes independence between X and Y variables, linearity between X and Y, and that for each value of X, the distribution of Y must be normal. Finally, the principle of homoscedasticity should be satisfied, meaning that if the model is correct, “the residuals should have a normal distribution with mean zero and constant standard deviation” (Alexopoulos, 2010). The results of linear regression

analysis may be misleading if these assumptions are not met (Aggarwal & Ranganathan, 2017:100).

#### **4.10.3.1 Testing the regression assumptions**

Certain tests were conducted with a view to build a robust model that can produce reliable and consistent results. These included testing for the presence of; outliers, normality, heteroscedasticity, autocorrelation, endogeneity and multicollinearity

##### *i. Testing for the presence of outliers*

Outliers are described as data points that are extreme or very large in relation to the rest of the observations. These have a tendency to skew the data and lead to an unreliable estimation (Gujarati, 2009:68). Outliers can be identified by performing a number of tests. These include box-plots, plotting the residuals of the error-terms. Residual plot of the error-terms was used in order to identify outliers in this study. Since the study investigates the relationship between signalled IAE factors and company performance of a number of companies, the rejection of outliers would possibly reduce vital information which is of interest for the study. Hence, outliers were not removed from the data set and an estimation technique which tolerates the presence of outliers was used instead. Due to its insensitivity to the presence of outliers and heteroscedasticity, the GLS estimator was used (Gujarati, 2009:400). It estimates the unknown parameters in a linear regression model used when observations or their error-terms are unequal (heteroscedasticity) or are somewhat correlated. Next the test for heteroscedasticity is explained.

##### *ii. Heteroscedasticity*

Non-constant error-terms in the model are referred to as heteroscedasticity (Gujarati, 2009:365). Heteroscedasticity thus implies that the “conditional variance” of the dependent variable, varies with the independent variables (Gujarati, 2009:365). Although the estimates of the regression coefficients will be unbiased they are not efficient if the ordinary least squares (OLS) method is used (Gujarati, 2009:371). The



OLS method of estimation apportions equal weight to each observation, and does not take into account the interclass variability of the dependent variable (Gujarati, 2009:371). GLS takes into consideration the “interclass variability” in the dependent variable (Gujarati, 2009:371). In GLS, observations that come “from a population with a larger standard deviation, will get smaller weights and those from a population with a smaller standard deviation, will get a larger weight” in the estimation of the residual sum of squares (Gujarati, 2009:373). As mentioned earlier, GLS is a better estimator in the presence of heteroscedasticity (Gujarati, 2009:375).

### *iii. Normality*

The normality assumption of a regression analysis is determined by the examination of the skewness and kurtosis of the distribution. Skewness refers to whether the distribution is skewed to the left, bell shaped or skewed to the right (Field, 2009:19). A normal distribution is bell shaped (Field, 2009:18). Kurtosis refers to the peak of the distribution. The skewness of a normal distribution should be zero and kurtosis should be within the range of -3 and +3 (Gujarati, 2009:818).

### *iv. Autocorrelation*

Autocorrelation refers to the repeated observation of the same individual where present performance is correlated with the past performance (Gujarati, 2009:413). This results in residuals which are not independent. If autocorrelation is ignored “the usual *t* and *F* test of significance are no longer valid and if applied will lead to seriously misleading conclusions about statistical significance of the estimated regression coefficients” (Gujarati, 2009:424). Autocorrelation is tested using the Durbin-Watson test. Durbin-Watson parameters which are influenced by the sample size are  $N = 100$  (1.86-1.89);  $N = 500$  (1.94 -1.95);  $N = 1000$  (1.96-1.97) (Hauser, 2007:43). However, if a regression model contains a lagged value of the dependent variable, the Durbin-Watson statistic of around 2 suggests that there is no autocorrelation in the model (Gujarati, 2009:437). A lagged variable of the dependent variables is included in the regression model of this study to counter the effects of autocorrelation. Endogeneity is discussed next.

#### *v. Endogeneity*

Endogeneity refers to consistency of errors where the error-term correlates with one or more of the independent variables (Wooldridge, 2002:50). Endogeneity arises as a result of omitted variables that cannot be controlled due to unavailability of data and leads to the possibility of biased estimates (Wooldridge, 2002:51). There is a possibility of errors arising from unobserved variables which are correlated with one or more of the independent variables (signalled IAE factors), resulting in endogeneity problems. Dealing with endogeneity in panel data is complicated by the GLS having two estimation models one suitable for the presence of endogeneity whilst the other is not. The Hausman test of endogeneity is “used for choosing between models in panel studies” (Sheytanova, 2014:4). The next section on multicollinearity concludes tests conducted to build a robust model.

#### *vi. Multicollinearity*

Multicollinearity occurs when “two predictor (independent) variables are strongly correlated” (Field, 2009:223). The presence of collinearity results in increased standard errors of the  $\beta$ -coefficient resulting in untrustworthy  $\beta$  values (Field, 2009:224). Also multicollinearity between two predictors makes it difficult to assess which of the two is most important in terms of effect on the outcome or the dependent variable. Multicollinearity is tested by computing the variance inflation factor (VIF) which determines the relationship between a predictor variable and other predictors (Field, 2009:224) and the Pearson correlation matrix used to identify possible multicollinearity. The next section deals with selection of a suitable estimation model for this study.

#### **4.10.3.2 Model Specification**

The regression model using “one single independent variable is called univariate regression analysis while the model employing more than one independent variable is referred to as multivariate regression analysis” (Uyanık & Güler, 2013:235). Since

this study focuses on multiple variables, a multiple regression analysis is more suitable to assess the relationship between the many variables. A multiple regression analysis is represented as follows:

$$Y = \alpha_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \dots + \beta_k X_{kit} + \epsilon_{it} \quad (1)$$

where:

- Y is the value of the response predicted to lie on the best-fit regression plane;
- $\alpha_0$  intercept defines the value of Y when both  $X_1$  and  $X_2 = 0$ ;
- $\beta_1$  represents the regression coefficient and quantifies the sensitivity of Y to change in  $X_1$ , adjusting for the effect of  $X_2$  on Y;
- Similarly,  $\beta_2$  quantifies the sensitivity of Y to change in  $X_2$ , adjusting for the effect of  $X_1$  on Y.
- $\epsilon_{it}$  represents the error-term
- i and t represents the number of observations and the time periods under consideration

This study comprises the following variables: Y = company performance proxies and X = signalled IAE factors derived from the MCA. Table 4.5 shows the independent, dependent, and control variables used in this study.

#### *i. Independent variables*

Independent variables, also called predictors variables, are those that probably cause, influence or affect outcomes (Cresswell, 2014:84) based on the research question. According to the hypothesis (*there is a positive relationship between signalled IAE factors and company performance*), IAE is posited as an influencer of company performance. Since there is no standardized proxy for IAE, the study identifies and scores IAE indicators disclosed in the IRs and other ARs that are extracted through MCA (refer to sections 5.3.2.2 & 5.3.2.3). The MCA resulted in nineteen (19) signalled IAE factors, numbered IAE1 to IAE19, used as the independent variables (refer to Table 4.6).

#### *ii. Dependent variables*

In this study, company performance was measured by ROA, ROE, MBV and Tobin's Q. ROA and ROE are accounting-based performance measures that indicate "how

efficiently the total assets of a company are utilised to generate turnover” (Alsemgeest *et al.*, 2014:75). ROA “indicates the return generated on the total assets used by the company” (Alsemgeest *et al.*, 2014:76). It measures how well management utilizes the company assets to generate turnover and is used as a performance measure for management (Alsemgeest *et al.*, 2014:76). The calculation of ROA includes how all assets of the organisation, those resulting from equity and debt, are utilized to generate profits and is therefore more appropriate as an internal measure of the efficient use of assets over time. Management is particularly interested in the ROA as it allows them to monitor efficiency of business units or divisions.

In this study ROA is used as a measure of management efficiency in running the operations of an organisation. Generally, higher ROA indicates management efficiency in running the operations of the organisation (Wolmarans *et al.*, 2018). However, a high ROA in relation to the industry with no extraordinary efficiencies within the company may be an indication of under-investment in assets. Internal auditing as an internal governance mechanism seeks to improve operational efficiency by evaluating management’s control, governance and risk processes.

ROE is an accounting measure of profitability used to measure how well shareholders fared during the year (Ross *et al.*, 1995). It is regarded as the true bottom line of the organisation by investors (Ross *et al.*, 1995:62). This is because ROE measures how well the equity was used by the organisation to generate profits. ROE measures management efficient use of equity (Ross *et al.*, 1995:62). ROE is of interest to both equity analysts and investors. Analysts use ROE to predict future performance of a company, while investors are interested in management efficiency in handling their investment and the possible return on their investments (wallstreetmojo, 2020). In the process of investment decision-making, investors compare the ROE of various companies and as a general rule the higher the ROE the more profitable the investment is for the investors. Management generally would like ROE to be high as it demonstrates management efficiency and is likely to attract new investments.

ROA and ROE have a long history of use as simple indicators of efficiency by both management and shareholders (Ross *et al.*, 1995:62). The iRESS, the source for financial ratios uses standardised formulas or equations for ratios. For the purposes of this study, the iRESS standardised formulas for ROA and ROE were used:

$$ROA = \frac{(\text{Profit before interest and tax} - \text{total profits of extraordinary nature})}{\text{Total assets}} * 100$$

$$ROE = \frac{(\text{Profit after taxation})}{\text{Total owners interest}} * 100$$

Market-based performance measures used are MBV and Tobin's Q. The MBV ratio, which compares the market value of the organisation's investments to their cost is the most commonly used measure of firm value (Ross *et al.*, 1995:64). The MBV ratio compares the market value of the firms' investments to their cost and is therefore an indication of whether or not value has been created for the shareholders (Ross *et al.*, 1995:65). Although based on historical price per share as reflected in the accounting book value per share, MBV is a popular market related indicator for firm value. Although it is not expected that signalled IAE factors would have much impact on this firm value indicator, MBV is expressed as:

$$MBV = \frac{\text{Market value per share}}{\text{book value per share}}$$

Tobin's Q is a ratio that compares the market value of a company to the replacement costs of its assets. Tobin's Q measures the effectiveness with which a company generates shareholders value through the deployment of its assets by expressing the market value of a company in relation to its intrinsic value (Hayes, 2019:1). For the purposes of this study the iRESS standardised equation was used:

$$\text{Tobin's Q} = \frac{(\text{Market value of equity} + \text{book debt})}{\text{assets (valued at replacement cost)}}$$

Table 4.5 provides a summary of the company performance measures used in this study and the primary stakeholders who are interested in the different measures of performance.

**Table 4.5: Dependent variables and primary stakeholders' interest**

Primary stakeholders	Accounting-based measures (indicators of management efficiency)		Market-based measures (indicators of company value)	
	ROA	ROE	MBV	Tobin's Q
Internal stakeholders (SM, AC and the board)	✓	✓		
External stakeholders (shareholders, investors)		✓	✓	✓

Source: Own compilation

Internal stakeholders such as management are interested in measures that demonstrate their efficiency in using assets (ROA) and equity (ROE) in generating shareholder wealth. Investors are generally interested in the higher ROE as an indication of a financially healthy investment (Ahsan, 2012:135). Shareholders and investors are also concerned with the value generated by company represented in this study by MBV and Tobin's Q as market-based indicators of value.

*iii. Control variables*

According to Bernerth and Aguinis (2016:229) control variables play an important role in organisational research since the inclusion or exclusion of control variables has an important bearing on substantive research conclusions. Bernerth and Aguinis (2016:229) argue that without some general understanding and expectation of how and why control variables relate to other variables in the study, it is difficult for researchers to determine what variables to include in a study. In this study, the control variables D/A and D/E were deliberately included in the model considering that some previous studies have found an association between these control variables and information disclosure by companies (Dube, 2017; Ntim, 2013; Wolmarans *et al.*, 2018).

Control variables used in the study are D/A, D/E and cash generated to total assets (CTA). The D/A and D/E ratios are solvency ratios that measure the ability of the company to cover its obligation, D/A gives the proportion of total capital that is financed by debt while D/E compares the amount of debt capital with equity. The higher the ratios the weaker the company's solvency (Alsemgeest *et al.*, 2014:83). CTA is a profitability ratio that shows how efficiently the assets are utilized to generate operating cash flow. A high ratio indicates efficiency of operations (Alsemgeest *et al.*, 2014:84). For the purposes of this study the formulas for the control variables are expressed as:

$$D/A = \text{Total debt} / \text{total assets}$$

$$D/E = \text{Total debt} / \text{total equity}$$

$$CTA = \text{Cash generated by operations} / \text{total assets.}$$

Table 4.6 details the variables used in the study.

**Table 4.6: Independent, dependent, and control variables used in this study**

	X (Independent variables)	Y (dependent variables)	Control variables
IAE1	IAF status	Return on Assets (ROA)	Cash generated by operations on total assets (CTA)
IAE2	IAF structure	Return on Equity (ROE)	Debt-to-asset ratio (D/A)
IAE3	CAE reporting lines	Tobin's Q	Debt-to-equity ratio (D/E)
IAE4	AC oversight	Market-to-book value (MBV)	
IAE5	AC support	Lagged variables (Prior year – dependent variable)	
IAE6	AC – CAE relationship		
IAE7	SM support		
IAE8	Assurance partner relationship		
IAE9	IAF competence		
IAE10	IA typical services		
IAE11	IAF work quality		
IAE12	Communication		
IAE13	Auditee compliance		
IAE14	Reliable financial statements		
IAE15	Client satisfaction		
IAE16	IAF efficiency		
IAE17	CAE position		
IAE18	IAF age		
IAE19	CPD		

Source: own compilation

Thus, the model for this study is represented by the following multivariate regression models:

$$Y_{it} = \alpha_0 + \alpha_1 Y_{it-1} + \beta_1 IAE_{1it} + \beta_2 IAE_{2it} + \dots + \beta_{19} IAE_{19it} + \beta_{20} D/A_{20it} + \beta_{21} D/E_{21it} + \beta_{22} CTA_{22it} + \epsilon_{it} \quad (2)$$

where

- Y is the value of the response predicted to lie on the best-fit regression plane;
- $\alpha_0$  intercept defines the value of Y when both  $X_1$  and  $X_2 = 0$ ;
- $\beta_1$  represents the regression coefficient and quantifies the sensitivity of Y to change in  $X_1$ , adjusting for the effect of  $X_2$  on Y;
- Similarly,  $\beta_2$  quantifies the sensitivity of Y to change in  $X_2$ , adjusting for the effect of  $X_1$  on Y.
- $\epsilon_{it}$  represents the error-term
- i and t represents the number of observations and the time periods under consideration.



Specifically to this study, company performance was assessed using ROA, ROE, MBV and Tobin's Q and the respective equations are:

$$ROA_{it} = \alpha_0 + \alpha_i ROA_{it-1} + \beta_1 IAE_{1it} + \beta_2 IAE_{2it} + \dots + \beta_{19} IAE_{19it} + \beta_{20} D/A_{20it} + \beta_{21} D/E_{21it} + \beta_{22} CTA_{22it} + \varepsilon_{it} \quad (3)$$

$$ROE_{it} = \alpha_0 + \alpha_i ROE_{it-1} + \beta_1 IAE_{1it} + \beta_2 IAE_{2it} + \dots + \beta_{19} IAE_{19it} + \beta_{20} D/A_{20it} + \beta_{21} D/E_{21it} + \beta_{22} CTA_{22it} + \varepsilon_{it} \quad (4)$$

$$MBV_{it} = \alpha_0 + \alpha_i MBV_{it-1} + \beta_1 IAE_{1it} + \beta_2 IAE_{2it} + \dots + \beta_{19} IAE_{19it} + \beta_{20} D/A_{20it} + \beta_{21} D/E_{21it} + \beta_{22} CTA_{22it} + \varepsilon_{it} \quad (5)$$

$$\text{Tobin's } Q_{it} = \alpha_0 + \alpha_i \text{Tobin's } Q_{it-1} + \beta_1 IAE_{1it} + \beta_2 IAE_{2it} + \dots + \beta_{19} IAE_{19it} + \beta_{20} D/A_{20it} + \beta_{21} D/E_{21it} + \beta_{22} CTA_{22it} + \varepsilon_{it} \quad (6)$$

where

- ROA, ROE, MBV and Tobin's Q (Y) represent company performance and replace Y in equation 2

According to Johnston, Jones and Manley (2018:1958) as well as Jones and Manley (2018:1958) it is important to consider the extent of the interrelationships between included predictor variables. A high inter-relationship is referred to as multicollinearity or degree of collinearity and can be detected using the VIF statistic. As reported in Chapter 5 (section 5.4.5.4), multicollinearity was assessed for OLS regressions on the pooled data, and there was no evidence of multicollinearity. However, since this study is based on panel data and not just pooled data, it was necessary to carry out panel data analysis.

#### 4.10.3.3 Panel data analysis

Panel data of repeated observations of companies over a period of five years was created with the aim of investigating the dynamics of change in IAE signalling patterns of JSE-listed companies. A panel data set or longitudinal data has both a cross-sectional and a time series dimension where all cross-sections are observed for a period of time (Hauser, 2018:4). Cross-sectional data allows for modelling the distinction between individuals or heterogeneity across individuals while time series allows for the observation of the individuals over a period of time. Panel data analysis has the advantage over both time series data and cross-sectional data as it allows for the study of the dynamics of change in the cross-section as well as over time. Also, panel data analysis permits the use of a "sophisticated family of regression analysis and techniques in both spatial and temporal dimensions" (Yaffee, 2005:13).

Researchers in the social and behavioural sciences are using panel data analysis more and more to study the behaviour of organisations or groups of individuals over time (Yaffee, 2005:1). Panel data analysis is gaining popularity in corporate governance studies where the behaviour on companies has been studied in relation to corporate governance (Ben Barka & Legendre, 2017; Mans-Kemp *et al.*, 2017; Ntim *et al.*, 2012; Singh, Tabassum, Darwish & Batsakis, 2018; Steyn, 2018; Tshipa, 2017; Villanueva-Villar, Rivo-López & Lago-Peñas, 2016). Hsiao (2007:3) reports four advantages of panel data analysis. First it allows for “more accurate inference of model parameters since panel data usually contains more degrees of freedom and more sample variability than cross-sectional data. Secondly, it presents a greater capacity for capturing the complexity of human behaviour than a single cross-section or time series data. Thirdly, more accurate predictions for individual outcomes can be generated by pooling the data rather than generating predictions of individual outcomes using the data on the individual in question. Fourth computation and statistical inference are simplified since panel data involves at least two dimensions: a cross-sectional dimension and a time series dimension”.

A distinction is made between balanced and unbalanced panels. Balanced panels exist where all individuals are present in all periods and unbalanced ones are those where individuals are observed a different number of times in other words, there is some missing data.

#### **4.10.3.4 Panel data estimation models**

In panel data, general unobservable or heterogeneity effects have to be accounted for (Hsiao, 2007:8). However, the impact of these unobservable variables are not of prime interest as they remain the same for each subject and the parameters of these types of effects are called nuisance parameters. Fixed and random effects models have been designed to handle such unobservable effects (Hsiao, 2007:8; Kyriazidou, 1997:1336; Wooldridge, 2002:252). In fixed effects the distribution of  $Y_{it}$  is seen as conditional on the company's individual or cross-section characteristics. For instance,

company characteristics differ significantly and therefore the y-intercept will differ from company to company; it may not differ over time. Fixed effect estimation is also called within-group estimators (Hsiao, 2007:8). In random effects, the distribution of  $Y_{it}$  is not conditional on the company's individual characteristics. The Hausman specification test is a test for endogeneity of predictor variables in regression models (Glen, 2017; Wooldridge, 2002:287). It tests the null hypothesis that there is no correlation between the unit of observation and the regressor. In the absence of correlation the random effects model is more suitable, unbiased and consistent, providing the best linear unbiased estimates (BLUE) (Sheytanova, 2014:11). If there is correlation then the random effects would produce inconsistent estimators. Table 4.7 below gives a summary of the properties of the random and fixed effects models estimators.

**Table 4.7: Properties of the random and fixed effects models estimators**

Hypothesis testing	Model	
	Random effects	Fixed effects
<b>H<sub>0</sub>: <math>Cov(\alpha_i, x_{it})=0</math></b>	Consistent Efficient	Consistent Inefficient
<b>H<sub>1</sub>: <math>Cov(\alpha_i, x_{it}) \neq 0</math> Endogeneity</b>	Inconsistent	Consistent Possibly Efficient

Source: Adapted from Sheytanova (2014:11)

In panel data analysis the Hausman specification test helps to determine whether a fixed or random effects model is the best estimator for the regression model (Glen, 2017). If the null hypothesis is accepted then the random effects is the preferred estimation model as it yields consistent and efficient results. If the null hypothesis is rejected, indicating correlation between the independent variable and the error-terms, then the fixed effects model is the best estimator for the regression model. In the study the Hausman specification test is run to determine the best estimation model to be used.

#### **4.11 CHAPTER SUMMARY**

The purpose of this chapter was to provide a detailed outline of the research methodology employed in this study and to present sufficient motivation for the choice and use of the techniques adopted. A post positivism worldview underpins this study, while it employed a quantitative research methodology. The research methodology and the empirical techniques applied were discussed. Research formalities that included obtaining ethical approval for the study were detailed. The sampling frame, target population and sample were outlined. The chapter gave an overview of the data collection process and showed steps taken to ensure reliability and validity of data. This chapter also described the data analysis in three phases: Phase 1 content analysis, phase 2 MCA and phase 3 regression analysis. After introducing content analysis using three steps of the Krippendorff (2013:35) conceptual framework, the content analysis process was described in more detail and how it was used in the study was explained. This process contributed towards the reliability and validity of the data collection process. Next, MCA as a data reduction method was introduced and its use in the study was described. Lastly, regression analysis and its assumptions was discussed. Multiple regression using the GLS was considered as a more suitable method for the study. Furthermore, since the study generated panel data, random effects and fixed effects were introduced as the two panel data estimations models. Regression models to be tested were also derived for the study. The next chapter presents the data collected from IR's and other ARs and the analysis and interpretation thereof.

## CHAPTER 5

### ANALYSIS AND INTERPRETATION OF RESULTS

#### 5.1 INTRODUCTION

The previous chapter described in detail the research methodology used in this study. In reaching the study's objective of investigating the relationship between signalled IAE factors and company performance, a multi-phased research process was followed. The three phases of the research process, addressing the study's research questions, were introduced in chapter 4. The main research question formulated in this study is:

*What is the relationship between signalled IAE factors and company performance?*

The sub-research questions can be expressed as:

*Sub-research question 1: What are the IAE indicators as portrayed in the literature?*

*Sub-research question 2: What IAE indicators are signalled in company reports?*

*Sub-research question 3: What are factors that signal IAE?*

RQ 1 and RQ 2 were addressed in the pre-phase 1 and phase 1 of the research process. IAE indicators identified in the literature (RQ 1) were used to develop an IAE signalling frame to be used in gathering data on IAE signals (pre-phase 1). Based on the content analysis of IR and other ARs, information on IAE over the five-year period (2012–2016) was extracted and subsequently IAE disclosures consisting of 54 indicators for sample companies were scored (RQ 2) (phase 1). Phase 2 entailed the reduction of the 54 IAE indicators through MCA, which resulted in 19 signalled IAE factors. In phase 3, the relationship between signalled IAE and company performance was determined through the correlation and regression analyses of the 19 IAE signalled factors and company performance indicators. The main research question was answered using hypothesis testing and using multiple regression analysis.

This chapter begins by explaining the nature of the sample used in the study. This was followed by the results of phases 1 and 2 of the research process. Using content analysis, sample companies' IAE disclosures were scored by means of a self-constructed coding frame referred to as the IAE signalling frame. The latter comprised 54 indicators. During phase 2, the 54 indicators were reduced to 19 dimensions (signalled IAE factors) by means of MCA. Section 5.4 presents the results of the regression analysis which was performed to establish the relationship between IAE signalled factors and company performance.

## **5.2 SAMPLED COMPANIES**

The population used in this study was the top 100 companies listed on the JSE as at 31 December 2016 and was purposively selected on the basis of market capitalisation. This population represented 92% of the JSE-listed companies in terms of market capitalisation (JSE, 2016a). Of the 100 companies in the population, data were collected from a sample of 89 companies that were listed and in operation for the five-year period from 2012 to 2016, resulting in panel data of 445 observations for all the companies. These represented 68% of the JSE market capitalisation and 74% of the market capitalisation of the top 100 (JSE, 2016a). Eleven companies were excluded from the sample for a number of reasons. Some companies were not listed for the full period under review, while others were unable to supply information for most of the period under investigation and therefore did not have enough data points for the panel. For instance, BID Corporation Ltd was formed after Bidvest Limited unbundled in 2016 and therefore could only supply information for one year. South32 Limited spun out of BHP Billiton on 28 May 2015 and therefore had only one year's information available and Dis-Chem Pharmacies Ltd was only listed on 18 November 2016. These companies were excluded because they did not have enough data points for the panel.

In another instance, one company, Fortress Inc. Fund Ltd, with one set of financials had two shares listed on the JSE, namely Fortress Inc. Fund Ltd A and Fortress Inc.

Fund Ltd B. Only Fund Ltd A was considered in the study, thus excluding Fund Ltd B as it belonged to the same entity. Similarly, where companies were part of a group like Mondi Ltd and Mondi plc and had shared group IA services and therefore the same IAE scores, only one company, namely Mondi plc, was considered. Other companies were excluded because their structure changed so much during the period under review that comparison was difficult. One example is that of Anheuser-Busch InBev SA NV, a new entity on the JSE, listing in 2016, which was the result of a merger between previously listed SABMiller & AB InBev in 2016. At least one company, Steinhoff International Holdings NV, was the subject of a financial reporting scandal spanning a number of years and financial information previously published could no longer be relied upon. (See Appendix 1 for a table of companies used in the study)

The cases referred to above are those where a substantial amount of information was missing or available information was inappropriate or possibly misleading. There were, however, instances where companies were included with possibly only one year's missing information. This was especially true when financial information on audit fees might not have been disclosed. This resulted in an unbalanced panel. A balanced panel is defined as one where each cross-sectional unit has the same time periods available (Wooldridge, 2002:577). The question whether a panel was balanced or unbalanced is an important consideration for this study, especially when using the panel data analysis method, as discussed later in the chapter. As mentioned earlier, 89 companies' data were collected and analysed. Frequency tables (refer to Tables 5.1 and 5.2) describe the sample profile of the study.

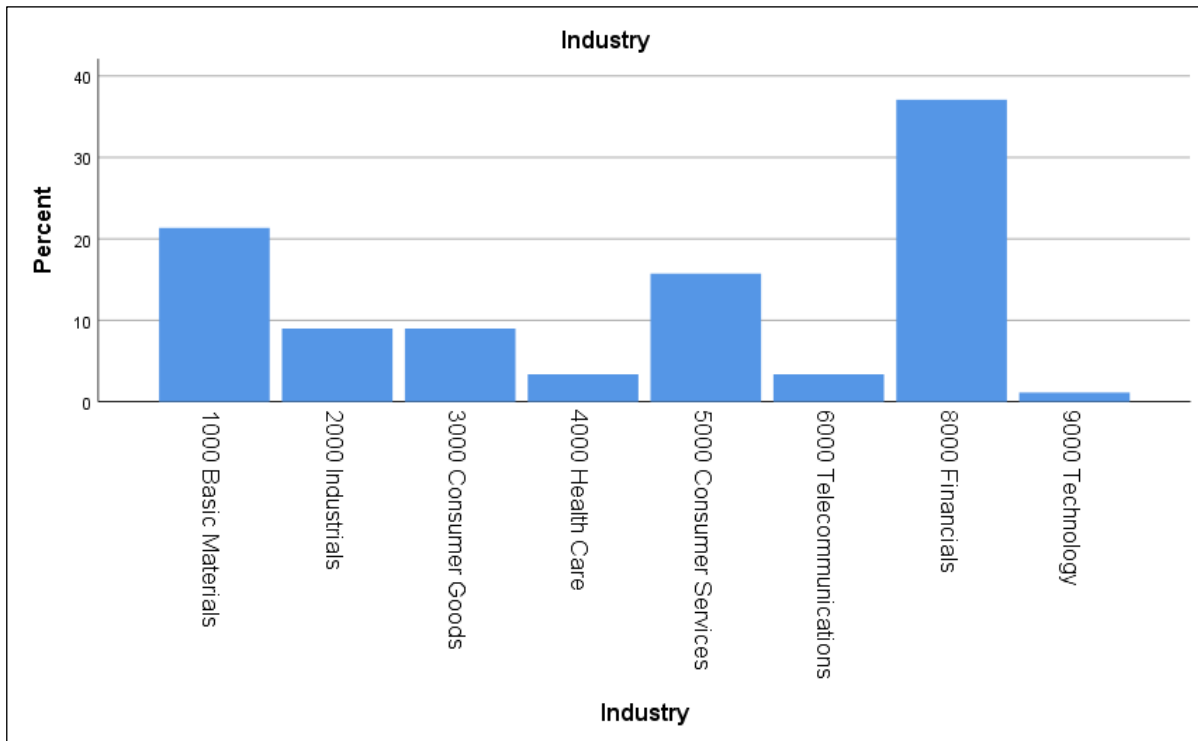
Table 5.1 presents the profile of companies used in this study according to the industry to which they belong in terms of the JSE Industry Classification Benchmark (ICB).

**Table 5.1: Sampled companies according to industries**

Sampled companies according to industries (N=89)			Top 100	
Frequency	Number of companies	Percentage	Number of companies	Sample as percentage of Top 100
Basic Materials	19	21.3%	22	86%
Industrials	8	9.0%	8	100%
Consumer Goods	8	9.0%	11	73%
Health Care	3	3.4%	4	75%
Consumer Services	14	15.7%	15	93%
Telecommunications	3	3.4%	3	100%
Financials	33	37.1%	36	92%
Technology	1	1.1%	1	100%
<b>Total</b>	<b>89</b>	<b>100.0%</b>	<b>100</b>	

Source: Own research

The information presented in Table 5.1 is depicted in Figure 5.1.



**Figure 5.1: Sampled companies according to industries (N=89)**

Source: Own research



Table 5.1 and Figure 5.1 show the industry into which the sampled companies fall. The majority of the companies were in the financial industry (n=33; 37.1%) and the basic materials industry (n=19; 21.3%) as well as in the consumer services industry (n=14; 15.7%), while the remainder consisted of industrials (n=8; 9%), consumer goods (n=8; 14.9%), health care (n=3; 3.4%), telecommunications (n=3; 3.4%) and technology (n=1; 1.1%). The industry representation of the 89 companies compares well with that of the top 100. The same industries are applicable, with a high representation ranging from 73% (consumer goods industry) to 100% (industrials, telecommunications and technology). Furthermore, the sample is represented in eight out of the ten industries classified in terms of the JSE ICB. Since this study is exploratory in nature, seeking to determine the relationship between the IAE disclosure practices (signalled IAE factors) of these companies and their performance, there was no discrimination in terms of industry or sectors in the sample selection. The main selection criterion used, as previously explained, was market capitalisation.

Table 5.2 gives a breakdown of whether sampled companies have their primary listing on the JSE or not. This information is of importance as corporate governance regimes and reporting requirements differ by country and region (Aguilera & Cuervo-Cazurra, 2009:379; Padgett, 2012:3-5) and this might have implications for the extent and quality of disclosures in the IR and other ARs. For instance, the South African corporate governance regime is lauded as being among the best in the world (Mallin, 2004; Solomon, 2013:20) and governance practices in SA have been found to have improved over time by increased incorporation of the King Code recommendations (Mans-Kemp *et al.*, 2016; Ntim *et al.*, 2012). Despite this improvement in corporate governance disclosure of South African companies, Ntim (2009:209) found that foreign companies provide better corporate governance disclosures due to the listing demands of multiple stock exchanges. Nevertheless, it was expected that, in view of the JSE regulatory requirements relating to compliance with the King Code, JSE-listed companies would be more transparent and accountable with regard to the disclosure of the effectiveness of IA as a risk-based corporate governance

mechanism specifically recommended by the King Code (IoDSA, 2009). King III specifically encouraged South African companies to report both financial and non-financial information in an IR, hence the JSE required that its listed companies produce an IR (Barkhuizen, 2015:2; Dube, 2017:20). This requirement came into effect on 1 March 2010 (Abeysekera, 2013:229). Nearly 80 percent of the companies in the sample had their primary listing on the JSE.

**Table 5.2: JSE primary listing**

JSE primary listing	Frequency	Percent
No	18	20.2%
Yes	71	79.8%
<b>Total</b>	<b>89</b>	<b>100.0%</b>

Source: Own research

In summary, the top 100 JSE-listed companies were selected as a sample for this study. Eleven companies were excluded on the basis of reasons that ranged from not being listed for the full period under review to companies that experienced substantial changes in company structure that made comparison problematic. At least one company was excluded because of financial irregularities that made previously published financial information unreliable. In total, 89 companies were retained for further study. These companies represented eight out of the ten industries trading on the JSE, and 74% of the market capitalisation of the JSE’s top 100 companies, about 80% of which had their primary listing on the JSE. The IRs and the other ARs (as explained in section 4.5.2 of chapter 4) of these companies were downloaded from the company website and content analysis was applied to them to discover disclosure information on IAE, using the IAE signalling frame as a research instrument. The results of the content analysis and MCA are discussed next.

**5.3 RESULTS OF THE STUDY- PHASE 1 AND PHASE 2**

This section discusses the results of phases 1 and 2 of the research process. Phase 1 addressed the two sub-research questions:

*Sub-research question 1: What are the IAE indicators as portrayed in the literature?*

*Sub-research question 2: What IAE indicators are signalled in company reports?*

The results of phase 1 are presented in frequencies that describe the IA disclosure scores of companies and are presented in section 5.3.1.1. The detailed discussion on descriptive statistics forms part of the presentation of the results of the study in section 5.4 for the correlation and regression analysis. Phase 2 is unpacked in section 5.3.2 to answer sub-research question 3. The next section presents the results of the content analysis and the MCA.

### **5.3.1 Phase 1 – Content analysis results**

During phase 1 of the study, a content analysis was performed on sample companies' IRs and other ARs in search of disclosure of IAE indicators as well as other relevant company financial and other descriptive information for the period 2012–2016. An IAE sampling frame linked to IAE indicators identified in the literature was created (refer to section 3.3.2 and see Appendix 2 for the IAE signalling frame). Since there is no comprehensive and standardised database on IAE disclosure, an IAE signalling frame, used as a coding frame, was developed from a content analysis of the IRs and other ARs of the sample companies for the above-mentioned period. The IAE signalling frame was derived from factors that have been identified in literature as having an impact on IAE. The following paragraphs (expanding on discussions in chapter 4 (refer to sections 4.5, 4.8 and 4.10.1) discuss how content analysis was used to identify and score IAE disclosure for each company with the guidance of the IAE signalling frame.

The content analysis of the IRs and other ARs was a long and labour-intensive process that entailed searching for and downloading IRs and other ARs on the individual company websites and saving the documents to individual company folders. The documents were individually uploaded onto Qiqqa, a programme that

allows for a key-word search of documents. In the initial phase the search involved looking for IAE indicators. Each key word was searched for in the documents and “internal audit” yielded the most information on the subject. All sentences containing the words “internal” and “audit” and the other key words were called up and analysed to determine whether they related to IAE indicators. A coding key was used to define each item on the IAE signalling frame and data were coded and scored accordingly. The scores were summarised for the five years and transferred to a consolidated spreadsheet for all companies (refer to Appendix 3). Financial information available in the IRs and other ARs (mainly AFS) was likewise coded. Financial ratios were sourced from iRESS, and also transferred to the consolidated summary sheet.

One of the early discoveries in the content analysis of IRs and other ARs was that these reports are known by different names and contain a wide range of information (Fasan & Mio, 2017:294). Some companies publish ARs and separate governance and sustainability reports while in the spirit of integrated reporting others combine these reports into IRs which then become the main report. Other companies publish both an IR and other ARs. A total of 880 documents were eventually downloaded and the analyses took nearly a year to complete. The next section presents the descriptive results of the content analysis.

#### **5.3.1.1 Content analysis: descriptive results**

The descriptive results of the content analysis are presented in frequency tables. Table 5.3 contains a breakdown of descriptive statistics of the 54 indicators obtained from the content analysis for 89 companies over five years (445 firm-year observations). However one company, Sibanye Gold Mine, began trading in 2012 and had only four years’ data available, thus firm-year observations amounted to 444. In the information presented in a table, 0 represents no-disclosure and 1 disclosure. The frequencies are presented numerically and as percentages.

**Table 5.3: Descriptive statistics of IAE indicators**

Indicators		0 = No disclosure		1 = Disclosure		Cumulative %	
		Frequency	%	Frequency	%	N	%
1	IAF profile in the organisation's structure	315	70.95%	129	29.05%	444 <sup>4</sup>	100%
2	CAE position in organisation	318	71.62%	126	28.38%	444	100%
3	CAE educational and professional qualifications, experience	417	93.92%	27	6.08%	444	100%
4	In-house IAF, co-sourced, outsourced	10	2.25%	434	97.75%	444	100%
5	IAF size	436	98.20%	8	1.80%	444	100%
6	IAF age	443	99.77%	1	0.23%	444	100%
7	CAE reports functionally to the AC	125	28.15%	319	71.85%	444	100%
8	CAE reports administratively to the CEO	287	64.64%	157	35.36%	444	100%
9	AC approves IAF charter, plan and budget	109	24.55%	335	75.45%	444	100%
10	AC appoints/dismisses the CAE	334	75.23%	110	24.77%	444	100%
11	IAF's unlimited scope	382	86.04%	62	13.96%	444	100%
12	Meetings with AC	66	14.86%	378	85.14%	444	100%
13	AC support for IAF findings and recommendations	176	39.64%	268	60.36%	444	100%
14	Private meetings with AC chairperson	186	41.89%	258	58.11%	444	100%
15	AC/SM special request for CAE	417	93.92%	27	6.08%	444	100%
16	Management implements IA recommendations	234	52.70%	210	47.30%	444	100%
17	AC/SM encourage and co-ordinate IA and EA interaction	168	37.84%	276	62.16%	444	100%
18	Budgetary status and resources	304	68.47%	140	31.53%	444	100%
19	EA and IAF cooperation	234	52.70%	210	47.30%	444	100%
20	EA relies on IA work	311	70.05%	133	29.95%	444	100%
21	Coordination with other parties	211	47.52%	233	52.48%	444	100%
22	Internal auditors' objectivity/independence	152	34.23%	292	65.77	444	100%
23	Educational, professional qualifications of internal auditors	395	88.9% <sup>6</sup>	49	11.04	444	100%
24	Work experience and expertise of internal auditors	364	81.98%	80	18.02	444	100%
25	CPD	433	97.52%	11	2.48	444	100%

<sup>4</sup> Sibanye Gold Mine began trading in 2012 and had only four years' data available, hence 444 firm-year observations.

**Table 5.3: Descriptive statistics of IAE indicators (continued)**

Indicators		0 = No disclosure		1 = Disclosure		Cumulative %	
		Frequency	%	Frequency	%	N	%
26	Assurance (strategic and operational/risk and control) services	33	7.43%	411	92.57%	444	100%
27	Consulting (strategic and operational) and IT	183	41.22%	261	58.78%	444	100%
28	Ad hoc engagements	332	74.77%	112	25.23%	444	100%
29	Compliance with the <i>Standards</i>	339	76.35%	105	23.65%	444	100%
30	Effective planning	422	95.05%	22	4.95%	444	100%
31	Risk-based audit plans	157	35.36%	287	64.64%	444	100%
32	Strategy-aligned audit activities	296	66.67%	148	33.33%	444	100%
33	Unrestricted and free access to all data, data pools and activities	373	84.01%	71	15.99%	444	100%
34	QAIP	333	75.00%	111	25.00%	444	100%
35	Performance measurement	187	42.12%	257	57.88%	444	100%
36	Use of IT tools and techniques	404	90.99%	40	9.01%	444	100%
37	Useful findings and recommendations	191	43.02%	253	56.98%	444	100%
38	IA report quality	424	95.50%	20	4.50%	444	100%
39	Adoption of CSA techniques	438	98.65%	6	1.35%	444	100%
40	Effective communication	435	97.97%	9	2.03%	444	100%
41	Reliable financial statements	2	0.45%	442	99.55%	444	100%
42	Sound financial controls	76	17.12%	368	82.88%	444	100%
43	Auditee compliance with laws and regulations	280	63.06%	164	36.94%	444	100%
44	Auditee compliance with policies and procedures	430	96.85%	14	3.15%	444	100%
45	Recommendations implemented	444	100.00%	0	0.00%	444	100%
46	Reasons for non-implementation	444	100.00%	0	0.00%	444	100%
47	Client satisfaction	347	78.15%	97	21.85%	444	100%
48	Satisfaction of stakeholder-specific expectations	442	99.55%	2	0.45%	444	100%
49	Training ground for management positions	442	99.55%	2	0.45%	444	100%
50	Reduction of EA fees	444	100.00%	0	0.00%	444	100%
51	Cost savings	440	99.10%	4	0.90%	444	100%
52	Percentage of audit plan completed	439	98.87%	5	1.13%	444	100%
53	Budget to actual audit hours	444	100.00%	0	0.00%	444	100%
54	Completion of mandated coverage	350	78.83%	94	21.17%	444	100%

Source: Own research

Table 5.3 shows that frequencies of IAE indicators varied. The indicators that scored the highest were (41) reliable financial statements (n=442; 99.55%), (4) in-house IAF, co-sourced, outsourced (n=434; 97.75%), (26) assurance services (n=411; 92.57%), (12) meetings with the AC (n=378; 85.14%) and (42) sound financial controls (n=368; 82.88%). These were followed by (9) AC approves IAF charter, plan and budget (n=335; 75.45%), (7) CAE reports functionally to the AC (n=319; 71.85%), (22) internal auditors' objectivity/independence (n=292; 65.77%), (31) risk-based audit plans (n=287; 64.64%), (17) AC/SM encourage and co-ordinate IA and EA interaction (n=276; 62.16%) and (13) AC support for IAF findings and recommendations (n=268; 60.36%).

The following indicators had a zero frequency, meaning that they did not score at all: (45) recommendations implemented, (46) reasons for non-implementation, (50) reduction of EA fees and (53) budget to actual audit hours. These indicators were later excluded in the MCA as they are constants and therefore not considered to be observations (Agresti, 2013:399). Indicators that scored very low included indicators (6) IAF Age (n=1; 0.23%), (48) satisfaction of stakeholder-specific expectations (n=2; 0.45%), (49) IAF as a training ground for management positions (n=2; 0.45%), (51) cost savings (n=4; 0.90%), (52) percentage of audit plan completed (n=5; 1.13%) and (39) IAF adoption of CSA techniques (n=6; 1.35%).

The overall disclosure percentage was calculated as the sum of actual disclosure frequency percentages for all 54 indicators, divided by the total possible disclosure percentage score (54 IAE indicators x 100%). The results show an overall disclosure percentage of 31.62%, which confirms the limited disclosure of IAE indicators by companies. This low disclosure of IAE is consistent with previous studies on the IAF. For instance, Barac and Mdzikwa (2016) analysed the content of annual reports in order to find attributes associated with the independence of the IAF and found limited disclosure thereof in the ARs. The limited disclosure regarding the IAF was attributed to the lack of legislative requirements to disclose the IA independence-related attributes in question. Similarly, Marx and Voogt (2010) found little disclosure in the company ARs on the ACs' discharge of their functions in relation to the IAF.

Signalling theory explains that management only makes voluntary disclosures if “there is a marginal benefit to be gained from reducing the information asymmetry in the market” (Abhayawansa & Abeysekera, 2009:298) and therefore the next section presents a closer inspection of the IAE indicators present and absent.

### **5.3.1.2 Closer inspection of internal audit effectiveness indicators disclosed and not disclosed**

The IAE signalling frame contained indicators which were mandatory in terms of the South African Companies Act (SA, 2008) or JSE listing requirements (JSE, 2014) and others which were not mandatory (refer to Table 2.3 in Chapter 2). The results of the content analysis were mixed but favoured indicators with mandatory disclosure. For instance, the disclosure of the reliability of financial statements follows the well-established statutory requirement of sections 30(2)(a) and 30(3)(a) of the Companies Act 71 of 2008 for an annual audit of company financial statements and the issue of the audit report by the registered auditor (SA, 2008). Similarly, directors are required to issue a declaration pertaining to the state of internal and financial controls of the company (SA, 2008:section 94(7)(f)). As expected, reliable financial statements, based on the external auditors’ unqualified report, scored the highest (99.55%), followed by sound financial controls (82.88%). Both have been identified as an outcome measure of IAE (Dittenhofer, 2001; Endaya & Hanefah, 2016). IAE indicators which were related to the JSE listing requirements also enjoyed higher disclosure.

The relationship between the JSE listing requirements and the King Code is of interest in explaining the IAE disclosure discovered in the IRs. The King Code applicable to the period under review (2012–2016) is the King III Report on Corporate Governance (hereafter referred to as King III), a predecessor to King IV, which came into effect on 1 April 2017 (IoDSA, 2016:38). Paragraph 8.63(a)(i) of the JSE listing requirements stipulates that listed companies should supply a narrative statement of compliance with King III, providing sufficient information to allow shareholders to



make an informed decision on whether principles espoused by King III have been applied by the company. In addition, paragraph 8.63(a)(ii) requires that an explanation be given in instances of non-applicability in addition to the period of non-applicability of King III (JSE, 2014:409).

While companies are required to “apply or explain” all the 75 principles of King III, paragraph 3.84(a)–(j) of the JSE listing requirements makes certain specific principles (Table 2.3) and their disclosure mandatory for companies listed on the JSE’s main board (JSE, 2014:49-51). These comprise principles on board appointment and composition (a–b), board independence (c), board subcommittees (e–f), executive financial directors (g–h), and the company secretary (i–j) (JSE, 2014:49-51). These principles include what is essentially contained in Chapter 2 of King III, which specifically deals with the board of directors (Deloitte, 2017; IoDSA, 2013; IoDSA, 2016). Consequently, the JSE assents to the recommendation of the Code that a summary of the application of the principles contained in Chapter 2 of King III should be disclosed in the IR or the AR (JSE, 2014:409).

King III advances IA as a governance mechanism and the need for its effectiveness is expressed in Principle 2.10, which states that the “board should ensure that there is an effective risk-based internal audit” (IoDSA, 2009:23). How this can be achieved is dealt with in chapter 7 on IA. Chapter 7 of King III deals with the need for and the role of IA, and the IA’s approach, plan and status in the company (IoDSA, 2009:44-46). Upon further scrutiny, the principles recommended by King III are found to be aligned to the factors that have been identified in the literature as IAE indicators (refer to chapter 3). Hence it is not surprising to see that the IAE indicators which enjoyed relatively higher frequency were linked to the King III principles and recommended practice. Some of the disclosures that are linked to King III are those that deal with Principle 2.10 IAF structure (4) in-house IAF, co-sourced, outsourced), IA process (31) risk-based audit plans), Principle 7.1 IAF role and service ((26) assurance services, (27) consulting services), Principle 7.4 and 7.5 IAF independence ((7) CAE reports functionally to the AC,(22) internal auditors’ objectivity/independence), AC oversight and support ((12) meetings with the AC, (11) scope and resources, (9) AC

approves IAF charter, plan and budget, (35) performance evaluation) and, relational factors (combined assurance) ((17) AC/SM encourage and co-ordinate IA and EA interaction, (21) IAF coordination with other parties). Refer to Appendix 5 for mapping of relevant King III recommended practice and IAE disclosure results.

Some IAE measurement (outcome and output) related indicators did not score at all and others scored very low. These included (45) recommendations implemented, (46) reasons for non-implementation, (50) reduction of EA fees and (53) budget to actual audit hours, which had a zero score. While this information is of importance to IA internal stakeholders, management and the AC, who have a vested interest in the value derived from the IA, such information is not disclosed to external stakeholders of the company. Similarly, (6) IAF Age, (48) satisfaction of stakeholder-specific expectations, (49) IAF as a training ground for management positions, (39) IAF adoption of CSA techniques, (51) cost savings, and (52) percentage of audit plan completed were rarely disclosed. IAE indicators that are connected to outside governance indicators are better disclosed as they involve external stakeholders. But internal IAE indicators are not signalled as the internal stakeholders already have knowledge of the position and therefore no marginal benefit is expected from disclosing internal indicators of IAE (Abhayawansa & Abeysekera, 2009:298). Be that as it may, the poor disclosure of these IAE indicators is a missed opportunity for the companies that could have used voluntary disclosure to signal their superiority (Campbell *et al.*, 2001:72).

### **5.3.1.3 Content analysis results summary**

In summary, in order to address the second sub-research question, on IAE indicators reported on by companies, a content analysis of the IRs and ARs was conducted with the aid of the self-constructed IAE signalling frame. In the first phase a database of IAE indicators as reported in the IRs and other ARs was compiled using content analysis. The purpose was to compile a database of the reporting of IAE indicators in sample companies over the period 2012–2016. Fifty-four indicators scored using the IAE signalling frame were consolidated per company, per year, in rows and 54

columns were created to represent the results of IAE indicators. Dichotomous frequencies were used to describe IAE disclosure scores. The results revealed that the IAE indicators frequently disclosed were those related to mandatory disclosure requirements under the Companies Act and/or the JSE listing requirements while indicators other voluntary IAE indicators, especially those with more relevance to internal parties than outsiders, were poorly disclosed. Signalling theory could explain such a tendency. Companies could consider the marginal benefit to be gained from voluntary disclosure of these IAE indicators, as the effect of such disclosure on information asymmetry in the market appears questionable.

The relationship between King III principles and recommended practice was of interest as the JSE listing requirements mandate the application of the King Code. It is important to remember that the King Code is a voluntary code and is based on the principle of “apply or explain”. Because disclosure is voluntary, management still has some leeway regarding the content they disclose. Appendix 5 maps principles and recommended practice relevant to IAE that were fairly well disclosed by the sampled companies. Again, the indicators that enjoyed high disclosure could be linked to communication of good governance aimed at external stakeholders as opposed to internal stakeholders, who are already aware of the position of the IAF and its effectiveness. Four indicators had a zero frequency. Since the study sought to determine the relationship between signalled IAE factors and company performance, 50 out of the 54 IAE indicators were subjected to MCA, a reduction technique, in order to elicit factors of IAE based on the current data. The results of the MCA are presented in the next section.

### **5.3.2 Phase 2 – Multiple Correspondence Analysis results**

#### **5.3.2.1 Introducing Multiple Correspondence Analysis**

MCA is a dimension reduction technique suitable for the analysis of multivariate tables of categorical variables (Greenacre, 1984:3; McGillivray *et al.*, 2008:80). MCA is similar to “the decomposition of a bivariate correlation matrix in Principal Component Analysis” or Factor Analysis (Sourial *et al.*, 2010:7). It was used in this

study to reduce 50<sup>5</sup> IAE indicators under consideration by consolidating the indicators into key variables or dimensions that better identify response categories which are related (Sourial *et al.*, 2010:2). The variables in this study, 1 for disclosure and 0 for no disclosure, are categorical, as is appropriate for MCA. MCA has the added advantage of representing a multi-way frequency table or matrix in a low-dimensional space or graphical format, which is easier to visualise and interpret (Fithian & Josse, 2017:87). Further, the graphical depiction allows for a more comprehensive understanding of the relationship between rows and columns that would be revealed in a pair-wise analysis of the multi-way table (Sourial *et al.*, 2010:10).

Core to the aim of finding out whether the set of variables can be reduced is the variance accounted for by the dimensions. The first step in interpreting MCA results is to determine whether rows and columns are significantly dependent. This is achieved by “examining the eigenvalue report” (Bendixen, 2003:7). The “eigenvalues represent the relative relevance or contribution of each dimension to total inertia” (Rodriguez-Sabate *et al.*, 2017:8). Eigenvalues correspond to the amount of information retained by each axis and therefore signify the relative importance of a dimension (Sourial *et al.*, 2010:4). As a general rule, eigenvalues over 0.2 or 20% indicate significant dependency (Bendixen, 2003:7; Costa *et al.*, 2013:4). Therefore, the eigenvalue of 0.2 is used as a benchmark for retaining a dimension. Generally speaking, MCA highlights dimensions that show the most significant interactions and as a result the highest eigenvalues are included in the first dimension and dimensions with eigenvalues of 0.05 and below are excluded (Rodriguez-Sabate *et al.*, 2017:7). Eigenvalues for the dimensions identified in this study are all above 0.2, which indicates significant relationships (refer to section 5.3.2.3).

The second step consists in determining the appropriate number of dimensions using accumulated inertia (Rodriguez-Sabate *et al.*, 2017:7). Inertia accounts for the variance explained by the dimensions (Bendixen, 2003). Relative inertia “represents

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<sup>5</sup> The four indicators that scored zero are considered to be constant variables and were therefore excluded for the purposes of MCA (Doey & Kurta, 2011). Consequently only 50 indicators were subjected to MCA.

the inertia of each variable in each dimension normalised between 0 and 1”, while cumulative or total inertia is the inertia of each dimension added to succeeding ones, totalling 1 (Rodriguez-Sabate *et al.*, 2017:10). It is inertia that assists in determining how well a dimension explains the movement or variance in the data (Husson & Josse, 2014:166). The dimensions are ranked in descending order in terms of the eigenvalues where the largest contributor is named Dimension 1 and the next Dimension 2 and so on, down to the smallest contributor at the bottom of the table (Rodriguez-Sabate *et al.*, 2017:7). Since the aim of MCA is data reduction, inertia helps to determine which dimensions retain most of the information on a lower dimensional space and therefore should be retained (Bendixen, 2003:8; Rodriguez-Sabate *et al.*, 2017).

Furthermore, insights into the relationships within a dimension can be determined by examining the bi-plots of the dimensions. The “further away from the origin the response is along the dimension, the greater its importance on that dimension” (Sourial *et al.*, 2010:4). Thus, the location of the response provides insight into firstly which dimension the response falls into and secondly which indicators in the dimension are grouped or load together (Sourial *et al.*, 2010:4). A number of considerations are taken into account in defining the number of dimensions to retain. Higgs (1991:186) suggests that at least 70% of the variation is explained by the dimension. Various studies have employed a combination of measures in addition to the cumulative inertia to determine whether to retain a dimension or not. These include a scree-test (Costa *et al.*, 2013; Rodriguez-Sabate *et al.*, 2017; Sourial *et al.*, 2010), eigenvalues above 20% (Costa *et al.*, 2013; Rodriguez-Sabate *et al.*, 2017; Sourial *et al.*, 2010), Cronbach’s alpha score (Costa *et al.*, 2013), and two-dimensional data representations (Costa *et al.*, 2013; Fithian & Josse, 2017; Higgs, 1991; Rodriguez-Sabate *et al.*, 2017; Sourial *et al.*, 2010).

In this study, dimensions were retained based on eigenvalues above 0.2 and cumulative inertia explained by the indicators in the dimension. Higgs (1991) suggests a value of 70% for variance explained for marketing-related research. This is considered appropriate where actual responses to perceptual questions were

obtained from respondents. Since this study presents patterns of IAE disclosure based on a content analysis of IRs and other ARs and not actual responses from respondents, a lower threshold was considered. Furthermore, there is no established rule regarding the number of dimensions to be retained but it is generally recommended that a two-dimensional picture of the data be retained in order to facilitate and allow for interpretation of data (Costa *et al.*, 2013:4). Therefore, all dimensions with eigenvalues above 0.2 that explained about 40% and more of the variation in the data in a category (cumulative inertia was about 40% and above) were retained. (See detailed discussion on the extraction of dimensions in section 5.3.2.3 below)

Phase I resulted in a self-constructed IAE signalling frame which can be used in future IAE disclosure research and as an IAE disclosure guide for those who wish to evaluate IAE. In addition, the application of the IAE signalling frame to score companies' IRs and other ARs resulted in a multi-way table representing the study's initial database.

### **5.3.2.2 Content analysis as a basis for Multiple Correspondence Analysis**

The result of phase 1 of the research process (section 5.3.1) was a multi-way table (matrix) presenting sampled companies and 54 indicators scored as 1 or 0. Based on the literature, the 54 indicators representing IAE can be grouped into four categories or eleven sub-categories (refer to Appendix 2) with the latter subjected to MCA dimension reduction. As previously noted, four indicators, namely (45) recommendations implemented, (46) reasons for non-implementation, (50) reduction of EA fees and (53) budget to actual audit hours, were constant variables with a zero disclosure and were excluded. This resulted in 50 indicators being subjected to MCA. Table 5.4 presents a summary of the results. The first column presents the four categories of IAE deduced from the literature on IAE indicators and the second column presents these in eleven sub-categories. The next column gives the 54 indicators used in content analysis. Then the dimensions (one, two or even three) extracted from the MCA are presented with the loading for each item in the dimension.

The final column gives the cumulative inertia or amount of variance explained by dimensions in the sub-category.

**Table 5.4: Results per category of IAE signalling frame and indicators**

Category	Sub-category	IAE sampling frame indicators	Dimension 1 Loading	Dimension 2 Loading	Dimension 3 Loading	Cumulative Inertia (Variance explained)
<b>(1) Organisational</b>	1. IAF status in the organisation	1. IAF profile in the organisation's structure 2. The CAE position in organisation 3. CAE educational and professional qualifications/experience	0.636	0.474 0.502		76.66%
	2. IAF structure	4. In-sourced, out-sourced or co-sourced 5. IAF size 6. IAF age	0.483 0.535	0.801		67.47%
	3. IAF independence	7. CAE reports functionally to the AC 8. CAE reports administratively to the CEO 9. The AC appoints and dismisses the CAE 10. IAF's unlimited scope 11. The AC approves the IAF charter, plan and budget	0.576 0.491 0.349	0.464 0.269		56.02%

Source: Own research



**Table 5.4: Results per category of IAE signalling frame and indicators (continued)**

Category	Sub-category	IAE sampling frame indicators	Dimension 1 Loading	Dimension 2 Loading	Dimension 3 Loading	Cumulative Inertia (Variance explained)
<b>(1) Relational</b>	4. AC support	12. Meetings with AC	0.572			64.48%
		13. Private meetings with AC chairperson		0.396		
		14. AC/SM special request for CAE		0.545		
	5. SM support	15. AC support for IAF findings and recommendations	0.537			46.37%
		16. Management implements IA recommendations	0.442			
		17. AC/SM encourage and coordinate IA-EA interaction	0.320			
6. IAF support to others	18. Budgetary status and resources	0.629			68.67%	
	19. EA and IAF cooperation	0.736				
	20. EA reliance on IAF	0.741				
		21. IAF coordination with others	0.583			

Source: Own research

**Table 5.4: Results per category of IAE signalling frame and indicators (continued)**

Category	Sub-category	IAE sampling frame indicators	Dimension 1 Loading	Dimension 2 Loading	Dimension 3 Loading	Cumulative Inertia (Variance explained)
<b>(1) IA Processes</b>	7. IAF competence	22. Internal auditors' objectivity/independence 23. Educational and professional qualifications of internal auditors 24. Work experience and expertise of internal auditors 25. CPD	0.304 0.629 0.688	0.777		67.76%
	8. IAF services and role	26. Assurance strategic and operational risk and control 27. Consulting strategic and operational and IT 28. Ad hoc engagements	0.455 0.639 0.429			50.75%
	9. IAF work quality	29. Compliance with <i>Standards</i> 30. Effective planning 31. Risk-based audit plans 32. Strategy-aligned audit activities 33. Unrestricted, free access to all data, data pools and activities 34. Adoption of CSA techniques 35. QAIP 36. Performance evaluation 37. Effective communication 38. Use of IT tools and techniques 39. Useful findings and recommendations 40. IA report quality	0.534 0.179 0.285 0.270 0.290  0.538 0.311  0.284 0.226 0.174	0.599      0.473		39.28%

Source: Own research

**Table 5.4: Results per category of IAE signalling frame and indicators (continued)**

Category	Sub-category	IAE sampling frame indicators	Dimension 1 Loading	Dimension 2 Loading	Dimension 3 Loading	Cumulative Inertia (Variance explained)
<b>(1) IAE measurement</b>	10. IAF outcome measures	41. Reliable financial statements 42. Sound financial controls 43. Auditee compliance with laws and regulations 44. Auditee compliance with policies and procedures 47. Client satisfaction 48. Satisfaction of stakeholder-specific expectation 49. Training ground for management positions 51. Cost savings	0.336 0.515 0.180	0.404 0.366	0.506 0.083 0.284	44.41%
	11. IAF output measures	52. Percentage of audit plan completed 54. Completion of mandated coverage	0.600 0.606			60.30%
	Eliminated indicators, all scored 0.	45. Recommendations implemented 46. Reasons for non-implementation 50. Reduction of EA fees 53. Budget to actual audit hours				

Source: Own research

The details on how the dimensions were extracted are discussed in the following section (section 5.3.2.3). From Table 5.4 it is clear that four categories (numbers 5, 6, 8 and 11) were confirmed to be unidimensional as only one dimension was extracted. For six categories (numbers 1, 2, 3, 4, 7 and 9), two dimensions were extracted and for sub-category ten (10) three dimensions were extracted. Thus the 50 indicators were reduced to 19 dimensions. Each of the dimensions was given a label describing what was being measured, linked to the indicators associated with that dimension. In total, 19 dimensions or signalled IAE factors were identified and retained. The following is a description and discussion of the results of the dimension reduction of the eleven sub-categories.

### **5.3.2.3 Extraction of dimensions – detailed information**

#### *i. Internal audit function status in the organisation*

The indicators examined in the sub-category organisational status of the IAF are the IAF profile in the organisational structure, the CAE position in the organisation and CAE educational and professional qualifications/experience. The indicators were tested for homogeneity and the results (refer to Table 5.5) show that the indicators fall into two dimensions.

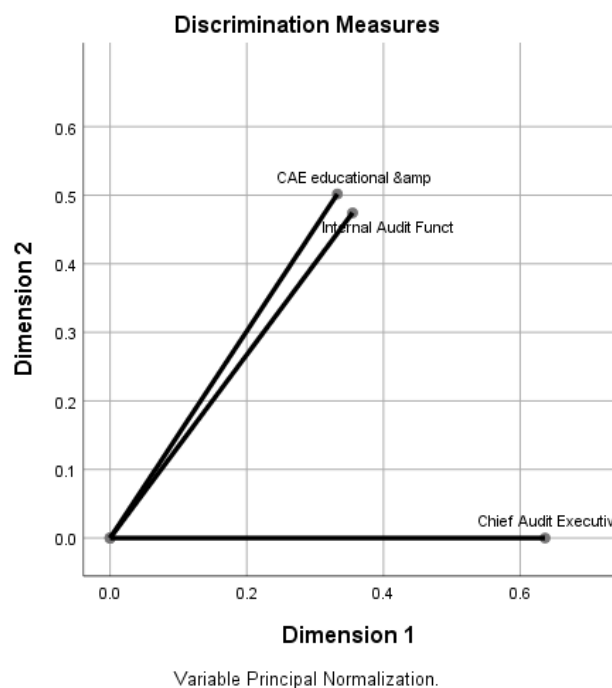
Table 5.5 shows that two dimensions were identified from the extraction. The first related to the IAF profile (its reporting lines) (0.474) and qualifications of the CAE (0.502), while the second comprised the CAE's position in the organisation (0.636). The two extracted dimensions related to this sub-category explained 76.66% of the data. Dimension 1, labelled CAE position, comprises a single item, namely CAE position (0.636), while dimension 2, termed IAF status, comprises two indicators, namely IAF profile and CAE educational and professional qualifications/experience. Table 5.5 presents detailed information on the extracted dimensions

**Table 5.5: IAF status**

IAF status	Dimension		Mean
	1	2	
IAF profile		.474	.415
CAE position	.636		.318
CAE educational and professional qualifications/experience		.502	.417
Eigenvalue	1.324	.976	1.150
Inertia	.441	.325	
% of variance	44.125	32.534	38.329

Source: Own research

The indicators examined in the sub-category IAF organisational status are the IAF profile in the organisational structure, the CAE position in the organisation and CAE educational and professional qualifications/experience. Noteworthy is the item CAE position in the organisation which, while having the largest loading in dimension 1, made no contribution in dimension 2. This suggests that the disclosure of the CAE position lies in a different dimension from that of the other indicators. This is further illustrated in the chart below:



**Figure 5.2: IAF status**

Source: Own research

The data and the chart indicate that the CAE educational and professional qualifications/experience and the IAF profile are closely grouped together while CAE position lies at the furthest point, suggesting that it is not related to the other two. Hence, CAE position should be treated as a single variable in further analysis and a new variable constructed that represents the other two indicators belonging to the second dimension. These dimensions are termed IAF profile and CAE position. These results indicate that the disclosure of CAE educational and professional qualifications/experience and the IAF profile is independent of the CAE position. The IAF profile dimension (reporting lines and CAE qualification and experience) has been identified in the literature as a driver of IAE. For example, Coetzee and Erasmus (2017) found that the CAE leadership defined in terms of competence (educational and professional qualifications and IIA membership) and administrative reporting line is an important driver of IAE.

While the CAE position has been identified as an important factor in ensuring the independence of the IAF (Soh & Martinov-Bennie, 2011), based on the content analysis (refer to Table 5.3, frequency 28%) most sample companies did not disclose where the CAE position fits into their organisational structure. This study found that sampled companies generally disclosed that the CAE reports functionally to the AC and administratively to the CEO or the chief financial officer (CFO), which for the purposes of this study was dealt with as IAF independence (refer to section 5.3.2.3 (iii)). This suggests that the CAE position, although important in determining the independence of the IAF, was not frequently disclosed, and that instead companies followed the normative dictates of disclosing the CAE's reporting lines.

## *ii. Internal audit function structure*

The IAF size, age and the question whether it is in-sourced, out-sourced or co-sourced are the subject of the next analysis. It is generally argued that in-house IAFs add more value as they have the advantage of knowledge of and insight into the organisation, its processes and controls which out-sourced IAFs do not necessarily have, and are therefore preferred by management (Erasmus & Coetzee, 2009). An In-house IAF may, however, suffer from a lack of capacity in terms of competence in specialised

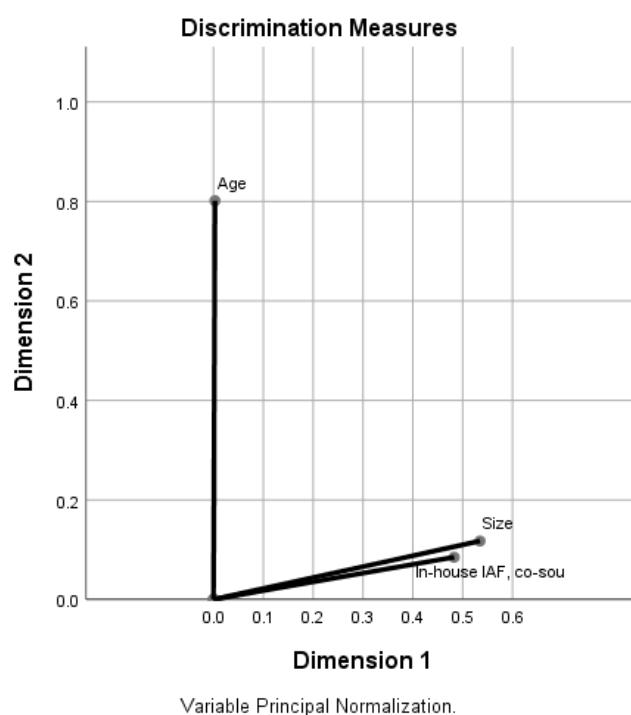
areas like IT, as well as budgetary limitation (Soh & Martinov-Bennie, 2011). Past research has found that the older and bigger the IAF, the more capacity and expertise it has, which is reflected in its competence (Sarens & Abdolmohammadi, 2007; Zain *et al.*, 2006).

As reflected in Table 5.6, two dimensions were extracted. The first related to the sourcing particulars of the IAF and its size, while the second concerned its age. The two extracted dimensions related to this sub-category, explains 67.5% of the variance in the data. Dimension 1, referred to as IAF structure, consist of two indicators, the IAF size (0.535) and the question whether IAF is in-house, out-sourced or co-sourced (0.483), while the IAF's age (0.801) (labelled IAF age) represents a different dimension. Table 5.6 presents detailed information on the extracted dimensions and these are shown in Figure 5.3.

**Table 5.6: IAF structure**

IAF structure	Dimension		Mean
	1	2	
In-house IAF co-sourced/out-sourced	.483		.284
Size	.535		.326
Age		.801	.402
Eigenvalue	1.021	1.004	1.012
Inertia	.340	.335	.337
% of variance	34.017	33.453	33.735

Source: Own research



**Figure 5.3: IAF structure**

Source: Own research

Figure 5.3 shows that age falls into a different dimension from the other two indicators. Therefore, IAF age is retained as a dimension of IAE while the other two indicators are consolidated into a new variable called IAF structure. Both these dimensions are retained. The IAF size has been identified as impacting on IAE (Alzeban & Gwilliam, 2014). The size and age of the IAF have traditionally been used by external auditors as one of the factors in their evaluation of the quality of the IAF (Arena & Azzone, 2009; Zain, Zaman & Mohamed, 2015) in that the longer the IAF has been in place the more confidence external auditors have in its ability to execute its functions.

*iii. Internal audit function independence*

Next the IAF's independence was analysed. The indicators examined were whether the CAE reports functionally to the AC, whether the CAE reports administratively to the CEO, whether the AC appoints or dismisses the CAE, and whether the AC approves the IAF charter, plan and budget and the IAF's unlimited scope.

The results shown in Table 5.7 identify two dimensions, dimension 1 and dimension 2, that explain 56.0% of the variance in this sub-category. Dimension 1 contains the



indicators CAE reporting functionally to the AC, CAE reporting administratively to the CEO and AC approval of the IAF charter, plan and budget. This dimension is called CAE reporting lines. Dimension 2, known as AC oversight, has AC appoints or dismisses CAE and the IAF’s unlimited scope as indicators.

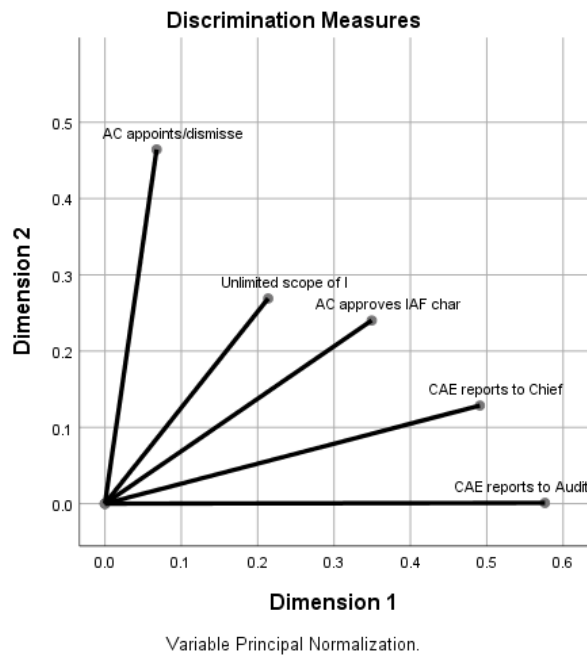
The discrimination measures are presented in Table 5.7 and Figure 5.4 below:

**Table 5.7: IAF independence**

IAF independence	Dimension		Mean
	1	2	
CAE reports to AC functionally	.576		.289
CAE reports to CEO administratively	.491		.310
AC appoints/dismisses the CAE		.464	.266
Unlimited scope of IAF		.269	.241
AC approves IAF charter plan and budget	.349		.295
Eigenvalue	1.698	1.103	1.400
Inertia	.340	.221	.280
% of variance	33.957	22.062	28.010

Source: Own research

Table 5.7 details the loadings for each dimension. CAE reports to AC functionally and CAE reports to CEO administratively score high at 0.576 and 0.491 respectively in dimension 1, followed by AC approves IAF charter plan and budget at 0.349. CAE reporting lines have been advocated as important indicators of IAF independence, a necessary factor in IAE (Al-Twaijry *et al.*, 2004; Soh & Martinov-Bennie, 2011; Tušek & Pokrovac, 2012). IAE is resource dependent (Ramanchandran *et al.*, 2012) and therefore the approval of the IAF charter, plan and budget by the AC helps to ensure that necessary resources will be available to allow the IAF to fulfil its mandate. In dimension 2, referred to as AC oversight, AC appoints/dismisses the CAE (0.464) contributes more to defining the dimension than unlimited scope of the IAF (0.269). The scope of the IAF’s work could also be governed by the charter.



**Figure 5.4: IAF independence**

Source: Own research

Figure 5.4 graphically illustrates that the indicators that make up the sub-category IAF independence fall into two dimensions. Indicators relating to CAE reporting lines are close together while indicators associated with AC oversight, i.e. AC appoints or dismisses the CAE and unlimited scope of IAF, are further apart from CAE reporting lines. Both dimensions are retained for further analysis.

*iv. Audit committee support*

The relationship between the IAF and the AC was examined next. This sub-category consists of the support given to findings or recommendations of the IAF by the AC, the number of meetings with the AC, private meetings with the AC chairperson and special requests by the AC for the CAE/IAF. The four indicators were tested for homogeneity and the results are shown in Table 5.8 below.

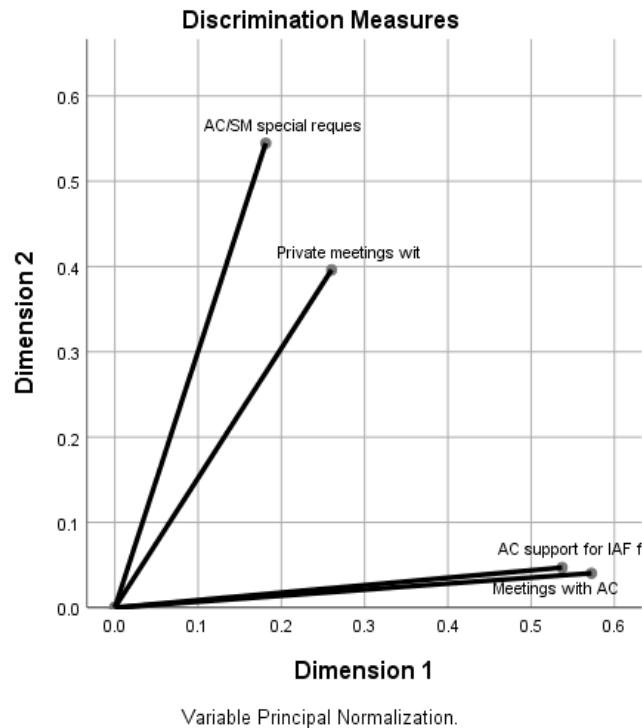
**Table 5.8: AC relations**

AC relations	Dimension		Mean
	1	2	
Meetings with AC	.572		.306
Private meetings with AC chairperson		.396	.328
AC/SM special requests for CAE		.545	.363
AC support for IAF findings and recommendations	.537		.292
Eigenvalue	1.551	1.028	1.290
Inertia	.388	.257	.322
% of Variance	38.780	25.700	32.240

Source: Own research

The indicators fall into two dimensions which contain most of the variance at 64.5%. Dimension 1, known as AC support, is represented by the disclosure of the number of AC meetings that the IAF attends and the AC support for IAF findings and recommendations and these indicators explain 38.8% of the data. Dimension 2, called AC chair-CAE relations, consists of private meetings with the AC chairperson and special requests for IAF/CAE, which indicators explain 25.7% of the variance in the data. Table 5.8 and Figure 5.5 detail the discrimination measures for indicators in the two dimensions.

Meetings with AC (0.572) and AC support for IAF findings and recommendations (0.537) have relatively high loadings on dimension 1 while private meetings with AC chairperson (0.396) contribute less to defining dimension 2 than the item AC/SM special request for CAE (0.545). This suggests that meetings with AC and AC support for IAF findings and recommendations fall into one dimension and private meetings with AC chairperson and AC/SM special request for CAE are associated with another. This is clearly illustrated in Figure 5.5, where meetings with AC and AC support for IAF findings and recommendations are closely grouped together and are further away from private meetings with AC chairperson and AC/SM special request for CAE.



**Figure 5.5: AC relations**

Source: Own research

AC support is retained as a factor. This is in line with previous studies, which showed how important implementing recommendations is for IAE (Endaya & Hanefah, 2016; Van Gansberghe, 2005b). Other studies found that IAE is influenced by the frequency of the meetings between the AC and the CAE (Alzeban & Sawan, 2015). The number of meetings that the IAF attend may be the result of their functional reporting responsibilities. Dimension 2, comprising the indicators private meetings with AC chairperson and AC/SM special request for CAE, is referred to as AC chair-CAE relations. The strength of the relationship between the CAE and the AC has been found to influence IAF activity (Sarens & De Beelde, 2006b; Soh & Martinov-Bennie, 2011). Furthermore, Zaman and Sarens (2013) found a positive relationship between informal meetings between the CAE and the AC chair to be positively related to IA quality, an aspect of IAE that confirms the importance of the role of the AC chair.

*v. Senior management support*

The sub-category SM support includes the indicators management implements IA recommendations, AC or SM encourage and coordinate internal and external auditor

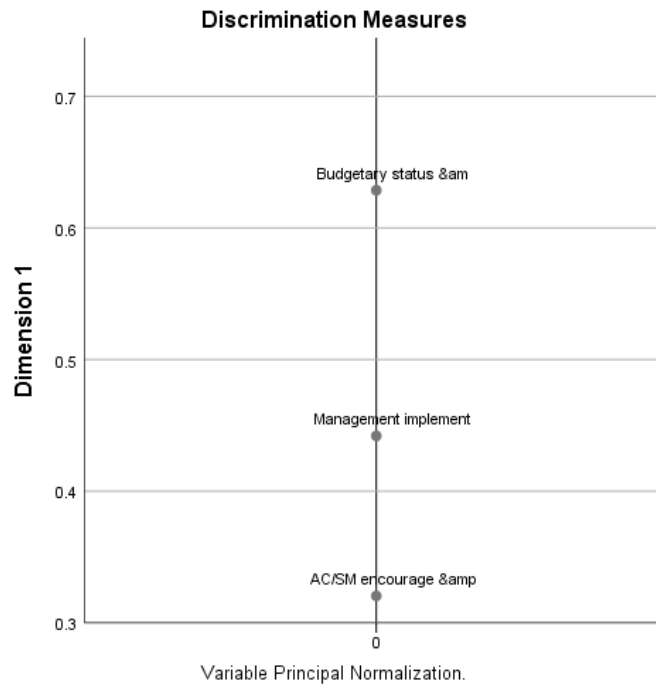
interaction and budgetary status and resources. Like AC support discussed above, SM implementation of IAF recommendations is included as an item that indicates support for the IAF. Whereas the item AC support was concerned with the support for recommendations made by the IAF, this item is concerned with whether management implements the recommendations and thereby closes the loop. These indicators were tested for homogeneity and the results are shown in Table 5.9.

According to Table 5.9, a single dimension has been identified which explains 46.4% of the variance in this sub-category.

**Table 5.9: SM support**

SM support	Dimension	Mean
	1	
Management implements IA recommendations	.442	.442
AC/SM encourage and coordinate IA-EA interaction	.320	.320
Budgetary status and resources	.629	.629
Eigenvalue	1.391	1.391
Inertia	.464	.464
% of variance	46.368	46.368

Source: Own research



**Figure 5.6: SM support**

Source: Own research

Figure 5.6 shows that all indicators under SM support are grouped along a single dimension. This is in line with previous research, which identified SM support as one of the most important factors impacting IAE (Endaya & Hanefah, 2016; Lenz & Hahn, 2015; Mihret & Yismaw, 2007; Sarens & De Beelde, 2006a). The higher value of the item budgetary status and resources (0.629) shows that it contributes most to the definition of this dimension. Access to resources which are under the control of SM is essential to the performance of the IAF since without this it would not be possible for the IAF to function effectively (Alzeban & Gwilliam, 2014; Cohen & Sayag, 2010; Endaya & Hanefah, 2016). SM support is retained as a dimension.

*vi. Internal audit function support to others*

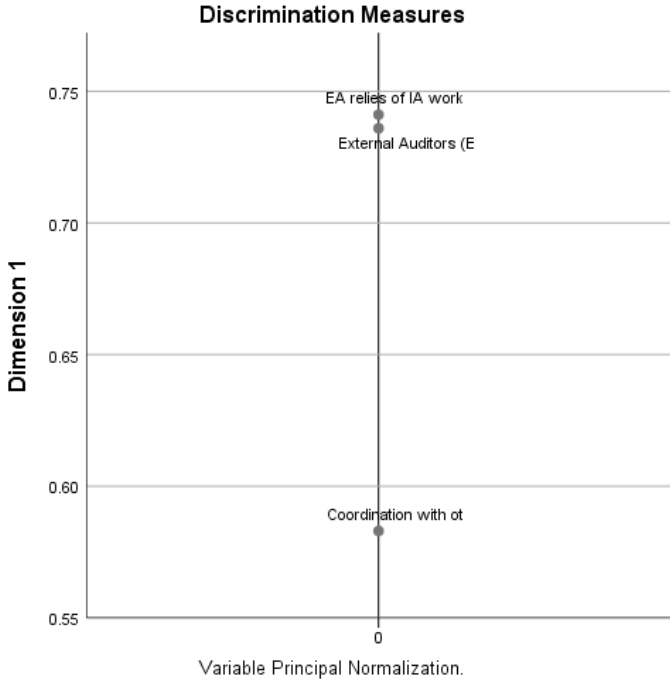
Indicators relating to the relationship between the IAF and other assurance providers servicing the organisation was examined next. This is represented by EA and IAF coordination, EA reliance on IAF and IAF coordination with other assurance providers who are part of the combined assurance model. The three indicators were tested for homogeneity and the results are shown in Table 5.10 below.

These indicators fall into a single dimension which explains 68.7% of the variance. This suggests that the indicators IAF coordination, EA reliance on IAF and IAF coordination with others assurance providers can be considered as a single dimension.

**Table 5.10: Assurance partner relations**

Assurance partner relations	Dimension	Mean
	1	
EA and IAF cooperation	.736	.736
EA reliance on IAF	.741	.741
IAF coordination with others	.583	.583
Eigenvalue	2.060	2.060
Inertia	.687	.687
% of variance	68.669	68.669

Source: Own research



**Figure 5.7: Assurance partner relations**

Source: Own research

According to Table 5.10 and Figure 5.7, the discrimination measures are high (0.741, 0.736 & 0.583), indicating a high degree of discrimination between the indicators of the variable along the dimension. This is in line with previous research, which found that IAE is impacted by frequency of meetings with external auditors, cooperation in audits

and the sharing of information (Abuazza, 2012; Alzeban & Gwilliam, 2014; Cohen & Sayag, 2010; Endaya & Hanefah, 2016; Soh & Martinov-Bennie, 2011). Thus, assurance partner relations are retained as a dimension.

vii. *Internal audit function competence*

IAF competence is considered to be one of the important determinants of IAE (Endaya & Hanefah, 2016:164). This sub-category is made up of internal auditors’ objectivity or independence, educational and professional qualifications, work experience and expertise and CPD. The model summary below identifies two dimensions that explain 67.8% of the variance in the data. In dimension 1, termed IAF competence, educational and professional qualifications (0.629), work experience and expertise (0.688) score relatively high, with moderate scores for internal auditors’ objectivity or independence (0.304), indicating that the latter contributes less to the definition of this dimension. The item CPD, with a high discrimination of 0.777, falls into dimension 2. This is an interesting revelation. While CPD, measured by the average number of hours spent on training (Bota-Avram & Palfi, 2009), is advocated as a necessary aspect of IAF competence (Al-Twaijry *et al.*, 2003; Alzeban & Gwilliam, 2014), this is probably the first time it has been confirmed as a significant factor in IAE. With the rapid change in governance of the work environment, the risk management arena (Mihret *et al.*, 2010; Spira & Page, 2003) and the evolving nature of IA (refer to chapter 3) demand life-long learning (which entails CPD) as a key attribute of IAE (Endaya & Hanefah, 2016:164).

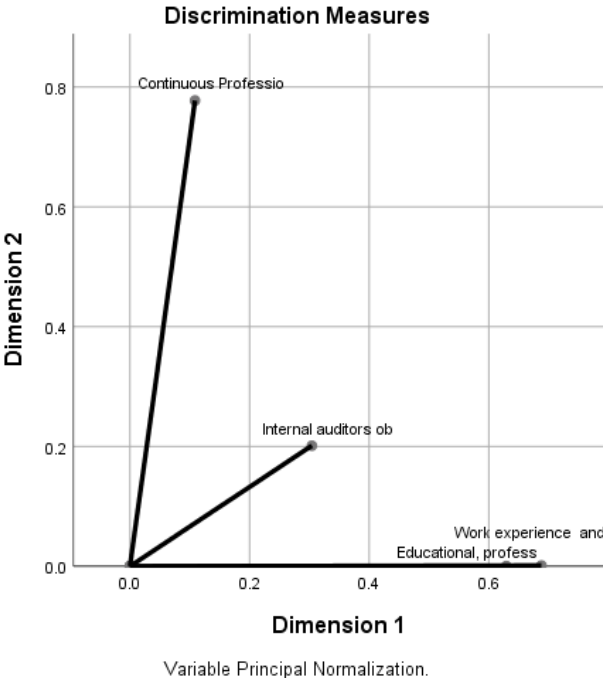
**Table 5.11: IAF competence**

IAF competence	Dimension		Mean
	1	2	
Internal auditors’ objectivity/independence	.304		.253
Educational and professional qualifications of internal auditors	.629		.315
Work experience and expertise of internal auditors	.688		.345
CPD		.777	.443
Eigenvalue	1.730	.980	1.355
Inertia	.433	.245	.339
% of variance	43.250	24.509	33.880

Source: Own research



The results are aligned to the findings of previous studies, which concluded that IA staff quality or IAF competence was a contributor to IAE (Alzeban & Gwilliam, 2014; Badara & Saidin, 2014; Coetzee & Erasmus, 2017; Endaya & Hanefah, 2016; Ramanchandran *et al.*, 2012). While various elements of IAF competence, such as internal auditors' objectivity or independence, educational and professional qualifications, work experience and expertise, are perceived in the literature as key IAE indicators and are sometimes disclosed, the participation of the internal auditors in CPD as an IAE factor has not received the same attention. This could suggest a lack of investment by companies in the IAF's CPD, confirming the findings of the study by Al-Twaijry *et al.* (2003), which associated poor IA performance with lack of investment in IAF competence and capacity. Alternatively, it could be assumed that all qualified internal auditors are required to engage in CPD and therefore the fact might not be emphasised.



**Figure 5.8: IAF competence**  
 Source: Own research

Figure 5.8 is a graphical depiction of the positions of the indicators in the two dimensions. IA objectivity/independence is closer to educational and professional qualifications, work experience and expertise than it is to CPD. While educational and professional qualifications, work experience and expertise can be objectively

measured, individual IA staff objectivity is a subjective determination (Coetzee & Erasmus, 2017:4). This could possibly account for IA objectivity/independence being reported to a lesser extent, as shown by the loading of 0.304. Both dimensions, IAF competence and CPD, are retained.

*viii. Internal audit function services and role*

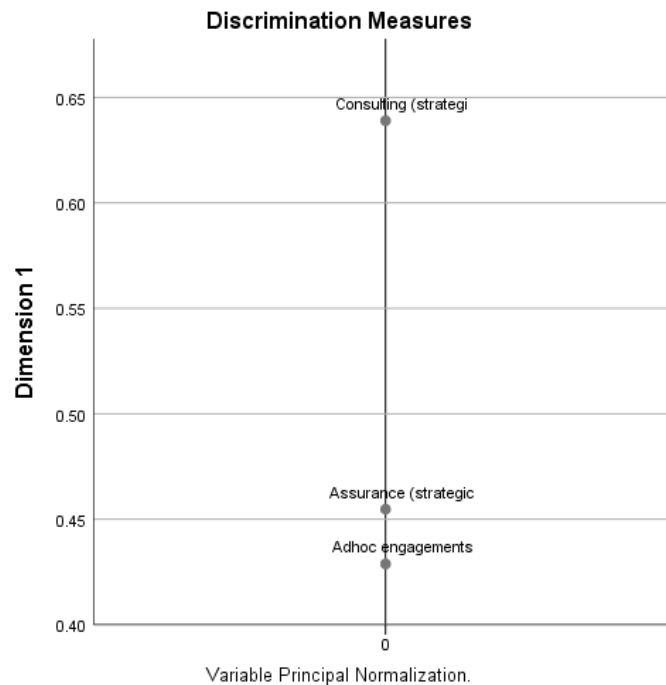
This sub-category, IA typical services, represents the services and role commonly ascribed to the IAF and includes assurance services, consulting services and ad hoc services. The services and roles of the IAF are clearly outlined in the IPPF of the IIA. This framework indicates that the IAF engages in assurance and consulting services in the areas of control, risk management and governance (IIA, 2016d). Ad hoc services represent those unplanned engagements where the IAF is requested to provide either assurance or consulting services on environmental, sustainability and other issues. It is argued that the value provided by the IAF can be seen from the services that are demanded of the IAF (Arena, Arnaboldi & Azzone, 2006). The model summary in Table 5.12 shows that this dimension accounts for 50.75% of the variance in the data.

A careful analysis of the discrimination measures set out in Table 5.12 shows moderate values for all indicators under IA typical services; assurance services (0.455), consulting services (0.639) and ad hoc services (0.429). Consulting services rank the highest in this dimension, indicating that the participation of the IAF in consulting services contributes most to the definition of this dimension. This should be seen in the context of the complexity of the business environment that companies find themselves in and their need to assure stakeholders that they take counsel from their IAF. While assurance on controls, governance and risk dominates activities performed by IA (IIARF, 2015:7-8), their perceived effectiveness results in their being viewed by management as business partners, worthy of consultation (Shahimi *et al.*, 2016). Consulting engagements therefore relate largely to the value proposition of the IAF, “to be a trusted adviser”.

**Table 5.12: IA typical services**

IA typical services	Dimension	Mean
	1	
Assurance strategic and operational risk and control	.455	.455
Consulting strategic and operational and IT	.639	.639
Ad hoc engagements	.429	.429
Eigenvalue	1.523	1.523
Inertia	.508	.508
% of variance	50.751	50.751

Source: Own research



**Figure 5.9: IA typical services**

Source: Own research

Figure 5.9 demonstrates the unidimensionality of assurance services, consulting services and ad hoc services in the sub-category IAF services. The results confirm the disclosure of typical services provided by an effective IAF. This dimension is retained in further analysis.

*ix. Internal audit function work quality*

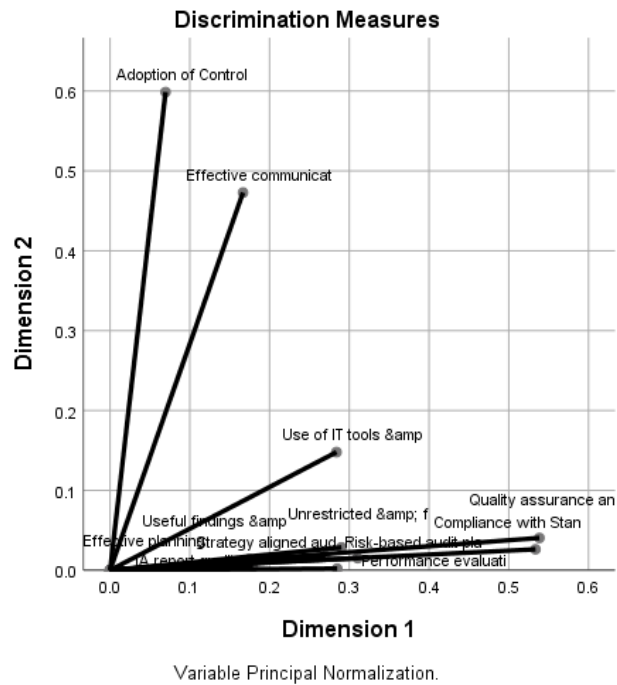
IAF work quality contains indicators relating to the quality of the work performed by the IAF as well as the processes followed. The indicators include compliance with the IIA

*Standards*, effective planning, performing risk-based audits, strategy-aligned activities, unrestricted access to all data pools and activities, adoption of control self-assessment (CSA) techniques, quality assurance and improvement programme (QAIP), performance evaluation, effective communication, use of IT tools and techniques, useful findings and recommendations and the IA report quality. Table 5.13 identifies two dimensions explaining 39.3% of the variance in this sub-category.

Table 5.13 shows dimension 1 with the indicators compliance with *Standards* (0.534), QAIP (0.538) to have relatively high discrimination measures, while for dimension 2 adoption of CSA (0.599) and effective communication (0.473) have relatively high discrimination measures. Whilst CSA assesses the IAF’s risk management and control processes, such a self-assessment can only be effective in an organisation where management fosters a culture of open communication (Murdock, 2019). These indicators all contribute to the definition of the two dimensions. Both dimensions are retained; they are referred to as IAF work quality and communication (conducive for self-assessment), respectively.

**Table 5.13: IAF work quality**

IAF work quality	Dimension		Mean
	1	2	
Compliance with <i>Standards</i>	.534		.280
Effective planning	.179		.092
Risk-based audit plans	.285		.143
Strategy-aligned audit activities	.270		.144
Unrestricted, free access to all data, data pools and activities	.290		.159
Adoption of CSA techniques		.599	.334
QAIP	.538		.289
Performance evaluation	.311		.163
Effective communication		.473	.320
Use of IT tools and techniques	.284		.216
Useful findings and recommendations	.226		.122
IA report quality	.174		.094
Eigenvalue	3.327	1.387	2.357
Inertia	.277	.116	.196
% of variance	27.724	11.559	19.641



**Figure 5.10: IAF work quality**  
Source: Own research

Figure 5.10 shows that the indicators in this sub-category fall into two dimensions, with IAF compliance with the *Standards* and the IAF QAIP as the most disclosed, while adoption of CSA and effective communication are least disclosed. Effective communication by the IAF was highlighted by previous studies as a factor in advancing IAE (Endaya & Hanefah, 2016; Mihret & Yismaw, 2007). In this study, however, effective communication could not be directly observed as the IA reports were not disclosed in the IRs, unlike in the case of Mihret and Yismaw (2007), where a sample of IA reports was obtained from the companies and was evaluated in terms of quality. Nevertheless, effective communication is deemed necessary for the IAF’s actual and perceived effectiveness. Both dimensions, IAF work quality and communication, are retained.

x. *Internal audit function outcome measures*

In this sub-category IAF outcome measures were analysed. These are reliable financial statements, sound financial controls, auditee compliance with laws and regulations, auditee compliance with policies and procedures, client satisfaction, satisfaction of stakeholder-specific expectations, training ground for management

positions and cost savings. Three dimensions were detected. Table 5.14 shows that dimensions 1, 2 and 3 account for 44.4% of the variance in the data.

**Table 5.14: IAF outcome measures**

IAF outcome measures	Dimension			Mean
	1	2	3	
Reliable financial statements		.404		.169
Sound financial controls		.366		.185
Auditee compliance with laws and regulations	.336			.128
Auditee compliance with policies and procedures	.515			.192
Client satisfaction			.506	.184
Satisfaction of stakeholder-specific expectation			.083	.048
Training ground for management positions	.180			.143
Cost savings			.284	.135
Eigenvalue	1.354	1.130	1.068	1.184
Inertia	.169	.141	.134	.148
% of variance	16.925	14.130	13.350	14.802

Source: Own research

The major contributors in terms of discrimination in dimension 1 are auditee compliance with laws and regulations (0.366) and auditee compliance with policies and procedures (0.515). This dimension is called auditee compliance, with auditee compliance with policies and procedures contributing most to the definition of the dimension. Compliance with laws and regulations and compliance with company policies and procedures are at the heart of the internal control systems set up by management (COSO, 2013). Internal auditors are mostly concerned with evaluation and the provision of assurance respecting the effectiveness of internal controls on the one hand and compliance with laws, contracts and regulations on the other. Their effectiveness can be judged on the basis of auditee compliance (Dittenhofer, 2001:448; Endaya & Hanefah, 2016:168). Therefore, assurance provided by the IAF must carry weight with both internal and external stakeholders and the disclosure of auditee compliance with laws and regulations and its own policies and procedures signals good corporate governance. Auditee compliance is retained as a dimension.

Dimension 2, which consists of reliable financial statements (0.404) and sound financial controls (0.366), is termed reliable financial reporting. One of the other objectives of internal control is to produce reliable financial information (COSO, 2013). Similarly, disclosure to the effect that the IAF provides assurance on financial controls and that no financial malfeasance has been found and reported by the external auditors is a good indicator of an effective IAF (Dittenhofer, 2001:447-448). Dimension 3, termed client satisfaction, consists of the indicators client satisfaction (0.506) (contributing most to the definition of the dimension) and cost savings (0.284).

Client satisfaction is an outward-facing performance measure used by the IAF to assess the value attached to the IAF activities by others; it is also linked to the fulfilment of specific expectations set by and agreed to with key stakeholders (IIARF, 2015:10). Client satisfaction is measured by survey instruments designed to measure the auditee perception of the IAF performance and this feedback is given at the end of an engagement (Bota-Avram & Palfi, 2009:787). The CBOK (2015) reveals that the most commonly used outward-facing performance measures are satisfaction surveys of auditees (50%) and key stakeholders (28%) (IIARF 2015:11). This is an increase from the 9% recorded in the CBOK (2010) (IIARF 2015:11). According to Feizizadeh (2012:2778), using the BSC would provide a comprehensive measure of IAF performance as it includes both qualitative and quantitative measures. Since these documents are in the custody of the IAF, client satisfaction was mainly disclosed as the absence of complaints levelled against the IAF function by stakeholders and there was rarely disclosure of the results of the IA client/auditee satisfaction surveys.

IAF outcome measures, i.e. auditee compliance, reliable financial reporting and client satisfaction fall into three dimensions. All three dimensions were retained for further analysis.

*xi. Internal audit function output measures*

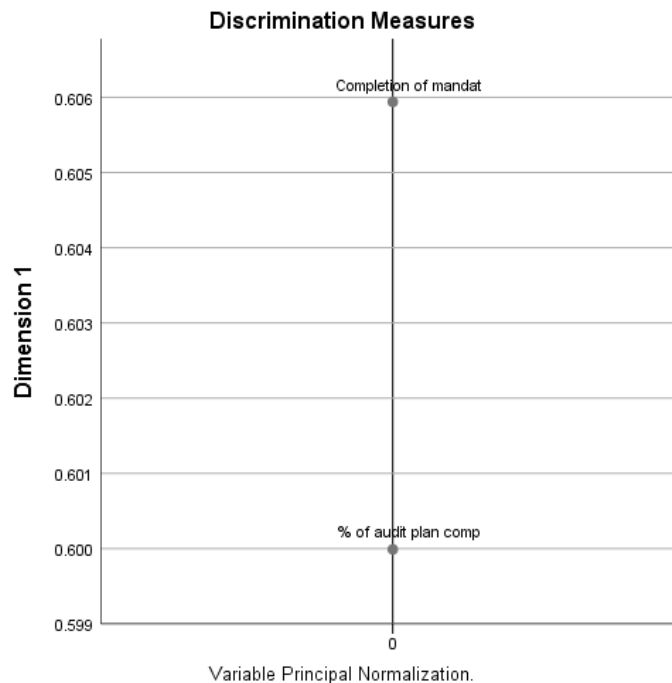
IAF efficiency is an output measure of the IAF's performance. It is made up of the percentage of work completed and completion of mandated coverage. The results show that these indicators fall into one dimension, explaining 60.30% of the variance.

**Table 5.15: IAF efficiency**

IAF efficiency	Dimension	Mean
	1	
Percentage of audit plan completed	.600	.600
Completion of mandated coverage	.606	.606
Eigenvalue	1.206	1.206
Inertia	.603	.603
% of variance	60.296	60.296

Source: Own research

As mentioned earlier, large discrimination measures denote a high degree of discrimination between the categories of a variable along that dimension. Percentage of audit plan completed and completion of mandated coverage loadings in this dimension stand at 0.600 and 0.606 respectively. The high loadings on each item also affirm them as contributors to the dimension impacting on IAE. The percentage of work completed compared to the audit plan is the most commonly used measure of IAF productivity or efficiency (Bota-Avram & Palfi, 2009:785; IIARF, 2015:19). According to IIARF (2015:19), completion of mandated coverage has been found to be one of the top three measures used by the IAF to measure its efficiency.



**Figure 5.11: IAF efficiency**

Source: Own research



Figure 5.12 depicts indicators in this sub-category as unidimensional. This is in line with previous studies that used completion of work as a measure of IAE (Bota-Avram & Palfi, 2009; Endaya & Hanefah, 2016; IIARF, 2015). IAF efficiency has therefore been retained.

**5.3.2.4 Multiple Correspondence Analysis summary**

Data on IAE were collected from 89 companies through content analysis based on a self-constructed IAE signalling frame containing 54 indicators. Data collected on the 54 indicators were initially grouped into 11 sub-categories. The latter were subjected to MCA, a data reduction method for categorical data whose aim is to elicit those factors that signal IAE. Table 5.4 provides a summary of the results of the MCA. Using mainly the eigenvalues, MCA reduced the 54 indicators (categorised into 11 sub-categories according to the literature) to 19 dimensions (refer to table 5.16) which were retained as signalled IAE factors. The inertia explaining the variance in the dimensions ranged from 39.28% to 76.66%, which was considered satisfactory for purposes of dimension reduction (Costa *et al.*, 2013).

**Table 5.16: Retained dimensions**

	Sub-category	Dimensions retained
<b>1 ORGANISATIONAL</b>	1 IAF status in the organisation	1 IAF status 2 CAE position
	2 IAF structure	3 IAF structure 4 IAF age
	3 IAF independence	5 CAE reporting lines 6 AC oversight
<b>2 RELATIONAL</b>	4 AC support	7 AC support 8 AC Chair-CAE relations
	5 SM support	9 SM support
	6 IAF support to others	10 Assurance partner relations
<b>3 IA PROCESSES</b>	7 IAF competence	11 IAF competence 12 CPD
	8 IAF services and role	13 IA typical services
	9 IAF work quality	14 IAF work quality 15 Communication
<b>4 IAE MEASUREMENT</b>	10 IAF outcome measures	16 Auditee compliance 17 Reliable financial reporting 18 Client satisfaction
	11 IAF output measures	19 IAF efficiency

Source: Own compilation

Table 5.16 shows the 19 retained dimensions represent all categories and sub-categories which were identified from the literature. Appendix 4 shows detail on how the 54 IAE indicators organised into four categories were grouped into 11 sub-categories and reduced to 19 signalled IAE factors. The latter were retained and used in the regression analysis as independent factors in assessing the relationship between signalled IAE factors and company performance. The next section presents the results and interpretation of the correlation and regression analysis.

## **5.4 RESULTS OF THE STUDY - PHASE 3: CORRELATION AND REGRESSION ANALYSIS RESULTS**

This section tests the hypothesis relating to the relationship between signalled IAE factors and company performance where ROA, ROE, MBV, Tobin's Q are used as proxies for performance of JSE-listed companies. The empirical findings presented in this chapter shed light to the understanding of the relationship between signalled IAE factors derived from MCA and company performance. First, section 5.4.1 presents the descriptive statistics of the dependent, independent and control variables used in this study followed by the discussion on the correlation analysis in section 5.4.2. Next, section 5.4.3 provides testing of the regression analysis assumptions and the selection of the estimation model is discussed in section 5.4.4. Section 5.4.5 presents the OLS regression results. The panel regression analysis results are presented in section 5.4.6. The last section concludes the chapter.

### **5.4.1 Descriptive statistics**

Descriptive statistics refers to organising and summarising data in order to make data more understandable paving a way for further analysis (Mouton, 2012:165). The techniques used for describing data differ depending on the nature of data. For instance, nominal or ordinal data allow for frequencies and percentages while interval level data permit more sophisticated statistical analysis like measures of central tendency (Mouton, 2012:166). Furthermore, descriptive statistics can be applied to one (univariate), two (bivariate) or more (multivariate) variables. Frequency tables were used to describe the outcome of the content analysis and is shown in section 5.3.1. This section presents the measures of central tendency (mean and median), standard

deviation, and statistics relating to the shape of the distribution (skewness and kurtosis) of the data.

The mode, median and mean are three measures used to describe the centre of a distribution from different perspectives. The mode describes the centre as the “score that occurs most frequently in a data set” (Field, 2009:21). The median “assigns the middle score when scores are ranked in magnitude as the centre” and the mean calculates the average of the scores (Field, 2009:21-22). The median is used to describe the centre of the data in this study for the reason that, unlike the mean, the median is not influenced by extreme scores (Field, 2009:21). Standard deviation is the average deviation from the mean and it is a measure of how well the mean represents the data (Field, 2009:37-38). A deviation of zero indicates that the mean and the data are the same. Small standard deviation values indicate that the observed data are close to the mean value while large values indicate a large distance between the observed data and the mean. Large average standard deviations indicate that the mean is a poor fit for describing central tendency (Field, 2009).

The shape of the distribution is ascertained from the skewness and kurtosis statistic (Pallant, 2010:58). A normal distribution characterised by a bell shape is symmetrical and the skewness statistics is zero. Distributions can be negatively skewed (to the right) or positively skewed (to the left) (Field, 2009). Kurtosis refers to the “peakedness” of the distribution (Pallant, 2010:58) or the degree to which scores cluster at the ends of the distribution (Field, 2009). The skewness and kurtosis values for a normal distribution should be zero and a tolerance of between  $\pm 1.96$  for skewness and  $\pm 3.29$  is acceptable (Field, 2009:138; Haniffa & Hudaib, 2006).

Table 5.17 presents the descriptive statistics of dependent, independent and control variables used in the study for the pooled data for all the years (2012–2016). While all statistics are presented the shape of the distribution, its skewness and kurtosis, is discussed in detail. Note that the statistics are presented, using the different classes of variables from dependent to independent and control variables.

**Table 5.17: Descriptive statistics of dependent, independent and control variables**

Signalled IAE factors (independent variable)	Mean	Median	Std. Dev.	Skewness	Kurtosis	Maximum	Minimum	Observations
AC Chair-CAE relation	0.641892	1	0.550109	0.073511	2.181473	2	0	444
AC oversight	0.387387	0	0.560895	1.10418	3.221021	2	0	444
AC support	1.454955	2	0.695193	-0.88804	2.531517	2	0	444
Assurance partner relations	1.297297	1	1.206413	0.287374	1.526334	3	0	444
Auditee compliance	0.400901	0	0.547186	0.936118	2.821316	2	0	444
CAE position	0.283784	0	0.451342	0.959185	1.920036	1	0	444
Client satisfaction	0.236486	0	0.425404	1.240285	2.538306	1	0	444
Communication	0.033784	0	0.215082	7.019664	55.69663	2	0	444
CPD	0.024775	0	0.155613	6.114658	38.38904	1	0	444
IAF age	0.002252	0	0.047458	21.00005	442.0023	1	0	444
IAF competence	0.948198	1	0.870651	0.798679	3.102287	3	0	444
IAF efficiency	0.222973	0	0.442968	1.714211	4.887033	2	0	444
IAF work quality	2.959459	3	2.218977	0.733715	3.086178	10	0	444
IAF status	0.351351	0	0.5187	1.054353	2.983079	2	0	444
IAF structure	0.995495	1	0.201523	-0.48511	24.64495	2	0	444
IA typical services	1.765766	2	0.86523	-0.178807	2.298912	3	0	444
Reliable financial statements	1.824324	2	0.392645	-1.926288	5.394431	2	0	444
CAE reporting line	1.826577	2	0.980218	-0.410871	2.154153	3	0	444
SM support	1.40991	1	0.982231	0.095002	1.996199	3	0	444
<b>Company performance (dependent variables)</b>								
PYROA	11.14281	8.435	14.05797	1.886245	9.374067	92.89	-27.28	440
ROA	10.21398	7.79	13.21441	1.726488	8.245904	78.42	-27.28	443
PYROE	14.71725	15.52	36.82219	-9.446786	122.7665	107.64	-483.65	440
ROE	14.53682	14.88	41.59578	-4.077819	99.88529	441.52	-483.65	443
PYMBV	5.075961	2.45	12.27781	13.90011	245.7402	227.08	-13.01	439
MBV	5.373702	2.48	12.39598	13.37576	233.6463	227.08	-13.01	442
PYTOBINSQ	1.807387	1.25	1.598837	2.683563	13.6265	11.96	0	444
TOBIN'sQ	1.797387	1.21	1.628676	2.653656	13.18536	11.96	0.1	444
<b>Control variables</b>								
D/A	0.453456	0.46	1.911575	-7.289413	136.6484	10.96	-28.62	443
D/E	2.594377	0.86	14.81039	16.30714	318.5748	288.97	-64.1	443
CTA	12.39938	9.621805	16.06763	9.7095	150.7584	270.0397	-5.10229	444

Source: Own research

Table 5.17 presents the descriptive statistics for all variables used in this study. These include the signalled IAE factors (independent variables), the performance variables (dependent variables) and the control variables. The number of observations range between 439 and 444, indicating that there are some missing data points. As mentioned earlier the data forms an unbalanced panel as some data were not available for all the years (refer to section 5.3.1.1).

The results indicate that the data are not normally distributed. This is ascertained from the results of the skewness and kurtosis of all variables. The skewness and kurtosis values for a normal distribution should be zero; a tolerance of between  $\pm 1.96$  for skewness and  $\pm 3.29$  is acceptable (Field, 2009:138; Haniffa & Hudaib, 2006). Notably the independent variable called IAF age falls considerably out of the normal ranges for skewness (21.000) and kurtosis (442.002), followed by communication skewness (7.020) and kurtosis (55.697), CPD skewness (6.115) and kurtosis (38.389) and lastly, IAF structure with a kurtosis (24.645). A similar pattern for skewness and kurtosis is noted for the dependent and control variables. According to Pallant (2010:57), perfectly normal distributions are not a common occurrence in social science research. Normality of the distribution especially for the residuals is one of the assumptions for regression analysis. The central limit theory as a remedy for non-normal distributions is discussed in section 5.4.5.2.

#### **5.4.2 Correlation analysis assumptions**

Correlation analysis is a measure of “the linear relationship between two variables” (Pallant, 2010:123). The correlation coefficient denoted by  $r$  is a measure of the strength of association between two variables (Field, 2009:783). The correlation coefficient ranges between -1 and 1 where -1 and 1 represent perfect negative and positive correlation respectively and zero no correlation (Pallant, 2010:123). The results of the correlation analysis are interpreted using the guidelines of Pallant (2010:134): weak where “ $r = 0.10$  to  $0.29$ ”, moderate where “ $r = 0.30$  to  $0.49$ ” and strong where “ $r = 0.50$  to  $1.0$ ”. Table 5.18 presents the results of correlations between the dependent, independent and control variables used in the study as well as the VIF collinearity test. The correlation matrix can be used to identify possible collinearity

problems between the dependent and the independent variable which can be confirmed by the VIF collinearity test (Field, 2009:224).

**Table 5.18: The correlation matrix for dependent, independent and control variables**

	RoA	RoE	MBV	Tobin's Q	AC chair-CAE relation	AC oversight	AC support	Assurance partner relations	Auditee compliance	CAE position	CPD	Communication	Client satisfaction	IAF work quality	IA typical services	IAF competence	IAF age	IAF status	IAF structure	IAF efficiency	Reliable financial statements	CAE reporting line	SM support	D/A	D/E	CTA	Collinearity Tolerance	Collinearity VIF
RoA	1																											
RoE	.339**	1																										
MBV	-0.008	-.514**	1																									
Tobin's Q	.735**	.173	.125**	1																								
AC chair-CAE relation	.114	0.005	0.086	0.087	1																						0.630	1.588
AC oversight	0.055	-0.047	0.047	0.074	.129**	1																					0.780	1.282
AC support	-.100*	-0.076	0.013	-.122*	.279**	.126**	1																				0.601	1.663
Assurance partner relations	-.199**	-0.033	0.066	-.155**	.334**	0.066	.331**	1																			0.549	1.823
Auditee compliance	-.130**	-0.048	.127**	-0.026	-0.062	.206**	0.042	0.062	1																		0.787	1.271
CAE position	-0.050	-0.060	-0.033	-.165**	.110*	.207**	.113*	.131**	-0.060	1																	0.691	1.447
CPD	-0.017	.147**	-0.036	-0.046	0.051	0.019	0.021	-0.027	0.016	.125**	1																0.918	1.089
Communication	-0.043	-0.040	-0.016	-0.062	.141**	0.060	.123**	.153**	-0.039	.180**	-0.025	1															0.862	1.160
Client satisfaction	0.084	0.025	-0.086	0.076	0.093	0.079	.147**	.144**	-0.030	.096**	-0.055	.159**	1														0.882	1.133
IAF work quality	-.114*	-0.028	0.007	-.101*	.417**	.372**	.455**	.483**	.153**	.410**	.140**	.258**	.209**	1													0.290	3.445
IA typical services	0.009	0.063	-0.016	0.000	.421**	.141**	.459**	.255**	.113*	.321**	.177**	0.018	.157**	.510**	1												0.510	1.961
IAF competence	-.144**	-0.132	0.074	-.122*	.418**	.240**	.367**	.414**	0.091	.250**	.126**	.166**	.149**	.694**	.379**	1											0.455	2.200
IAF age	-0.013	0.009	-0.007	-0.020	0.031	-0.033	0.037	0.067	-0.035	-0.030	-0.008	-0.007	-0.026	0.001	0.013	0.003	1										0.976	1.024
IAF status	-0.042	-.130**	0.064	-.106*	.133**	.160**	.175**	0.038	-.147**	.296**	0.088	0.015	-0.040	.214**	.244**	.215**	0.059	1									0.782	1.279
IAF structure	0.052	0.015	0.016	0.074	.169**	.115**	.111**	.108**	0.016	.163**	0.004	0.004	-0.014	.136**	.240**	0.076	0.001	.123**	1								0.886	1.129
IAF efficiency	-0.015	0.056	0.010	-0.051	0.069	0.042	.190**	.281**	.236**	0.078	0.018	0.016	.115**	.243**	0.084	.135**	0.083	-0.037	0.037	1							0.784	1.276
Reliable financial statements	-0.018	0.073	0.001	0.059	.293**	.115**	0.087**	.311**	0.087	0.040	0.071	0.070	0.060	.357**	0.078	.224**	0.021	0.027	.218**	.187**	1						0.699	1.430
CAE Reporting line	-0.003	-0.015	0.014	0.045	.387**	.221**	.467**	.336**	-0.017	.214**	.102**	.135**	.158**	.523**	.439**	.487**	0.008	.280**	.167**	.188**	.255**	1					0.510	1.961
SM support	-0.091	-.095**	.114**	-.104*	.460**	.150**	.497**	.585**	0.051	.144**	0.007	.116**	.162**	.530**	.384**	.526**	0.029	.164**	.135**	.132**	.345**	.578**	1				0.403	2.480
Debt-Asset ratio	-0.005	0.014	0.039	0.041	0.014	0.009	0.024	0.065	-0.003	0.020	0.010	-0.004	0.022	0.035	0.001	0.029	0.004	0.030	0.018	0.008	0.015	-0.083	0.006	1			0.906	1.104
Debt-Equity ratio	-0.079	-.613**	.834**	-0.033	0.061	0.070	0.088	.117**	0.039	.114**	0.004	-0.018	-0.021	0.061	0.026	.103**	-0.002	.127**	0.005	0.000	-0.072	0.041	.120**	.266**	1		0.861	1.162
Cash on total assets	.530**	.150**	0.018	.381**	0.079	0.018	0.047	-.095**	-0.086	0.038	0.012	0.052	.131**	0.037	0.009	-0.004	-0.008	.102**	0.069	.105**	0.029	.112**	-0.060	0.006	-0.053	1	0.894	1.119
** Correlation is significant at the 0.01 level (2-tailed test).																												
* Correlation is significant at the 0.05 level (2-tailed test).																												
Moderate																												
Strong																												

Source: Own research

The dependent variables (ROA, ROE, MBV and Tobin's Q) are regressed individually as proxies for company performance for the purpose of hypothesis testing. The results show a positive and moderate correlation between ROA and ROE ( $r=.339$ ;  $p<0.01$ ) and a positive and strong relationship between ROA and Tobin's Q ( $r=.735$ ;  $p<0.01$ ). ROE and MBV have a strong and negative correlation ( $r=-.514$ ;  $p<0.01$ ). Although significant, the relationships between the dependent variables do not pose a collinearity problem as the regression analysis and hypothesis testing will be performed for each dependent variable separately. Collinearity becomes a concern when  $r$  is greater than 0.8, suggesting that the variables in question are not independent (Field, 2009; Lane, 2015:428). The control variable D/E is strongly and positively correlated with MBV, a dependent variable ( $r=.834$ ;  $p<0.01$ ) but the VIF statistic for MBV is 1.162, well below the worrisome 10 (Field, 2009:224). The VIF statistic for all variables ranges from 1.024 to 3.445 indicating that there is no multicollinearity concern for the pooled data. The following paragraph discusses significant relationships between the dependent and independent variables.

The relationships between dependent and independent variables are generally weak, with the significant relationships mostly negative. Tobin's Q has a weak, negative but significant relationship with AC support ( $r=-.122$ ;  $p<0.05$ ), assurance partner relations ( $r=-.155$ ;  $p<0.01$ ), CAE position ( $r=-.165$ ;  $p<0.01$ ), IAF work quality ( $r=-.101$ ;  $p<0.05$ ), IAF competence ( $r=-.122$ ;  $p<0.05$ ), IAF status ( $r=-.106$ ;  $p<0.05$ ) and SM support ( $r=-.104$ ;  $p<0.05$ ). ROA and ROE have a mixed relationship with a number of signalled IAE factors. ROA is negatively correlated with AC support ( $r=-.100$ ;  $p<0.05$ ), assurance partner relations ( $r=-.199$ ;  $p<0.01$ ), auditee compliance ( $r=-.130$ ;  $p<0.01$ ), IAF work quality ( $r=-.114$ ;  $p<0.05$ ) and IAF competence ( $r=-.144$ ;  $p<0.01$ ) but positive relationship with AC chair-CAE relation ( $r=.114$ ;  $p<0.05$ ). ROE shows a positive relationship with CPD ( $r=.147$ ;  $p<0.01$ ) and a negative relationship with IAF status ( $r=-.130$   $p<0.01$ ) and SM support ( $r=-.095$ ;  $p<0.05$ ). MBV shows weak but significant positive relationship with auditee compliance ( $r=.127$   $p<0.01$ ) and SM support ( $r=.114$ ;  $p<0.05$ ).



These descriptive statistics provide an important glimpse into the relationships between all variables studied. The initial analysis is (1) that signalled IAE factors have a mixed relationship (in terms of direction) with ROA, ROE, MBV and Tobin's Q and (2) that the influence of signalled IAE factors varies for each company performance proxy. As signalled IAE factors were expected to be positively related to company performance, the negative relationships could suggest that IAE is a costly mechanism.

Correlation as a technique measures the strength of the relationships between two or more variables and as such does not provide information on whether there is a causal relationship (Lane, 2015:243) or the direction of causality (Field, 2009:173). Furthermore, correlation gives no clear indication of which of the independent variables is the best predictor for company performance. To achieve the objectives of the study, the following hypothesis was tested,

*There is a positive relationship between signalled IAE factors and company performance.*

According to Pallant (2010:118) multiple regression analysis is the best parametric statistic that could be used to explore this relationship. The next section takes the analysis further by employing a multiple regression on the pooled data first, followed by panel regression analysis. Before delving into regression analysis, it is important to first test whether the sample distribution satisfies the assumptions of regression analysis and choose the most appropriate estimation model for modelling the relationship between IAE signalling and company performance.

### **5.4.3 Testing the regression analysis assumptions**

Regression analysis can be used to predict or describe the relationship between two variables, one being a dependent and the other an independent variable (Alexopoulos, 2010:14). A positive relationship between signalled IAE factors and company performance is hypothesised and will be tested by estimating a model to describe the relationship. There are a number of estimation models that can be applied, but the aim is to find estimators for the  $\beta$ -coefficient that are statistically sound and conditions under which the estimators are useful (Gujarati, 2009:315). Ideally the estimators for

the relationship need to have statistical attributes such as being the best linear unbiased estimators (BLUE). An estimator for the  $\beta$ -coefficient is said to be BLUE if is a linear function, unbiased where the average or expected value of  $\beta$  is equal to the true value  $\beta$  and has the minimum variance (in other words, it is efficient) (Gujarati, 2009:72). OLS is a simple estimator of a linear relationship and its assumptions were discussed in section 4.10.3. The next section tests whether the assumptions of regression analysis have been satisfied, thus assisting in selecting an estimating model that will result in reliable and consistent results.

Table 5.19 provides the parameters used to assess the OLS assumption using the data of this study.

**Table 5.19: Testing OLS assumptions**

Assumption	Statistic	Parameters
No autocorrelation	Durbin-Watson test	N = 500 (1.94 -1.95)
Normality (normally distributed errors)	Skewness Kurtosis	-1.96 to +1.96 -3.29 to +3.29
Endogeneity (Independence of variables)	Hausman test	Null hypothesis: Independence of variables
No perfect multicollinearity (minimum correlation between predictor variables)	Variance inflation factor (VIF)	Less than 10
Homoscedasticity (Homogenous variance of residuals)	Scatter-plot	Shape of the scatter-plot of the residuals must be linear and not clustered

Source: Adapted from Field (2009).

OLS as a simple estimator of a linear relationship and its assumptions were tested using the parameters in Table 5.19. The results are discussed in the following section.

#### 5.4.4 Selecting an estimation model

The relationship between signalled IAE factors and company performance (ROA, ROE, MBV and Tobin's Q) is estimated using the following equations introduced in section 4.10.3.2:

$$ROA_{it} = \alpha_0 + \alpha_1 ROA_{it-1} + \beta_1 IAE_{1it} + \beta_2 IAE_{2it} + \dots + \beta_{19} IAE_{19it} + \beta_{20} D/A_{20it} + \beta_{21} D/E_{21it} + \beta_{22} CTA_{22it} + \epsilon_{it} \quad (3)$$

$$ROE_{it} = \alpha_0 + \alpha_1 ROE_{it-1} + \beta_1 IAE_{1it} + \beta_2 IAE_{2it} + \dots + \beta_{19} IAE_{19it} + \beta_{20} D/A_{20it} + \beta_{21} D/E_{21it} + \beta_{22} CTA_{22it} + \epsilon_{it} \quad (4)$$

$$MBV_{it} = \alpha_0 + \alpha_1 MBV_{it-1} + \beta_1 IAE_{1it} + \beta_2 IAE_{2it} + \dots + \beta_{19} IAE_{19it} + \beta_{20} D/A_{20it} + \beta_{21} D/E_{21it} + \beta_{22} CTA_{22it} + \epsilon_{it} \quad (5)$$

$$Tobin's\ Q_{it} = \alpha_0 + \alpha_1 Tobin's\ Q_{it-1} + \beta_1 IAE_{1it} + \beta_2 IAE_{2it} + \dots + \beta_{19} IAE_{19it} + \beta_{20} D/A_{20it} + \beta_{21} D/E_{21it} + \beta_{22} CTA_{22it} + \epsilon_{it} \quad (6)$$

One way of assessing how well a regression model fits the data is by looking at the  $R^2$  value.  $R^2$  is a summary measure that tells us how well the sample regression line fits the data” (Gujarati, 2005:73). The higher the  $R^2$  the better the model fits the data. Another way is by examining the least-squares estimators with minimum variance in terms of the Gauss-Markov theorem (Gujarati, 2005:84). The residual sum of the squares represents the degree of inaccuracy between each observed data point and the value predicted by the regression (Field, 2009). The smaller the residual sum of the squares the better the model. Following Tshipa (2017) and Rad (2014), in their quest for a BLUE estimator for the model, the estimator that yields the highest  $R^2$  and the smallest residual sum of the squares will be selected for modelling the relationship between signalled IAE factors and company performance.

For hypothesis testing, the residuals have to be normally distributed (Gujarati 2005:174). Therefore, the estimator that satisfies the normality parameters for skewness and kurtosis outlined in Table 5.19 will be used in hypothesis testing. The quest for a BLUE estimator for the model begins with OLS as the simplest regression model (refer to section 5.4.5) and progresses to panel regression using the GLS fixed effects modelling approach (refer to section 5.4.6).

E-views, an econometric package that allows for panel regression was used for panel regression. Section 5.4.5 presents the results of the OLS with pooled data run on SPSS for each independent variable followed by the presentation of the GLS with fixed effects panel regression results in section 5.4.6.

#### **5.4.5 OLS regression – pooled data**

Since the correlation results showed significant relationships between ROA, ROE, MBV and Tobin’s Q with a number of the IAE variables, regression analysis is an appropriate step in predicting a model. Field (2009) describes regression analysis as a “statistical technique used to predict an outcome variable (dependent variable) from one or more predictor variables (independent variables)”. As mentioned, earlier proxies for company performance, a dependent variable, are ROA, ROE, MBV and Tobin’s Q.

All 19 IAE dimensions discovered in MCA were used in the initial analysis as independent variables. A hierarchical or 2-step multiple regression was performed for each of the dependent variables using SPSS. Hierarchical multiple regression gives a better understanding of how well the independent variables impact on the dependent variables. Step 1 models the control variables (D/A, D/E, CTA) and the dependent variable and step 2 introduces the independent variable to the equation to determine its impact on the dependent variable. SPSS was used to run the regression analysis of each of the proxies for company performance represented by ROA, ROE, MBV and Tobin's Q and the results are reported in Table 5.20.

**Table 5.20: Summary of OLS (n=89)**

<b>GLS - Cross-section Fixed Effects (dummy variables)</b>				
<b>Independent variables (signalled IAE factors)</b>	<b>ROA</b>	<b>ROE</b>	<b>MBV</b>	<b>Tobin's Q</b>
	<b>β-coefficient t</b>	<b>β-coefficient</b>	<b>β-coefficient</b>	<b>β-coefficient t</b>
C (CONSTANT)				
AC CHAIR-CAE RELATION	0.151***	0.032	0.040	0.101*
AC OVERSIGHT	0.128***	0.026	-0.008	0.124***
AC SUPPORT	-0.123**	-0.064	-0.075**	-0.159***
ASSURANCE PARTNER RELATIONS	-0.146***	0.088*	-0.046	-0.086
AUDITEE COMPLIANCE	-0.103**	-0.043	0.087	-0.017
CAE POSITION	-0.036	-0.005	-0.124***	-0.168***
CLIENT SATISFACTION	0.034	-0.011	-0.064***	0.051
COMMUNICATION	-0.034	-0.048	0.037	-0.038
CPD	-0.011	0.148***	-0.034	-0.047
IAF AGE	0.002	0.005	-0.007	0.002
IAF COMPETENCE	-0.116**	-0.154***	0.028	-0.091
IAF EFFICIENCY	0.017	0.034	0.013	-0.062
IAF WORK QUALITY	-0.082	0.022	-0.028	-0.054
IAF STATUS	-0.106**	-0.087**	-0.001	-0.139***
IAF STRUCTURE	0.008	-0.015	0.015	0.037
IA TYPICAL SERVICES	0.113**	0.112**	0.024	0.128**
RELIABLE FINANCIAL STATEMENTS	-0.014	-0.002	0.059**	0.072
CAE REPORTING LINE	-0.008	0.037	-0.046	0.160***
SM SUPPORT	0.094	-0.023	0.072**	-0.064
<b>Control Variables</b>				
D/A	0.014	0.189***	-0.199***	0.062
D/E	-0.022	-0.645***	0.907***	0.032
CTA	0.512***	0.126***	0.089***	0.368***
Adjusted R <sup>2</sup>	0.348	0.461	0.768	0.247
Sum squared residuals	47675.791	389066.517	14931.472	838.657
F-statistic	11.696	18.146	67.192	7.578
Probability (F-statistic)***	0.000	0.000	0.000	0.000
Durbin-Watson stat	1.256	1.880	0.597	0.737
<b>Significant at *p&lt;0.1; ** p&lt;0.05; *** p&lt;0.01</b>				

Source: Own research

#### 5.4.5.1 Assumption of no autocorrelation

Table 5.20 presents the model summary for the OLS. The Durbin-Watson statistics for ROA (1.256), ROE (1.880), MBV (0.597) and Tobin's Q (0.737) are outside the acceptable threshold of -1.95 and 1.94, indicating that the assumption of no autocorrelation has not been satisfied. Autocorrelation results in invalid *t* and *F*-test of significance, which could lead to "misleading conclusions about the statistical significance of the estimated regression coefficients" (Gujarati, 2009:424).

Consequently the results of the OLS could not be relied upon. No further analysis was performed on the OLS and the GLS was pursued and tested for robustness. Autocorrelation is a problem associated with panel data (Hsiao, 2007:8). One way of dealing with autocorrelation is by adding a lagged value of the dependent variable. The Durbin-Watson value of around 2 subsequent to adding a lagged value suggests that there is no autocorrelation in the model (Gujarati, 2009:437).

#### **5.4.5.2 Assumption of normality**

Table 5.17 revealed that not all variables used in the study follow a normal distribution. However, since the sample for the study consists of 89 companies,  $n > 30$ , the central limit theorem can be invoked. The central limit theory states that when sample sizes are larger than 30, then the sample distribution will be normal regardless of the shape of the population (Field, 2009:42). Using an OLS method will result in a normally distributed error-term.

#### **5.4.5.3 Endogeneity**

Endogeneity refers to the consistency of errors where the error-term correlates with one or more of the independent variables (Wooldridge, 2002:50). The GLS panel regression has two estimation approaches, one robust in the presence of endogeneity and the other not. The Hausman specification test of endogeneity is used to determine the most suitable estimation approach for the panel. As previously explained in section 4.10.3.4, the null hypothesis assumes no correlation between the independent variable and the error-terms in the panel model. If the null hypothesis is accepted then random effects is the preferred estimation method as it yields consistent and efficient results but if it is rejected, then the fixed effects method is the best approach for the GLS panel regression model. Table 5.21 presents the Hausman specification test results.

**Table 5.21: Hausman specification test results for the GLS**

<b>Correlated Random Effects - Hausman Test</b>			
<b>Test cross-section random effects</b>			
<b>Test Summary</b>	<b>Chi-Sq. Statistic</b>	<b>Chi-Sq. d.f.</b>	<b>Prob.</b>
ROA	212.325	23	0.0000
ROE	106.304	23	0.0000
MBV	1668.486	23	0.0000
Tobin's Q	216.672	23	0.0000

Source: Own research

The results of the Hausman specification test presented in Table 5.21 reject the null hypothesis for all dependent variables, pointing to fixed effects as the most suitable approach for the model.

#### **5.4.5.4 No perfect multicollinearity**

Multicollinearity is tested by computing the VIF, which determines whether a predictor has a strong relationship with the other predictors (independent variable) (Field, 2009:224) as well as the Pearson correlation matrix to identify possible multicollinearity. While OLS is still BLUE in the presence of multicollinearity, the OLS estimators have large variances and covariances, which makes estimation difficult (Gujarati, 2009:327). In terms of evaluating the assumptions of multicollinearity, a VIF of 10 and above indicates multicollinearity (Field, 2009:224). The VIF was computed for all variables used in the study. The results before showed that the IAE variables' VIF ranged between 1.024 and 3.445, confirming that this study is free from the problem of multicollinearity.

#### **5.4.5.5 Homoscedasticity**

A residual plot of the error-terms was used in order to detect the presence of outliers in the data (refer to Appendix 6). The presence of outliers poses a problem for OLS as this skew the model estimates and results in residuals with a large sum of squares. Hence the GLS estimator is used as it is known for its robustness in the presence of outliers and heteroscedasticity (Gujarti, 2009:400). The GLS estimator transforms the

original variables in such a way that the variances of the transformed variables are homoscedastic (Gujarati, 2005:371).

#### **5.4.5.6 Summary**

This section assessed the assumptions of regression using OLS (the simplest regression model) and the data were found to suffer from autocorrelation, a problem common to panel data due to a repetition of observations over time. Further, the sample and the residuals proved not to be normally distributed thereby failing the normality and homoscedasticity test. The central limit theorem was invoked to counter the normality problem and normality of the distribution was assumed due to the size of the sample ( $n > 30$ ). Nevertheless, the assumptions of no autocorrelation and homoscedasticity were violated, thereby rendering the results of OLS to being unreliable and leading to incorrect conclusions. OLS was considered to be unsuitable as an estimator for the model for this study.

GLS as a model is known to give the best  $\beta$ -coefficient estimates in the presence of outliers, heteroscedasticity, and autocorrelation. GLS proved to be the better model to use given that the data collected for this study exhibited signs of autocorrelation and heteroscedasticity. GLS uses two methods of estimation, the random effects suitable when data are endogenous and the fixed effect estimator capable of handling data with endogeneity problems. The Hausman's specification test for endogeneity was conducted and revealed that the fixed effects methods was most suitable for the data. The panel data used in the study were found not to satisfy the no autocorrelation and homoscedasticity assumptions of regression indicating that the GLS is the more appropriate estimator of the two. The GLS regression was run on the panel data and the results are presented in the next section.

#### **5.4.6 GLS Panel regression analysis**

Data were collected from a sample of 89 companies and some information was missing or could not be obtained from the iRESS database. This resulted in an unbalanced panel. In order to improve the regression model fit, three companies with missing data



were eliminated in the sample to create a balanced panel of 86 companies and 430 year observations. The balanced panel was subjected to a GLS regression in order to generate a robust model. Two advantages of using a GLS panel regression which apply to this study are that GLS is more robust in the presence of autocorrelation and heteroscedasticity and that GLS takes into consideration the interclass variability in the dependent variable. This is accomplished by weighting the standard deviations resulting in homoscedastic residuals (Gujarati, 2005:400). Also panel data control for heterogeneity as they control unobserved time invariant constants (Torres-Reyna; 2007:3).

In the quest for a best, linear, unbiased and efficient estimator for the model, the estimator that yielded the highest  $R^2$  and the smallest residual sum of the squares will be selected for modelling the relationship between signalled IAE factors and company performance. A comparison of  $R^2$ , the sum of the squared residuals and normality of residuals confirmed GLS with fixed effects to be BLUE for establishing the predictor variables for company performance and hypothesis testing. For hypothesis testing, the residuals have to be normally distributed (Gujarati 2005:174). The GLS with fixed effects that satisfied the normality parameters for skewness and kurtosis outlined in section 5.4.3 was used in hypothesis testing. The following section presents the results of the GLS panel regression performed for each dependent variable.

**Table 5.22: Summary of panel regression analysis on balanced panel (n=86)**

<b>GLS - Cross-section Fixed (dummy variables)</b>				
<b>Independent variables (signalled IAE factors)</b>	<b>ROA</b>	<b>ROE</b>	<b>MBV</b>	<b>Tobin's Q</b>
	<b>β-coefficient</b>	<b>β-coefficient</b>	<b>β-coefficient</b>	<b>β-coefficient</b>
C (CONSTANT)	-9.517	-17.882	4.056	0.306
AC CHAIR-CAE RELATION	0.161	0.401	-0.215	0.857
AC OVERSIGHT	1.143***	2.129**	0.145	0.731
AC SUPPORT	-1.430**	-3.160*	-0.173	-0.102**
ASSURANCE PARTNER RELATIONS	0.095	1.171***	-0.110	0.712
AUDITEE COMPLIANCE	0.218	-0.419	-0.140	0.502
CAE POSITION	0.533	1.833*	-0.273	0.469
CLIENT SATISFACTION	0.027	0.490	-0.283	0.836
COMMUNICATION	0.047	1.376	1.154*	0.126**
CPD	1.612**	4.537	-0.212	0.774
IAF AGE	2.533	3.388	-0.004	0.804
IAF COMPETENCE	0.239	-0.541	0.132	0.746
IAF EFFICIENCY	-0.498	-2.288	0.109	0.457
IAF WORK QUALITY	-0.208	0.407	0.034	0.341
IAF STATUS	-0.266	-4.143***	-0.061	0.448
IAF STRUCTURE	-0.778	-1.587	0.500**	0.230***
IA TYPICAL SERVICES	0.488**	0.542	0.128*	0.784
RELIABLE FINANCIAL STATEMENTS	6.808	13.371	0.347	0.362
CAE REPORTING LINE	0.079	-0.801	0.063	0.143
SM SUPPORT	0.290	0.124	-0.361***	0.127
Prior Year-dependent variable	0.095***	0.013	0.018*	0.359***
<b>Control Variables</b>				
D/A	-0.006	3.529***	-1.844***	-0.004
D/E	-0.006	-1.557***	0.787***	0.002***
CTA	0.122***	0.211***	0.021***	0.005***
Adjusted R <sup>2</sup>	0.973	0.987	0.982	0.957
Sum squared residuals	9569.891	177366.700	1655.085	55.589
F-statistic	144.162	298.330	215.024	89.559
Probability (F-statistic)***	0.000	0.000	0.000	0.000
Durbin-Watson stat	1.975	2.031	1.891	2.427
<b>Residuals descriptive</b>				
Skewness	-0.134	-0.056	-0.038	0.108
Kurtosis	2.600	3.280	2.405	2.299
<b>Significant at *** p&lt;0.01; ** p&lt;0.05; *p&lt;0.1</b>				

Source: Own research

The results are characterised by weak positive and negative relations, as indicated by the size and sign of the  $\beta$ -coefficients. Further, most of the  $\beta$ -coefficients are not statistically significant. The weak relationship between signalled IAE factors and company performance is expected as the value derived from IAE is difficult to quantify (Lenz & Hahn, 2015). A number of signalled IAE factors are shown not to be significant

in explaining the relationship between signalled IAE factors and company performance. These are AC chair-CAE relationship, auditee compliance, client satisfaction, IAF age, IAF competence, IAF efficiency, IAF work quality, reliable financial statements and CAE reporting line. While these factors are used in various studies and have to have an impact on IAE (refer to chapter 3), their disclosure seems not to impact company performance measured by all the proxies (accounting-based and market-based).

The control variables used in the study, namely D/A, D/E, CTA, mainly have a very significant ( $p < 0.01$ ) but mixed relationship with the ROA, ROE, MBV and Tobin's Q. CTA, a profitability ratio related to the efficient use of assets to generated cash flow, is positively related to ROA ( $\beta = 0.122$ ;  $p < 0.01$ ), ROE ( $\beta = 0.211$ ;  $p < 0.01$ ), MBV ( $\beta = 0.021$ ;  $p < 0.01$ ) and Tobin's Q ( $\beta = 0.005$ ;  $p < 0.01$ ). D/A, a solvency ratio equating total per capita that is financed by debt, is positively related to ROE ( $\beta = 3.529$ ;  $p < 0.01$ ) but negatively related to MBV ( $\beta = -1.844$ ;  $p < 0.01$ ). D/E, a solvency ratio that compares the amount of debt capital with equity, is negatively related to ROE ( $\beta = -1.557$ ;  $p < 0.01$ ) and positively related to MBV ( $\beta = 0.787$ ;  $p < 0.01$ ) and Tobin's Q ( $\beta = 0.002$ ;  $p < 0.01$ ).

These results imply that CTA has a positive relationship with company performance while debt has a negative relationship with company performance. The positive relationship between CTA and performance can also be viewed in the light of future growth prospects due to management's efficient use of assets in generating cash flow. An increase in D/A has a negative effect on ROA, MBV and Tobin's Q and a positive relationship with ROE due to the increase in the interest costs associated with debt. In the same vein, an increase in D/E is negatively related to ROE and positively related to MBV. Debt results in the incurring of monitoring costs, mainly through the assurance given by the external auditors. Thus, controlling for the known effect of D/A, D/E and CTA on ROA, ROE, MBV and Tobin's Q helps to crystallise the relationship between signalled IAE factors and company performance.

### 5.4.6.1 Internal audit effectiveness and return on assets

As explained in the previous chapter, ROA is an accounting-based measure of profitability which measures the profit generated per rand value of an asset. The IAF contributes in general to profitability by improving internal controls, risk management and governance processes and it is expected that it would have a positive but small impact on ROA.

The regression model was developed in order to test the hypothesis that signalled IAE factors are positively related to ROA. A number of signalled IAE factors are shown not to be significant in explaining the relationship between IAE and ROA (refer to Appendix 9.1 for detailed results). Table 5.23 presents a summary of the statistically significant signalled IAE factors and their associated  $\beta$ -coefficient; and implications for the hypothesis are also presented.

**Table 5.23: ROA summary of results of hypothesis testing**

Signalled IAE factor	$\beta$ -coefficient	Conclusion
AC OVERSIGHT	1.143***	AC oversight comprising AC appoints and dismisses the CAE and the IAFs unlimited scope has a positive relationship with ROA
AC SUPPORT	-1.430**	AC support comprising meetings with AC and AC support for IAF findings and recommendations has a negative relationship with ROA
CPD	1.612**	Continuous professional development has a positive a relationship with ROA
IA TYPICAL SERVICES	0.488**	IA typical services (assurance, consulting and ad hoc engagements) have a positive relationship with ROA
<b>Significant at *<math>p &lt; 0.1</math>; ** <math>p &lt; 0.05</math>; *** <math>p &lt; 0.01</math></b>		

Source: Own research

The results reflected in Table 5.23 show that AC oversight comprising AC appoints and dismisses the CAE and the IAFs unlimited scope has a positive relationship with ROA ( $\beta=1.143$ ;  $p < 0.01$ ). The other signalled IAE factors which are significant and positively related to ROA are CPD ( $\beta=1.612$ ;  $p < 0.05$ ), and the typical services offered by the IAF ( $\beta=0.488$ ;  $p < 0.05$ ). AC support, which comprise meetings with AC and AC support for IAF findings and recommendations, is significant and negatively related to ROA ( $\beta=-1.430$ ;  $p < 0.05$ ).

Agency theory posits that investors are fearful that management as rational beings will not always act in the best interests of the shareholders, i.e., by growing shareholders' wealth. As a result, management and shareholders enter into a "nexus of contracts" in order to curb opportunistic behaviour by management. Management incurs bonding costs (which include corporate governance mechanisms like internal auditing) to prove that management is acting in the best interest of the shareholders and shareholders incur monitoring costs (including external audits) to monitor the behaviour of management. Since IA is instituted by management as a governance mechanism, it is mainly a (bonding) cost to the organisation aimed at improving operational effectiveness and efficiency by monitoring the implementation of control activities in the organisation (Lenz & Hahn, 2015). Hence IAE is posited as an enabler of management efficiency. The positive relationship between ROA and the disclosure of AC oversight, CPD and the typical services offered by the IAF is not fortuitous but is evidence that signalled IAE factors have a positive relationship with company performance (management efficiency).

Information asymmetry is posited as another problem associated with agency. This is as a result of management being privy to information about their actions and decisions which shareholders and bondholders have no access to. Disclosure is posited as a remedy for information asymmetry. Hence various statutes, regulations and guidance stipulate some disclosure in relation to governance. For instance, the King Code requires the board of directors to disclose how they have discharged their responsibility of overseeing an effective risk-based IAF (IoDSA, 2009). The descriptive results on the IAE disclosure scores discussed in section 5.3.1.3 showed a strong correlation between the signalled IAE factors and the principles and recommended practice of the King Code relating to the IAF. It is therefore not surprising that AC support, comprising IAF meetings with AC and AC support for IAF findings and recommendations, is well disclosed at 85.14% and 60.36% respectively but has a negative relationship with ROA. Such information was disclosed merely for compliance and seems to bear a negative relationship to management efficiency. The reason could be that the information is common knowledge internally and therefore does not add much value.

Signalling theory posits that management will engage in voluntary disclosure of information in excess of what is mandatory providing there is a marginal benefit to do so (Abhayawansa & Abeysekera, 2009). The positive relationship between ROA and AC oversight, CPD and IA typical services attests to the benefit derived from the disclosure of these signalled IAE factors. AC oversight and IA typical services are associated with the King Code but the disclosure of CPD is of interest. CPD constitutes a professional requirement of internal auditors in order to maintain their professional status. The IIA for instance requires certified internal auditors to engage in CPD for 80 hours in a two-year cycle (IIA, 2020a). This is in line with the IIA Code of ethics' principle of competency which states that "internal auditors apply the knowledge, skills, and experience needed in the performance of internal audit services" (IIA, 2016c). Thus the positive relationship between CPD disclosure and ROA provides evidence that investment in the internal auditor's CPD has a benefit.

This has implications for both management and the profession. The IAF is a resource-dependent function whose budget and resources are at the disposal of the AC and management. The positive relationship between CPD disclosure and ROA suggests that management should allocate resources towards the CPD of their internal auditors as disclosure of such an investment has a positive effect on management efficiency. This is perhaps one of the few studies that have empirically identified CPD as a factor of IAE, Endaya and Hanefah (2016) being one of those studies. This has implications for the profession as it fights its way to being the trusted advisor (Chambers, 2017). This evidence gives impetus to the IIA to encourage IIA members to engage with their employers for more resources to be allocated towards CPD. The following section discusses the ROE results.

#### **5.4.6.2 Internal audit effectiveness and return on equity**

ROE measures how well the equity has been used by the organisation to generate profits. ROE measures management's efficient use of equity. ROE is of interest to both

equity analysts and investors. Management generally would like ROE to be high as it demonstrates management efficiency and is likely to attract new investments.

The regression model was developed in order to test the hypothesis that signalled IAE factors are positively related to ROE. The results are characterised by a mixture of weak positive and negative  $\beta$ -coefficients which are mostly not significant. The detailed results of the regression are shown in Appendix 9.2. Reliable financial reporting, although not statistically significant, has a relatively large positive co-efficient ( $\beta=13.371$ ). Table 5.24 presents a summary of the significant signalled IAE factors related to ROE and the implications for the hypothesised positive relationship between IAE and ROE.

**Table 5.24: ROE summary of results of hypothesis testing**

Signalled IAE factor	$\beta$ -coefficient	Conclusion
AC OVERSIGHT	2.129**	AC oversight comprising AC appoints and dismisses the CAE and IAFs unlimited scope has a positive relationship with ROE
AC SUPPORT	-3.160*	AC support comprising meetings with AC and AC support for IAF findings and recommendations has a negative relationship with ROE
ASSURANCE PARTNER RELATIONS	1.171***	Assurance partner relations comprising EA and IAF cooperation, EA reliance on IAF and IAF coordination with others has a positive relationship with ROE
CAE POSITION	1.833*	CAE position has a positive relationship with ROE
IAF STATUS	-4.143***	IAF status comprising IAF profile in the organisations structure, the CAE educational and professional qualifications/experience has a negative relationship with ROE
<b>Significant at *<math>p&lt;0.1</math>; ** <math>p&lt;0.05</math>; *** <math>p&lt;0.01</math></b>		

Source: Own research

The results indicate a mixture of positive and negative relationships with the signalled IAE factors with the five summarised in Table 5.24 being significant. As with ROA, AC oversight is significant and positively related to ROE ( $\beta=2.129$ ;  $p<0.05$ ) while AC support ( $\beta=-3.160$ ;  $p<0.1$ ) is negatively related to ROE. Assurance partner relations comprising EA and IAF cooperation, EA reliance on IAF and IAF coordination with other assurance givers have a highly significant positive relationship with ROE

( $\beta=1.171$ ;  $p<0.01$ ). CAE position has a significant and positive relationship with ROE ( $\beta=1.833$ ;  $p<0.1$ ). By contrast, ROE has a highly significant negative relationship with the IAF status within the organisation ( $\beta=-4.143$ ;  $p<0.01$ ) comprising the IAF profile in the organisation's structure, CAE educational and professional qualifications or experience.

It is hypothesised that signalled IAE factors have a positive relationship with ROE. The negative relationship between AC support and ROE as well as the IAF status and ROE are possibly related to the King Code disclosure requirements related to the AC and its responsibility towards the IAF and are not necessarily an indication of value. Such information was disclosed merely for the sake of compliance; the information is common knowledge internally and therefore does not add much value. The positive relationship between the CAE position and ROE seems to indicate that IAF leadership disclosure is important to investors. The leadership position of the CAE was not well disclosed (28.38%) and less mention was made of his/her qualification and experience (6.08%) (refer to Table 5.3).

The positive relationship between assurance partner relations and ROE is of interest. The indicators comprising assurance partner relations are EA and IAF cooperation, EA reliance on IAF and IAF coordination with others has elements of combined assurance. One of the objectives of combined assurance is the reduction of duplication of assurance by various assurance providers both internal and external in an effort to improve the efficiency of the assurance provided (Decaux & Sarens, 2015:57). While previous research identified frequency of meetings with external auditors, cooperation in audits and the sharing of information as among the factors impacting on IAE (Abuazza, 2012; Alzeban & Gwilliam, 2014; Cohen & Sayag, 2010; Endaya & Hanefah, 2016; Soh & Martinov-Bennie, 2011), these results show that disclosure of such endeavours is positively related to ROE. Further, combined assurance is desirable for investors as they are benefited by the efficiencies gained from the coordinated monitoring by various assurance givers (Decaux & Sarens, 2015). It appears that the disclosure of the participation of the IAF in combined assurance has a positive relationship with how equity is utilised by the company.



### 5.4.6.3 Internal audit effectiveness and market-to-book value

The MBV ratio is one of the measures used for market-based performance. MBV compares the market value of the firm's investments to their cost and is used as an indicator of firm value. It is expected that the signalled IAE factors will have a positive relationship with MBV or firm value as they contributed to the reduction of information asymmetry between management, shareholders and investors. A positive relationship is hypothesised between IAE and MBV.

The results presented in Table 5.25 show a mixture of weak positive and negative  $\beta$ -coefficients relating to the relationship between signalled IAE factors and MBV. Most of the relationships are not statistically significant (refer to Appendix 9.3 for detailed results). Based on the result of the significant IAE factors influencing MBV, the following summary of the results and suggested meaning for the hypothesis is presented.

**Table 5.25: MBV summary of results of hypothesis testing**

Signalled IAE factor	$\beta$ -coefficient	Conclusion
COMMUNICATION	1.154*	Communication comprising the adoption of CSA techniques and effective communication has a positive relationship with MBV
IAF STRUCTURE	0.500*	IAF structure comprising In-sourced, out-sourced or co-sourced and IAF size has a positive relationship with MBV
IA TYPICAL SERVICES	0.128*	IA typical services (assurance, consulting and ad hoc engagements) have a positive relationship with ROA
SM SUPPORT	-0.361***	SM support (management implements IA recommendations, AC/SM encourage and coordinate IA-EA interaction and budgetary status and resources) has a negative relationship with MBV
<b>Significant at *<math>p &lt; 0.1</math>; ** <math>p &lt; 0.05</math>; *** <math>p &lt; 0.01</math></b>		

Source: Own research

Table 5.25 provides a summary of the significant relationships between signalled IAE factors and firm performance as represented by MBV. Communication comprising the adoption of CSA techniques and effective communication ( $\beta=1.154$ ;  $p < 0.1$ ), IAF structure (in-sourced, out-sourced or co-sourced and IAF size) ( $\beta=0.500$ ;  $p < 0.1$ ) and

IA typical services (assurance, consulting and ad hoc engagements) ( $\beta=0.128$ ;  $p<0.1$ ) have a positive relationship with MBV. By contrast, MBV has a highly significant negative relationship with SM support (management implements IA recommendations, AC/SM encourages and coordinates IA-EA interaction and budgetary status and resources) ( $\beta=-0.361$ ;  $p<0.01$ ).

Communication as one signalled IAE factor is shown to be positive and significant for MBV as a proxy for firm value. This is line with expectations that effective communication as part of IA competence is considered to be an important characteristic influencing IAE (Endaya & Hanefah, 2013; Mihret & Yismaw, 2007). In expounding the importance of communication, Endaya and Hanefah (2013) studied the impact of communication between auditor and auditees as an important factor in IAE. It is argued that effective communication between internal auditors themselves, internal auditors and auditees, organisational members and external auditors has positive influence on IAE. Its relationship to MBV as one of two proxies used in this study for firm value is curious. While internal auditors are not required to communicate with external parties the results seem to imply that disclosure of IAF effective communication has an influence on firm value.

The IAF structure is positively related to MBV. The decision whether to in-source, co-source or outsource the IAF is dependent on company size, complexity and needs (KPMG, 2016). Thus, organisations choose the optimal mix in order to derive the maximum value from the IAF (IIA, 2009). The IIA advocates an in-house IAF but is supportive of co-sourcing and out-sourcing arrangements providing guidance internationally (IIA, 2009) and locally (IIASA, 2013). Coupled with the decision on the structure is the element of IAF size expressed as the number of internal auditors. Sarens and Abdolmohammadi (2007:18) argue that a larger IAF has a broader coverage and is therefore able to buffer information asymmetry characteristic of the agency relationship. The results indicate that the disclosure of the IAF structure, in effect its existence, is positively related to the value creation as measured by MBV. The results thus support the effectiveness of the IAF in reducing information asymmetry.

From a signalling viewpoint, the disclosure of the IAF structure by the organisation indicates the importance of the IAF as recommended by the King Code. This can also be perceived as a means of attracting new investors as it indicates good governance. The existence of an IAF in the company seems to be of interest to investors as it indicates that management is serious about good governance and will not engage in practises involving moral hazards.

SM support, comprising the indicators management implements IA recommendations, AC/SM encourage and coordinate IA-EA interaction and budgetary status and resources, is negatively related to MBV. Previous studies have identified SM support for IAF as essential for IAE (Alzeban & Gwilliam, 2014; Endaya & Hanefah, 2013; Endaya & Hanefah, 2016; Lenz & Hahn, 2015; Mihret & Yismaw, 2007; Roussy & Brivot, 2016). This is due to a number of factors, including the IAF's dependence on management's providing resources necessary for IAE and implementing the IAF's recommendation. This negative relationship from the viewpoint of investors is perhaps the result of the fact that management support of the IAF is expected and therefore disclosure thereof does not demonstrate that the organisation has additional value because it disclosed such information.

#### **5.4.6.4 Internal audit effectiveness and Tobin's Q**

Tobin's Q is a ratio that compares the market value of a company to the replacement costs of its assets. Tobin's Q, now popularly used as a firm value indicator, was initially derived to explain investment behaviour (Bartlett & Partnoy, 2018). Based on the result of the significant signalled IAE factors influencing Tobin's Q, the following summary of the results and meaning for the hypothesis is presented.

**Table 5.26: Tobin's Q summary of results of hypothesis testing**

Signalled IAE factor	$\beta$ -coefficient	Conclusion
AC SUPPORT	-0.102*	AC support comprising meetings with AC and AC support for IAF findings and recommendations has a negative relationship with Tobin's Q
COMMUNICATION	0.126**	Communication comprising the adoption of CSA techniques and effective communication has a positive relationship with Tobin's Q
IAF STRUCTURE	0.230***	IAF structure comprising in-sourced, out-sourced or co-sourced and IAF size has a positive relationship with Tobin's Q
<b>Significant at *<math>p &lt; 0.1</math>; ** <math>p &lt; 0.05</math>; *** <math>p &lt; 0.01</math></b>		

Source: Own research

Table 5.26 provides a summary of the significant relationships between signalled IAE factors and firm performance as represented by Tobin's Q. AC support comprising meetings with AC and AC support for IAF findings and recommendations have a negative relationship with Tobin's Q ( $\beta = -0.102$ ;  $p < 0.1$ ). As in the case of MBV, communication comprising the adoption of CSA techniques and effective communication has a positive relationship with Tobin's Q ( $\beta = 0.126$ ;  $p < 0.05$ ) while IAF structure (in-sourced, out-sourced or co-sourced and IAF size) is highly significant and also has a positive relationship with Tobin's Q ( $\beta = 0.230$ ;  $p < 0.01$ ).

Tobin's Q is a market indicator of company value. The positive relationship between communication and IAF structure indicates that the disclosure of these signalled IAE factors indicates the marginal value created by such disclosure. AC support is recommended by the King Code and hence disclosure demonstrates compliance with JSE listing requirements. Such disclosure seems not to have a benefit for investors as such disclosure is expected or has been factored in.

#### **5.4.6.5 GLS panel regression analysis summary**

In summary, the GLS panel regression analysis with fixed effects was run on the company performance proxies to test the hypothesis that disclosure of the 19 signalled IAE factors is positively associated with the accounting-based and market-based performance measures. Panel regression analysis was run for each proxy and the

normality of the residuals was found to be within the acceptable range in terms of skewness and kurtosis. The Durbin-Watson statistic was also satisfactory, ranging from 1.891 to 2.427, indicating that the autocorrelation which had been identified in the OLS was taken care of by the GLS estimator. This indicates that the  $t$ - and  $F$ -tests of significance for the  $\beta$ -coefficient are valid and can be relied upon. The results are presented in Table 5.27.

**Table 5.27: Summary of GLS panel regression analysis**

<b>GLS - Cross-section Fixed Effects</b>				
	<b>ROA</b>	<b>ROE</b>	<b>MBV</b>	<b>Tobin's Q</b>
<b>Independent variables (signalled IAE factors)</b>	<b><math>\beta</math>-coefficient</b>	<b><math>\beta</math>-coefficient</b>	<b><math>\beta</math>-coefficient</b>	<b><math>\beta</math>-coefficient</b>
C (CONSTANT)	-9.517	-17.882	4.056	0.306
AC OVERSIGHT (positive)	1.143***	2.129**	NS	NS
AC SUPPORT (negative)	-1.430**	-3.160*	NS	*-0.102
ASSURANCE PARTNER RELATIONS (positive)	NS	1.171***	NS	NS
CAE POSITION (positive)	NS	1.833*	NS	NS
COMMUNICATION (positive)	NS	NS	1.154*	**0.126
CPD (positive)	1.612**	NS	NS	NS
IAF STATUS (negative)	NS	-4.143***	NS	NS
IAF STRUCTURE (positive)	NS	NS	0.500**	***0.230
IA TYPICAL SERVICES (positive)	0.488**	NS	0.128*	NS
SM SUPPORT (negative)	NS	NS	-0.361***	NS
Prior year-dependent variable	0.095***	NS	0.018*	0.359
<b>Control variables</b>				
D/A	-0.006	3.529***	-1.844***	-0.004
D/E	-0.006	-1.557***	0.787***	0.002***
CTA	0.122***	0.211***	0.021***	0.005***
Adjusted $R^2$	0.973	0.987	0.982	0.957
Sum squared residuals	9569.891	177366.700	1655.085	55.589
F-statistic	144.162	298.330	215.024	89.559
Probability (F-statistic)***	0.000	0.000	0.000	0.000
Durbin-Watson stat	1.975	2.031	1.891	2.427
<b>Residuals descriptive</b>				
Skewness	-0.134	-0.056	-0.038	0.108
Kurtosis	2.600	3.280	2.405	2.299
<b>Significant at *** p&lt;0.01; ** p&lt;0.05; *p&lt;0.1</b>				

Source: Own research

Table 5.27 shows that the results for all proxies were characterised by a mixture of small positive and negative  $\beta$ -coefficients, some statistically significant and others not significant. Nine signalled IAE factors were found not to be significant, namely; AC chair-CAE relationship, auditee compliance, client satisfaction, IAF age, IAF

competence, IAF efficiency, IAF work quality, reliable financial statements and CAE reporting line. The hypothesis was accepted for the following seven signalled IAE factors which have shown significant relationships; AC oversight (ROA and ROE); assurance partner relations and CAE position (ROE), communication (MBV and Tobin's Q), CPD (ROA), IAF structure (MBV and Tobin's Q) and IA typical services (ROA and MBV). The hypothesis has been rejected for three signalled IAE factors showing the following significant relationships; AC support (ROA, ROE & Tobin's Q), IAF status (ROE) as well as SM support (MBV).

The results can be explained in terms of both agency and signalling theories. The positive relationships are in line with agency theory which posits good governance and reporting as cost-effective remedies for information asymmetry. Signalling posits that mandatory disclosure is necessary to reduce information asymmetry and as such may or may not be related to company performance. However, voluntary disclosure is associated with an expected marginal benefit accruing to the organisation. This negative relationship can be understood in terms of the monitoring and bonding costs incurred, which exceed the benefit resulting from applying the King Code on governance and satisfying the JSE listing requirements (mandatory disclosure of chapter 2 principles of King III (refer to Table 2.3)).

The results show that internal and external stakeholders are interested in different aspects of IAE. Communication and the IAF structure are of particular interest to investors and shareholders (MBV and Tobin's Q). Support by SM and the AC seems to be factored or assumed and therefore disclosure, while necessary for demonstrating good governance, bears a negative relationship with both accounting-based and market-based performance measures. Internal stakeholders, concerned about management efficiency, pay attention to signalled IAE factors that would influence IAE. These include AC oversight as the AC is ultimately responsible for the IAE (ROE and ROE), the CAE's position (ROE), the IAF's relationship with the other combined assurance partners (ROE) and their competence as reflected in CPD (ROA). The common areas of interest are the typical services that the IAF offers in line with the IIA

definition (ROA and MBV). A consistently negative relationship with AC support is shown for all the performance measures.

## **5.5 CHAPTER SUMMARY**

This chapter sets out to present and interpret the results of the three phases of the research process for this study. The chapter began by explaining the nature of the sample used in the study. The profiles of 89 sampled companies in terms of industry classification and primary listing were first provided. These companies represented eight out of the ten industries trading on the JSE and 74% of the market capitalisation of the JSE's top 100 companies; about 80% of them had their primary listing on the JSE. Thereafter, results of the scores of the 54 IAE indicators were presented in the form of frequency tables. The results revealed that the IAE indicators frequently disclosed were those related with governance-related mandatory requirements of the Companies Act, the JSE listing requirements and/or voluntary disclosures relating to principles of King III, while non-mandatory IAE indicators were poorly disclosed. Next, the MCA results were presented where the 54 indicators were reduced to 19 IAE dimensions. These dimensions or signalled IAE factors were used in phase 3, where the relationship between signalled IAE factors (independent variable) and company performance (dependent variable) was explored using correlation and regression analysis.

In phase 3 the results of the correlation, OLS and GLS panel regression analyses which determined the relationship between the 19 signalled IAE factors and ROA, ROE, MBV and Tobin's Q as proxies for company performance as well as the control variables were presented. A positive relationship between the 19 signalled IAE factors and ROA, ROE, MBV and Tobin's Q was hypothesised on the basis of the value-add supposition of an effective IAF. First, correlation analysis revealed that the signalled IAE factors have mixed relationships, in terms of direction with ROA, ROE, MBV and Tobin's Q and second, that the influence of signalled IAE factors varies for each company performance proxy. No multicollinearity was detected in the correlation results. The assumptions of the regression were tested using OLS and the data were

found to suffer from autocorrelation, common in panel data, and heteroscedasticity. OLS was therefore not the best estimator in the presence of autocorrelation and heteroscedasticity and the results of the OLS could not be relied upon. The regression assumptions were tested on the GLS and the GLS with fixed effects was found to be the BLUE estimator for the model.

The results of the GLS with fixed effects for all proxies were characterised by a mixture of small positive and negative  $\beta$ -coefficients, some significant and others not significant. The following signalled IAE factors were found not to be significant; AC chair-CAE relationship, auditee compliance, client satisfaction, IAF age, IAF competence, IAF efficiency, IAF work quality, reliable financial statements and CAE reporting line. The hypothesis was accepted for the following relationships; AC oversight (ROA and ROE); assurance partner relations and CAE position (ROE), communication (MBV and Tobin's Q), CPD (ROA), IAF structure (MBV and Tobin's Q) and IA typical services (ROA and MBV). The hypothesis was rejected for the following significant relationships; AC support (ROA, ROE and Tobin's Q), IAF status (ROE) and SM support (MBV). The mixed results could, however, be explained through the agency and signalling theories. Hence, the results supported the agency and signalling theories.

The next section concludes the study, pointing out the limitations of the study, making recommendations to researchers on future research areas, recommendations for management on IAE disclosure and resource allocation and those of interest to the IIA as a professional body for internal auditors and international standard setting body for internal auditing.



## **CHAPTER 6**

### **CONCLUSION AND RECOMMENDATIONS**

#### **6.1 INTRODUCTION**

This final chapter concludes the entire study, which aimed at investigating the relationship between signalled IAE factors and company performance. This investigation was conducted using data from 89 of the top 100 companies listed on the JSE for the period 2012–2016. Chapter 1 introduced the study while chapters 2 and 3 provided an extensive review of literature on the theoretical aspects of the study. Chapter 4 explained the research design and methodology employed throughout the study. Chapter 5 reported the empirical findings of the study. The chapter presented findings from the content analysis as well as results from the MCA and finally presented results from the descriptive statistics as well as the correlation, regression, and panel data analyses.

The aim of this chapter is to draw conclusions from the study, determine whether the research questions posed and objectives set in Chapter 1 have been addressed and achieved, and if so how so, explain how they were addressed and achieved. Based on the literature review and empirical research undertaken, the chapter makes specific recommendations and highlights contributions made by the study. The chapter also acknowledges some limitations of the study and makes suggestions for future research direction. The chapter ends with a short overall conclusion.

#### **6.2 A REFLECTION ON THE PREVIOUS CHAPTERS**

Chapter 1 introduced the study and provided the background. It put a number of aspects into perspective. It situated the study within the current discourse found in the relevant literature in the areas of internal auditing, IAE, corporate governance, disclosure, and company performance. The chapter further argued the study's position within agency and signalling theories. While there are a number of studies that

investigated the disclosure patterns of corporate governance in companies, this study focused on IA a known corporate governance mechanism, specifically the voluntary disclosure of IAE factors and their relationship with company performance. No evidence of any similar study has been found so far. The chapter argued the study's position within the agency and signalling theories. Agency theory provided insight into the incentives for disclosure (based on bonding and monitoring costs) made by companies and signalling theory described the voluntary disclosure of internal information to reduce information asymmetry and signal superiority. Importantly, the chapter articulated the rationale, the problem and the need for the study. Consequently, the research problem was formulated as follows:

*The relationship between signalled IAE factors and company performance is an unexplored area in the IAE debate.*

Chapter 1 also set out the study's research questions and objectives (refer to section 6.3) upfront as well as the contributions that the study purported to make. Following a brief introduction explaining the research design and methodology employed in the study, the chapter outlined how the thesis is organised. Finally, the key terms that are commonly used in the study were clarified and explained in simple language.

Chapter 2 explored the theoretical framework of the study. Agency and signalling theories were discussed at great length. The chapter underscored how agency problems and conflict between principals and agents could be reduced or resolved by providing more information. Through the agency theory lens, good governance is advanced as a cost-effective means of dealing with agency problems (Demsetz, 1983; Fama & Jensen, 1983; Fama, 1980:295). It was suggested that management bond themselves to good governance by having an effective IAF to provide assurance on the company's internal controls, risk and governance processes (IoDSA, 2009). Furthermore, the discussion on sound financial disclosure dealt with the information asymmetry between management and principals (Von Alberti-Alhtaybat *et al.* (2012). Through the signalling theory lens, the chapter also demonstrated that signalling can reduce information asymmetry, thereby reducing monitoring costs, which could lead to

improved company performance. Thus the relevance of the two theories which sought to explain the relationship between signalled IAE factors and company performance was established in this chapter. Besides defining these two theories, the chapter provided a historical overview and argued the relevance of the theories towards the achievement of the objectives of the study. The chapter also detailed how the theories were used in explaining and formulating the study's stated hypotheses. This chapter further dissected the notion and practice of corporate governance by reviewing relevant literature on the subject. Integrated reporting as well as mandatory and voluntary disclosure were also highlighted.

As part of the literature review, chapter 3 discussed IAE. The chapter defined IA and IAE, as well as providing an overview of the IAF and its changing role. The chapter also drew attention to the impact of the SOX, King III and IV, and the financial crisis of 2007-2008 on the IA profession and the IAF. In addition, the chapter explained the factors or indicators affecting IAE and positioned IAE and its disclosure within agency and signalling theories. Finally, the IA value proposition was explicated.

Chapter 4 explained the research design and methodology employed in the study. It explained the rationale for locating this study within the post-positivist research paradigm and adopted a quantitative approach. The chapter also described the ontological and epistemological perspectives of the study. This study was located within the post-positivist worldview with an ontological assumption that a single truth cannot be found and the epistemological position that outcomes always have causes and that both can be measured. These perspectives informed the study's research question, namely *What is the relationship between signalled IAE factors and company performance?* Based on agency theory, the assumption posited was that when the agent possesses an information advantage over the principal, IAE disclosure (or signalling) increases transparency and thus reduces information asymmetry between principals and agents. Signalling theory was used to explain voluntary disclosure of IAE signals. The research design, which included sample selection, survivorship bias, units of analysis and data collection techniques was elucidated upon in the chapter.

The reliability, validity and ethical considerations of the study were also expounded in this chapter, followed by an explanation of the self-constructed IAE signalling frame.

Chapter 5 systematically described the analytical process undertaken on the main phases of the study's empirics. Firstly, content analysis of IRs and other ARs was undertaken. Then, 54 indicators resulting from the content analysis were subjected to MCA. This second phase of the study resulted in 19 signalled IAE factors. The study proceeded to the third phase, namely regression analysis, where the 19 signalled IAE factors represented the independent variables and company performance represented the dependent variable. Control variables were introduced to counter their known effect on company performance. The chapter then analysed and reported on descriptive statistics and correlation analysis. The regression analysis assumptions on autocorrelation, normality, endogeneity, multi-collinearity and homoscedasticity were tested on the OLS regression of pooled data. The chapter went on to analyse the association between IAE and ROA, IAE and ROE, IAE and MBV, and IAE and Tobin's Q. For the same associations using panel data, the chapter also reported the results from the GLS analysis.

### **6.3 HOW THE RESEARCH QUESTIONS OF THE STUDY WERE ADDRESSED**

As indicated in chapter 1, previous research mainly investigated IAE from human resources development perspective such as the development of internal auditors, top management support, and the functional quality of the IAF, among others. There is no evidence that any previous studies examined IAE disclosure and its relationship with company performance. Hence, this study attempted to fill the research gap by analysing the content of the IRs and other ARs of JSE-listed companies for the period 2012–2016 to determine the relationship between signalled IAE factors and company performance. Extant literature on IAE focuses on factors that enhance IAE, indicators of IAE and different methods and measuring instruments of IAE, all of which are mainly perceptual measures (Boța-Avram *et al.*, 2009; Botha & Wilkinson, 2019; Chen & Lin, 2011; Desai *et al.*, 2010; Dittenhofer, 2001; Ernst & Young, 2007; Fadzil *et al.*, 2005; Soh & Martinov-Bennie, 2011; Tsai *et al.*, 2015). Very few studies used objective

measures for measuring IAE. Informed by the aforementioned research problem, this section reports on whether the study's research questions posed at the outset were achieved following the extensive literature review and primary data collection and analysis. The study was driven by its main research question:

*What is the relationship between signalled IAE factors and company performance?*

The main research question was supported by three sub-research questions:

*Sub-research question 1: What are the IAE indicators as portrayed in the literature?*

*Sub-research question 2: What IAE indicators are signalled in company reports?*

*Sub-research question 3: What are the factors that signal IAE?*

Since the sub-questions were formulated in support of the main research question, the answering of the sub-research questions is accordingly discussed first.

### **6.3.1 Sub-research question 1: What are the internal audit effectiveness indicators as portrayed in the literature?**

The literature review on IAE (refer to section 3.3) revealed that IAE has to do with the achievement of a desired condition or the degree (including quality) to which an objective has been achieved. Furthermore, IAE is context-bound and is concerned with relationships between goals or objectives, outputs and outcomes which are different for each organisation. As a result, IAE is measured from different stakeholder perspectives as well as self-reviews by internal auditors. IAE is therefore measured differently by the various stakeholders and can also be measured by its influence on corporate governance. IAE literature shows that researchers use different factors and methodologies.

The literature review indicated a number of factors identified in academic and professional literature as impacting on IAE (refer to Table 3.1). These included

organisational factors such as IAF status, structure, CAE reporting line, independence, and budgetary status; relational factors that included AC and SM support, external auditors and other assurance providers and; IA process factors that included IA work and staff quality (refer to Table 3.2). IAE is measured by a combination of output- and outcome-based performance measures. Thus, the literature on IAE with a focus on its factors, drivers and measurement, gave rise to 54 IAE indicators. These categories were split into eleven sub-categories (refer to Appendix 2). The four broad categories were organisational factors (1), relational factors (2), IA process factors (3) and IAE measurement (4). These comprise eleven sub-categories. Organisational factors include (1) IAF status in the organisation, (2) IAF structure and (3) IAF independence; relational factors include (4) AC support, (5) SM support, (6) IAF support to others; and IA process-related factors comprise (7) IAF competence, (8) IAF service and role, and (9) IAF work quality. IA performance measurement includes (10) IAE outcome and (11) IAE output. The 54 IAE factors discovered in the literature (referred to as IAE indicators in the IAE signalling frame) were used as a basis for constructing an unweighted, dichotomous IAE signalling frame later used to code the IAE disclosure reported among South African listed companies.

The construction of the IAE signalling frame helped to ground the study in academic and professional literature. Although the main purpose of constructing the IAE signalling frame was to facilitate a reliable coding key for content analysis as the data collection method used in this study, it can be a useful tool in the hands of the IAF's stakeholders who are interested in factors that have an impact on their IAF's effectiveness. For instance, it illuminates some of the IA processes necessary for IAE such as IAF competence and related aspects, compliance with the IIA *Standards*, CPD and the need for effective communication, the importance of which for IAE may not have been appreciated by all IA stakeholders. By consolidating these factors from the literature into a single IAE signalling frame, the various stakeholders can acquire a more holistic view of the influencers and indicators of IAE and how it is measured. Moreover, the results of the study which identify those IAE signals that are related to management efficiency and company value can contribute towards more transparent disclosure practices.

### **6.3.2 Sub-research question 2: What internal audit effectiveness indicators are signalled in company reports?**

A content analysis of the IR and other ARs of a sample of 89 JSE-listed companies was conducted in order to create a database of IAE disclosure by these companies. Using the self-constructed IAE signalling frame, disclosed IAE indicators or factors were coded and each disclosed IAE indicator or factor was scored against the frame. The 54 indicators scored using the IAE signalling frame were consolidated per company, per year, in rows and 54 columns representing results of IAE indicators. Dichotomous frequencies, (0) = non-disclosure and (1) = disclosure, were used to score IAE disclosure for each item. A descriptive analysis of the results revealed that the IAE indicators frequently disclosed were those related to mandatory disclosure requirements under the Companies Act of 2008 (SA, 2008) and/or the JSE listing requirements (JSE, 2016b), while indicators other than the mandatory IAE indicators were poorly disclosed.

SA's governance regime is driven by statute and the King Code (Cuomo *et al.*, 2016; IoDSA, 2016). In addition, JSE-listed companies are also governed by the JSE listing requirements which make disclosure of application of the King Code principles a requirement for listed companies (JSE, 2016b). While the Companies Act of 2008 does not mention IA, King III devotes a whole chapter to IA and requires the AC to oversee its effectiveness (IoDSA, 2016). It is therefore not surprising that the IAF enjoys some coverage. This includes disclosure of the existence of a risk-based IAF, separate functional and administrative CAE reporting line, meetings with the AC and private meetings with the AC chairperson, together with performance evaluation by the AC among others (refer to Appendix 5). While these disclosures are based on a voluntary code, abiding by the code is a JSE listing requirement and therefore some disclosures (relating to chapter 2 of King III) is viewed as mandatory disclosure (Marx & Voogt, 2010:20).

The distinction between mandatory and voluntary disclosure is relevant to both agency theory and signalling theory. Mandatory disclosure is viewed as a bonding cost

incurred by management in order to communicate good governance to shareholders and other stakeholders, thus reducing information asymmetry. Such disclosure is costly and may not necessarily result in an economic benefit for the company. However, the act of reporting or disclosure is considered a cost-effective way of dealing with agency problems such as information asymmetry. Signalling theory associates voluntary disclosure with a marginal benefit expected from the disclosure. It is from this perspective that a positive relationship between IAE signalling and company performance was hypothesised.

### **6.3.3 Sub-research question 3: What are the factors that signal internal audit effectiveness?**

MCA, a data reduction technique, was used to empirically derive dimensions from the IAE factors signalled by South African listed companies. Four indicators of the initial 54 were not disclosed. The remaining 50 IAE disclosed IAE indicators were reduced to 19 signalled IAE factors or IAE signals. These were; (1) IAF status, (2) CAE position, (3) IAF structure, (4) IAF age, (5) CAE reporting lines, (6) AC oversight, (7) AC support, (8) AC chair-CAE relations, (9) SM support, (10) assurance partner relations. (11) IAF competence, (12) CPD, (13) IA typical services, (14) IAF work quality, (15) communication, (16) auditee compliance, (17) reliable financial reporting, (18) client satisfaction and (19) IAF efficiency. Again, the IAE factors that enjoyed high disclosure could be linked to communication of good governance and information aimed at external stakeholders.

The results illuminate IAE factors reported by South African listed companies. While the disclosure pattern followed the normative dictates of the JSE listing requirements, four IAE indicators suffered as no disclosure was made pertaining to them. These were IAE indicators related to SM support (recommendations implemented and reasons for non-implementation of recommendations) as well as performance measurement (reduction of EA fees and budget to actual audit hours). These indicators were excluded in the MCA and their relationship with company performance could not be studied. All other indicators (50) were included in deriving the 19 signalled IAE factors used for hypothesis testing. Figure 6.1 illustrates the reduction process as explained.





**Figure 6.1: MCA Reduction of IAE indicators to signalled IAE factors**

Source: Own research

#### **6.3.4 Main research question: What is the relationship between signalled internal audit effectiveness factors and company performance?**

The 19 signalled IAE factors derived using MCA represented the independent variables, while company performance represented the dependent variable in the regression model. Company performance was determined by means of accounting-based (ROA, ROE) and market-based measures (MBV and Tobin's Q) in the regression model. In answering the main research question, a positive relationship between the 19 signalled IAE factors and the four company performance measures was hypothesised as follows:

*There is a positive relationship between signalled IAE factors and company performance.*

The GLS panel regression analysis was used for hypothesis testing. The results for all proxies showed a mixture of small positive and negative  $\beta$ -coefficients only some of which appeared to be significant (refer to Appendix 9). The smallness of the  $\beta$ -coefficients was expected as the value of the IAF is a credence good (Botha & Wilkinson, 2019; Lenz & Hahn, 2015) and not readily observable or quantifiable. The fact that there were positive relationships is encouraging as it supports the hypothesis that IAE signalling is positively related to company performance. The negative  $\beta$ -coefficients can be explained in the light of agency and signalling costs which may exceed their economic value.

The following nine (9) IAE factors were found not to be significant in determining the relationship between IAE signalling and company performance; (1) AC chair-CAE relationship, (2) auditee compliance, (3) client satisfaction, (4) IAF age, (5) IAF competence, (6) IAF efficiency, (7) IAF work quality, (8) reliable financial statements and (9) CAE reporting line. Signalling of this information does not appear to be significant in relation to company performance since this information may be assumed to be in place and already to have been factored in by internal and external stakeholders in their performance evaluation. After all, these companies are the top 100 performing companies on the JSE, so compliance-related disclosures such as

those related to King III (IoDSA, 2009) and the Companies Act (SA, 2008) may not necessarily have a significant influence on the valuation of the company.

The hypothesis was accepted for the positive relationships between signalled IAE factors (independent variable) and company performance proxies, ROA, ROE, MBV and Tobin’s Q (dependent variable).

**Table 6.1: Summary of significant positive relationships.**

Independent variable (signalled IAE factors)	Dependent variable			
	ROA	ROE	MBV	Tobin's Q
	β-coefficient	β-coefficient	β-coefficient	β-coefficient
AC OVERSIGHT	1.143***	2.129**	NS	NS
ASSURANCE PARTNER RELATIONS	NS	1.171***	NS	NS
CAE POSITION	NS	1.833*	NS	NS
COMMUNICATION	NS	NS	1.154*	**0.126
CPD	1.612**	NS	NS	NS
IAF STRUCTURE	NS	NS	0.500**	***0.230
IA TYPICAL SERVICES	0.488**	NS	0.128*	NS
<b>Significant at *** p&lt;0.01; ** p&lt;0.05; *p&lt;0.1</b>				
<b>NS = Not significant</b>				

Source: Own research

The dependent variables used as proxies for company performance (ROA, ROE, MBV and Tobin’s Q) showed a positive relationship with seven independent variables (signalled IAE factors, refer to table 6.1). AC oversight, CPD and IA typical services were found to have a positive relationship with ROA. AC oversight, together with assurance partner relations and CAE position, were found to be positively related to ROE. Communication, IAF structure and IA typical services were positively related to MBV while communication and IAF structure were positively related to Tobin’s Q. These particular IAE disclosures or signals are the ones that show a positive relationship with company performance. This is particularly important for at least four reasons:

- First, the results show that disclosing some IAE factors does matter as they are positively related to company performance. This implies that using IAE disclosure as signalling is a means of reducing information asymmetry.

- Second, the results identify the IAE disclosures or signals that are worth communicating to the different company stakeholders. Internal and external stakeholders are interested in different aspects of IAE. For example, signalling the CAE position in the organisation, the relationship between the IAF and other assurance partners, the IAF structure and the ability of the IAF to communicate effectively are aligned with company performance proxies which are predominantly of interest to external stakeholders (ROE, MBV and Tobin's Q) while signalling CPD is appreciated by internal stakeholders (ROA). AC oversight (ROA and ROE) and IA typical services (ROA and MBV) are IAE factors that are of interest to both internal and external stakeholders. With this information, management can invest in disclosing those IAE factors that are linked to company performance but whose disclosure may have been neglected in the past.
- Third, disclosures of IAE relating to King III principles, such as the AC oversight of the IAF, the IAF structure, CAE position within the organisation and the typical services offered by the IAF, are valuable. This is relevant considering the question of whether the onerous compliance with governance-related disclosure bears any relationship to company performance. The results show that disclosing these particular aspects of governance is appreciated as it indicates that these companies have a strong commitment to good governance. Signalling IAE provides assurance that internal governance, risk and control processes are efficient and effective. This provides a measure of assurance to shareholders and prospective investors that their investment will not be squandered.
- Fourth, voluntary disclosures of IAE factors such as CPD of the internal auditors, a topic that has not been sufficiently explored in the IAE discourse, is valuable to internal stakeholders. The voluntary disclosure of the IAF's effective communication is valuable to both internal and external stakeholders. Companies could therefore be encouraged to disclose this information about their IAFs as it reduces information asymmetry.

The hypothesis was rejected for the following significant relationships (refer to table 6.2).

**Table 6.2: Summary of significant negative relationships.**

Independent variable (signalled IAE factors)	Dependent variable			
	ROA	ROE	MBV	Tobin's Q
	$\beta$ -coefficient	$\beta$ -coefficient	$\beta$ -coefficient	$\beta$ -coefficient
AC SUPPORT	-1.430**	-3.160*	NS	*-0.102
IAF STATUS	NS	-4.143***	NS	NS
SM SUPPORT	NS	NS	-0.361***	NS
<b>Significant at *** p&lt;0.01; ** p&lt;0.05; *p&lt;0.1</b>				
<b>NS = Not significant</b>				

Source: Own compilation

The dependent variables used as proxies for company performance (ROA, ROE, MBV and Tobin's Q) showed a negative relationship with three independent variables (signalled IAE factors): AC support (ROA, ROE and Tobin's Q), IAF status (ROE) and SM support (MBV). Previous studies have identified support from management and the AC as influencers, and in some cases significant influencers, of IAE (Abuazza, 2012; Al-Twaijry *et al.*, 2003; Albrecht *et al.*, 1988; Alzeban & Gwilliam, 2014; Cohen & Sayag, 2010; Lenz *et al.*, 2017; Mihret & Yismaw, 2007; Sarens & De Beelde, 2006b). However, the results show that the disclosure of such information is negatively related to company performance. This can be understood in the context of agency and signalling theories, which advocate disclosure as a means of reducing information asymmetry. These signalled IAE factors carried relatively high disclosure scores and were linked to disclosure of compliance with the King Code required for JSE-listed companies. The negative relationship between these IAE factors which enjoyed high disclosure and company performance can also be understood in terms of agency costs (monitoring and bonding costs) and signalling costs incurred as a means of reducing information asymmetry exceeding the benefit or value derived from such disclosure. This provides support for the argument that disclosure of these IAE factors merely for the sake of compliance with a code does not add much to company value. In fact, such compliance can be costly

## **6.4 CONTRIBUTION OF THE STUDY**

The study's contributions in the arenas of IA knowledge, methodology, theory, and IA practice, and the IA profession as a whole are highlighted in this section.

### **6.4.1 Knowledge contribution**

The relationship between signalled IAE factors and company performance is an unexplored area in IA research. This study has determined the relationship between a broad range of factors signalling IAE and company performance through the use of IRs and other ARs, which makes this study one of the first to provide such direct evidence. The use of the IR and other ARs that provide insight into how well the value-added by the IAF is communicated to the various stakeholders contributes to IAE discourse in the literature. The second contribution by this study is the construction of the IAE signalling frame, the first of its kind for use by South African companies. The self-constructed IAE signalling frame from this study is an unweighted index which can be used in future IAE disclosure research and as an IAE disclosure guide for those who wish to evaluate or signal IAE. The third contribution lies in highlighting the importance of signalling IAE. Although the IAF is an internal governance mechanism which does not signal to outsiders, the study shows that signals of IAE communicated by the AC through IR and other AR matter to external stakeholders, as evidenced by the positive relationships of IAE signalled factors with MBV and Tobin's. This connection between signalling and company performance as defined supports increased IAE disclosure by companies as a communication of company value.

### **6.4.2 Methodological contribution**

The innovative methodology used in this study is a third contribution made by the study. The use of MCA as a data reduction method is uncommon and innovative in IA research. CA, which is the foundation of MCA, is an exploratory data technique used to analyse contingency tables and multivariate categorical data. Similar to principal component analysis, CA also allows for the extraction of the most important dimensions/factors, thus improving model fit without losing the original data. MCA is

an extension of CA with an ability to analyse tables with three or more categorical variables and is suitable for the analysis of large categorical or binary datasets. The power and versatility of MCA lie in its ability to present data in a low-dimensional space which makes it easy to visualise the data graphically (Fithian & Josse, 2017:87). MCA also makes it easier to identify relationships which would otherwise be lost in a pair-wise analysis of the multi-way table (Sourial *et al.*, 2010:10). Thus, the 54 IAE indicators were reduced to 19 signalled IAE factors through this technique.

### **6.4.3 Theoretical contribution**

The findings provide empirical support for both agency and signalling theories employed in the study, giving rise to a fourth contribution, which is a theoretical contribution. Monitoring and bonding costs are agency related costs incurred by agents and principals. Although corporate governance is posited as a cheaper way of dealing with agency problems the findings showed that corporate governance (including the IAF as an internal governance mechanism) has an associated cost, reflected in the mixed relationship between some IAE factors and company performance. Signalling theory posits that companies choose to voluntarily disclose information when there is a chance of a marginal benefit for the company. Thus the disclosure of IAE factors beyond the level recommended by the Companies Act and King III can be an indication of value.

The results can be explained in terms of both agency and signalling theories. The positive relationships are in line with agency theory, which advocates good governance and reporting as cost-effective remedies for information asymmetry as an agency problem. Signalling posits that mandatory disclosure is necessary to reduce information asymmetry and therefore may or may not be related to company performance when mandatory. Thus, the negative relationship can be understood in terms of the fact that the monitoring and bonding costs incurred exceed the benefit derived from demonstrating compliance with the Companies Act and King Code on corporate governance as required by the JSE listing requirements. However, voluntary disclosure is associated with showcasing superiority or the accrual of an expected

marginal benefit to the organisation. Positive relationships thus show areas where a net benefit is accrued.

Signalling theory, used in this study, exposes an interesting relationship between mandatory and voluntary IAE signalling and company performance. Signalling theory can be used in future IA research to understand why managers voluntarily disclose IAE. The quality, credibility and frequency of disclosures as well as the receiving thereof can also be studied in the light of the link between signalling and the quality of companies.

#### **6.4.4 Contribution to internal audit practice and the internal audit profession**

The study identified seven signalled IAE factors that are positively and significantly related to company performance. The first factor was AC oversight, which suggests that better performing companies are more likely to signal AC oversight within the company. Such signalling of AC oversight is likely to have the effect of taking the stakeholders into the company's confidence, thereby reducing bonding and monitoring costs and possibly resulting in improved performance. The second factor was assurance partner relations, which suggests that signalled IAF cooperation with and support from other assurance partners are positively related to company performance. Since combined assurance is about reducing duplicate assurance and ensuring that there are no assurance gaps, better combined assurance could mean greater efficiency in rendering assurance, thereby saving bonding and monitoring costs and possibly leading to improved performance. The third factor was the signalled CAE position or level within the company. In this regard, the study found a positive relationship between a signalled CAE position and company performance. This shows that better performing companies are more likely to signal the positioning of the CAE within the company. Such a signalling of the CAE positioning within the company structure is likely to have the effect of taking the stakeholders into the company's confidence, thereby reducing monitoring costs, which in turn is likely to improve the company's profitability.



Closely linked to the CAE position is the fourth factor, the IAF structure, which the study found to be positively and significantly associated with company performance. As in the case of the CAE position, it seems that signalling the IAF structure is also a confidence booster for stakeholders, with the effect of reducing monitoring costs, which in turn is likely to improve the company's profitability. The fifth factor was found to be typical IAF services, suggesting that signalling the IAF services such as assurance, consulting and ad hoc services remains crucial given the positive relation between such services and company performance. The sixth factor was found to be the communication signal. The better companies perform the better the channels of communication are likely to be, something which stakeholders appreciate. Such communication signals are likely to reduce bonding and monitoring costs through reduced information asymmetry, thus improving company performance. Finally, signalling CPD was found to be the seventh factor, which is also positively associated with company performance (ROA). This suggests that management confidence is inspired by the knowledge that the IAF believes in the competence of its staff and in keeping abreast with the latest developments in the profession. For example, one of the professional requirements for internal auditors is to maintain their competence through CPD (IIA, 2020). CPD has the advantage for employers of ensuring that consistent and high standards are maintained across the company and allowing for benchmarking IA performance (CIIA, 2020). Such confidence will probably result in improved efficiencies and company performance.

The positive relationship between the above-mentioned IAE factors and company performance has implications for the IA profession as it moves towards being the trusted adviser to the various internal stakeholders within the organisation. The IA is strategically placed as an assurance provider that should play an influential role in the governance, risk management and internal control of the company. Communicating organisational factors such as the CAE's position, AC oversight and the structure of the IAF helps communicate that the IAF is well positioned to carry out its mandate. Furthermore, signalling specific areas of competence like CPD and effective communication which can be linked to the quality of the service that the IAF offers inspires confidence not only in management, which benefits directly from these

services, but also in other stakeholders that rely on communication by the company. The association of IAE signals with company performance should be used by IA to forge stronger relationships with the other assurance partners in the combined assurance model. When all is said and done, the study shows that showcasing IAE through signalling of these seven IAE factors reduces information asymmetry and improves investor confidence and company performance.

The IAE signalling frame has been constructed on an Excel spreadsheet which is easy to download and use (refer to Appendix 2). The comprehensive list of IAE indicators grouped into organisational, relational, IA process and IAE measurement related factors means it can be used by internal auditors themselves, external auditors, the AC and SM. Use of the IAE signalling frame, with the dichotomous (0) for non-disclosure and (1) for disclosure of the indicators in the IAE frame is guided by a coding key to ensure that coding is done correctly. As such the IAE signalling frame is easy to use and provides a comprehensive view in the initial assessment of IAE disclosure. Further, this frame can be used to benchmark IAE disclosure for companies in the same industries.

## **6.5 RECOMMENDATIONS**

### **6.5.1 Improve internal audit effectiveness disclosure**

The study showed that voluntary disclosure of IAE factors bears a positive relation to ROA, ROE, MBV and Tobin's Q. The study recommends an increase in IAE disclosure of AC oversight, assurance partner relations, CAE position, communication, CPD, IAF structure and IA typical services as a strategy in line with company objectives to signal the strong internal governance practices employed by the company. These IAE disclosure signals to investors that a company is better than others, it is well governed and therefore worth investing in. The results support the notion that disclosure of information has value, both from a governance point of view and from an investment point of view. Disclosure relating to the CAE position within the company, the IAF's structure, relations with assurance partners and the ability to communicate effectively

can be disclosed for the benefit of investors and shareholders. The CPD of the internal auditors is of value to internal stakeholders who use the services of the IAF. AC oversight and IA typical services can be disclosed for the benefit of both internal and external stakeholders. The positive relationship between communication and IAF structure with Tobin's Q shows IAE signalling communicates positively about firm value to investors, thereby reducing information asymmetry and reducing the monitoring cost for investors.

### **6.5.2 Signalling continuous professional development of internal auditors**

Signalling the CPD of internal auditors is of interest to internal stakeholders as the primary beneficiaries of IA competence. This is desirable for both the IAF as it fulfils its professional mandate and for management, which needs a competent IAF they can rely on. The IIA South Africa has a CPD programme dedicated to the education and advancement of internal auditors which is offered through the *Leadership Academy for Guardians of Governance* (Leadership Academy) (IIASA, 2020). Internal auditors should highlight the steps they take to maintain their professional competence to allow management to use their CPD as a signal. Signalling the competence of internal auditors through CPD disclosure is recommended as it enhances company performance.

### **6.5.3 Consider the use of an internal audit effectiveness signalling frame**

The results have refined our understanding of the relationship between IAE disclosure and company performance. The IAE signalling frame could assist managers in making decisions on resource allocation and investment in the area of IAE disclosure as the results give substance to such IAE disclosures. The IAE signalling frame may be used as a guide for those who wish to evaluate IAE disclosure as it contains a comprehensive list of IAE indicators and can be used to benchmark IAE disclosure for companies in the same industries. It can be used as a frame by CAEs to showcase the IAF and make it easy and less costly for management to signal IAE.

## **6.6 LIMITATIONS OF THE STUDY**

Notwithstanding its empirical, theoretical, methodological and professional contributions, this study is not without limitations, which are accordingly acknowledged. Firstly, although the measures used for company performance are in line with previous studies, the notion of company performance as used in this study was limited to the stated performance measures of the study. Secondly, the study is limited in terms of the sample selected and the time period under investigation in that the study focused on the top 100 JSE-listed companies for a specific time period, namely 2012–2016. Hence, the results of the study can only be generalised with caution. Thirdly, the source of IAE signals was based solely on annual IRs and other ARs, with the exclusion of other forms of communication by companies in the interim. Fourthly, the study made no distinction between the different sectors as defined by the JSE.

Finally, the focus of the content analysis used in the study was on whether IAE indicators were being disclosed and not on the quality of the disclosure. Therefore, no conclusions can be drawn regarding the quality of those disclosures.

## **6.7 DIRECTIONS FOR FUTURE RESEARCH**

The study's limitations open up avenues for future research.

- In this study, IAE was studied through the lens of the agency and signalling theories. While agency theory has been the main theory used in IA research, other governance related theories like resource dependency, institutional, and stakeholder theories could provide an enriched perspective of IAE.
- Future studies could compare differences in the IAE disclosure patterns between financial and non-financial companies.
- The use of signalling theory in IAE research provides various new avenues of research relating to IAE signalling quality, credibility and frequency of disclosures all aspects explained by this theory.

- The use of signalling could be extended to evaluate the receiving of signals by a variety of stakeholders given the variety of channels used by companies to disclose information.
- The motivation for voluntary IAE disclosure could be studied in detail to understand why SM and ACs signal IAE.
- Future studies could benefit from triangulation of the results with a qualitative approach if the views of various participants were solicited.
- Future studies could use measures of company performance other than the ones used in this study.
- Resources permitting, future studies could consider all companies listed on the JSE and not merely the top 100 companies. This would provide a very good mix in the sample of high-performance companies and those that are not performing so well.
- Future studies could also compare time periods which were marked by different economic conditions. For example, the time period 2012–2016 was a period which was relatively stable economically. It might be instructive to compare IAE disclosure in relatively calm periods with disclosure in turbulent periods or during defining moments like the 2020 Covid-19 pandemic.
- Future studies could include all companies listed on the JSE and consider company performance as a potential driver for the IAE disclosure.

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## LIST OF APPENDICES

### Appendix 1: TOP 100 COMPANIES CONSIDERED FOR THIS STUDY

	Company considered	Primary listing	Years considered	Number of observation	
1	African Rainbow Min Ltd	JSE	2012–2016	5	✓
2	Anglo American Plat Ltd	JSE	2012–2016	5	✓
3	Anglo American plc	LSE	2012–2016	5	✓
4	Anglogold Ashanti Ltd	JSE	2012–2016	5	✓
5	Anheuser-Busch InBev SA NV	Frankfurt SE, Belgium, NYSE, MEXBOL, JSE		0	<b>EXCLUDED</b>
6	ArcelorMittal SA Limited	JSE	2012–2016	5	✓
7	Aspen Pharmacare Hldgs Ltd	JSE	2012–2016	5	✓
8	Assore Ltd	JSE	2012–2016	5	✓
9	Attacq Limited	JSE	2013–2016	4	<b>EXCLUDED</b>
10	AVI Ltd	JSE	2012–2016	5	✓
11	Barclays Africa Grp Ltd	JSE	2012–2016	5	✓
12	Barloworld Ltd	JSE	2012–2016	5	✓
13	BHP Billiton plc	LSE, ASX	2012–2016	5	✓
14	BID Corporation Ltd	JSE	2016	1	<b>EXCLUDED</b>
15	Bidvest Ltd	JSE	2012–2016	5	✓
16	Brait SE	LuxemburgSE, Euro MTF, JSE	2013–2016	4	✓
17	British American Tob plc	LSE	2012–2016	5	✓
18	Capital&Counties Prop plc	LSE	2012–2016	5	✓
19	Capitec Bank Hldgs Ltd	JSE	2012–2016	5	✓
20	Clicks Group Ltd	JSE	2012–2016	5	✓
21	Compagnie Fin Richemont	SIX Swiss E, LuxembourgSE	2012–2016	5	✓
22	Coronation Fund Mngrs Ld	JSE	2012–2016	5	✓
23	Curro Holdings Limited	JSE	2012–2016	5	✓
24	Dis-Chem Pharmacies Ltd	JSE	2016	0	<b>EXCLUDED</b>
25	Discovery Ltd	JSE	2012–2016	5	✓
26	Distell Group Ltd	JSE	2012–2016	5	✓
27	EOH Holdings Ltd	JSE	2012–2016	5	✓
28	Exxaro Resources Ltd	JSE	2012–2016	5	✓
29	Famous Brands Ltd	JSE	2012–2016	5	✓
30	Firststrand Ltd	JSE	2012–2016	5	✓
31	Fortress Inc Fund Ltd A	JSE	2012–2016	5	✓
32	Fortress Inc Fund Ltd B	JSE	2012–2016	5	<b>EXCLUDED</b>
33	Glencore plc	LSE	2012–2016	5	✓

	Company considered	Primary listing	Years considered	Number of observation	
34	Globe Trade Centre S.A.	Poland- Warsaw SE, JSE	2012–2016	5	✓
35	Gold Fields Ltd	JSE	2012–2016	5	✓
36	Growthpoint Prop Ltd	JSE	2012–2016	5	✓
37	Hammerson plc	LSE	2012–2016	5	<b>EXCLUDED</b>
38	Harmony GM Co Ltd	JSE	2012–2016	5	✓
39	Hosken Cons Inv Ltd	JSE	2012–2016	5	✓
40	Hyprop Inv Ltd	JSE	2012–2016	5	✓
41	Impala Platinum Hlgs Ltd	JSE	2012–2016	5	✓
42	Imperial Holdings Ltd	JSE	2012–2016	5	✓
43	Intu Properties plc	LSE	2012–2016	5	✓
44	Investec Ltd	JSE	2012–2016	5	✓
45	Investec plc	LSE	2012–2016	5	✓
46	Italtile Ltd	JSE	2012–2016	5	✓
47	JSE Ltd	JSE	2012–2016	5	✓
48	KAP Industrial Hldgs Ltd	JSE	2012–2016	5	✓
49	Kumba Iron Ore Ltd	JSE	2012–2016	5	✓
50	Liberty Holdings Ltd	JSE	2012–2016	5	✓
51	Life Healthc Grp Hldgs Ltd	JSE	2012–2016	5	✓
52	Massmart Holdings Ltd	JSE	2012–2016	5	✓
53	Mediclinic Int plc	LSE	2012–2016	0	<b>EXCLUDED</b>
54	MMI Holdings Limited	JSE	2012–2016	5	✓
55	Mondi Ltd	JSE	2012–2016	5	<b>EXCLUDED</b>
56	Mondi plc	LSE	2012–2016		✓
57	Mr Price Group Ltd	JSE	2012–2016	5	✓
58	MTN Group Ltd	JSE	2012–2016	5	✓
59	Nampak Ltd	JSE	2012–2016	5	✓
60	Naspers Ltd -N-	LSE	2012–2016	5	✓
61	Nedbank Group Ltd	JSE	2012–2016	5	✓
62	Netcare Limited	JSE	2012–2016	5	✓
63	New Europe Prop Inv plc	LSE	2012–2016	5	✓
64	Northam Platinum Ltd	JSE	2012–2016	5	✓
65	Oakbay Res and Energy Ltd	JSE	2015-2016	2	<b>EXCLUDED</b>
66	Oceana Group Ltd	JSE	2012–2016	5	✓
67	Old Mutual plc	LSE	2012–2016	5	✓
68	Omnia Holdings Ltd	JSE	2012–2016	5	✓
69	Pick n Pay Stores Ltd	JSE	2012–2016	5	✓
70	Pioneer Foods Group Ltd	JSE	2012–2016	5	✓
71	PSG Group Ltd	JSE	2012–2016	5	✓
72	Rand Merchant Inv Hldgs Ltd	JSE	2012–2016	5	✓
73	Redefine Properties Ltd	JSE	2012–2016	5	✓



	Company considered	Primary listing	Years considered	Number of observation	
74	Reinet Investments S.C.A	Euronet, LuxembourgSE, JSE	2012–2016	5	✓
75	Remgro Ltd	JSE	2012–2016	5	✓
76	Resilient REIT Limited	JSE	2012–2016	5	✓
77	Reunert Ltd	JSE	2012–2016	5	✓
78	RMB Holdings Ltd	JSE	2012–2016	5	✓
79	Rockcastle Global Real Estate Co Ltd	Mauritius, JSE	2012–2016	5	✓
80	SA Corp Real Estate Ltd	JSE	2012–2016	5	✓
81	Sanlam Limited	JSE	2012–2016	5	✓
82	Santam Limited	JSE	2012–2016	5	✓
83	Sappi Ltd	JSE	2012–2016	5	✓
84	Sasol Limited	JSE	2012–2016	5	✓
85	Shoprite Holdings Ltd	JSE	2012–2016	5	✓
86	Sibanye Gold Limited	JSE	2013-2016	4	✓
87	South32 Limited	ASX, JSE	2015-2016	1	<b>EXCLUDED</b>
88	Standard Bank Group Ltd	JSE	2012–2016	5	✓
89	Steinhoff Int Hldgs N.V.	Frankfurt SE		0	<b>EXCLUDED</b>
90	Super Group Ltd	JSE	2012–2016	5	✓
91	Telkom SA SOC Ltd	JSE	2012–2016	5	✓
92	The Foschini Group Limited	JSE	2012–2016	5	✓
93	The Spar Group Ltd	JSE	2012–2016	5	✓
94	Tiger Brands Ltd	JSE	2012–2016	5	✓
95	Tongaat Hulett Ltd	JSE	2012–2016	5	✓
96	Truworths Int Ltd	JSE	2012–2016	5	✓
97	Tsogo Sun Holdings Ltd	JSE	2012–2016	5	✓
98	Vodacom Group Ltd	JSE	2012–2016	5	✓
99	Vukile Property Fund Ltd	JSE	2012–2016	5	✓
100	Woolworths Holdings Ltd	JSE	2012–2016	5	✓
	<b>Total</b>				<b>89 Companies</b>



## Appendix 2: IAE Sampling Frame

Category	Sub-category	IAE indicator	Search key-words	Score	Coding Key
Organizational	(1) IAF status in the organisation	1. Internal Audit Function (IAF) profile in the organizations structure	Internal audit		IA as an independent function on the organizational structure providing assurance services.
		2. CAE position in organization	CAE, head of internal audit, head of assurance		CAE - title at management level. Head of internal audit.
		3. CAE educational & professional qualifications, experience	CAE, qualification, certification, professional body		CAE - qualification, certification, professional body, experience.
	(2) IAF Structure	4. In-house IAF, co-sourced, outsourced	In-house, out-sourced, co-sourced		The internal audit department, IAF outsourced or co-sourced.
		5. IAF Size	Permanent staff, years		Number of permanent staff.
		6. IAG Age	Years		IAF years in existence.
	(3) IAF Independence	7. CAE reports to AC functionally	Reporting, functional		IAF reports functionally to the AC, AC oversees the function of the IAF, IAF submits reports to the AC periodically.
		8. CAE reports to CEO administratively	Reporting, administrative		IAF reports administratively to the CEO/CFO, submitting reports periodically.
		9. AC appoints/dismisses the CAE	Appointment, dismissal, CAE		The AC is responsible for the appointment, dismissal, performance evaluation of the CAE.
		10. Unlimited scope of IAF	Internal audit charter, scope		The IAF has unlimited scope.
		11. AC approves IAF charter, plan and budget	internal audit charter, audit plan, audit budget		The AC approves the internal audit charter, audit plan and audit budget.

Category	Sub-category	IAE indicator	Search key-words	Score	Coding Key
Relational	(4) AC support	12. Number of meetings with AC	Meetings, CAE, AC		The CAE is a permanent invitee (ex officio) to the AC meetings and number of meetings held. Separate meetings held with the AC in the absence of management.
		13. Private meetings with AC chairperson	Meetings, private meetings,		The CAE has access to the chairperson of the AC. Private meetings with the AC chairperson.
		14. AC/SM special request for CAE	Consulting, special request, ad hoc projects		CAE/IAF presence requested at other meetings (strategic/operational) and for ad hoc projects.
		15. AC support for IAF findings & recommendations	Recommendations implemented		The AC reports the findings and recommendations of the IAF to the board. IAF reports presented to the board. AC monitors implementation of IA recommendations by management.
	(5) SM support	16. Management implements IA recommendations	Recommendations implemented, findings		Management implements the recommendations by the IAF, in some cases as part of combined assurance. Progress report on findings and recommendation.
		17. AC/SM encourage & co-ordinate IA-EA interaction	Assurance, combined assurance, internal and external audit		AC encourage and co-ordinate combined assurance, internal and external audit forming part of audit coverage plan.
		18. Budgetary status & resources	Audit budget, resources		The IAF has the necessary resources to carry out its mandate. The AC approved the IA budget.
	(6) IAF support to others	19. External Auditors (EA) & IA cooperation in audits	Assurance, combined assurance, internal and external audit		Combined assurance. Internal and external audit co-ordinate work to ensure audit coverage.
		20. EA relies of IA work	Assurance, combined assurance, internal and external audit		Combined assurance. Internal and external audit rely on the other's work to avoid duplication.
		21. IA Coordination with other parties	Assurance, risk management, compliance, forensic, IT		IA role in supporting other assurance providers as part of combined assurance, risk management, compliance, forensic, IT, etc.

Category	Sub-category	IAE indicator	Search key-words	Score	Coding Key
IA Processes	(7) IAF Competence	22. Internal auditors objectivity/independence	Independence, robustness, resilience		IA independently performs its work.
		23. Educational, professional qualifications of internal auditors	IAF qualification, certification, professional body		IAF has suitably qualified members (qualification, members of the IIA, CIA's).
		24. Work experience and expertise of internal auditors	Experience, skills mix, expertise		IAF has experienced staff with relevant expertise.
		25. Continuous Professional Development (avg hours annual training)	Training, Continuous Professional Development (CPD)		IAF embarks on training to enhance their effectiveness in completing mandate, Continuous Professional Development (CPD) of members.
	(8) IAF Service and Role	26. Assurance (strategic & operational)	Assurance, compliance, risk, governance		The IAF engages in assurance, relating to internal (financial) control, compliance with laws and regulations, risk management and governance at operational and strategic level.
		27. Consulting (strategic & operational)	Consulting, compliance, risk, governance		The IAF consulting in, compliance, risk, governance, IT, fraud hot-line, fraud investigations.
		28. Ad hoc engagements	Consulting, special request, ad hoc projects		IAF participating in assurance/consulting engagements on sustainability, environmental, HR, etc. on an ad hoc basis.
	(9) IAF work quality	29. Compliance with Standards	International Professional Practice Framework (IPPF), IIA Standards, IA charter		The IAF complies with or performs work in accordance with International Professional Practice Framework (IPPF), IIA Standards. IIA external evaluation that rates the IAF as "Generally Conforms".
		30. Effective planning	Effective planning, hours budget		Effective planning, hours budgeted to cover the mandated coverage.
		31. Risk-based audit plans	Risk-based, risk register		IAF plans address risks identified as part of the risk management process. Plans derived from the risk register.
		32. Strategy aligned audit activities	Understand business, strategy aligned audit plans, risk-based audit plans		IAF plans and activities are aligned to company strategy.
		33. Unrestricted & free access to all data, data pools & activities	Data, access		The IAF has unrestricted access to people, places, data pools and activities.

	34. Adoption of CSA techniques	Control Self-Assessment, control		The IAF adopts CAS techniques as a tool to evaluate the IAF's internal processes.
	35. QAIP	Quality		The presence of an QAIP.
	36. Performance evaluation	KPIs, performance measurement, bonuses, remuneration		The external quality evaluation, AC/SM performance evaluation of the CAE, performance based bonuses.
	37. Effective communication	Effective communication		Effective communication.
	38. Use of IT tools & techniques	Continuous auditing, IT auditing, data analytics		The use of continuous auditing, IT auditing, data analytics.
	39. Useful findings & recommendations	Findings, recommendation implemented		IAF findings and reports are relied upon by management. Recommendations are implemented.
	40. IA report quality	Report quality, timely reports		Report quality, timely reports.

Category	Sub-category	IAE indicator	Search key-words	Score	Coding Key
IAE measurement	IAE Outcome	41. Reliable financial statements	(Un)qualified audit, material irregularities		(Un)qualified audit opinion from the external auditors.
		42. Sound financial controls	(Un)qualified audit, material irregularities		No material breakdown of internal financial controls reported by the board, (Un)qualified audit opinion from the external auditors, no material irregularities.
		43. Auditee compliance with laws & regulations	Directors report, penalties, technical audits		No material non-compliance with laws and regulations.
		44. Auditee compliance with policies & procedures	Directors report, material irregularities, non-compliance		Compliance with policies and procedures especially the company code of ethics.
		45. Recommendations implemented	Recommendations implemented, combined assurance		Number of recommendations implemented, combined assurance.
		46. Reasons for non-implementation	No reliance, not practical, not cost effective, incompetent, IAF status		Reasons for non-reliance (not practical, not cost effective, incompetence, IAF status, etc.).
		47. Client satisfaction	Result of client satisfaction survey, complaints, dissatisfaction		Result of client satisfaction survey, client complaints register or hot-line.
		48. Satisfaction of stakeholder specific expectation	Result of stakeholder satisfaction survey, complaints		Result of stakeholder satisfaction survey.
		49. Training ground for management positions	Promotions, management training, recruitment		Promotions, management training, recruitment of IAF staff within the company.
		50. Reduction of external audit fees	Audit fees, cost savings		Reduction in audit fees as a result of the IAF activities.
		51. Cost savings	Cost savings		Cost savings as a result of the IAF activities.
	IAE Output	52. Percentage of audit plan completed	Percentage of audit plan completed, budget		Percentage of audit plan completed compared to budget.
		53. Budget to actual audit hours	Budget to actual audit hours, budget		Budget to actual audit hours
		54. Completion of mandated coverage	Percentage assurance, consulting, budget		Mandated coverage completed by IAF. Mandated coverage completed as part of combined assurance.
<b>TOTAL</b>			<b>0</b>		

## Appendix 2.1: Populated IAE Sampling Frame For One Year

IAE Index (sampling frame)		Scoring Key	80 pages + 97 pages + 14 pages			
IAE Indicators		Non-disclosure= 0 Disclosure= 1	Integrated Report (IR) Wording	IR page Number	AFS page number	Governance and risk report
1	Internal Audit Function (IAF) profile in the	1	Certain of the Group's key functions, including taxation, secretarial, leg			GRR, 6
2	Chief Audit Executive (CAE) position in org	1	The Head of Group Audit Services is Reyaaz	IR, 59		
3	CAE educational & professional qualificati	0				
4	In-house IAF, co-sourced, outsourced	1	Super Group has a full Internal Audit Depart	IR, 1		GRR, 6
5	Size	1	Super Group has a full Internal Audit Depart	IR, 59		
6	Age	0				
7	CAE reports to Audit Committee (AC) func	0				
8	CAE reports to Chief executive officer (CE	0				
9	AC appoints/dismisses the CAE	0				
10	Unlimited scope of IAF	0				
11	AC approves IAF charter, plan and budget	1	The Group Audit Committee approves the Ir	IR, 59		GRR, 6
12	Number of meetings with AC	1	The committee meets at least four times a year. Meetings are attended			GRR, 4
13	Private meetings with AC chairperson	1	The chairman of the Group Audit Committe	IR, 59		GRR, 4
14	AC/SM special request for CAE	0				
15	AC support for IAF findings & recommenda	0				
16	Management implements IA recommenda	0				
17	AC/SM encourage & co-ordinate IA & EA it	1	The Group Audit Committee identifies and evaluates exposure to finan			GRR, 3, 4
18	Budgetary status & resources	0				
19	External Auditors (EA) & IA cooperation in	0				
20	EA relies of IA work	0				
21	Coordination with other parties	0				
22	Internal auditors objectivity	0				
23	Educational, professional qualifications of	0				
24	Work experience and expertise of internal	0	Where necessary the skills of the internal audit team are supplemente			GRR, 6
25	Continuous Professional Development (av	0				
26	Assurance (strategic & operational)	1	The Group Audit Committee has: • Reviewe	IR, 58		
27	Consulting (strategic & operational)	0				
28	Adhoc engagements	1	The internal audit team also carries out special investigations and assis			GRR, 6
29	Compliance with Standards	0				
30	Effective planning	0				
31	Risk-based audit plans	1	The internal audit plan, which is of a rolling three year nature, is based			GRR, 6
32	Strategy aligned audit activities	1	As risk is continually re-assessed, significant changes in profile, togethe			GRR, 6
33	Unrestricted & free access to all data, dat	0				
34	Adoption of Control Risk Self-Assessment	0				
35	Quality assurance and improvement progr	0				
36	Performance evaluation	0				
37	Effective communication	0				
38	Use of IT tools & techniques	0				
39	Useful findings & recommendations	0				
40	IA report quality	0				
41	Reliable financial statements	1	In our opinion, these financial statements present fairly, i		AFS, 7	
42	Sound financial controls	1	The directors are of the opinion, based on th	IR, 57, 58		
43	Auditee compliance with laws & regulatio	0				
44	Auditee compliance with policies & proced	0				
45	Recommendations implemented	0				
46	Reasons for non-implementation	0				
47	Client satisfaction	0				
48	Satisfaction of stakeholder specific expect	0				
49	Training ground for management positions	0				
50	Reduction of external audit fees	0				
51	Cost savings	0				
52	% of audit plan completed	0				
53	Budget to actual audit hours	0				
54	Completion of mandated coverage	0				
		14				
		26%				

## Appendix 2.2: Summary of IAE Indicator Scores For One Company

IAE Indicators	2016	2015	2014	2013	2012	Total
1 Internal Audit Function (IAF) profile in the org	1	1	1	1	1	5
2 Chief Audit Executive (CAE) position in organ	1	1	1	1	1	5
3 CAE educational & professional qualification	0	0	0	0	0	0
4 In-house IAF, co-sourced, outsourced	1	1	1	1	1	5
5 Size	1	1	1	1	1	5
6 Age	0	0	0	0	0	0
7 CAE reports to Audit Committee (AC) functio	0	0	0	0	0	0
8 CAE reports to Chief executive officer (CEO)	0	0	0	0	0	0
9 AC appoints/dismisses the CAE	0	0	0	0	0	0
10 Unlimited scope of IAF	0	0	0	0	0	0
11 AC approves IAF charter, plan and budget	1	1	1	1	1	5
12 Meetings with AC	1	1	1	1	1	5
13 Private meetings with AC chairperson	1	1	1	1	1	5
14 AC/SM special request for CAE	0	0	0	0	0	0
15 AC support for IAF findings & recommendatio	0	0	0	0	0	0
16 Management implements IA recommendatio	0	0	0	0	0	0
17 AC/SM encourage & co-ordinate IA & EA inte	1	1	1	1	1	5
18 Budgetary status & resources	0	0	0	0	0	0
19 External Auditors (EA) & IA cooperation in au	0	0	0	0	0	0
20 EA relies of IA work	0	0	0	0	0	0
21 Coordination with other parties	0	0	0	0	0	0
22 Internal auditors objectivity/independence	0	0	0	0	0	0
23 Educational, professional qualifications of in	0	0	0	0	0	0
24 Work experience and expertise of internal a	0	0	0	0	0	0
25 Continuous Professional Development (avg h	0	0	0	0	0	0
26 and control	1	1	1	1	1	5
27 Consulting (strategic & operational) and IT	1	1	0	0	0	2
28 Adhoc engagements	1	1	1	1	1	5
29 Compliance with <i>Standards</i>	0	0	0	0	0	0
30 Effective planning	0	0	0	0	0	0
31 Risk-based audit plans	1	1	1	1	1	5
32 Strategy aligned audit activities	1	1	1	1	1	5
33 Unrestricted & free access to all data, data p	0	0	0	0	0	0
34 Adoption of Control Risk Self-Assessment Te	0	0	0	0	0	0
35 Quality assurance and improvement program	0	0	0	0	0	0
36 Performance measurement	0	0	0	0	0	0
37 Effective communication	0	0	0	0	0	0
38 Use of IT tools & techniques	0	0	0	0	0	0
39 Useful findings & recommendations	0	0	0	0	0	0
40 IA report quality	0	0	0	0	0	0
41 Reliable financial statements	1	1	1	1	1	5
42 Sound financial controls	1	1	1	1	1	5
43 Auditee compliance with laws & regulations	0	0	0	0	0	0
44 Auditee compliance with policies & procedur	0	0	0	0	0	0
45 Recommendations implemented	0	0	0	0	0	0
46 Reasons for non-implementation	0	0	0	0	0	0
47 Client satisfaction	0	0	0	0	0	0
48 Satisfaction of stakeholder specific expectat	0	0	0	0	0	0
49 Training ground for management positions	0	0	0	0	0	0
50 Reduction of external audit fees	0	0	0	0	0	0
51 Cost savings	0	0	0	0	0	0
52 % of audit plan completed	0	0	0	0	0	0
53 Budget to actual audit hours	0	0	0	0	0	0
54 Completion of mandated coverage	0	0	0	0	0	0
	<b>15</b>	<b>15</b>	<b>14</b>	<b>14</b>	<b>14</b>	
	<b>28%</b>	<b>28%</b>	<b>26%</b>	<b>26%</b>	<b>26%</b>	





## Appendix 4: Mapping Of IAE signalling Indicators To MCA Results

IAE signalling frame (54 indicators)



MCA-Dimension reduction



19 signalled factors (variables)

Category	Sub-category	IAE sampling frame indicators	Retained factors (Dimensions)	Eigenvalue
(1) Organisational	1. IAF status in the organisation	IAF profile in the organisations structure	(1) IAF status	0.976
		CAE educational and professional qualifications/experience		
	2. IAF structure	The CAE position in organisation	(2) CAE position	1.324
		In-sourced, out-sourced or co-sourced	(3) IAF structure	1.021
		IAF size		
	3. IAF independence	CAE reports functionally to the AC CAE reports administratively to the CEO The AC approves the IAF charter, plan and budget	(4) IAF Age	1.004
(5) CAE reporting lines			1.698	
				The AC appoints and dismisses the CAE
IAFs unlimited scope		(6) AC oversight	1.103	

Category	Sub-category	IAE sampling frame indicators	Retained factors (Dimensions)	Eigenvalue
(2) Relational	4. Audit Committee (AC) support	Meetings with AC AC support for IAF findings and recommendations	(7) AC support	1.551
		Private meetings with AC chairperson AC/SM special request for CAE	(8) AC chair-CAE relations	1.028
	5. Senior Management (SM) Support	Management implements IA recommendations AC/SM encourage and coordinate IA-EA interaction Budgetary status and resources	(9) SM support	1.391
	6. IAF support to others	EA and IAF cooperation EA reliance on IAF IAF coordination with others	(10) Assurance partner relations	2.060

Category	Sub-category	IAE sampling frame indicators	Retained factors (Dimensions)	Eigenvalue
<b>(3) IA Process</b>	7. IAF competence	Internal auditors objectivity/independence	(11) IAF competence	1.730
		Educational professional qualifications of internal auditors		
		Work experience and expertise of internal auditors		
		Continuous Professional Development (CPD)	(12) CPD	0.980
	8. IAF services and role	Assurance strategic and operational risk and control	(13) IA typical services	1.523
	Consulting strategic and operational and IT			
	Ad hoc engagements			
9. IAF work quality	Compliance with <i>Standards</i>	(14) IAF work quality	3.327	
	QAIP			
	Risk-based audit plans			
	Strategy-aligned audit activities			
	Unrestricted, free access to all data, data pools & activities			
	Performance evaluation			
	Use of IT tools and techniques			
	Useful findings and recommendations			
	Effective planning			
	IA report quality			
	Adoption of CSA techniques	(15) Communication	1.387	
	Effective communication			

Category	Sub-category	IAE sampling frame indicators	Retained factors (Dimensions)	Eigenvalue
<b>(4) IAE measurement</b>	10. IAF outcome measures	Auditee compliance with laws and regulations	(16) Auditee compliance	1.354
		Auditee compliance with policies and procedures		
		Training ground for management positions		
	10. IAF outcome measures	Reliable financial statements	(17) Reliable financial reporting	1.130
Sound financial controls				
Client satisfaction				
10. IAF outcome measures	Satisfaction of stakeholder specific expectation	(18) Client satisfaction	1.068	
	Cost savings			
11. IAF output measures	Percentage of audit plan completed	(19) IAF efficiency	1.206	
	Completion of mandated coverage			

## Appendix 5: Application of King III Principles based on the “Apply Or Explain” Approach

King III Principle	Recommended practice	IAE signalling frame indicator	Disclosure
<b>Principle 2.10.</b> The board should ensure that there is an effective risk-based internal audit	The board should ensure that there is an effective risk-based internal audit.	(4) There is an In-house IAF, co-sourced, outsourced IAF (31) IA Risk-based audit plans	98%  65%
<b>Principle 3.7.</b> The audit committee should be responsible for overseeing of internal audit	3.7.1. The audit committee should be responsible for the appointment, performance assessment and/or dismissal of the CAE. 3.7.2. The audit committee should approve the internal audit plan. 3.7.3 The audit committee should ensure that the internal audit function is subject to an independent quality review as and when the committee determines it appropriate.	(10) AC appoints/dismisses the CAE  (11) AC approves IAF charter, plan and budget (34) QAIP	76%  25%  25%
<b>Principle 4.9.</b> The board should receive assurance regarding the effectiveness of the risk management process (Risk assurance)	4.9.1. Management should provide assurance to the board that the risk management plan is integrated in the daily activities of the company. 4.9.2. Internal audit should provide a written assessment of the effectiveness of the system of internal controls and risk management to the board.	(42) Sound financial controls	83%

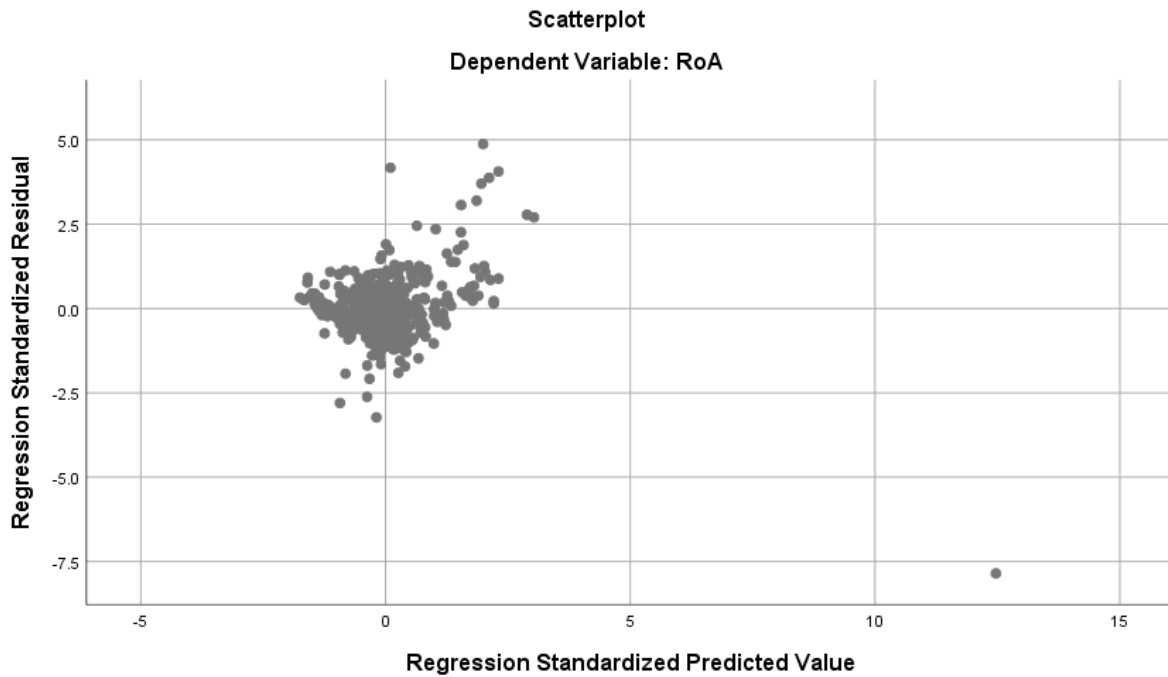
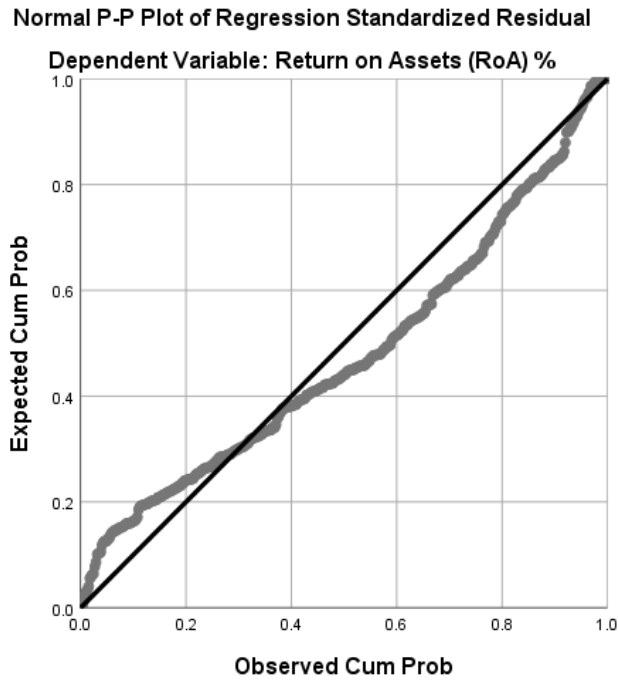
King III Principle	Recommended practice	IAE signalling frame indicator	Disclosure
<b>Principle 7.1. (The need for and role of internal audit)</b>  The board should ensure that there is an effective risk based internal audit	7.1.1. Companies should establish an internal audit function.	(4) There is an In-house IAF, co-sourced, outsourced IAF	98%
	7.1.2. Internal audit should perform the following functions:	(26) Service and role - Assurance (strategic & operational)/risk and control	93%
	7.1.2.1 evaluate the company's governance processes;	(26) Assurance (strategic and operational/risk control services)	93%
	7.1.2.2. perform an objective assessment of the effectiveness of risk management and the internal control framework;	(27) Consulting (strategic & operational) and IT	59%
	7.1.2.3. systematically analyse and evaluating business processes and associated controls; and	(39) Useful findings & recommendations	57%
	7.1.2.4. provide a source of information as appropriate, regarding instances of fraud, corruption, unethical behaviour and irregularities.	(11) AC approves IAF charter, plan and budget	76%
7.1.3. An internal audit charter should be defined and approved by the board.	(29) Compliance with <i>Standards</i>	24%	
7.1.4. The internal audit function should adhere to the IIA <i>Standards</i> and code of ethics.			
<b>Principle 7.2. (Internal audit's approach and plan)</b>  Internal audit should follow a risk based approach to its plan	7.2.1. The internal audit plan and approach should be informed by the strategy and risks of the company.	(31) IA Risk-based audit plans	65%
	7.2.2. Internal audit should be independent from management.	(22) Internal auditors' objectivity/independence	66%
7.2.3. Internal audit should be an objective provider of assurance that considers:			
7.2.3.1. the risks that may prevent or slow down the realisation of strategic goals;			
7.2.3.2. whether controls are in place and functioning effectively to mitigate these; and			
7.2.3.3. the opportunities that will promote the realisation of strategic goals that are identified, assessed and effectively managed by the company's management team.			

King III Principle	Recommended practice	IAE signalling frame indicator	Disclosure
<b>Principle 7.3.</b> Internal audit should provide a written assessment of the effectiveness of the company's system of internal controls and risk management	7.3.1. Internal audit should form an integral part of the combined assurance model as internal assurance provider 7.3.2. Internal controls should be established not only over financial matters, but also operational, compliance and sustainability issues. 7.3.3. Companies should maintain an effective governance, risk management and internal control framework. 7.3.4 Management should specify the elements of the control framework.	(17) AC/SM encourage & co-ordinate IA & EA interaction (21) IAF Coordination with other parties	62% 53%
	7.3.5. Internal audit should provide a written assessment of the system of internal controls and risk management to the board. 7.3.6. Internal audit should provide a written assessment of internal financial controls to the audit committee.	(42) Sound financial controls	83%
<b>Principle 7.4.</b> The audit committee should be responsible for overseeing internal audit	7.4.1. The internal audit plan should be agreed and approved by the audit committee.	(11) AC approves IAF charter, plan and budget	76%
	7.4.2. The audit committee should evaluate the performance of the internal audit function.	(36) Performance measurement	58%
	7.4.3. The audit committee should ensure that the internal audit function is subjected to an independent quality review.		
	7.4.4. The CAE should report functionally to the audit committee chairman.	(7) CAE reports functionally to the AC	72%
	7.4.5. The audit committee should be responsible for the appointment, performance assessment and dismissal of the CAE.	(10) AC appoints/dismisses the CAE	25%
7.4.6. The audit committee should ensure that the internal audit function is appropriately resourced and has appropriate budget allocated to the function.			
7.4.7. Internal audit should report at all audit committee meetings.	(12) Meetings with AC	85%	

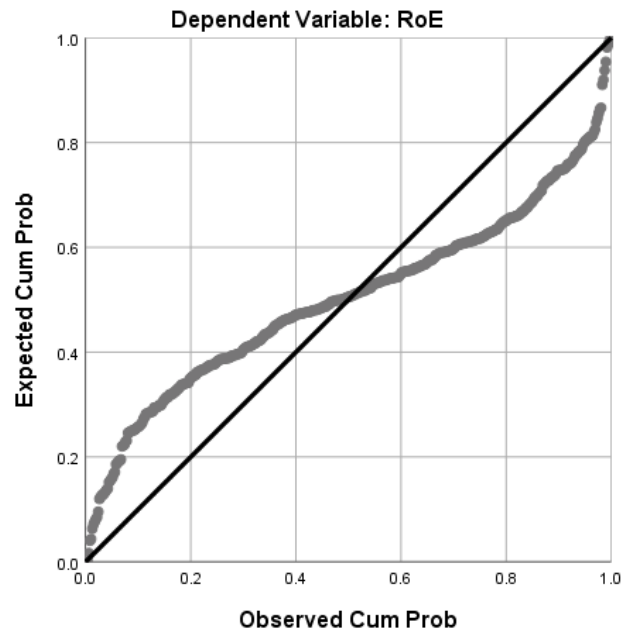
King III Principle	Recommended practice	IAE signalling frame indicator	Disclosure
<b>Principle 7.5. (Internal audit's status in the company)</b>	7.5.1. The internal audit function should be independent and objective.	(22) Internal auditors objectivity/independence	66%
	7.5.2. The internal audit function should report functionally to the audit committee.	(7) CAE reports functionally to the AC	72%
	7.5.3. The CAE should have a standing invitation to attend executive committee meetings.	(12) Meetings with the AC	85%
	7.5.4. The internal audit function should be skilled and resourced as is appropriate for the complexity and volume of risk and assurance needs.		
	7.5.5. The CAE should develop and maintain a quality assurance and improvement programme.	34) QAIP	25%



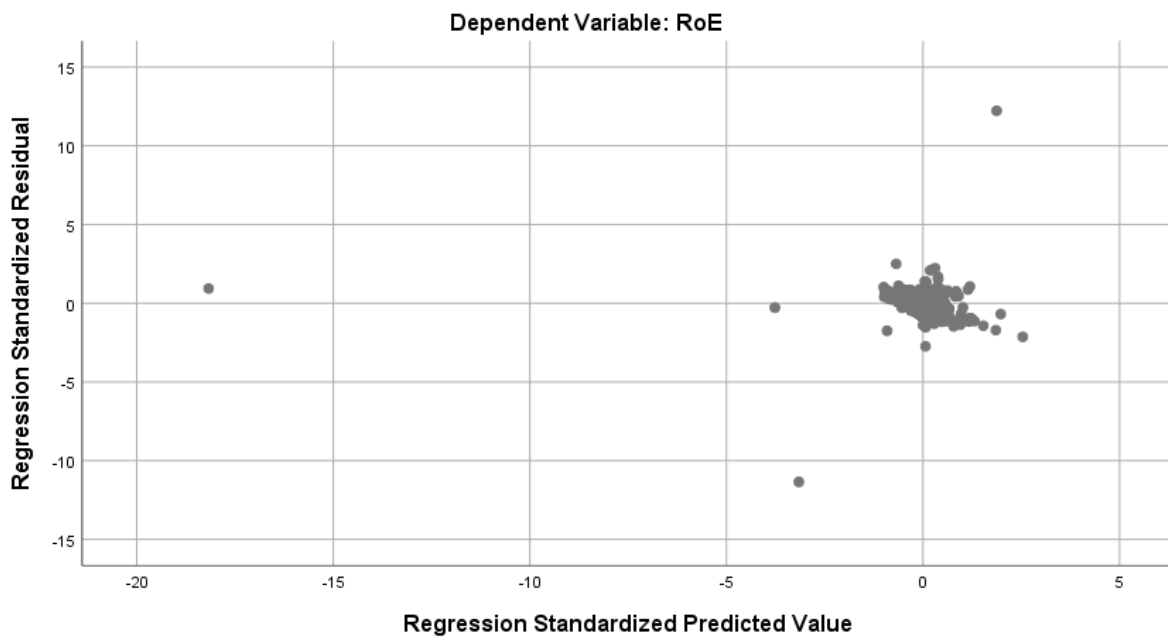
## Appendix 6: Regression Residual and Scatter Plots



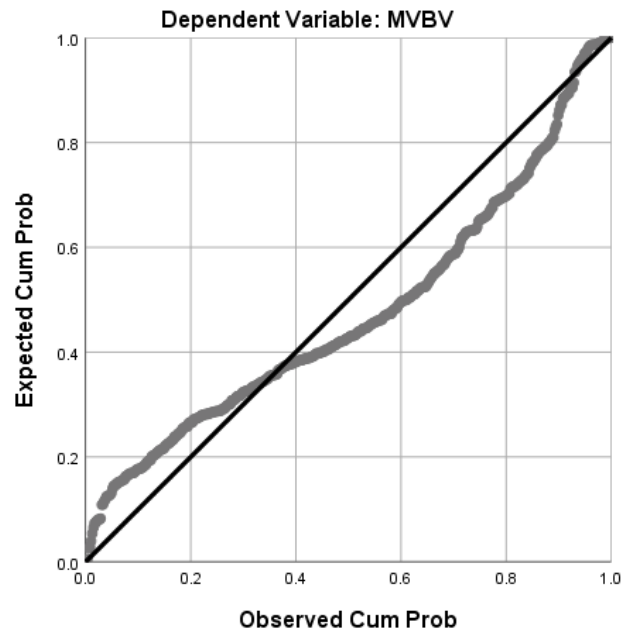
Normal P-P Plot of Regression Standardized Residual



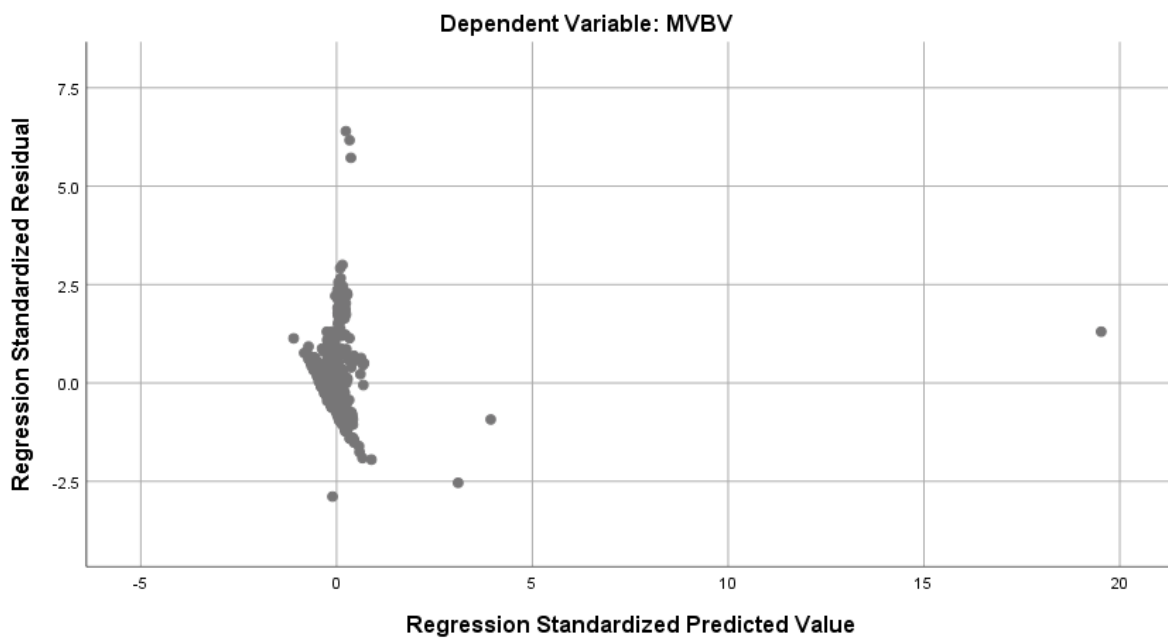
Scatterplot



Normal P-P Plot of Regression Standardized Residual

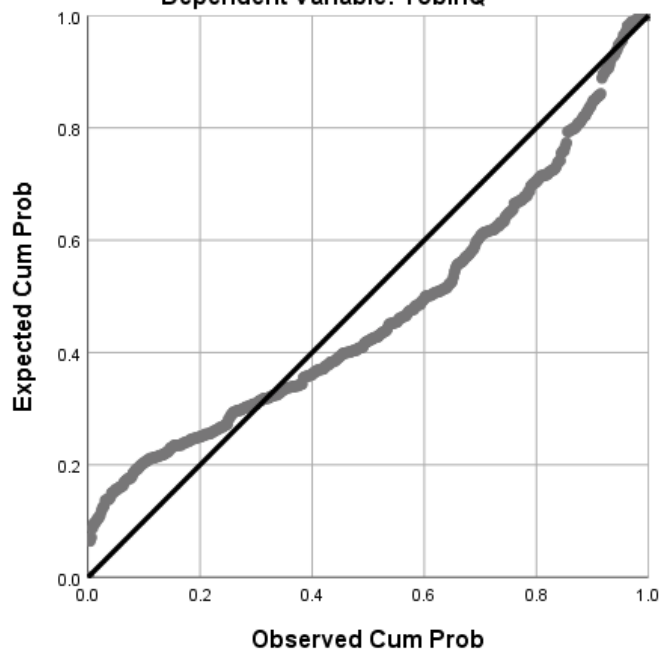


Scatterplot



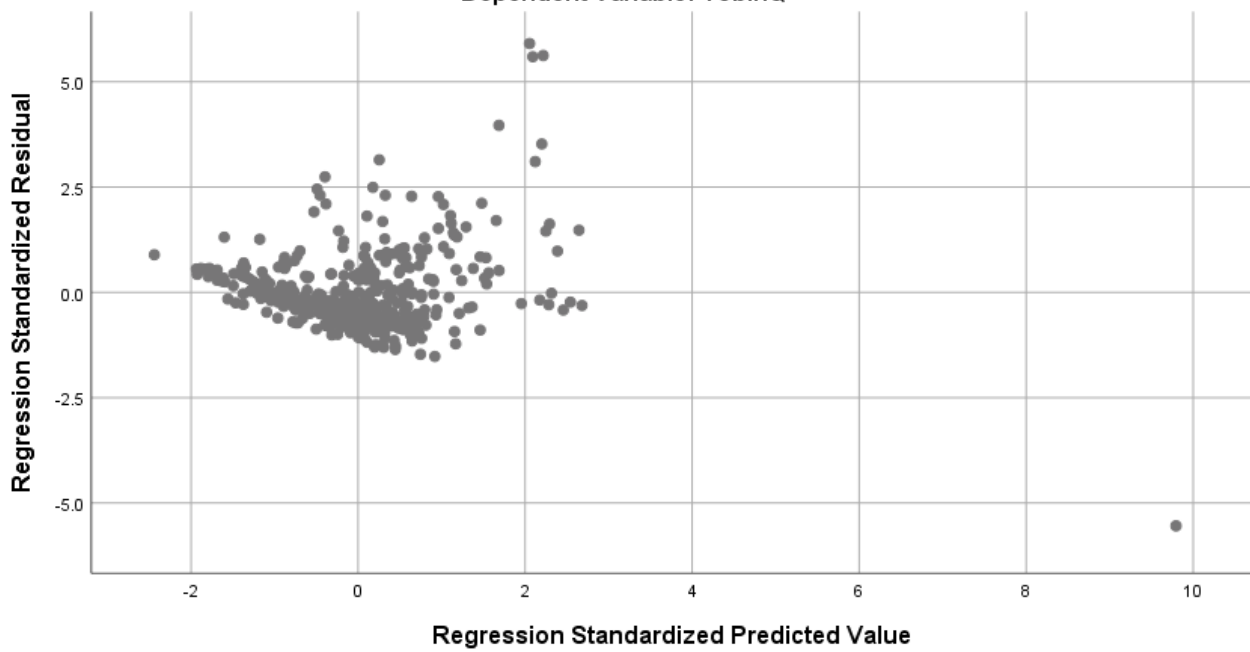
Normal P-P Plot of Regression Standardized Residual

Dependent Variable: TobinQ



Scatterplot

Dependent Variable: TobinQ



## Appendix 7: Balanced Panel Regression Results

Dependent Variable: ROA  
 Method: Panel EGLS (Cross-section weights)  
 Date: 11/20/19 Time: 16:24  
 Sample: 2012 2016  
 Periods included: 5  
 Cross-sections included: 86  
 Total panel (balanced) observations: 430  
 Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-9.516660	31.56524	-0.301492	0.7632
AC SUPPORT	-1.429835	0.581902	-2.457175	0.0145
AC OVERSIGHT	1.142998	0.427200	2.675560	0.0078
AC CHAIR-CAE RELATION	0.161166	0.509257	0.316473	0.7518
ASSURANCE PARTNER RELATIONS	0.094632	0.211567	0.447291	0.6550
CAE POSITION	0.532580	0.399570	1.332882	0.1835
CLIENT SATISFACTION	0.026780	0.867585	0.030867	0.9754
IAF STATUS	-0.266345	0.386174	-0.689701	0.4909
IAF STRUCTURE	-0.778497	0.743088	-1.047652	0.2956
IAF COMPETENCE	0.238860	0.335674	0.711584	0.4772
IAF WORK QUALITY	-0.207601	0.154470	-1.343960	0.1799
IA TYPICAL SERVICES	0.488070	0.191428	2.549620	0.0112
IAF EFFICIENCY	-0.497869	0.545522	-0.912648	0.3621
RELIABLE FINANCIAL STATEMENTS	6.808202	15.77300	0.431637	0.6663
CAE REPORTING LINES	0.078649	0.246981	0.318441	0.7504
SM SUPPORT	0.289989	0.292682	0.990798	0.3225
IAF AGE	2.533344	2.413240	1.049769	0.2946
CPD	1.612028	0.730291	2.207377	0.0280
COMMUNICATION	0.047288	0.780735	0.060569	0.9517
AUDITEE COMPLIANCE	0.217739	0.333560	0.652774	0.5144
DEBT/ASSET	-0.005811	0.048146	-0.120685	0.9040
DEBT/EQUITY	-0.006233	0.011541	-0.540059	0.5895
CASH-ON-TASS	0.122094	0.013580	8.990457	0.0000
PYROA	0.094675	0.011954	7.920286	0.0000

### Effects Specification

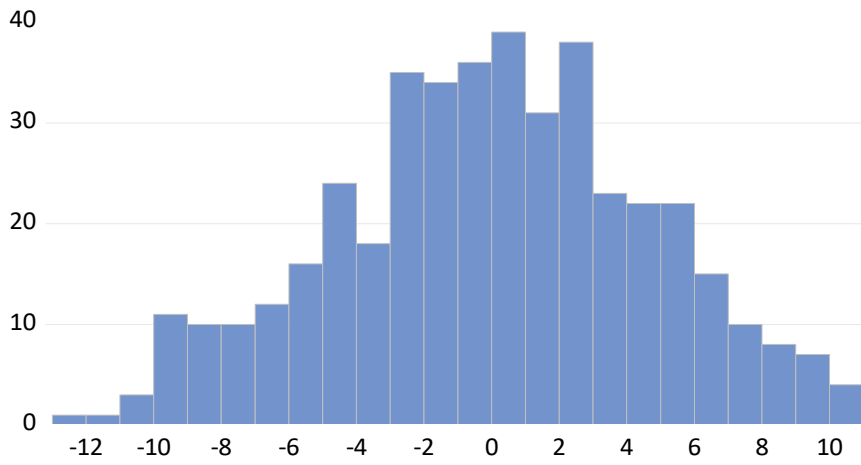
Cross-section fixed (dummy variables)

### Weighted Statistics

R-squared	0.979799	Mean dependent var	26.08929
Adjusted R-squared	0.973003	S.D. dependent var	39.15793
S.E. of regression	5.460105	Sum squared resid	9569.891
F-statistic	144.1616	Durbin-Watson stat	1.975172
Prob(F-statistic)	0.000000		

### Unweighted Statistics

R-squared	0.835524	Mean dependent var	10.26127
Sum squared resid	12596.69	Durbin-Watson stat	2.350184



Series: Standardized Residuals	
Sample 2012 2016	
Observations 430	
Mean	-3.16e-16
Median	0.067049
Maximum	10.84504
Minimum	-12.91993
Std. Dev.	4.723075
Skewness	-0.133871
Kurtosis	2.600209
Jarque-Bera	4.148040
Probability	0.125680

Dependent Variable: ROE  
 Method: Panel EGLS (Cross-section weights)  
 Date: 11/20/19 Time: 16:23  
 Sample: 2012 2016  
 Periods included: 5  
 Cross-sections included: 86  
 Total panel (balanced) observations: 430  
 Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-17.88176	28.38587	-0.629953	0.5292
AC SUPPORT	-3.160366	1.770357	-1.785157	0.0752
AC OVERSIGHT	2.128584	1.023975	2.078746	0.0384
AC CHAIR-CAE RELATION	0.401068	1.236178	0.324442	0.7458
ASSURANCE PARTNER RELATIONS	1.171249	0.447728	2.615983	0.0093
CAE POSITION	1.832796	1.101333	1.664162	0.0971
CLIENT SATISFACTION	0.489534	1.740101	0.281325	0.7786
IAF STATUS	-4.142892	1.089810	-3.801481	0.0002
IAF STRUCTURE	-1.587145	1.545259	-1.027106	0.3051
IAF COMPETENCE	-0.541299	0.892974	-0.606176	0.5448
IAF WORK QUALITY	0.407290	0.465059	0.875781	0.3818
IA TYPICAL SERVICES	0.542102	0.664515	0.815787	0.4152
IAF EFFICIENCY	-2.287956	1.511879	-1.513319	0.1312
RELIABLE FINANCIAL STATEMENTS	13.37103	13.77836	0.970436	0.3326
CAE REPORTING LINES	-0.801102	0.534604	-1.498497	0.1350
SM SUPPORT	0.124295	0.789602	0.157414	0.8750
IAF AGE	3.388071	5.347180	0.633618	0.5268
CPD	4.537082	5.253794	0.863582	0.3885
COMMUNICATION	1.376342	3.494282	0.393884	0.6939
AUDITEE COMPLIANCE	-0.418727	0.900442	-0.465024	0.6422
DEBT/ASSET	3.528931	0.312751	11.28352	0.0000
DEBT/EQUITY	-1.556929	0.102428	-15.20024	0.0000
CASH-ON-TASS	0.210958	0.030934	6.819519	0.0000
PYROE	0.012791	0.024881	0.514117	0.6075

Effects Specification

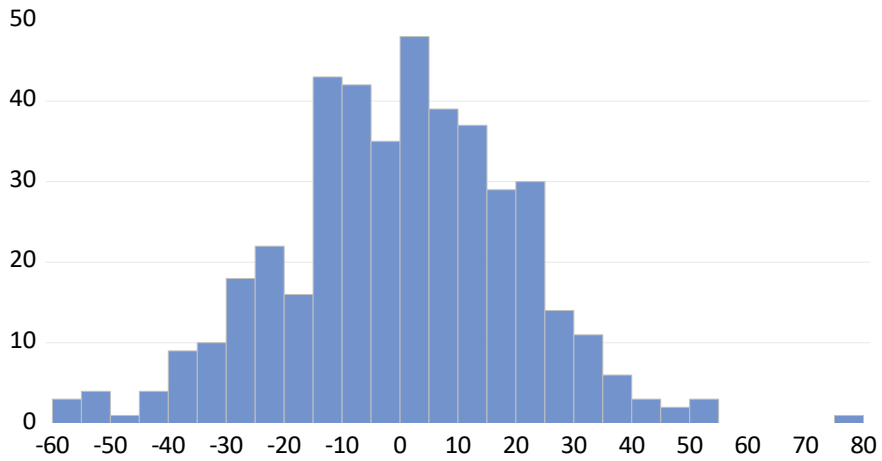
Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.990135	Mean dependent var	124.7497
Adjusted R-squared	0.986816	S.D. dependent var	338.3787
S.E. of regression	23.50626	Sum squared resid	177366.7
F-statistic	298.3297	Durbin-Watson stat	2.030959
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.609823	Mean dependent var	14.82087
Sum squared resid	296158.1	Durbin-Watson stat	1.816613



Series: Standardized Residuals	
Sample 2012 2016	
Observations 430	
Mean	8.59e-16
Median	0.815161
Maximum	75.00738
Minimum	-57.84114
Std. Dev.	20.33328
Skewness	-0.056273
Kurtosis	3.280351
Jarque-Bera	1.635137
Probability	0.441504



Dependent Variable: MBV  
 Method: Panel EGLS (Cross-section weights)  
 Date: 11/20/19 Time: 16:24  
 Sample: 2012 2016  
 Periods included: 5  
 Cross-sections included: 86  
 Total panel (balanced) observations: 430  
 Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.056144	1.376854	2.945951	0.0035
AC SUPPORT	-0.173247	0.181549	-0.954267	0.3407
AC OVERSIGHT	0.145318	0.109393	1.328404	0.1850
AC CHAIR-CAE RELATION	-0.214659	0.172532	-1.244165	0.2143
ASSURANCE PARTNER RELATIONS	-0.110453	0.072644	-1.520471	0.1294
CAE POSITION	-0.272819	0.216588	-1.259621	0.2087
CLIENT SATISFACTION	-0.282647	0.210500	-1.342743	0.1803
IAF STATUS	-0.061106	0.076170	-0.802235	0.4230
IAF STRUCTURE	0.499546	0.249562	2.001690	0.0462
IAF COMPETENCE	0.131898	0.090293	1.460777	0.1451
IAF WORK QUALITY	0.034029	0.045815	0.742739	0.4582
IA TYPICAL SERVICES	0.127538	0.068163	1.871065	0.0622
IAF EFFICIENCY	0.108850	0.416520	0.261331	0.7940
RELIABLE FINANCIAL STATEMENTS	0.347110	0.644331	0.538715	0.5905
CAE REPORTING LINES	0.062903	0.095504	0.658642	0.5106
SM SUPPORT	-0.361081	0.103934	-3.474124	0.0006
IAF AGE	-0.004461	0.564166	-0.007908	0.9937
CPD	-0.211610	0.292164	-0.724286	0.4694
COMMUNICATION	1.153986	0.595734	1.937083	0.0536
AUDITEE COMPLIANCE	-0.140003	0.124376	-1.125643	0.2612
DEBT/ASSET	-1.843994	0.087723	-21.02056	0.0000
DEBT/EQUITY	0.787317	0.008300	94.85291	0.0000
CASH-ON-TASS	0.021003	0.004148	5.063940	0.0000
PYMBV	0.017966	0.010000	1.796540	0.0733

Effects Specification

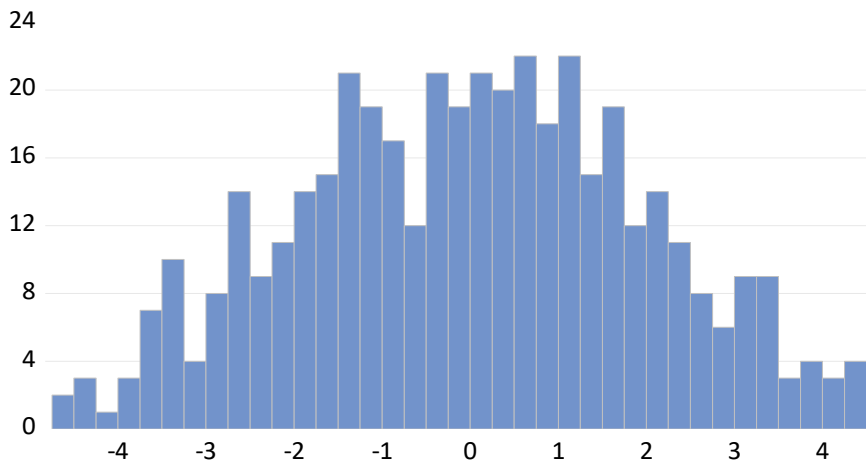
Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.986366	Mean dependent var	12.26038
Adjusted R-squared	0.981779	S.D. dependent var	15.56990
S.E. of regression	2.270689	Sum squared resid	1655.085
F-statistic	215.0243	Durbin-Watson stat	1.891184
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.966625	Mean dependent var	5.492472
Sum squared resid	2254.112	Durbin-Watson stat	1.592082



Series: Standardized Residuals	
Sample 2012 2016	
Observations 430	
Mean	1.53e-16
Median	0.054486
Maximum	4.299841
Minimum	-4.621194
Std. Dev.	1.964181
Skewness	-0.038491
Kurtosis	2.404885
Jarque-Bera	6.451570
Probability	0.039725

Dependent Variable: TOBINQ  
 Method: Panel EGLS (Cross-section weights)  
 Date: 11/20/19 Time: 16:25  
 Sample: 2012 2016  
 Periods included: 5  
 Cross-sections included: 86  
 Total panel (balanced) observations: 430  
 Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.305525	0.746491	0.409281	0.6826
AC SUPPORT	-0.102150	0.046504	-2.196582	0.0288
AC OVERSIGHT	0.007407	0.021527	0.344099	0.7310
AC CHAIR-CAE RELATION	0.003933	0.021748	0.180821	0.8566
ASSURANCE PARTNER RELATIONS	0.005663	0.015321	0.369606	0.7119
CAE POSITION	0.018679	0.025748	0.725460	0.4687
CLIENT SATISFACTION	0.013718	0.066041	0.207716	0.8356
IAF STATUS	0.017137	0.022567	0.759381	0.4482
IAF STRUCTURE	0.230239	0.062901	3.660329	0.0003
IAF COMPETENCE	0.006015	0.018573	0.323878	0.7462
IAF WORK QUALITY	0.008780	0.009210	0.953273	0.3412
IA TYPICAL SERVICES	-0.005270	0.019190	-0.274607	0.7838
IAF EFFICIENCY	-0.041239	0.055419	-0.744134	0.4573
RELIABLE FINANCIAL STATEMENTS	0.323273	0.353973	0.913269	0.3618
CAE REPORTING LINES	-0.029749	0.020278	-1.467014	0.1434
SM SUPPORT	-0.027115	0.017741	-1.528339	0.1274
IAF AGE	0.066458	0.267823	0.248141	0.8042
CPD	0.019465	0.067581	0.288025	0.7735
COMMUNICATION	0.126178	0.056939	2.216022	0.0274
AUDITEE COMPLIANCE	-0.014397	0.021440	-0.671513	0.5024
DEBT/ASSET	-0.003690	0.006155	-0.599394	0.5493
DEBT/EQUITY	0.001899	0.000676	2.810284	0.0053
CASH-ON-TASS	0.005437	0.001290	4.213933	0.0000
PYTOBINSQ	0.358566	0.035366	10.13873	0.0000

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.967879	Mean dependent var	3.238265
Adjusted R-squared	0.957071	S.D. dependent var	1.706169
S.E. of regression	0.416141	Sum squared resid	55.58864
F-statistic	89.55868	Durbin-Watson stat	2.427329
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.939025	Mean dependent var	1.821930
Sum squared resid	71.09875	Durbin-Watson stat	2.345609

## Appendix 8.1: IAE and ROA

Model Summary <sup>c</sup>										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.531 <sup>a</sup>	0.282	0.277	11.232	0.282	57.311	3	438	0.000	
2	.617 <sup>b</sup>	0.380	0.348	10.667	0.099	3.509	19	419	0.000	1.256

a. Predictors: (Constant), D/A, D/E, CTA  
b. Predictors: (Constant), D/A, D/E, CTA, IAF Age, CPD, Communication, IAF structure, Auditee compliance, AC support, Reliable financial statements, Client satisfaction, AC oversight, IAF status, IAF efficiency, AC chair-CAE relation, CAE position, Assurance partner relations, IAF competence, CAE reporting lines, IA typical services, SM support, IAF work quality  
c. Dependent Variable: ROA

### IAE and ROA ANOVA results

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21692.146	3	7230.715	57.311	.000 <sup>b</sup>
	Residual	55261.127	438	126.167		
	Total	76953.273	441			
2	Regression	29277.482	22	1330.795	11.696	.000 <sup>c</sup>
	Residual	47675.791	419	113.785		
	Total	76953.273	441			

a. Dependent Variable: ROA  
b. Predictors: (Constant), cash on total assets, Debt/Asset, Debt/Equity  
c. Predictors: (Constant), cash on total assets, Debt/Asset, Debt/Equity, IAF Age, CPD, Communication, IAF structure, Auditee compliance, AC support, Reliable financial statements, Client satisfaction, AC oversight, IAF status, IAF efficiency, AC chair-CAE relation, CAE position, Assurance partner relations, IAF competence, CAE reporting lines, IA typical services, SM support, IAF work quality

**Regression analysis results, ROA as dependent variable.**

Coefficients <sup>a</sup>							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	4.939	0.691		7.145	0.000		
Debt/Asset	0.037	0.290	0.005	0.128	0.898	0.929	1.077
Debt/Equity	-0.047	0.037	-0.053	-1.257	0.209	0.926	1.080
Cash on total assets	0.432	0.033	0.526	12.962	0.000	0.997	1.003
2 (Constant)	7.745	3.679		2.105	0.036		
Debt/Asset	0.097	0.279	0.014	0.347	0.729	0.906	1.104
Debt/Equity	-0.020	0.037	-0.022	-0.543	0.588	0.861	1.162
Cash on total assets	0.420	0.033	0.512	12.580	0.000	0.894	1.119
AC chair-CAE relation	3.624	1.165	0.151	3.112	0.002	0.630	1.588
AC oversight	3.005	1.024	0.128	2.934	0.004	0.780	1.282
AC support	-2.347	0.949	-0.123	-2.472	0.014	0.601	1.663
Assurance partner relations	-1.598	0.569	-0.146	-2.810	0.005	0.549	1.823
Auditee compliance	-2.481	1.045	-0.103	-2.373	0.018	0.787	1.271
CAE position	-1.061	1.352	-0.036	-0.785	0.433	0.691	1.447
Client satisfaction	1.053	1.269	0.034	0.830	0.407	0.882	1.133
Communication	-2.059	2.538	-0.034	-0.811	0.418	0.862	1.160
CPD	-0.941	3.399	-0.011	-0.277	0.782	0.918	1.089
IAF Age	0.496	10.807	0.002	0.046	0.963	0.976	1.024
IAF competence	-1.755	0.866	-0.116	-2.027	0.043	0.455	2.200
IAF efficiency	0.506	1.293	0.017	0.391	0.696	0.784	1.276
IAF work quality	-0.488	0.426	-0.082	-1.148	0.252	0.290	3.445
IAF status	-2.687	1.106	-0.106	-2.429	0.016	0.782	1.279
IAF structure	0.539	2.834	0.008	0.190	0.849	0.886	1.129
IA typical services	1.738	0.828	0.113	2.098	0.036	0.510	1.961
Reliable financial statements	-0.474	1.583	-0.014	-0.299	0.765	0.699	1.430
CAE reporting lines	-0.110	0.730	-0.008	-0.150	0.880	0.510	1.961
SM support	1.266	0.816	0.094	1.551	0.122	0.403	2.480

a. Dependent Variable: ROA

## Appendix 8: OLS Regression Results

### Appendix 8.2: IAE and ROE

Model Summary <sup>c</sup>										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
1	.655a	0.429	0.425	31.463	0.429	109.825	3	438	0.000	
2	.698b	0.488	0.461	30.472	0.059	2.524	19	419	0.000	1.880

a. Predictors: (Constant), cash on total assets, Debt/Asset, Debt/Equity  
b. Predictors: (Constant), cash on total assets, Debt/Asset, Debt/Equity, IAF Age, CPD, Communication, IAF structure, Auditee compliance, AC support, Reliable financial statements, Client satisfaction, AC oversight, IAF status, IAF efficiency, AC chair-CAE relation, CAE position, Assurance partner relations, IAF competence, CAE reporting lines, IA typical services, SM support, IAF work quality  
c. Dependent Variable: ROE

### IAE and ROE ANOVA results

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	326157.940	3	108719.313	109.825	.000 <sup>b</sup>
	Residual	433590.770	438	989.933		
	Total	759748.711	441			
2	Regression	370682.194	22	16849.191	18.146	.000 <sup>c</sup>
	Residual	389066.517	419	928.560		
	Total	759748.711	441			

a. Dependent Variable: ROE  
b. Predictors: (Constant), cash on total assets, Debt/Asset, Debt/Equity  
c. Predictors: (Constant), cash on total assets, Debt/Asset, Debt/Equity, IAF Age, CPD, Communication, IAF structure, Auditee compliance, AC support, Reliable financial statements, Client satisfaction, AC oversight, IAF status, IAF efficiency, AC chair-CAE relation, CAE position, Assurance partner relations, IAF competence, CAE reporting lines, IA typical services, SM support, IAF work quality

**Regression model IAE and ROE**

Coefficients <sup>a</sup>							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	13.849	1.936		7.153	0.000		
Debt/Asset	4.139	0.812	0.191	5.095	0.000	0.929	1.077
Debt/Equity	-1.852	0.105	-0.661	-17.636	0.000	0.926	1.080
Cash on total assets	0.307	0.093	0.119	3.292	0.001	0.997	1.003
2 (Constant)	13.860	10.510		1.319	0.188		
Debt/Asset	4.110	0.797	0.189	5.158	0.000	0.906	1.104
Debt/Equity	-1.805	0.105	-0.645	-17.110	0.000	0.861	1.162
Cash on total assets	0.324	0.095	0.126	3.394	0.001	0.894	1.119
IAF Age	4.390	30.872	0.005	0.142	0.887	0.976	1.024
CAE position	-0.469	3.862	-0.005	-0.122	0.903	0.691	1.447
CPD	39.330	9.709	0.148	4.051	0.000	0.918	1.089
IAF status	-6.978	3.160	-0.087	-2.208	0.028	0.782	1.279
IAF structure	-3.194	8.095	-0.015	-0.395	0.693	0.886	1.129
CAE reporting lines	1.591	2.085	0.037	0.763	0.446	0.510	1.961
AC oversight	1.887	2.926	0.026	0.645	0.519	0.780	1.282
AC support	-3.838	2.712	-0.064	-1.415	0.158	0.601	1.663
AC chair-CAE relation	2.381	3.327	0.032	0.716	0.475	0.630	1.588
SM support	-0.972	2.332	-0.023	-0.417	0.677	0.403	2.480
Assurance partner relations	3.036	1.625	0.088	1.869	0.062	0.549	1.823
IAF competence	-7.338	2.473	-0.154	-2.967	0.003	0.455	2.200
IA typical services	5.388	2.366	0.112	2.278	0.023	0.510	1.961
IAF work quality	0.412	1.216	0.022	0.339	0.735	0.290	3.445
Communication	-9.273	7.251	-0.048	-1.279	0.202	0.862	1.160
Auditee compliance	-3.225	2.986	-0.043	-1.080	0.281	0.787	1.271
Reliable financial statements	-0.182	4.523	-0.002	-0.040	0.968	0.699	1.430
Client satisfaction	-1.074	3.626	-0.011	-0.296	0.767	0.882	1.133
IAF efficiency	3.225	3.694	0.034	0.873	0.383	0.784	1.276

a. Dependent Variable: ROE

## Appendix 8.3: IAE and MBV

### Regression model summary - IAE and MBV

Model Summary <sup>c</sup>										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin - Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.857 <sup>a</sup>	0.735	0.733	6.410	0.735	403.917	3	437	0.000	
2	.883 <sup>b</sup>	0.780	0.768	5.977	0.045	4.452	19	418	0.000	0.597
a. Predictors: (Constant), cash on total assets, Debt/Asset, Debt/Equity										
b. Predictors: (Constant), cash on total assets, Debt/Asset, Debt/Equity, IAF Age, CPD, Communication, IAF structure, Auditee compliance, AC support, Reliable financial statements, Client satisfaction, AC oversight, IAF status, IAF efficiency, CAE position, AC chair-CAE relation, Assurance partner relations, IAF competence, CAE reporting lines, IA typical services, SM support, IAF work quality										
c. Dependent Variable: MBV										

### IAE and MBV ANOVA results

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	49782.096	3	16594.032	403.917	.000 <sup>b</sup>
	Residual	17953.171	437	41.083		
	Total	67735.267	440			
2	Regression	52803.795	22	2400.173	67.192	.000 <sup>c</sup>
	Residual	14931.472	418	35.721		
	Total	67735.267	440			
a. Dependent Variable: MBV						
b. Predictors: (Constant), cash on total assets, Debt/Asset, Debt/Equity						
c. Predictors: (Constant), cash on total assets, Debt/Asset, Debt/Equity, IAF Age, CPD, Communication, IAF structure, Auditee compliance, AC support, Reliable financial statements, Client satisfaction, AC oversight, IAF status, IAF efficiency, CAE position, AC chair-CAE relation, Assurance partner relations, IAF competence, CAE reporting lines, IA typical services, SM support, IAF work quality						



### Regression model IAE and MBV

Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.391	0.395		8.585	0.000		
	Debt/Asset	-1.282	0.166	-0.198	-7.747	0.000	0.929	1.077
	Debt/Equity	0.744	0.021	0.890	34.765	0.000	0.926	1.080
	cash on total assets	0.051	0.019	0.066	2.687	0.007	0.997	1.003
2	(Constant)	0.548	2.062		0.266	0.791		
	Debt/Asset	-1.290	0.156	-0.199	-8.255	0.000	0.906	1.104
	Debt/Equity	0.758	0.021	0.907	36.641	0.000	0.861	1.162
	cash on total assets	0.068	0.019	0.089	3.647	0.000	0.894	1.119
	AC chair-CAE relation	0.906	0.654	0.040	1.386	0.166	0.629	1.589
	AC oversight	-0.173	0.575	-0.008	-0.302	0.763	0.779	1.283
	AC support	-1.345	0.533	-0.075	-2.522	0.012	0.600	1.668
	Assurance partner relations	-0.478	0.319	-0.046	-1.498	0.135	0.548	1.823
	Auditee compliance	1.972	0.587	0.087	3.360	0.001	0.785	1.274
	CAE position	-3.394	0.758	-0.124	-4.479	0.000	0.691	1.447
	Client satisfaction	-1.855	0.711	-0.064	-2.608	0.009	0.882	1.134
	Communication	2.114	1.422	0.037	1.486	0.138	0.862	1.160
	CPD	-2.673	1.904	-0.034	-1.404	0.161	0.918	1.089
	IAF Age	-1.719	6.055	-0.007	-0.284	0.777	0.976	1.024
	IAF competence	0.404	0.485	0.028	0.832	0.406	0.454	2.201
	IAF efficiency	0.370	0.725	0.013	0.511	0.610	0.784	1.275
	IAF work quality	-0.155	0.238	-0.028	-0.652	0.515	0.290	3.445
	IAF status	-0.017	0.621	-0.001	-0.027	0.978	0.781	1.281
	IAF structure	0.968	1.588	0.015	0.610	0.542	0.886	1.129
	IA typical services	0.346	0.464	0.024	0.745	0.457	0.511	1.959
Reliable financial statements	1.911	0.888	0.059	2.153	0.032	0.698	1.433	
CAE reporting lines	-0.589	0.409	-0.046	-1.440	0.151	0.510	1.961	
SM support	0.907	0.457	0.072	1.982	0.048	0.403	2.480	

a. Dependent Variable: MBV

## Appendix 8.4: IAE and Tobin's Q

### Regression model summary – IAE and Tobin's Q

Model Summary <sup>c</sup>										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		Change Statistics				Durb in-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.386a	0.149	0.143	1.5118	0.149	25.431	3	437	0.000	
2	.534b	0.285	0.247	1.4165	0.136	4.200	19	418	0.000	0.737

a. Predictors: (Constant), cash on total assets, Debt/Asset, Debt/Equity  
b. Predictors: (Constant), cash on total assets, Debt/Asset, Debt/Equity, IAF Age, CPD, Communication, IAF structure, Auditee compliance, AC support, Reliable financial statements, Client satisfaction, AC oversight, IAF status, IAF efficiency, CAE position, AC chair-CAE relation, Assurance partner relations, IAF competence, CAE reporting lines, IA typical services, SM support, IAF work quality  
c. Dependent Variable: TobinQ

### IAE and Tobin's Q ANOVA results

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	174.367	3	58.122	25.431	.000 <sup>b</sup>
	Residual	998.766	437	2.286		
	Total	1173.133	440			
2	Regression	334.477	22	15.203	7.578	.000 <sup>c</sup>
	Residual	838.657	418	2.006		
	Total	1173.133	440			

## Regression model IAE and Tobin's Q

Model		Coefficients <sup>a</sup>						
		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	Collinearity Statistics	
		B	Std. Error				Tolerance	VIF
1	(Constant)	1.314	0.093		14.123	0.000		
	Debt/Asset	0.040	0.039	0.047	1.021	0.308	0.929	1.077
	Debt/Equity	-0.003	0.005	-0.026	-0.569	0.570	0.926	1.080
	cash on total assets	0.039	0.004	0.381	8.619	0.000	0.997	1.003
2	(Constant)	0.679	0.489		1.389	0.166		
	Debt/Asset	0.052	0.037	0.062	1.416	0.157	0.906	1.104
	Debt/Equity	0.004	0.005	0.032	0.728	0.467	0.860	1.162
	cash on total assets	0.037	0.004	0.368	8.421	0.000	0.895	1.117
	AC chair-CAE relation	0.299	0.155	0.101	1.931	0.054	0.629	1.590
	AC oversight	0.361	0.136	0.124	2.656	0.008	0.781	1.281
	AC support	-0.375	0.127	-0.159	-2.964	0.003	0.598	1.673
	Assurance partner relations	-0.116	0.076	-0.086	-1.540	0.124	0.550	1.818
	Auditee compliance	-0.051	0.139	-0.017	-0.371	0.711	0.788	1.269
	CAE position	-0.609	0.180	-0.168	-3.384	0.001	0.692	1.446
	Client satisfaction	0.195	0.169	0.051	1.157	0.248	0.883	1.133
	Communication	-0.286	0.337	-0.038	-0.849	0.396	0.862	1.160
	CPD	-0.487	0.452	-0.047	-1.078	0.282	0.917	1.090
	IAF Age	0.069	1.435	0.002	0.048	0.962	0.976	1.024
	IAF competence	-0.172	0.116	-0.091	-1.486	0.138	0.452	2.214
	IAF efficiency	-0.229	0.172	-0.062	-1.334	0.183	0.784	1.276
	IAF work quality	-0.040	0.057	-0.054	-0.701	0.484	0.289	3.466
	IAF status	-0.443	0.148	-0.139	-2.992	0.003	0.787	1.270
	IAF structure	0.320	0.376	0.037	0.850	0.396	0.885	1.130
	IA typical services	0.243	0.110	0.128	2.209	0.028	0.510	1.961
Reliable financial statements	0.308	0.211	0.072	1.459	0.145	0.695	1.438	
CAE reporting lines	0.267	0.097	0.160	2.755	0.006	0.510	1.961	
SM support	-0.106	0.109	-0.064	-0.973	0.331	0.399	2.505	

a. Dependent Variable: TobinQ

## Appendix 9 GLS Panel Regression Results

### Appendix 9.1: IAE and ROA

#### Regression results of IAE and ROA

EGLS - Cross-section Fixed (dummy variables) (n=86)				
Variable	ROA			
	$\beta$ -coefficient	Std. Error	t-Statistic	Prob.
C (CONSTANT)	-9.517	31.565	-0.301	0.763
AC CHAIR-CAE RELATION	0.161	0.509	0.316	0.752
AC OVERSIGHT	1.143	0.427	2.676	0.008
AC SUPPORT	-1.430	0.582	-2.457	0.015
ASSURANCE PARTNER RELATIONS	0.095	0.212	0.447	0.655
AUDITEE COMPLIANCE	0.218	0.334	0.653	0.514
CAE POSITION	0.533	0.400	1.333	0.184
CLIENT SATISFACTION	0.027	0.868	0.031	0.975
COMMUNICATION	0.047	0.781	0.061	0.952
CPD	1.612	0.730	2.207	0.028
IAF AGE	2.533	2.413	1.050	0.295
IAF COMPETENCE	0.239	0.336	0.712	0.477
IAF EFFICIENCY	-0.498	0.546	-0.913	0.362
IAF WORK QUALITY	-0.208	0.154	-1.344	0.180
IAF STATUS	-0.266	0.386	-0.690	0.491
IAF STRUCTURE	-0.778	0.743	-1.048	0.296
IA TYPICAL SERVICES	0.488	0.191	2.550	0.011
RELIABLE FINANCIAL STATEMENTS	6.808	15.773	0.432	0.666
CAE REPORTING LINES	0.079	0.247	0.318	0.750
SM SUPPORT	0.290	0.293	0.991	0.323
Prior Year-dependent variable	0.095	0.012	7.920	0.000
D/A	-0.006	0.048	-0.121	0.904
D/E	-0.006	0.012	-0.540	0.590
CAT	0.122	0.014	8.990	0.000
Adjusted $R^2$				0.973
Sum squared residuals				9569.891
F-statistic				144.162
Probability (F-statistic)				0.000
Durbin-Watson stat				1.975
<b>Residuals descriptive</b>				
Skewness				-0.134
Kurtosis				2.600
<b>Significant at *p&lt;0.1; ** p&lt;0.05; *** p&lt;0.01</b>				

## Appendix 9.2: IAE and ROE

### Regression results of IAE on ROE

EGLS - Cross-section Fixed (dummy variables) (n=86)				
Variable	ROE			
	$\beta$ -coefficient	Std. Error	t-statistic	Prob.
C (CONSTANT)	-17.882	28.386	-0.630	0.529
AC CHAIR-CAE RELATION	0.401	1.236	0.324	0.746
AC OVERSIGHT	2.129	1.024	2.079	0.038
AC SUPPORT	-3.160	1.770	-1.785	0.075
ASSURANCE PARTNER RELATIONS	1.171	0.448	2.616	0.009
AUDITEE COMPLIANCE	-0.419	0.900	-0.465	0.642
CAE POSITION	1.833	1.101	1.664	0.097
CLIENT SATISFACTION	0.490	1.740	0.281	0.779
COMMUNICATION	1.376	3.494	0.394	0.694
CPD	4.537	5.254	0.864	0.389
IAF AGE	3.388	5.347	0.634	0.527
IAF COMPETENCE	-0.541	0.893	-0.606	0.545
IAF EFFICIENCY	-2.288	1.512	-1.513	0.131
IAF WORK QUALITY	0.407	0.465	0.876	0.382
IAF STATUS	-4.143	1.090	-3.801	0.000
IAF STRUCTURE	-1.587	1.545	-1.027	0.305
IA TYPICAL SERVICES	0.542	0.665	0.816	0.415
RELIABLE FINANCIAL STATEMENTS	13.371	13.778	0.970	0.333
CAE REPORTING LINES	-0.801	0.535	-1.498	0.135
SM SUPPORT	0.124	0.790	0.157	0.875
Prior Year-dependent variable	0.013	0.025	0.514	0.608
D/A	3.529	0.313	11.284	0.000
D/E	-1.557	0.102	-15.200	0.000
CAT	0.211	0.031	6.820	0.000
Adjusted R <sup>2</sup>				0.987
Sum squared residuals				177366.700
F-statistic				298.330
Probability (F-statistic)				0.000
Durbin-Watson stat				2.031
<b>Residuals descriptive</b>				
Skewness				-0.056
Kurtosis				3.280
<b>Significant at *p&lt;0.1; ** p&lt;0.05; *** p&lt;0.01</b>				

## Appendix 9.3: IAE and MBV

### Regression results of IAE on MBV

EGLS - Cross-section Fixed (dummy variables) (n=86)				
Variable	MBV			
	$\beta$ -coefficient	Std. Error	t-statistic	Prob.
C (CONSTANT)	4.056	1.377	2.946	0.004
AC CHAIR-CAE RELATION	-0.215	0.173	-1.244	0.214
AC OVERSIGHT	0.145	0.109	1.328	0.185
AC SUPPORT	-0.173	0.182	-0.954	0.341
ASSURANCE PARTNER RELATIONS	-0.110	0.073	-1.520	0.129
AUDITEE COMPLIANCE	-0.140	0.124	-1.126	0.261
CAE POSITION	-0.273	0.217	-1.260	0.209
CLIENT SATISFACTION	-0.283	0.211	-1.343	0.180
COMMUNICATION	1.154	0.596	1.937	0.054
CPD	-0.212	0.292	-0.724	0.469
IAF AGE	-0.004	0.564	-0.008	0.994
IAF COMPETENCE	0.132	0.090	1.461	0.145
IAF EFFICIENCY	0.109	0.417	0.261	0.794
IAF WORK QUALITY	0.034	0.046	0.743	0.458
IAF STATUS	-0.061	0.076	-0.802	0.423
IAF STRUCTURE	0.500	0.250	2.002	0.046
IA TYPICAL SERVICES	0.128	0.068	1.871	0.062
RELIABLE FINANCIAL STATEMENTS	0.347	0.644	0.539	0.591
CAE REPORTING LINES	0.063	0.096	0.659	0.511
SM SUPPORT	-0.361	0.104	-3.474	0.001
Prior Year-dependent variable	0.018	0.010	1.797	0.073
D/A	-1.844	0.088	-21.021	0.000
D/E	0.787	0.008	94.853	0.000
CAT	0.021	0.004	5.064	0.000
Adjusted $R^2$				0.982
Sum squared residuals				1655.085
F-statistic				215.024
Probability (F-statistic)				0.000
Durbin-Watson stat				1.891
<b>Residuals descriptive</b>				
Skewness				-0.038
Kurtosis				2.405

Significant at \*p<0.1; \*\* p<0.05; \*\*\* p<0.01

## Appendix 9.4: IAE and Tobin's Q

### Regression results of IAE on Tobin' Q

EGLS - Cross-section Fixed (dummy variables) (n=86)				
Variable	Tobin's Q			
	$\beta$ -coefficient	Std. Error	t-statistic	Prob.
C (CONSTANT)	0.306	0.746	0.409	0.683
AC CHAIR-CAE RELATION	0.004	0.022	0.181	0.857
AC OVERSIGHT	0.007	0.022	0.344	0.731
AC SUPPORT	-0.102	0.047	-2.197	0.029
ASSURANCE PARTNER RELATIONS	0.006	0.015	0.370	0.712
AUDITEE COMPLIANCE	-0.014	0.021	-0.672	0.502
CAE POSITION	0.019	0.026	0.725	0.469
CLIENT SATISFACTION	0.014	0.066	0.208	0.836
COMMUNICATION	0.126	0.057	2.216	0.027
CPD	0.019	0.068	0.288	0.774
IAF AGE	0.066	0.268	0.248	0.804
IAF COMPETENCE	0.006	0.019	0.324	0.746
IAF EFFICIENCY	-0.041	0.055	-0.744	0.457
IAF WORK QUALITY	0.009	0.009	0.953	0.341
IAF STATUS	0.017	0.023	0.759	0.448
IAF STRUCTURE	0.230	0.063	3.660	0.000
IA TYPICAL SERVICES	-0.005	0.019	-0.275	0.784
RELIABLE FINANCIAL STATEMENTS	0.323	0.354	0.913	0.362
CAE REPORTING LINES	-0.030	0.020	-1.467	0.143
SM SUPPORT	-0.027	0.018	-1.528	0.127
Prior Year-dependent variable	0.359	0.035	10.139	0.000
D/A	-0.004	0.006	-0.599	0.549
D/E	0.002	0.001	2.810	0.005
CAT	0.005	0.001	4.214	0.000
Adjusted R <sup>2</sup>				0.957
Sum squared residuals				55.589
F-statistic				89.559
Probability (F-statistic)				0.000
Durbin-Watson stat				2.427
<b>Residuals descriptive</b>				
Skewness				0.108
Kurtosis				2.299

Significant at \*p<0.1; \*\* p<0.05; \*\*\* p<0.01

# Appendix 10 Ethical Clearance Letter



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

Faculty of Economic and Management Sciences

## RESEARCH ETHICS COMMITTEE

Tel: +27 12 420 3395

E-mail: ronel.rensburg@up.ac.za

13 February 2018

Prof K Barac  
Department of Auditing

Dear Professor Barac

The application for ethical clearance for the research project described below served before this committee on 9 February 2018.

Protocol No:	EMS057/17
Principal researcher:	JB Pooe
Research title:	The value of disclosing information on internal audit effectiveness
Student/Staff No:	14460824
Degree:	DCom (Auditing)
Supervisor/Promoter:	Prof K Barac
Department:	Auditing

The decision by the committee is reflected below:

Decision:	Approved
Conditions (if applicable):	N/A
Period of approval:	February 2018 – December 2018

The approval is subject to the researcher abiding by the principles and parameters set out in the application and research proposal in the actual execution of the research. The approval does not imply that the researcher, student or lecturer is relieved of any accountability in terms of the Codes of Research Ethics of the University of Pretoria if action is taken beyond the approved proposal. If during the course of the research it becomes apparent that the nature and/or extent of the research deviates significantly from the original proposal, a new application for ethics clearance must be submitted for review.

Please convey this information to the researcher. We wish you success with the project.

Sincerely

pp PROF RS RENSBURG  
CHAIR: COMMITTEE FOR RESEARCH ETHICS

cc: Student Administration