



IMPACT OF INTEGRATED REPORTING ON FINANCIAL PERFORMANCE

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Declaration

I, Takunda Chipochangu Grace Mukeredzi, hereby declare that:

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3. It does not have anybody's data, pictures, graphs or any other information, which is not acknowledged as a source.
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23 April 2019

Takunda Chipochangu Grace Mukeredzi

Date

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Dedication

I dedicate this work is dedicated to my mother, Dr Tabitha Grace Mukeredzi, and my daughter Antoinette, for everything they have done for me through this period of my study. Without your love and support, I would not have been able to put forth my maximum effort and maintain my sanity.

To my dear late father, Anthony Denis Mukeredzi, I know you would have been very proud.

Abbreviations

BS	Board Size
CE	Capital Employed
CGQI	Corporate Governance Quality Index
CS	Company Size
EPS	Earnings Per Share
ESG	Economic Social Governance
EVA	Economic Value Added
FEM	Fixed Effects Model
GRI	Global Reporting Initiative
IFAC	International Federation of Accountants
IFRS	International Financial Reporting Standards
IIRC	International Integrated Reporting Council
IR	Integrated Reporting
IRCSEA	Integrated Reporting Committee of South Africa
JSE	Johannesburg Stock Exchange
KPI	Key Performance Indicator
L	Leverage
NOPAT	Net Operating Profit After tax
NGO	Non-Governmental Organisation
PCM	Pearson Correlation Matrix
REM	Random Effects Model
ROA	Return on Assets
ROCE	Return on Capital Employed
ROE	Return on Equity
ROIC	Return on Invested Capital
SG	Sales Growth
VIF	Variance Inflation Factors
WACC	Weighted Average Cost of Capital

Abstract

Companies the world over have implemented the new phenomenon of Integrated Reporting. This followed global initiatives introduced by the International Integrated Reporting Council (IIRC), and in South Africa by the Integrated Reporting Council of South Africa (IRCSA). In South Africa, it is mandatory for all listed companies on the Johannesburg Stock Exchange to produce and publish annual Integrated Reports. This also aligns with the recommendations of the King IV Code of Corporate Governance. The major weakness of Integrated Reporting is that it is an expensive and time-consuming process, given that numerous resources go into its development and one report can exceed a hundred pages. However, its strength rests in the provision of a wholistic view of the company to its stakeholders.

In view of stakeholder requirements and benefits, the question that remains unanswered relates to whether there are financial benefits for companies that employ Integrated Reporting. Such an understanding is crucial as such information may inform companies considering its adoption. This study sought to determine whether Integrated Reporting had any impact on the financial performance of companies in South Africa generally, and, in particular the Top 40 Johannesburg Stock Exchange listed companies.

This study on Integrated Reporting was underpinned by the stakeholder theory. Company stakeholders are the primary audience of the Integrated Report. By adopting Integrated Reporting, a company becomes more mindful of its stakeholders as they influence the decision-making processes. Given the focus of the study on Integrated Reporting, the theory enables establishing whether or not Integrated Reporting reflects, offers and delivers all the financial and non-financial information required to stakeholders.

The study was located within a positivist paradigm, given that there was a distance between the researcher and the researched. The study commenced with hypotheses and employed statistical measurements for data analysis and presentation. Using a quantitative approach, data were drawn from the Johannesburg Stock Exchange. In selecting the Top 40 listed companies based on market capitalization, the study

employed statistical analysis to investigate the impact of Integrated Reporting on financial performance.

On the over all, this study found that companies did not benefit significantly from Integrated Reporting. The study found that Integrated Reporting has no impact on financial performance as there was no relationship between return on assets (ROA) and Economic Social Governance (ESG) score. It also emerged that there was no impact on financial performance as there was no relationship between Economic Value Added (EVA), Tobin Q and ESG. This suggests that companies may not be utilizing fully the synergies that come with the adoption of this reporting phenomenon. It may also be that Integrated Reporting is not assisting companies in generating any long-term value.

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Chapter One: Introduction

1.1. Introduction

This introductory chapter presents an overview of the study. It discusses the background to integrated reporting and articulates the problem statement and the objectives of this study. The chapter goes on to briefly describe the assumptions of the study as well as the significance of studying the impact of integrated reporting on financial performance. Finally, the chapter presents the dissertation outline and then a chapter summary at the end.

1.2. Background to the study

In market-based economies, companies play pivotal roles as they contribute to economic growth, technological development and employment creation. To fulfil these roles, funds are required to benefit from productive assets. Debt and equity are the main sources of funds. Debt emanates from financial institutions and equity funding from shareholders or investors. Consequently, companies should provide their investors with adequate, appropriate and relevant information to be utilised in the analysis and assessment of past, present and future performance. The analysis and assessment are facilitated by the annual reports and these extend significantly in history. Over the decades however, significant changes have occurred in the financial reporting structure. These include traditional reporting and sustainability reporting.

Until the early 2000s, traditional reporting was the main form of reporting available and used to communicate with shareholders and investors. This form of reporting consisted mainly of financial information with a statement of financial position, statement of comprehensive income, statement of cashflows, statement of changes in equity, and the directors report. According to the International Integrated Reporting Council (IIRC) (IIRC, 2013), this kind of reporting however only gave a narrow account of the organisation, and the quality and level of the information provided in traditional reports was inadequate and mostly outdated. Often, these reports contained very little non-financial information and failed to communicate other relevant information that is deemed material in the analysis of companies (Dumay, Bernardi, Guthrie and Demartini, 2016). It also leaned quite closely to the agency theory (Owen, 2013),

where boards and management would act as the agents and the investors and shareholders as the principals.

Subsequently, discussions by stakeholders on the reliability and relevance of traditional reporting as a foundation for decision-making, found that these reporting techniques were not providing a wholistic picture of the organisation (IIRC, 2013). This lack of wholistic structure resulted in a dire need for explaining the impact of organisations on other additional aspects such as the environment, society, and economy. There was increasing pressure to improve reporting and include non-financial information.

Consequently, sustainability reporting was born as companies started acknowledging accountability to the environment, economy and society (Global Reporting Initiative (GRI, 2011). This was also known as triple bottom line reporting or corporate social responsibility (GRI, 2017). These three aspects of the business influence a company's future and performance (Struwig and Van Rensburg, 2016). These reports communicated and presented sustainability performance, impacts, values, governance as well as links between obligation and approach to a sustainable global economy (GRI, 2017). These reports were combined and put in a separate report (GRI, 2017).

However, as with traditional reporting, stakeholders continued to feel that there was still a shortfall in the information that was being provided. These separate reports tended to be cluttered, lengthy and difficult to comprehend (Zhou, Simnett and Green, 2017). Further, these sustainability reports did not provide a future outlook of the company, were disconnected from the financial reports and others considered them to be "a waste of a tree" (IIRC, 2013, Terry, 2012). Marx and Mohammadali-Haji (2014) stated that "traditional reporting" and "sustainability reporting" failed to link economic, social, and environmental issues within companies. This resulted in a clearly visible disconnection between non-financial and financial information made it problematic for stakeholders and investors to evaluate the past, present and future prospects of the companies. This gave rise to the launch of the Integrated Report in 2010 by the IIRC. IIRC views Integrated Reporting as a "concise communication on how an organisations strategy, governance, performance and prospects, in the context of external environment lead to the creation of value over short, medium and long term"

(IIRC, 2013:7). Following the IIRC in London, an Integrated Reporting Committee of South Africa (IRCSA) was launched in May 2010. This new method of reporting aggregates various organisational aspects by placing them into one report, thus providing a wholistic view of the company (Hoque, 2017). Following the introduction of this report, the IIRC gained immense support from influential groups such as financial watchdogs, global organisations, auditors and accountants such as Deloitte, Ernst and Young and the International Accounting Standards Board (IASB)(Dumay and Dai, 2017)

South Africa was one of the forerunners in the implementation of integrated reporting (Mmako and van Rensburg, 2017). These authors also indicate that the King Code of Corporate Governance calls for companies to produce integrated reports. The requirements of the King Code and the Johannesburg Stock Exchange (JSE) are linked. While the JSE has been “silent” on its requirements for an integrated report, one of its listing requirements is application of the King Code which recommends that companies produce integrated reports. Thus, all JSE listed companies are required to produce integrated reports. This requirement is not a legislated requirement, and, as such, unlisted companies in South Africa do not produce integrated reports (Mmako and van Rensburg, 2017).

As the largest stock exchange in the African continent, JSE is ranked number 61 by the World Economic Forum (Schwab, 2018). It is one of the most competitive and strongest exchanges in Sub-Saharan Africa (Schwab, 2018), hence establishing the effects of integrated reporting on financial performance is essential, especially to the investing public and stakeholders. Because of the listing requirements as stated above, all listed companies have been producing integrated reports, but they started at different times. Some South African companies on the JSE participated in the pilot phase in 2010 while others started as late as 2014.

The IIRC developed a structure, to provide guidelines and components that constitute the Integrated Report (IIRC, 2013). The document also established primary users of this wholistic report that integrated reporting benefits for all company stakeholders, among others, staff, clients, contractors, stockholders, and local groups (IIRC, 2013). The framework is principles-driven and entirely optional (IIRC, 2013). Thus, this allows elasticity and prescription for the wide variety of companies. There is a significant

amount of judgment to be considered in preparing the integrated report, which includes detail about matters that affect organisations substantively and their value creation ability over time (IIRC, 2013). In applying the framework, companies should consider compliance with the framework and understand their own intentions and what they seek to achieve by producing an integrated report (IRCSA, 2014).

Some benefits of the integrated report have been highlighted as: increased competitive advantage, improving management strategic decision-making, promoting company performance, and enhancing its reputation (Hoque, 2017). The production of the integrated report is however time-consuming, expensive, and cumbersome (Surty, Yaseen and Padia, 2018). Nonetheless, JSE listed companies are compelled to produce these reports. Furthermore, the production of integrated reports has caused organisational conflicts with regards to the content to be included in the reports (Suttipun, 2017).

Hoque (2017), Mmako and van Rensburg (2017), Marx and Mohammadali-Haji (2014) and Rensburg and Botha (2014) considered the advantages, successes, and accessibility of integrated reporting and found that integrated reporting has succeeded internationally even though it is still a new concept where significant benefits may be recognised with time if practiced by all possible stakeholders.

Zhou et al. (2017), Magara, Aminga and Momanyi (2015), Churet and Eccles (2014), Qiu, Shaukat and Tharyan (2016) and Adediran and Alade (2013) focused their studies on the integrated reporting benefits and influence on company financial performance internationally, regionally in Kenya and Nigeria, and locally. These studies found that integrated reporting positively impacts a company's financial performance. This is through lower cost of capital, lower risk, increased profits and share prices, and attraction of more investment.

1.3. Problem Statement

The importance and reliability of annual reports has recently come into the limelight with several corporate scandals taking place. Users of financial reports and statements have argued that the current form of traditional reporting does not provide a full view and future outlook of a company and does not show overall strategy (Marx and Mohammadali-Haji, 2014). In other words, even though the GRI introduced

Sustainability reporting, there still seemed to be an information asymmetry between the type of information stakeholders required or expected to see and what companies were providing them.

Hence integrated reporting needs to incorporate this wholistic view of the company, providing stakeholders with the financial and non-financial information that they may require.

The production of the integrated report is however time-consuming, expensive, and cumbersome (Surty et al., 2018, Cosma et al., 2018, Innovation, 2016, Hubbard, 2014). A single integrated report could easily be a minimum of 80 pages. JSE listed companies are being forced to produce these reports. Further it has caused organisational conflicts with regards to the content to be included in the reports. Against this background, this research seeks to establish how integrated reporting influences company financial performance.

Limited comprehensive academic work has been carried out in South Africa; this is notwithstanding that this country was a forerunner in adopting Integrated Reporting. Earlier studies by Marx and Mohammadali-Haji (2014), Adediran and Alade (2013), and Rensburg and Botha (2014) have focused on environmental and sustainability reporting as well as practices of integrated reporting. Apparently, no research focused exclusively on how integrated reporting impacts company financial performance in South Africa.

1.4. Aim of the study

Non-financial benefits of integrated reporting have been identified, however not much has been said about the financial benefits. This study seeks to investigate whether integrated reporting has an impact on the financial performance on JSE listed companies.

1.5. Objectives

The study seeks to investigate the impact of integrated reporting on company financial performance. This objective is sub-divided into two research objectives:

1. Determine the impact of integrated reporting on financial performance.

2. Establish the relationship between integrated reporting and firm performance.

1.6. Research Questions

In addressing the above research objectives, the study answers the following research questions:

1. Does integrated reporting impact a company's financial performance through the accounting-based measures?
2. Does integrated reporting impact a company's financial performance through the market-based measures?
3. What is the relationship between integrated reporting and firm performance?

1.7. Contribution of the Study

A few studies have been carried out internationally (Smith, 2016, Churet and Eccles, 2014), and nationally (Zhou et al., 2017, Mmako and van Rensburg, 2017, Marx and Mohammadali-Haji, 2014) on some aspects of integrated reporting for example, trends in integrated reporting, integrated reporting and capital markets. There seems to be no comprehensive study that has been carried out in South Africa, on how integrated reporting impacts the financial performance of the Top 40 JSE listed companies. Thus, this study seeks to contribute to this literature gap with respect to integrated reporting in South Africa. The study will establish whether its influence on the elements being tested in the hypothesis is an additional advantage of adopting integrated reporting practice.

If this study is published, beneficiaries from findings and recommendations would include accountants, companies, integrated reporting consultants and agencies. Consequently, companies that have benefited from adoption of integrated reporting potentially could encourage other companies to adopt and realise these benefits, regardless of whether they are listed or not, thus supporting the institutional theory.

With the changes in the accounting curriculum, financial accounting academics and students could also draw some benefits from this study by using it as a reference point. In addition, researchers may also be able to identify areas for further research, thereby benefiting from this study.

1.8. The scope and method of the study

1.8.1. Methodology

The study adopts a quantitative approach and will make use of statistical methods in investigating the impact of integrated reporting on financial performance. To address all the research questions objectively, the research design was separated into three models.

In each model, the study calculates the descriptive statistics of the independent and dependent variables. The independent variable is the integrated report and the dependant variables are the measures of financial performance used in the study. Based on the assumptions made concerning the data set and nature of the models, the study estimates the impact of integrated reporting on financial performance using panel data methods specifically, the Fixed Effect Model (FEM) or Random Effects Model (REM). The FEM examines whether or not intercepts vary across companies or time. It looks at the individual differences in the intercept assuming that the slopes and error variances are constant across each unit (Park, 2011). The REM explores the variances in error components across time period or individual (Park, 2011). The Hausman test will be used to choose which model to use for each research question.

1.8.2. Research Paradigm

This study employs a positivist research paradigm framework which involves discovering and revealing truth and finally presenting objective descriptions through empirical means (Henning, van Rensburg and Smit, 2004). This study will present findings using tables and statistical methods with numerical data. It will also be based on secondary data and will be tracking trends of financial performance of a large population. Thus, the study is suited to a positivist paradigm.

1.8.3. Scope of the study

The focus of the study is the period from 2009 to 2017, which is the time before and after integrated reporting was introduced. The study proxies the quality of the integrated report using the environmental, social and governance (ESG) score (Churet and Eccles, 2014) obtained from Bloomberg, a database of financial information relating to companies all over the world and in South Africa.

All JSE listed companies form the population of the study. The study focused on the JSE listed companies as they are mandated to produce integrated reports and their data are easily accessible and widely available.

The research sample is made up of the Top 40 JSE listed companies as these constituted 84% of the All share index at July 2018. Using purposive sampling, the study extracted all organisations with full data, which have been listed on the JSE for a minimum of six years and adopted integrated reporting for at least three years within the targeted time (2009 to 2017).

The final sample of the study comprised of thirty-seven companies that were listed on the JSE for at least six years and had adopted integrated reporting for at least three years between 2009 and 2017.

1.8.4. Limitations of the study

The current study only focused on publicly listed companies, moreover the Top 40 companies on the JSE. This probably left out other information-rich companies which may have adopted integrated reporting but not listed on the JSE. However, thirty-seven companies in the Top 40 JSE listed companies were viewed as adequate to provide data to answer the research questions.

Secondly, another limitation could be variables used. The study only used Return on Assets (ROA) which measures the efficiency and effectiveness of how the company manages its assets, Economic Value Added (EVA) which measures wealth creation of companies, and Tobin's Q that measures the effectiveness of how the company manages assets to create value. The choice to use these variables was based on their strength in the comprehensive evidence that shows inter-relatedness of accounting and economic returns (Tshipa, 2017), the importance in measuring financial performance which brings together factors relating to the economy, accounting and the market (Stewart III, 1994) and that the Tobin Q is considered one of the oldest and most preferred measures of firm performance (Tshipa, 2017).

The study also measured the quality of the integrated report using the ESG score. There are other quality measures that may have been used such as the JSE Responsible Index. However, the decision to use the ESG score was because the

score has an all-inclusive methodology to assess environmental, social and governance activities and outcomes of companies (Wang and Sarkis, 2017) and the apparent efficiency of the different kinds of disclosures by made companies together with providing stakeholders with detail about how a company is succeeding in the integration of economic, social, environmental and governance matters in their daily operations (Serafeim, 2015).

1.9. Thesis Structure

The remaining chapters are structured as follows:

Chapter Two: Literature Review explores the theoretical framework on integrated reporting and examine empirical literature behind integrated reporting.

Chapter Three: Methodology provides a detailed description of the population and sample selected for the study. It also describes data collection, the time-frames chosen, and the research methods and data analysis methods used for each research objective.

Chapter Four: Data presentation and analysis presents the results and findings on the various tests conducted. This chapter determines whether integrated reporting affects financial performance through accounting or market-based measures as well as determining the relationship between integrated reporting and firm performance.

Chapter Five: Findings, Discussion and Summary summarizes the study and draws inferences from the findings. This chapter further makes recommendations for future research on the subject. The chapter also provides a conclusion to the study.

1.10. Chapter Summary

The nature and purpose of the study was outlined in this chapter. The chapter started with a background of the study followed by the problem statement. The significance of the study and the input it makes to literature and to business was discussed. The aims and objectives as well as the scope and methodology of the study were explained in short. The chapter concluded with a thesis structure.

Chapter 2 provides a critical literature review on integrated reporting which includes history and concept of integrated reporting and how integrated reporting links with financial performance. The theoretical framework and how it relates to integrated reporting will also be discussed in chapter 2.

Chapter Two: Literature Review

2.1. Introduction

Chapter 1 introduced the study by discussing a brief background to integrated reporting, the problem statement, objectives and research questions. Figure 2.1 below shows the breakdown of this chapter.

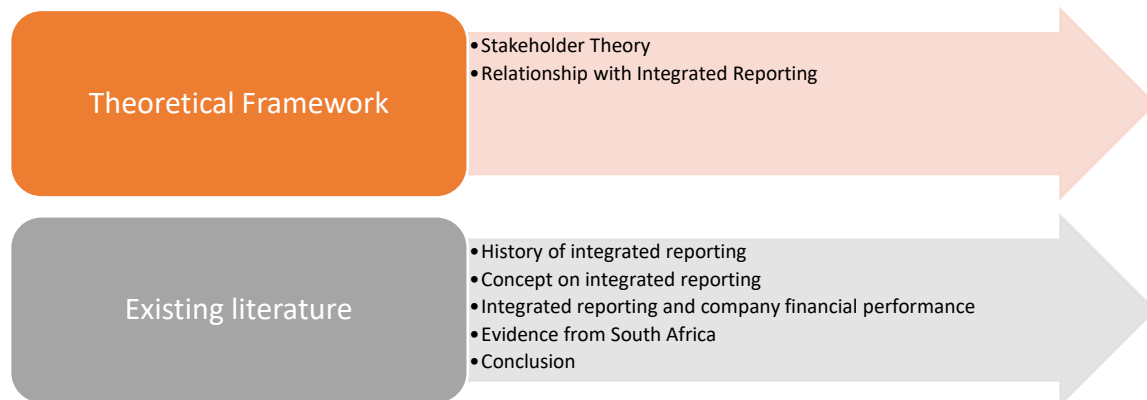


Figure 2. 1: Literature review

As depicted in Figure 2.1 above, this chapter provides a critical literature review on integrated reporting. It will also discuss the theoretical framework for the study, focussing on the characteristics of the theory and how it relates to integrated reporting. Following this, is a critical review of the studies carried out on integrated reporting. This begins with a brief history of its development, followed by the critical literature review of the concept and financial performance.

2.2. Theoretical Framework

Stakeholders are the primary audience of the integrated report but there needs to be more emphasis on shareholders. According to Eccles and Saltzman (2011), integrated reporting combines two theories, specifically, shareholder and stakeholder theory. However, this study will be under-pinned by the stakeholder theory.

2.2.1. The Stakeholder Theory

The stakeholder concept was established by Edward Freeman in the 1980s. According to Fontaine, Haarman and Schmid (2006), Freeman has been credited with popularising the concept, and some scholars have called him the pioneer of this theory.

As a concept, stakeholder theory addresses organisational objectives and morals. It suggests that the success of the organisation is dependent on the status of its relationships with the stakeholders and not just the owners of equity. It goes on further to emphasise that managers are given the responsibility of making sure that the interests of the stakeholders are balanced while at the same time maximising value over time (Freeman and Phillips, 2002, Jensen, 2017).

2.2.2. Characteristics of the Stakeholder Theory

There are three major characteristics of the stakeholder theory. Firstly, the theory highlights the need to report information that caters for diverse stakeholders, which includes but is not limited to shareholders (Smith, 2016). Secondly, in addition to meeting the reporting needs of stakeholders, more involvement and engagement with stakeholders offers a chance for stakeholder value creation and thus increasing firm value (Garriga, 2014). Thirdly, it is also argued that companies that engage and work effectively with stakeholders build significant competitive advantages. Other advantages of this theory include increased ethics and loyalty on the part of management (LawTeacher, 2013).

2.2.3. Stakeholder theory and integrated reporting

Stakeholder theory supports several non-traditional reporting standards by merging them into the financial reporting framework. It allows the combining of different types of information, that is, both qualitative and quantitative information for non-financial stakeholders (Dawkins, 2014). This provides a bigger picture of the performance of the company both financially and non-financially.

The stakeholder theory suggests value creation for all concerned in issues of the company (Dragu and Tiron-Tudor, 2014). This has resulted in companies developing standards, metrics and key performance indicators (KPIs) to track and report company information to the involved parties (Eccles, Krzus, Rogers and Serafeim, 2012). This has led to stakeholder reporting. According to Smith (2016), stakeholder reporting is crucial for the integrated reporting process as the main audience are the stakeholders. This form of reporting combines fields that are essential to integrated reporting such as sustainability reports and the larger field of non-traditional reporting. Stakeholder theory now provides the framework and backdrop for non-traditional reporting.

Adopting integrated reporting, makes companies more mindful of their stakeholders who influence the decision-making. The theory therefore challenges businesses to examine performance qualitatively and quantitatively and deliver information as requested by the users.

Figure 2.2 shows the underlying components and drivers of the stakeholder theory and the bridge that exists between the theory and integrated reporting. Companies must engage and interact with the increasing number of stakeholders such as regulators, suppliers, Non-Governmental Organisations (NGO), environmental groups, customers and investors as they have a vested interest in organisational success (Andriof and Waddock, 2017).

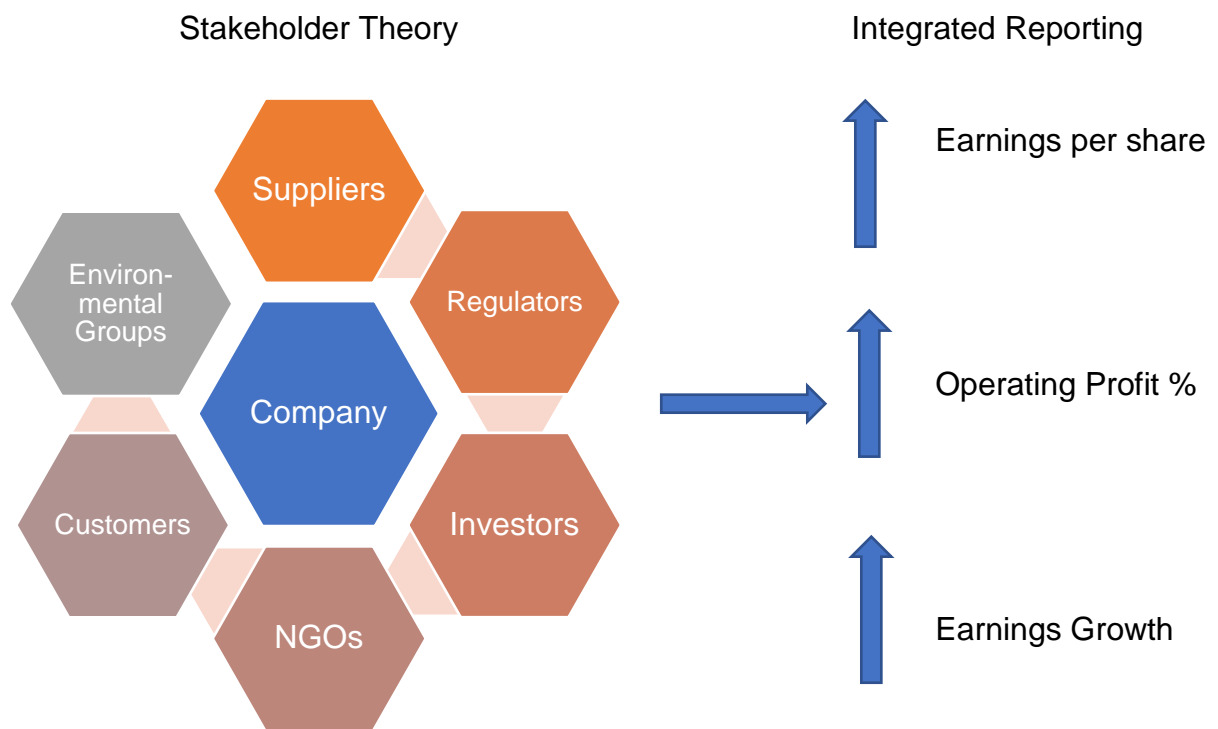


Figure 2. 2: Theoretical Framework
(Source: Smith (2016))

As depicted in Figure 2.2, the desire to improve transparency and visibility for stakeholders has resulted in the shift toward integrated reporting. Companies should interact and engage successfully with stakeholders to ensure value creation. Thus, the more value that is created for the organisation, the greater the chances of corporate sustainability in the long-term. Figure 2.2 also shows that reporting information to suit the needs of the various stakeholders through integrated reporting may have financial

benefits such as increased earnings per share, operating profit percentages and earnings growth. These are the benefits which this study seeks to measure.

Therefore, stakeholder theory provides the theoretical foundation for integrated reporting. This theory is appropriate for this research as it helps in establishing whether integrated reports reflect, offer and deliver to stakeholders an all-embracing picture of organisational performance financially as well as non-financially. This will then facilitate determining the impact of the integrated report on company financial performance.

The next section will now focus on the body of knowledge that surrounds integrated reporting.

2.3. Review of Literature on Integrated Reporting

Literature on integrated reporting is reviewed in this section. This relevant literature review contextualises the research and justifies it, showing a gap in published research. The review of relevant literature also helps to identify gaps in previous research and provides an understanding of how the current study fits into a broader context while giving insights into an understanding of what has been studied. Thus, the literature review will be a critical analysis of the studies around integrated reporting and how they relate to and inform the current study. The section starts with a history of reporting.

2.3.1. History of Reporting

2.3.1.1. Traditional Reporting

Dating back to the 1990s, the normal reporting practice for companies was traditional accounting. This was in the form of numbers and presentation forming just the balance sheet, statement of profit and loss and equity statements, as they were called in that time (Owen, 2013). Constantly changing economies and technological environments in the new millennium resulted in doubt within the accounting profession regarding traditional reporting (Dumay et al., 2016). It gave a narrow focus of the entity and isolated value creation for shareholders while ignoring other stakeholders involved in the company. This led to the recent reporting concepts such as sustainability reporting.

2.3.1.2. Sustainability reporting

This new reporting concept in the early 2000s was founded within the Global Reporting Initiative (GRI) and in triple bottom line reporting. The GRI defined sustainability reporting as "...a report that conveys disclosures on an organisation's impacts – be they positive or negative – on the environment, society and the economy. In doing so, sustainability reporting makes abstract issues tangible and concrete, thereby assisting in understanding and managing the effects of sustainability developments on the organisation's activities and strategy" (GRI, 2011). Sustainability reporting focuses on a triple bottom line with the '3 Ps', which refer to people, planet and profits, and these have come to symbolise what corporate sustainability is (Stenzel, 2010).

Despite this, corporate collapses were still on the rise. These reporting initiatives had no connection and consistency with the long-term vision of companies (Abeysekera, 2013) and users still argued that the reports failed to link economic, social, and environmental issues in the company (Marx and Mohammadali-Haji, 2014). This gave rise to the Integrated Report.

2.3.2. Concept of Integrated Reporting

The next section discusses integrated reporting, its six capitals, and advantages and disadvantages.

2.3.2.1. Definition of Integrated Reporting

Integrated reporting is a recent innovation within the financial reporting fraternity and an initiative of the IIRC (IIRC, 2013, Martinez, 2016). Developed by IIRC in 2010 under the chairmanship of Sir Michael Peat, followed by Professor Judge Mervyn King and now currently Dominic Burton, this new reporting method aims to create a brief strategic image of an organisation's capability to develop and uphold value over a period (Adams and Simnett, 2011, Terry, 2012). Integrated reports accomplish this as they reflect the aspects that create value in the company, including social environmental and governance issues, with qualitative information being a front-runner (Adams and Simnett, 2011). In short, they bind financial and non-financial information together, as can be seen in Figure 2.3.

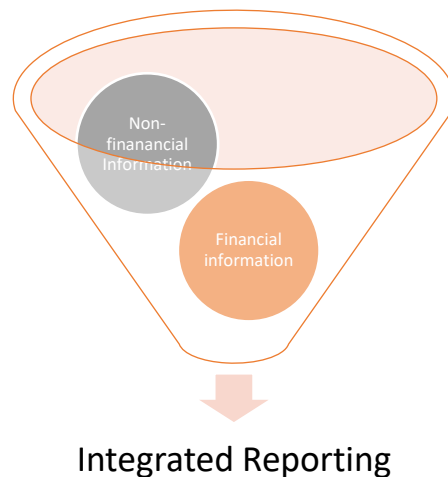


Figure 2. 3: Diagrammatic representation of integrated reporting
(Author's Compilation)

As depicted in figure 2.3, the integrated report combines financial and non-financial information that stakeholders require. In essence, an integrated financial report is a comprehensive package that delivers actionable non-financial and financial information to all stakeholders.

Integrated reporting involves several pillars. According to Smith (2014), the pillars are:

1. **Business Environment:** The business environment has advanced significantly and tremendously over the years. For businesses to stay applicable, and to be sustainable, they must advance along with it and be up to date thus the need for integrated reporting.
2. **Information to stakeholders:** Non-financial stakeholders need more qualitative and complete information as it is linked with performance. There has been an increase in the need for such information and integrated reporting enables companies to deliver qualitative information to the stakeholders.
3. **Types of information required:** To provide meaningful information to all types of stakeholders, companies need to understand and quantify this information that is requested. Companies also need to ensure that there is effective communication of all this information.

The driving force for development and adoption of this kind of reporting, especially in South Africa, is attributed to King III chaired by Professor Judge Mervyn King (Eccles and Saltzman, 2011). King III recommended that companies prepare integrated

reports (IoDSA, 2009). This was to enable more informed stakeholder assessments of the value of the company. King III was followed by the King IV Report on Corporate Governance which came into effect on 1 April 2017. Although King III was phased out, King IV builds on its principles which recommended that companies adopt integrated reporting. Therefore, Integrated Reporting can be viewed as a product of integrated thinking (IoDSA, 2016) and is portrayed in that manner King IV.

While King III recommended “apply *or* explain”, in contrast, King IV proposes the “apply *and* explain” regime. In other words, companies are now required to apply the principles, take measures to achieve and explain these measures and the results (Terry, 2012). These recommendations are for companies and, more importantly, for JSE listed companies. Since producing integrated reports is a recommendation in King IV, companies should produce these reports. The JSE also came in support of King IV and the production of integrated reports is now mandatory for listed companies.

2.3.3. The International Integrated Reporting (IIR) Framework 2013

The Framework was approved by the IIRC in 2013 after consultations with various stakeholders globally (IIRC, 2013). The framework is entirely principles-based. It requires that companies apply certain requirements of the framework whilst others are recommended to be applied (IIRC, 2013). There are two elements in the International Integrated Reporting (IIR) framework, namely:

- The guiding principles – these inform the subject matter, organisation and presentation of information in the report
- The content elements – these refer to the data that should be contained therein.

Integrated reports should depict the links and connections of financial and non-financial aspects that affect the company, for example, management reports and governance issues (IIRC, 2013). The IIR Framework states that the report should show how these factors are interdependent and create value. To depict this co-dependency, the report emphasises the importance of integrated thinking, then addresses accountability with regards to using the various sources of capitals known as the six capitals (IIRC, 2013).

2.3.4. The Six Capitals

An important aspect of the process of creating value relates to issues around companies extending reporting by including resources used as inputs in organisational activities. The term “capitals” is used to signify these resources (IIRC, 2013). Figure 2.4 shows the different types of capitals employed in the value creation process.



Figure 2. 4: The Six Capitals
(Author's Compilation)

As shown in Figure 2.4, the six capitals are:

- **Financial Capital:** This relates to available funds to the company through debt, equity and generated through operations (Marx and Mohammadali-Haji, 2014, IIRC, 2013).
- **Manufactured Capital:** These are the physical items and assets that are owned by the company and available for use in producing services and goods. Manufactured capital involves purchased or manufactured assets for sale or for company use (IIRC, 2013).
- **Intellectual capital:** This includes the intangible assets such as patents, trademarks and copyrights (IIRC, 2013). It also includes the intellectual property of the company such as systems, procedures and protocols.

- **Human capital:** These are the capabilities and experience of the employees in the company and their alignment with the organisational framework, strategy and ethical values (IIRC, 2013).
- **Social and relationship capital:** This refers to a situation when the organisation involves the societies, communities and stakeholders. It includes the shared norms, practices and trust that an organisation has developed, and a willingness by societies, communities and stakeholders to engage (IIRC, 2013).
- **Natural:** These are the environmental processes and resources from where services and goods are obtained. These resources provide support to the past, current or future prosperity of a company (IIRC, 2013).

The capitals are drawn into the business model of the company. The IIRC has highlighted the business model as “heart” of an organisation which shows how value can be created over time (IIRC, 2013). The capitals are drawn as inputs. Through a company’s business processes, they are transformed into outputs such as products, services or waste and they eventually influence the capital as outcomes (Michalak, Rimmel, Beusch and Jonall, 2017)

Suttipun (2017) researched the effect on integrated reporting on financial performance on companies in Thailand. Using various statistical methods, study was more focused on how the six capitals affected the performance of 150 Thai listed companies. The study found that financial, human, intellectual and social capitals had insignificant effects on financial performance. It however found that manufactured capital had a favourable relationship with financial performance. In other words, by using its assets efficiently, the company generates increased profits. The results of Suttipun’s study also showed a negative relationship between natural capital and financial performance. This may have been because companies view voluntary reporting as an expense which may reduce company performance. Thus, companies provide very little information on natural capital just to meet minimum requirements.

In the framework the council, however, does not offer much guidance on how to measure some of these capitals. Along the same vein, Adams (2015) and (Flower, 2015) also highlight the difficulty of valuing and disclosing changes, especially social, relationship and natural capital changes. Similarly, Robertson and Samy (2015) argue

that accounting academics should support organisations in creating ways to measure these capitals. Academics would assist in creating accounting measurements for the capitals. One may argue that the responsibility of measuring the capitals lies with the organisations or regulators. However, a high level of subjectivity from the companies may hinder the successful adoption of integrated reporting, academics would be able to dilute such subjectivity. In other words, for the effect of firm activities on the capitals to be clearly identified, more guidelines need to be provided for the measurement of the capitals.

2.3.5. Integrated Thinking

Integrated reporting is however just the “cherry on top”. It is the visible piece or final product showing what is taking place internally, namely – “integrated thinking” and “integrated decision-making.” The IIRC states that, integrated thinking is “...active consideration by an organisation of the relationships between its various operating and functional units and the six capitals” (IIRC, 2013). Figure 2.5 below shows how integrated thinking aligns with integrated reporting.

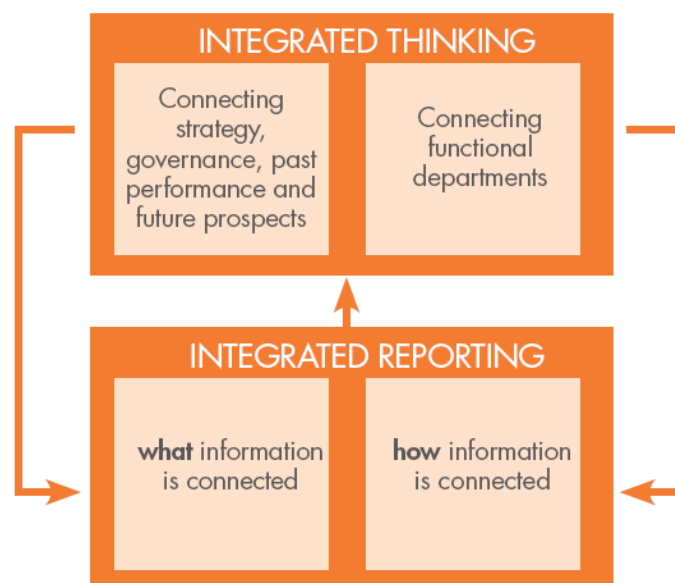


Figure 2. 5: Integrated thinking and the alignment with IR
(Source: Dumay and Dai (2017), Initiative (2013))

As depicted in Figure 2.5, two components constitute integrated thinking. Firstly, it links strategy, governance, past and future performance and the interdependencies that

exist between these factors (Dumay and Dai, 2017). This connection leads to managing and understanding a business in such a way that meets the company's short and long-term priorities, vision and goals as well as opportunities and risk affecting the various capitals (Churet and Eccles, 2014). In other words, it brings about making decisions which are integrated and procedures that take into account creating value over a period.

Secondly, integrated thinking links the various organisational units; the production of an integrated report delves into the connections that exist in the different departments, gaining a deeper insight of the internal processes and relationships (Dumay and Dai, 2017). This in other words means that through integrated thinking, teams appreciate the influence of their decisions and performance on the company, stakeholders and other internal units and this will result in a creation of increased collaboration between these departments and assist in catalyzing behavioral change in organisations. Departments will not work in isolation but collaborate to ensure that the company vision and goals are met.

According to Churet and Eccles (2014), integrated thinking results in successful integrated reporting. This will in turn lead to long-term competitiveness and business resilience thus, leading to superior long-term financial performance and returns to investors and stakeholders.

2.3.6. Benefits and Drawbacks of Integrated Reporting

Integrated Reporting is critical for companies as it promotes effective communication, thereby assisting the key users of the reports. Various scholars have researched the benefits of integrated reporting which will be discussed below.

2.3.6.1. Integrated reporting as a mode of communication

Rensburg and Botha (2014) studied information transparency to investors as well as stakeholders. This South African research investigated whether integrated reporting was the "silver bullet" to communicating financial information effectively and if it added any value to a stakeholder's knowledge. Silver bullet in this context implies the quickest and easiest solution to a problem. Specifically, Rensburg and Botha (2014) tried to answer the question around the effectiveness of integrated reporting as a

communication mode of conveying information to stakeholders. The study found that integrated reporting can communicate financial information effectively to stakeholders and guarantee added value. The current study seeks to establish whether integrated reporting has any internal and external monetary benefits to a company.

2.3.6.2. Integrated reporting and attracting investors

Having communicated with users, the question regarding whether integrated reports have attracted investors arises, and the type of investors that would be attracted. This question remains inadequately answered. Serafeim (2015) studied how integrated reporting attracts investors and the type of investors attracted in the USA. The study found that integrated reporting does have an influence on investor decision and such investors have high growth opportunities and a long-term vision of the company and strategy as well as a longer life-span (Terry, 2012).

Hoque (2017) also performed a global study and stated reasons why companies should adopt integrated reporting and the benefits that may be realised in comparison to traditional reporting. Through a review of literature, Hoque's main purpose was to illustrate that integrated reporting is not just about releasing several pages of paper, but is a component of improved commercial reporting, with increased benefits. Similar to Hoque's study, Surty et al. (2018) studied how integrated reporting would be of benefit to state-owned companies in South Africa. In their study they highlighted benefits such as assisting in identifying risks and opportunities for effective resource allocation. Furthermore, integrated reporting enhances commitment of stakeholders by bringing together financial and non-financial information. All these benefits are summarised in Figure 2.6 below. However, these studies are literature reviews, without the use of any quantitative figures which would be the case in the current study. The results may not indicate any significant interactions between integrated reporting and financial performance which this study seeks to explore.

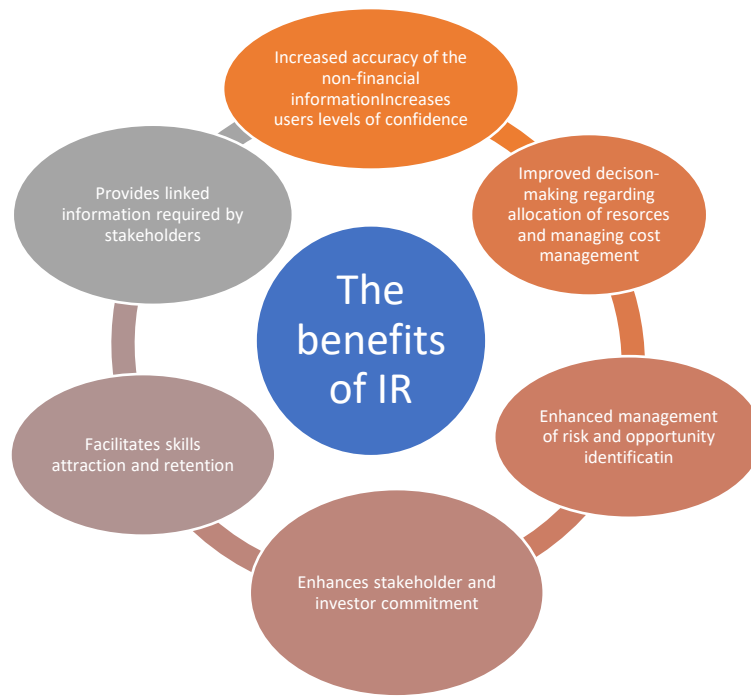


Figure 2. 6: Benefits of Integrated Reporting

(Source: Surty et al. (2018))

2.3.6.3. Drawbacks of Integrated reporting

Surty et al. (2018) stated the drawbacks of integrated reporting. Surty et al. (2018) found that these reports tend to be very long, repetitive and difficult to understand. Furthermore, they discovered that companies were using this exercise as more of a marketing exercise, spending significant amounts of money to prepare the reports.

Other articles such as Dumay and Dai (2017), Innovation (2016) and Hubbard (2014) highlighted other drawbacks. Firstly, integrated reporting may result in internal resistance by individual departments and employees. Secondly, there are high costs in terms of time involved, and resource requirements may be lacking mostly due to the lack of experience. Thirdly, companies are exposed to potentially new risks due to disclosure of the negatives and corresponding responsibilities. Thirdly, integrated thinking is not easily recognized, and companies may fail to connect the various aspects of the business into a business model. The literature also does not give a proper answer as to how to overcome such challenges, and whether the process of integrated reporting is worth it for a company. This then solidifies the statement of the problem of this research which seeks to establish the impact of integrated reporting on financial performance amidst such drawbacks. Finally, adoption of integrated

reporting may subject directors to legal accountability if the future information published in the report does not materialize.

2.4. Integrated Reporting Trends and the Regulatory Environment in South Africa

Following the recommendations of King III, South African companies were part of the pioneers in implementing integrated reporting (Mmako and van Rensburg, 2017, Marx and Mohammadali-Haji, 2014). The King Code and the Johannesburg Stock Exchange (JSE) requirements are interlinked. While the JSE was somewhat indirect about its requirements for an integrated report, one of its listing requirements is application of the King Code which calls for companies to produce integrated reports. Thus, all JSE listed companies produce integrated reports (Marx and Mohammadali-Haji, 2014).

Marx and Mohammadali-Haji (2014), from their study of Top 40 listed JSE companies' integrated reporting practices, compared the Integrated Reports against the guidelines of the framework. Content analysis was employed to analyse the 40 reports. The study sought to perform a post-adoption review on the Top 40 companies and measure the success of the integrated reporting. They found that company practices varied from very well published integrated reports to renamed annual reports. In a similar study, Mmako and van Rensburg (2017) studied the inclusion of integrated reporting elements in the chairman's report. By performing a qualitative content analysis of chairperson's statements of 100 JSE listed companies, the study sought to understand how companies were incorporating the integrated reporting standards in their statements and reports. They found that these companies struggled to understand the structure and content of integrated reporting and did have challenges compiling annual reports.

Despite their findings, it was too soon to conclude whether companies are failing to produce properly published reports with the right information. Mmako and van Rensburg (2017) and Marx and Mohammadali-Haji (2014) used 2012 and 2013 reports respectively. However, this was only a few years after introduction of the phenomenon. In other words, it takes time for companies to embrace this new form of reporting fully and have all aspects of the framework included. Further, these two studies only focused on the subject matter of the reports while the current study tries

to establish whether the integrated report has an impact on company financial performance.

2.5. Integrated Reporting and Company Financial Performance

2.5.1. Integrated reporting

According to the International Federation of Accountants (IFAC), an integrated report can be an organisation's primary report, providing a greater link between different reports and fitting into the corporate reporting landscape (Cheng, Green, Conradie, Konishi and Romi, 2014). Integrated reporting takes an analogy of an 'octopus' and as depicted in figure 2.7.

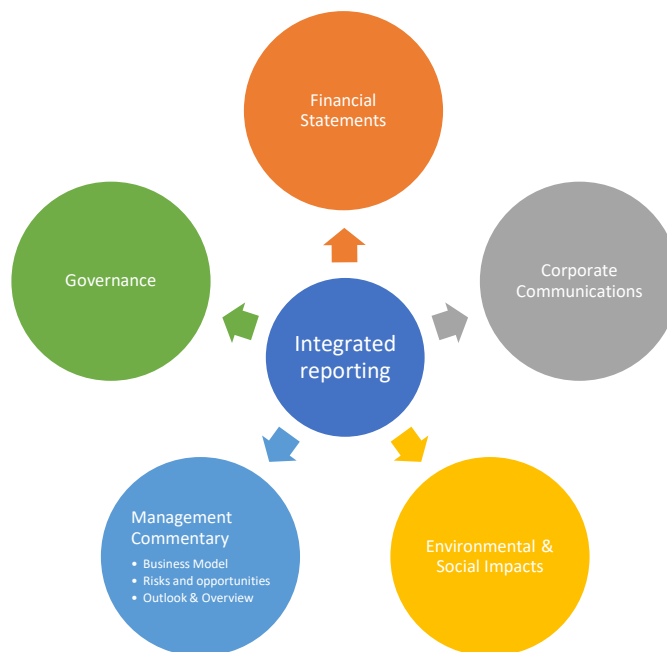


Figure 2. 7: Reports in Integrated reporting
(Author's Compilation)

As illustrated in Figure 2.7, the integrated report will be the head of the octopus as it tells a story in a high-level complete way. The head will be connected to several arms such as financial reporting, corporate communications, management commentaries, environmental and social issues and governance matters.

While these separate reports are part of integrated reporting, they also of their own accord may have an impact on financial performance. This will be discussed below.

2.5.1.1. Financial Statements

As alluded to earlier in section 1.2, financial statements are basically the traditional reporting system, but they are also part of the integrated report. However, according to IIRC (2013) and Marx and Mohammadali-Haji (2014), users still argued that the reports fail to link a company's economic, social, and environmental issues, thus giving rise to integrated reporting.

2.5.1.2. Corporate Communications

These include reports such as those by non-executive and executive management (for example, chief executive officer and board chairman). The chairman's statement is a crucial element of companies' annual reports. The statement provides users of the financial statements, non-financial information on the organisational vision, current actions, future strategies and policies (Bhana, 2009). Mmako and van Rensburg (2017) reiterate that stakeholders read the chairman's statement as it gives an overview of the past year and the entity's outlook based on ongoing projects and operations. However, it cannot be determined whether these statements affect financial performance directly.

2.5.1.3. Environmental and Social Issues

Disclosing environmental and social issues has increased significantly of late. Integrated reporting helps place such disclosures into a strategic context linked to value creation. Adediran and Alade (2013) in Nigeria, researched the relationship between environmental accounting, disclosures and financial performance. Their study found that environmental disclosures can attract more investment and that there is a relationship with corporate financial performance. However, these findings were inconclusive as to whether the relationship is positive or negative. These authors used accounting-based measures like those in this study. However, they examined one aspect being environmental disclosures whereas this study will look at integrated reporting in its wholeness.

In contrast to Adediran and Alade (2013) whose findings were inconclusive, Magara et al. (2015) noted a favourable relationship between environmental accounting, financial performance and disclosures. By distributing a questionnaire to 49 accountants in Kenya, their study aimed to investigate whether giving attention to

environmental matters resulted in reduced costs and increased profits. While this research relates to this study as represents the environmental arm of integrated reporting, a questionnaire was used to generate data whereas this study uses data from databases.

Similarly, Qiu et al. (2016) investigated the connection between environmental and social disclosures, company profits and share price in the United Kingdom. The main purpose of the study was to determine why many companies place importance on disclosures, especially social disclosures. The authors found that reliable and relevant disclosures help in making better earnings forecasts, increase economic benefits, enhance firm goodwill which results in a higher share price that influences financial performance and investor decisions. They also found that social disclosures contributed to attracting and retaining skill and expertise, good debtor and creditor loyalty, increased sales and consequently financial performance and may attract investment. Qiu et al. (2016) concluded that these disclosures are a company's competitive edge and reap both financial and non-financial rewards.

These studies by Adediran and Alade (2013), Magara et al. (2015), and Qiu et al. (2016) are related as they focused on environmental and social impacts on financial performance. Thus, while they inform this study, they only focused on one aspect of integrated reporting. Again, the studies were performed in Nigeria, Kenya and the United Kingdom which are different to the geographical location of this research, thus creating a gap that this research attempts to address.

2.5.1.4. Management Commentary

Management commentary complements the financial statements by providing other information such as non-financial information relating to the company's strategy for value creation as well as progress on strategy implementation. The International Financial Reporting Standards (IFRS) 2010 Practice Statement stated that management commentary involves facets such as the business model, risks as well as opportunities, and organisational overview.

The business model and its disclosures are crucial in understanding how a company operates, creates value and differentiates itself in the market. IIRC (2013) highlighted the business model as pivotal to an organisation which creates value through the six

capitals and implementing integrated thinking. This is done through the four blocks, namely, inputs, activities, outputs and outcomes. Melloni, Stacchezzini and Lai (2016) stated that investors consider business models as critical to understanding the firm's performance as they give a clear description of revenue generation. In relation to this study, integrated reporting encompasses the business model of an organisation. In this way, it lies in tandem with the views of Melloni et al. (2016), thus giving a clear description of revenue generation of an organisation which affects company financial performance.

Risk management and disclosures also form part of management commentary. Companies are therefore expected to report on the risks that relate to the entity as well as mitigating factors. Risk disclosures enhance corporate transparency, enable effective risk management and enhance firm performance (Adamu, 2013). This is further supported by Oyerogba (2014) whose study was aimed mainly at investigating these disclosures on listed Nigerian companies. The findings of the study were a testament that risk disclosures improve financial performance as companies become obliged to identify, track, manage and report the risks that affect them. Given that integrated reporting also encompasses risks disclosures and the management thereof, this study will also establish whether inclusion of this in the report will affect financial performance.

The organisational overview includes information such as a background of the entity, the type of industry in which the entity operates, its products as well as its market share. It gives further detail on macro-economic and regulatory factors that impact the organisation and its operational markets. This is all non-financial qualitative information published for users. No literature has been identified by the researcher on how this information affects financial performance. This supports the need for this research study as it will contribute to literature on the impact of this qualitative information to financial performance.

2.5.1.5. Corporate Governance

Another arm of integrated reporting that is increasingly raising conflict is corporate governance. With increasing corporate failures, the connections between financial performance and corporate governance have become questionable. (Smith, 2014). Rossi, Nerini and Capasso (2015) studied the connection between corporate

governance and financial performance on listed corporations in Italy. By creating an index to measure corporate governance quality (CGQI) and using financial ratios like Tobin Q, ROA and ROE, the study found that good governance gives rise to better outcomes for a company, and consequently a favourable connection between corporate governance and financial performance. Much like (Qiu et al., 2016), Rossi et al. (2015) focused on one aspect of integrated reporting. This study will look at integrated reporting in its wholeness and any impact on financial performance.

Similar studies were undertaken in Egypt and India by Shahwan (2015) and Arora and Sharma (2016) respectively. Using the same method as Rossi et al. (2015) of creating an index and using the same financial measures, the authors also sought to establish how corporate governance impacts financial performance. The authors agreed that bigger boards of directors are linked to a greater depth of intellectual understanding. This improves making decisions which enhance performance. However, the findings of both these studies did not confirm a favourable relationship between financial performance and corporate governance.

The studies above are relevant to this study as they reveal a possible relationship between corporate governance and integrated reporting. This study, however, goes further to expand on existing literature

While these aspects mentioned above are all part of integrated reporting, they have different impacts on the financial and organisational performance in their singular form. It is crucial to note that the integrated report does not summarise these reports. It focuses on integrated thinking and requires cross-functional alliance within an organisation. The above research combined represents a shift and trend of financial reporting that the integrated report seeks to address.

2.5.2. Integrated Reporting and financial performance

With the marketplace demanding a more detailed and wholistic picture of financial performance inclusive of the reports above (Smith, 2016), integrated reporting has presented opportunities for companies to develop links for the reports and also provide a more detailed and wholistic picture of their performance. This however requires a certain level of understanding from the part of management and concerns whether management is practicing integrated thinking.

In the USA, Churet and Eccles (2014) carried out a twofold study to establish whether or a relationship exists between integrated reporting, financial performance and effective management of environmental, social and governance (ESG) issues. The main purpose of the study was to find a link between integrated reporting, integrated thinking and value creation over time. The study found that organisations which manage opportunities and risks arising from social and environmental issues proactively do communicate these issues in an integrated manner. This therefore concurs with the understanding that integrated reporting portrays integrated thinking and there is effective management of ESG issues. In other words, companies can understand the relationship of their value drivers and strategic goals better.

However, Churet and Eccles (2014) did not find any conclusive evidence with regards to the connection of integrated reporting and financial performance. From these results they suggested further research, hence more motivation for this research study. Their study only used return on invested capital (ROIC) to assess performance. More accounting and market-based measures could have been used to get a clearer picture of this relationship. Hence the current study tries to establish the impact of integrated reporting on financial performance using more accounting and market-based measures such as return on assets (ROA) and economic value added (EVA).

In contrast to Churet and Eccles (2014) inconclusive results, Appiagyei, Djajadikerta and Xiang (2016) performed a similar study to scrutinise the quality of integrated reporting and its connection with firm performance in South Africa and Australia. In South Africa integrated reporting adoption is mandated and Australia it is still voluntary. The main aim of this study was to show policy makers in Australia the benefits of regulating integrated reporting. By using sales growth and earnings per share (EPS) as their performance measures, the research noted a positive relationship between integrated reporting and profitability, more so in South Africa where adoption is mandated for JSE listed companies. Furthermore, integrated reporting can also benefit companies in underdeveloped and emerging countries (Suttipun, 2017) and in any industry sector (Albetairi, Kukreja and Hamdan, 2018). This study however will focus on companies listed in South Africa.

2.5.3. Integrated reporting and the capital markets

With the differing impact that integrated reporting has on financial performance as seen above, it also raises a question as to how integrated reporting will impact the firm value and the capital market for those companies that have adopted this reporting practice. Martinez (2016) researched the impact of integrated reporting on the firm's value. The main aim was to establish the external benefits of integrated reporting on various international voluntary adopters. The author found a positive link between market value and expected future cashflows and a negative link with cost of capital.

However, Zhou et al. (2017) found the opposite results compared to Martinez (2016) with regards to the relationship with cost of capital. Their study investigated integrated reporting, analysts earning forecast accuracy, and cost of capital. It was performed on JSE listed companies prior and subsequent to the adoption of integrated reporting. The main aim was to determine whether information in the integrated report was useful to analysts in making investments predictions. The study found that integrated reports provide analysts with information about the corporate strategy, business models and other future information which may assist in making forecasts. They also found that properly published reports give rise to a reduced cost of capital and investors are willing to invest in a company that has lower risk returns.

Cosma, Soana and Venturelli (2018) found similar results to Zhou et al. (2017). These authors studied the integrated report effect on the market but used a very different method. Their method focused on integrated report quality and the IIRC awards for the best integrated report held for JSE companies in South Africa (Cosma et al., 2018). The results showed that the market appreciated the news of the awards for high quality integrated reports and this resulted in a positive effect on the share prices. It also resulted in the companies being recognised as practice leaders and credible disclosers (Cosma et al., 2018).

Martinez (2016), Zhou et al. (2017) and Cosma et al. (2018) therefore all concluded that integrated reporting is widely beneficial to companies, whether those that have adopted or considering adoption of integrated reporting. The results also encouraged managers and companies to invest in improving disclosure quality in these reports as it was clearly depicted that it is not only figures that may influence firm value, but quality as well. These studies support this research because investigating how integrated

reporting affects financial performance also includes studying behaviour and the relationships that integrated reporting has with the firm value. In as much as the geographical context of South Africa is similar to (Zhou et al., Cosma et al.), this study will use a different method with a smaller sample size and over a long period.

2.5.4. Evidence from South Africa

Unlike other developed countries, in South Africa there is insufficient evidence to show the impact of integrated reporting on financial performance. This is despite the fact that South Africa was one of the pioneers in adopting and producing integrated reports following the recommendations of King III and King IV.

South African Studies conducted by Marx and Mohammadali-Haji (2014), Mmako and van Rensburg (2017), and Surty et al. (2018) leaned towards the trends in integrated reporting and highlighted its qualitative benefits. Other studies on South African companies by Zhou et al. (2017) and Cosma et al. (2018) focused on integrated reporting and its influence on the capital market which is only the external aspect of financial performance.

Overall, the above South African studies have not addressed how integrated reporting affects financial performance. Appiagyei et al. (2016) considered the connection between integrated reporting and firm profitability and performance. However, this study was more of a comparative research of the different regulatory settings between Australia and South Africa. Further this was solely after adoption from 2012 and 2015. This therefore provides a gap in the literature for further research.

2.6. Conclusion and Chapter Summary

This research investigates the impact of integrated reporting on financial performance. This chapter discussed theoretical framework of integrated reporting and the relevant literature. The chapter went on to review the impact of different reports and the integrated report on financial performance. The studies identified, presented mixed results on the impact on financial performance.

Finally, the South African context was considered. Most of the studies performed in South Africa related to trends in integrated reporting. The other studies performed were highlighting the benefits of integrated reporting and only one study was identified

covering the impact of integrated reporting on financial performance. This then provides a gap in literature that this study will seek to address.

The next chapter will proceed to explain the research methodology adopted to research the impact of integrated reporting on financial performance.

Chapter Three: Methodology

3.1. Introduction

In Chapter 2, literature around integrated reporting was provided. The chapter gave a brief history of integrated reporting, discussed the theoretical framework surrounding integrated reporting and provided a critical review of literature carried out on integrated reporting.

This chapter discusses the methodology adopted in the study and how its relevance to the research questions detailed in Chapter 1. Figure 3.1 below shows how this chapter is structured.

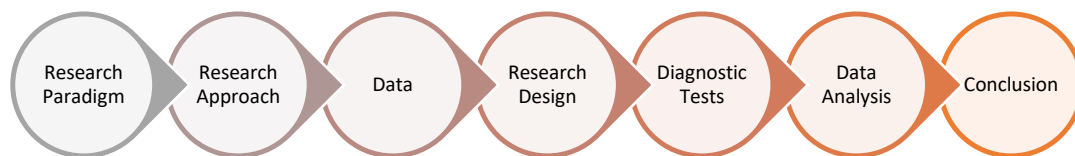


Figure 3. 1: Chapter Outline

As shown in Figure 3.1, it will discuss the research paradigm and approach, followed by data and research design, the diagnostic tests, data analysis and finally a conclusion.

3.2. Research Paradigm

Paradigms are essentially classified as interpretivist or positivist (Aliyu, Bello, Kasim and Martin, 2014). The interpretivist paradigm is qualitative and subjective, based on texts, interpretations and observations (Mitchell, 2014). It is widely adopted in fields of study related to philosophy, psychology and sociology. It leads to the generation of subjective data which explains the world as experienced by those who live in it (Henning, van Rensburg and Smit, 2004). In other words, the interpretivist paradigm focuses on participants' subjective experiences and understanding.

The positivist paradigm sees knowledge as underpinned by the experience of the senses and it can be generated through observations and carrying out experiments

(Henning et al., 2004). Positivists presuppose that knowledge is objective and quantifiable (De Vos, Delpont, Fouche and Strydom, 2011). In this paradigm the researcher is independent of the respondent, they are detached – they believe that knowledge is “out there” where as in the interpretivist there is no distance and they are attached, in other words they interact in the process of data generation to generate the subjective data. In this study the data will be generated from online databases and public domains. There will be no meetings with any of the representatives from the companies in the sample.

Positivism is interested in discovering and revealing truth and then presenting objective descriptions by empirical means (Henning et al., 2004). This study tries to unearth how integrated reporting impacts financial performance and will present findings using tables, graphs and other statistical methods. Thus, the positivist paradigm will be used because the research contained numerical measurements. Numerical analysis approaches are generally based on primary or secondary data. This study also tracks the trends of the financial performance in a larger sample. It is also noted that with such an approach, the results can be generalized to a larger population. Therefore, the study was suited to the positivist paradigm.

3.3. Research Approach

The research approach provides a road-map to researchers pointing them to appropriate strategies and techniques for data generation and analysis (Mitchell, 2014). In other words, it provides a direction to the researcher to undertake the study. This includes the type of research to be undertaken and the research approach to be used. These will be discussed below.

3.3.1. Type of Research

Research includes three types, namely exploratory, causal and descriptive. According to Zikmund, Babin, Carr and Griffin (2013) exploratory research is more appropriate in situations where there is limited information on the topic. They go on to say that causal studies enable researchers to investigate whether one event gives rise to another (Zikmund et al., 2013). On the other hand, descriptive generally requires the researcher to have data that describe characteristics of the topic, people or

companies. The descriptive type of research is suitable for this research as numeric data will be used in the study.

3.3.2. Research Approach

Qualitative approach, quantitative approach and mixed methods approach are the three major approaches to research. Mixed methods approach is a research methodology that combines two approaches in the research process namely qualitative and quantitative. Its aim is to generate, analyze, and mix the approaches in a study (Creswell and Creswell, 2017). Qualitative approach is researcher dependent, meanings and interpretations have to be deduced from unstructured or semi-structured responses obtained from observations or interviews (Creswell and Creswell, 2017). Quantitative on the other hand generally focuses on objective measurements which involve numerical, statistical and mathematical analysis of data (Creswell and Creswell, 2017).

This study investigates how integrated reporting impacts financial performance. The research will adopt a quantitative approach. It will make use of mathematical measurements, numerical and statistical analysis of data. This also supports the positivist paradigm which is suited for quantitative studies.

3.4. Data Collection

The testing of the hypotheses of this study requires the collection and the sampling of data from the target population. The next section describes the different aspects of the data, the population and samples to be used in the study.

Primary data are data generated directly from participants through interviews and observations. Primary data are often raw and collected for the sole purpose of the study being conducted (Zikmund et al., 2013). Secondary data refers to data that already exist from various sources like literature or databases and the collection of such data is not for the purposes of a particular study (Zikmund et al., 2013). For instance, Bloomberg collects financial information of companies to track trends and to keep databases however, all this information is not for any particular study.

The current study will use secondary data to investigate the impact of integrated reporting on financial performance. The secondary data are available in the public

domain. This available secondary data is adequate for the study as it enables the researcher to address research questions, thus there was no need to generate primary data.

3.4.1. Data Sources

The data will be gathered from Bloomberg’s Database (Churet and Eccles, 2014), McGregor’s Database (Tshipa, 2017), and the Integrated Annual Reports of the sampled companies. The databases mentioned above provide various types of financial information among others such as financial statements, ratios, reports pertaining to companies all over the world and South Africa. All variables disclosed in the firm’s financial statements will be extracted from Bloomberg’s Database. The study uses McGregor’s BFA Database to collect the beta and the EVA. Table 3.1 gives a summary of the variables that will be gathered and their sources.

Table 3. 1: Variables used in the study

Abbreviation	Variable	Description	Source
ROA	Return on assets	Accounting-based measure	Bloomberg
EVA	Economic value added	Market-based measure	INET
Tobin’s Q	Tobin’s Q	Firm performance	INET
ESG	Environmental, social and governance	Independent variable	Bloomberg
SG	Sales Growth	Growth in sales	Bloomberg
<i>SYSRISK</i>	Risk	Beta β	INET
LEV	Leverage	Debt/equity ratio	INET
BS	Board size	Number of directors on board	Bloomberg

3.4.2. Period of Study

The period used in the research was 2009 to 2017. 2009 was selected as it was a period before adoption of the integrated reporting practices of many companies. The years 2010 to 2017 represent the period in which integrated reporting was introduced and the periods in which the companies adopted the framework.

3.4.3. Frequency of Data

In line with previous integrated reporting studies, the data which will be used for this study is all annual figures (Serafeim, 2015, Tshipa, 2017). For example, all inputs that will be used in the calculations of the variables will be all annual figures.

Therefore, no data will need to be converted.

3.4.4. Population

The study draws from Johannesburg Stock Exchange (JSE) listed companies as its population. According to FTSE/JSE Russel factsheet as at July 2018, the number of companies listed on the main board was approximately 370 with 166 being part of the JSE All-share index. JSE listing requirements necessitate application of King IV and the adoption of the integrated report, thus this research will only focus on JSE listed companies.

3.4.5. Sample

Probability and non-probability are the two types of sampling designs in research. Probability sampling enables all population elements equal opportunities of being selected. It thus provides for randomness and generalisation to general population (Creswell and Creswell, 2017). Non-probability sampling does not enable randomness and therefore findings are not generalisable but may be applied to other similar situations.

This study will adopt a non-probability purposive sampling design. This sampling enables selecting objects, individuals or groups that are able to provide rich information being researched or where the processes being researched are likely to occur (Creswell and Creswell, 2017). Thus, the companies in the sample will be companies that are preparing integrated reports.

Accordingly, the sample which will be selected for this research is the Top 40 JSE companies as at 6 July 2018, the date when data will be gathered. Focusing on these companies was informed by:

- Market capitalisation – these top 40 JSE listed companies represented a significant number of the All Share Index (Marx and Mohammadali-Haji, 2014). As at 31 July 2018, the Top 40 constituents represented 84% of the All Share Index in July 2018.

- The apparently influential position of these Top 40 companies – they are considered to be market leaders and the influence they would most likely have on stakeholder interest.

The sample also includes the different sectors and industries on the JSE and includes companies from the following sectors: food and beverage, personal and household goods, health care, retail, chemicals, basic resources industrial goods and services, media, telecoms, banks, insurance, real estate and financial services. This diversity of sectors is one of the benefits of using the JSE listed companies. This is therefore regarded as a sample representing the JSE listed companies. Consequently, this makes it appropriate to limit the research to these companies, given that smaller companies do not exert as much influence in the markets.

It is vital to bear in mind that some companies may not have adopted integrated reporting immediately in 2010, and that the Top 40 companies also change depending on market capitalisation (Bussin and Modau, 2015). For the purposes of this study, the Top 40 companies as at the 6th of July 2018 will be used as they were then. This is because even though the companies are not always in the Top 40, it is highly likely that they were listed and would still have adopted integrated reporting at a certain time. The years in which companies had not adopted integrated reporting will be run with dummy variables.

The selection criteria also constituted the following:

- Availability of data for a minimum of 6 years
- The company must have been listed on the JSE for 6 years

Two companies within the initial sample had insufficient information and one company was only listed in 2016, thus they were deleted from the final sample. Therefore 37 companies within the Top 40 will be used for this study.

3.5. Design of Analysis

Three types of analyses will be undertaken in this research. These are descriptive analysis, correlation matrix, and regression analysis.

3.5.1. Descriptive Analysis

Descriptive statistics are viewed as numbers that offer a summary and description of data using measures such as mean, standard deviation, variance and the number of observations. These measures enable developing summaries of large quantities of data into simplified statistics for understanding and interpretation (Zikmund et al., 2013). These will be discussed below.

3.5.1.1. Mean

This is most widely used and is understood as the mathematical average of a sample distribution. The concept is easily understood and comparable. However, extreme values at times distort the results of the sample.

3.5.1.2. Variance

Variance measures the amount of dispersion in a sample by determining the difference between the observation and the mean.

3.5.1.3. Standard deviation

This represents the spread of the sample from the mean and is the square root of the variance. This measure improves interpretability of the sample.

3.5.1.4. Number of observations

This is a frequency count.

3.5.2. Correlation Analysis

Another analysis executed in this study was correlation analysis. Correlation analysis measures the strength and course of the linear relationship between variables (Brooks, 2014). To be more precise, within this study Pearson correlation analysis was conducted. There are three possible outcomes for each of the variable sets:

1. There is no correlation between two variables. This implies that neither of the variables is increasing or decreasing.
2. There is positive correlation, which implies that both variables are increasing. In other words when one variable increases, the other also increases. For instance, when ROA increases, ESG also increases.

3. There is negative correlation, which implies that when one variable is increasing, the other is decreasing. For instance, when ROA increases, ESG decreases.

However, it is necessary to emphasize that correlation does not imply causation. It only shows whether there is a relationship between the variables.

3.5.3. Regression Analysis

The study used panel data regression models to analyse the statistical results.

3.5.3.1. The use of panel data

Panel data is understood as data sets that have both a time-series and cross-sectional element (Wooldridge, 2013). Time-series refers to observations made over a period at regular intervals (FinanceTrain, 2018). Cross-sectional data on the other hand contain observations on multiple units observed at a single point of time (FinanceTrain, 2018). Thus, panel data sets observe units of analyses over different time periods. This study looks at integrated reporting over a period of 9 years for each of the 37 companies. 1-year pre-adoption and 8 years post adoption.

The use of panel data has several advantages. These include:

- It is easier to use in a large data set which provides greater variability and reduced multicollinearity. This improves the efficiency of the estimates (Hsiao, 2014, Marais, 2016).
- It allows a researcher to answer questions that cannot be answered when using the time-series or cross-sectional data sets separately (Marais, 2016).
- It allows for more accurate predictions and ability to identify effects that would not normally be done by time-series or cross-sectional data sets (Hsiao, 2014, Marais, 2016).
- It permits control of omitted variables (unobserved or mis-measured variables) (Hurlin, 2018).
- There is easier estimation and inference of results even though there are two dimensions involved (Hurlin, 2018).

- It allows for control of individual entity heterogeneity because ignoring the unobserved effects specific to companies may lead to biased results.

The study will use an unbalanced, fixed and short panel data set. An unbalanced panel refers to a situation where the data set is comprised of different time periods for each cross-sectional unit. A fixed panel refers to a situation where the same companies were observed every time. A short panel data set implies that the data had several cross-sectional units (companies) compared to a limited number of time periods (that is, 37 companies for 9 years) (Wooldridge, 2013).

3.5.3.2. Panel Data Regression Models

There are different types of panel data regression models. These are, the pooled regression, fixed effects and the random effects. This study, however, will only discuss the fixed effects model and the random effects regression models, and criteria which will be used in selecting the final model.

Fixed Effects Regression Model

The fixed effects model examines whether there are any variations in the intercepts across the company or the time. It looks at the individual differences in the intercept assuming that the slopes and error variances are constant across each unit (Park, 2011). The individual differences do not change with time and can be correlated with other independent variables (Park, 2011). Consequently, the independent variables are constant and should be excluded from the regression (Wooldridge, 2013). The fixed effects regression model may be represented as:

$$\gamma_{it} = (\alpha + \mu_{it}) + X'_{it}\beta + \varepsilon_{it} \quad (i = 1, \dots, N \text{ and } t = 1, \dots, T)$$

where μ_{it} stands for the unobserved individual fixed effect (Wooldridge, 2013).

According to Wooldridge (2013), a major weakness of the fixed effects model is that the approximations of β are dependent on the sample.

Random Effects Regression Model

The random effect regression explores the differences in the error variance units across individuals or time (Park, 2011). It assumes that heterogeneity is not correlated

and that the slopes are constant, but the error variances are randomly distributed across time or each unit (Park, 2011). Thus, the difference among each unit or time is in their specific errors and not at the intercept. The random effects regression model may be represented as:

$$\gamma_{it} = \alpha + X'_{it}\beta + (\varepsilon_{it} + \mu_{it}) \quad (i = 1, \dots, N \text{ and } t = 1, \dots, T)$$

where μ_{it} stands for the unobserved individual random effect (Wooldridge, 2013).

Park (2011) notes that this model reduces the number of regressors thus expanding the degrees of freedom. However, a significant risk is that the approximations would then become unpredictable if individual heterogeneity is interrelated to the independent variables (Park, 2011).

Choosing between the fixed effects model and the random effects model

Clark and Linzer (2015) state that when deciding between the two regression models above, the choice is dependent on the data set size, correlation levels between the effects on the individual and other regressors, and finally the degree of variation between the independent and dependent variables.

The fixed effects model is arguably more appropriate when focus is on a specific set of companies with restricted findings within an accounting-based research. Related to this, the random effects model is better suited in situations where the sample is drawn from a larger population (Clark and Linzer, 2015).

Despite these considerations stated above, a statistical test to decide may also be used. The test to compare the fixed and random effects is the Hausman test.

Hausman Test

This tests for the random effects assumption that there is no correlation between the independent variables and the individual specific effects. The Hausman test can be expressed as follows (Park, 2011):

$$\mathcal{H} = (\beta_{LSDV} - \beta_{Random})' \mathcal{W}^{-1} (\beta_{LSDV} - \beta_{Random}) \sim \chi^2(k)$$

where $\mathcal{W} = \text{Var}(\beta_{LSDV} - \beta_{Random})$

If the estimates of β in both the regression models are the same, then the results suggest no correlation between the individual effects and independent variables (Clark and Linzer, 2015). The null hypothesis of the Hausman test will then show that the assumptions of the random effects model are true, and it is appropriate to use as a regression model.

Wooldridge (2013) claims that the fixed effects model is generally used when we reject the null hypothesis of the Hausman test and accept alternate hypothesis. The opposite is true, in other words, when the null hypothesis is retained, both models are consistent, and the fixed effects model is inefficient. The results of the rejected model become inconsistent and biased. The hypothesis for the Hausman test can be summarised as follows:

H₀: Random Effects Regression Model

H₁: Fixed Effects Regression Model

One of the main drawbacks of the Hausman test is that there is no guarantee that the difference of the covariance matrices \mathcal{W} will be a negative definite (Park, 2011, Greene, 2008). In such an instance, the null hypothesis is retained, and the random effects model cannot be rejected.

The full results of the Hausman test and choice of regression model will be discussed and presented in Chapter 4.

3.5.4. Model Specification and variables

The models that will be used in this study will enable the researcher to address the three research questions as highlighted in Chapter 1. The section below will discuss the three models that will be used to address each research question and the variables that will be used in the study.

3.5.4.1. Independent Variable

This research's independent variable was the Integrated Report. The study will use the Environmental, Social and Governance (ESG) Score in rating the integrated report and its quality.

The ESG score will be adopted to enable integrated report quality assessment as the score assumes an all-inclusive methodology to assess environmental, social and governance activities and outcomes of companies (Wang and Sarkis, 2017) and the apparent efficiency of the different kinds of disclosures by made companies. Other scholars such as Rowbottom and Locke (2016) actually stated that integrated reporting is a combination of ESG and financial reporting into one report, thus confirming the suitability of the ESG score as a measure of the quality of an integrated report.

Serafeim (2015) also states that the ESG scores provide stakeholders with information on how the company is succeeding in integration of economic, social, environmental and governance matters in their daily decision-making processes, in other words, how the company shows co-dependency factoring in the six capitals and integrated thinking. This is what integrated reporting is all about.

Bloomberg uses over 900 data points and an example of some of the data points will be shown in the Table 3.2 (Bloomberg, 2014).

Table 3. 2: Sample ESG Bloomberg datapoints
(Bloomberg, 2014)

Environmental	Social	Governance
Carbon emissions	Supply chain	Cumulative voting
Climate change effects	Discrimination	Executive compensation
Pollution	Political contributions	Shareholders' rights
Waste disposal	Diversity	Workforce statistics
Renewable energy	Human rights	Board committees
Resource depletion	Community relations	Board compositions

For this study the ESG scores for the Top 40 JSE listed companies were obtained from Bloomberg. For every company on which Bloomberg collects data, it calculates the score ranging from 0 to a high of 100. This score will determine quality of disclosures in the integrated report. As stated earlier, not all companies adopted

integrated reporting at inception in 2010. For the years that companies had not adopted the framework, an ESG score is still available based on the amount of non-financial disclosure made by the companies.

Similar studies that have used the ESG score as a measure of reporting or as a measure of the quality of integrated reporting include Mitchell (2014), Churet and Eccles (2014), Serafeim (2015) and Wang and Sarkis (2017).

3.5.4.2. Model 1: Research Question 1

Model 1 seeks to address the following research question and hypothesis:

Does integrated reporting impact a company's financial performance through accounting-based measures?

H₀: There is no impact on financial performance through accounting-based measures.

H₁: There is an impact on financial performance through accounting-based measures.

Model Specification

This hypothesis seeks to establish whether integrated reporting has an impact on ROA which is an accounting-based measure. The model to be used is:

$$ROA = f(ESG, LEV, \beta, SG, BS)$$

Where ROA = Return on Assets, ESG = Economic, social, governance, LEV = leverage, β =beta, SG = Sales growth, BS= Board Size

ROA was considered as a factor of ESG and controlled for leverage, risk, sales growth and board size.

Dependent Variable

Accounting based measures are an easily available way of assessing company performance. According to Tshipa (2017), their strength is in the comprehensive evidence that shows inter-relatedness of accounting and economic returns. This study

will use Return on assets (ROA) to investigate how integrated reporting affects the financial performance through the accounting-based measure.

Return on assets (ROA) is understood as the operating profit at year end divided by book value of total assets at as at the same date.

In the context of this study, ROA values will be sourced from the INET database and Bloomberg. The equation to calculate ROA is:

$$ROA = (\text{Operating Profit after tax} / \text{Total Assets}) * 100$$

ROA measures the efficiency and effectiveness of how companies manage their operations and use their assets in profit generation. Thus, a higher ROA reflects effectiveness and efficiency in using assets to maximise stakeholders' investments by management (Wang and Sarkis, 2017). The ratio is also an important measure of financial performance as it eradicates company size differences which simplifies comparisons to be made across companies (Tshipa, 2017). Tshipa (2017) suggested that ROA reflects year on year variations underlying business conditions better than market-based measures. ROA has been employed in previous integrated reporting studies such as Adediran and Alade (2013), Qiu et al. (2016) and Wang and Sarkis (2017).

However, ROA has been criticised as it may be considered a historical measure. It is not able to show future profitability as well as risk of a company (Magara et al., 2015). It is further argued that ROA fails to show the differences between environmental and industry factors as well as performance factors that are non-financial in businesses (Tshipa, 2017). These weaknesses are reduced by the including control variables discussed further on.

This study expects to find a positive correlation and a positive impact on financial performance through integrated reporting, given that integrated reporting is expected to yield better profitability for a company as well as make better use of its assets. A company can make more sustainable decisions and become more efficient on resource allocation and usage.

3.5.4.3. Model 2: Research Question 2

Model 2 seeks to address the following research question and hypothesis:

Does integrated reporting impact a company's financial performance through market-based measures?

H₀: There is no impact on financial performance through market-based measures.

H₁: There is an impact on financial performance through market-based measures

Model Specification

This hypothesis seeks to establish whether integrated reporting has an effect on EVA which is a market -based measure. The model used was:

$$EVA = f (ESG, LEV, \beta, SG, BS)$$

where EVA = Economic Value Added, ESG = Economic, social, governance, LEV = leverage, β =beta, SG = Sales growth, BS= Board Size

EVA is considered as a factor of ESG and controlled for leverage, risk, sales growth and board size.

Dependent Variable

Market based measures are superior to accounting measures as they consider issues such as risk, which is largely ignored by accounting-based measures. This study uses Economic Value Added (EVA) to study the impact of integrated reporting on financial performance through market-based measures.

In this study, EVA values were obtained from the INET database.

$$EVA = Spread * Capital Employed$$

Where:

Spread = ROCE/WACC

ROCE = NOPAT/CE

CE = Total assets – Current Liabilities

CE = Capital Employed

NOPAT = Net operating profit after tax

ROCE = Return on capital employed

WACC = Weighted Average Cost of Capital

EVA is an important instrument for measuring financial performance as it brings together factors relating to the economy, accounting and the market. According to the a supporter of EVA, Stewart III (1994) “EVA is the single best measure of wealth creation on a contemporaneous basis and is almost 50% better than its closest accounting based measures in explaining changes in shareholder wealth.” Therefore, EVA is a dependable performance measure that can be maximised for increasing shareholder wealth. No studies have been identified to have used EVA as a performance measure within the integrated reporting spectrum. However it has been used in corporate governance and financial performance studies by scholars such as Tshipa (2017).

The current study also expects to find a positive relationship between integrated reporting and EVA. By adopting integrated reporting, boards and management adopt a multi-capitals way of thinking. This assists in recognising the range of resources and relationships they use and that affect the intrinsic value of the company. In doing so the board ensures that thinking is centred around the long-term goal of value creation, thereby increasing EVA.

3.5.4.4. Model 3: Research Question 3

Model 3 seeks to answer the following research question and hypothesis:

What is the relationship between integrated reporting and firm performance?

H₀: There is no relationship between integrated reporting and firm performance

H1: There is a positive relationship between integrated reporting and firm performance

Model Specification

This hypothesis seeks to establish whether there is a link between integrated reporting and firm performance. The model to be used is:

$$\text{TobinQ} = f(\text{ESG}, \text{LEV}, \beta, \text{SG}, \text{BS})$$

Where ESG = Economic, social, governance, LEV = leverage, β =beta, SG = Sales growth, BS= Board Size

Tobin's Q is to be considered as a factor of ESG and controlled for leverage, risk, sales growth and board size.

Dependent Variable

To measure the overall effect of integrated reporting on firm performance, this study will use the Tobin's Q. The ratio is considered to be one of the oldest and most preferred measures of firm performance (Tshipa, 2017).

Tobin's Q is understood to be a ratio of market value of equity and debt to their replacement cost (Singhal, Fu, and Parkash, 2016).

In the context of this study, Tobin's Q values were obtained from the INET database and Bloomberg. The equation is:

$$\text{Tobin's Q} = \text{Market value of equity plus debt} / \text{total assets}$$

where Market value of equity plus debt = market capitalisation

Generally, this ratio assesses the effectiveness of how a company's management can use assets to generate value for its shareholders. Much like ROA, a higher ratio will show more remarkable efficiency of a company's internal structures and an improved rating of a company's performance in the market (Singhal et al., 2016). A Tobin's Q ratio less than 1, shows undervaluation of the company shares. This then results in a lower incentive to invest for companies as the costs of investing may exceed the

benefit. Conversely, a ratio of more than 1 shows overvalued shares and incentives for investment are greater as the benefits outweigh the costs.

The ratio has a great instinctive appeal and practical relevance, thus, making it a suitable proxy to measure firm performance. Similar studies that have used Tobin's Q as a tool to evaluate the performance of a company include Lee and Yeo (2016), Singhal et al. (2016), and Tshipa (2017). These studies however were not on integrated reporting, but within other corporate arenas such as corporate governance research.

Tobin's Q also has several criticisms. Quite like ROA, Tobin's Q does not depict differences between the industry and environment as well as performance factors that are not financial in businesses. Furthermore, the results of the ratio can be very false as they do not essentially show that the company management's ability to use assets in generation of value. Including control variables has lessened the impact of these criticisms. These control variables which will be discussed further on.

Much like the two models specified above, the study expects a positive relationship between integrated reporting and firm performance. Integrated reports are expected to relay information which allows stakeholders and users to evaluate the extent and whether value is created. This adds to the financial value of the company.

3.5.4.5. Control Variables

The study will employ various control variables to reduce omitted variable bias (Tshipa, 2017). These variables are leverage measured by the debt/equity ratio, risk measured by beta (β), sales growth (SG) and board size (BS).

The variables will be selected based on theoretic expectations and are similar to previous studies like Mitchell (2014) Qiu et al. (2016), Tshipa (2017) and Suttipun (2017) who all examined the relationships of different aspects of integrated reporting (corporate governance and environmental and social disclosures) and company financial performance.

Debatably, there are several other variables which could have been used in this study for example, company age, growth opportunities or firm size. However, the main reasons for using the above-mentioned control variables were:

- Other variables do not have a theoretical connection with the integrated reporting and financial performance relationship
- Insufficient data for the other variables
- The selected variables are similar with prior studies that examined impact on financial performance

3.5.5. Reliability and Validity

To enhance reliability of the data generated for this study, secondary data will be gathered from published financial statements and integrated reports of companies from their official websites. Data will also be collected from the INET and Bloomberg databases. Reliability tests like Wald χ^2 and R-squared will also be run and results will be discussed in chapter 4.

Validity will be ensured by the selection of appropriate statistical methods to test hypotheses and to address the research questions.

3.6. Diagnostic Tests

Several statistical weaknesses that are linked to panel data regression models may cause misleading results if they are not addressed. The current data set consisted of thirty-seven cross-sectional (companies) and nine time-dimensional (years) units. As stated above, there are more companies than years, thus, the study focuses on diagnostic tests that are more concerned with macro-panel data. These tests will be discussed below, and their results will be discussed in chapter 4.

Multicollinearity

Classical regression models assume that every independent variable contains a distinct piece of information relating to the dependent variables (Brooks, 2014). Brooks (2014) indicates that the issue of multicollinearity arises when the independent variables are correlated. This may be caused by incorrect specification of models and the incorrect use of dummy variables.

A Pearson's Correlation Matrix (PCM) will be used to test for the problem of multicollinearity. This PCM was found to be superior over other methods such as Variance Inflation Factors (VIF). The VIF consists of dropping variables or collecting

further data until multicollinearity ceases to exist. This approach may cause specification errors or may not be practical to perform.

Implications of not performing the test include biasness of the estimated coefficients. In addition, the multicollinearity problem would possibly increase the variances of the coefficients (Brooks, 2014).

Heteroscedasticity

Heteroscedasticity refers to non-constant variances related to the error term in the model (Marais, 2016). It is an indication of significant variability in the model. If there is no heteroscedasticity, the variables are homoscedastic, i.e., the variances are constant. This study will use the modified Wald Test to test for heteroscedasticity. The hypothesis for heteroscedasticity can be summarised as follows:

H₀: There is no heteroscedasticity (Homoscedasticity)

H₁: There is heteroscedasticity

If the p-value < 0.05, then a problem of heteroscedasticity exists, we reject the null hypothesis. If the p-value > 0.05, there is no heteroscedasticity. The robust estimator of variance will be used to address the problem of heteroscedasticity.

Serial Correlation

This is when an independent variable is correlated with its past variables or with lags of other dependant variables in the model. The presence of serial correlation results in inefficient coefficient estimates and standard errors that are biased (Marais, 2016). The Woolridge test for serial correlation will be used in this study. The hypothesis for serial correlation can be summarised as follows:

H₀: No Serial Correlation

H₁: Serial Correlation exists

If the p-value > 0.05, there is no serial correlation and we retain the null hypothesis. If the p-value < 0.05, then there is serial correlation. The robust estimator of variance will be used to address the problem of serial correlation.

This test is suitable as it is based on fewer assumptions as compared to other tests (Marais, 2016) making it more robust and it achieves good size and power properties when adequate sample sizes are used (Marais, 2016).

Normality

To draw enough statistical inference from regression models, the variables need to be distributed normally. Analysing this would show possible violation of the normality assumption (Tshipa, 2017). The Shapiro-Wilk Test for normality will be used. The hypothesis for normality can be summarised as follows:

H₀: Variables are normally distributed

H₁: Variables are not normally distributed

If the p-value > 0.05, variables are normally distributed, and we retain the null hypothesis. If the p-value < 0.05, then the variables are not normally distributed. This test best suits sample sizes between three and two thousand and according to Marais (2016), this test was found to be more superior than other normality tests.

3.7. Data Analysis

To run all analysis, tests and regression for this study, the Stata/IC 15.0 statistical package will be used.

3.8. Ethical Considerations

Ethical considerations are crucial when research and analysis involves human participants. The study does not involve research on any human subjects. The research data and basis for testing relies on secondary data available in the public domain. Using this secondary data eliminates ethical issues regarding data collection as the information will be obtained from websites available to anyone. Since the information that will be used in this quantitative study involves no human interaction, ethical considerations that arise with human element will not arise in this study. An ethical exemption certificate was obtained for the purposes of this study. (Certificate number: HSS/1462/018M)

3.9. Chapter Summary and conclusion

The research investigated the impact of integrated reporting on financial performance. This chapter discussed the positivist paradigm and the quantitative approach adopted in this study. The population consisted of JSE listed companies and a sample of 37 companies within the Top 40 was used in this research. This consisted of companies that produced integrated reports from 2010 to 2017 and before integrated reporting in 2009. The data gathering procedures as well as variables adopted in this study were also detailed. A summary of how data will be analysed as well as considerations of reliability and validity were also discussed before a summary that concluded the chapter. The next chapter will present the statistical analyses relevant to the sample and for testing the hypotheses.

Chapter Four: Results and Analysis

4.1. Introduction

This study investigated the impact of integrated reporting on financial performance with particular focus on the Top 40 JSE listed companies. Chapter one introduced the research and provided a background to the study. Chapter two discussed relevant literature, identifying the gap to which the study contributes. Chapter three explained the methodology adopted for carrying out the study.

The present chapter presents the findings from the study. Consistent with Section 3.5.4, the chapter will be divided into the three models as reflected in Figure 4.1 below. For each model, the descriptive statistics are presented first, followed by the correlation matrix, the diagnostic tests and the regression analysis results. The chapter is tied up by a chapter summary.

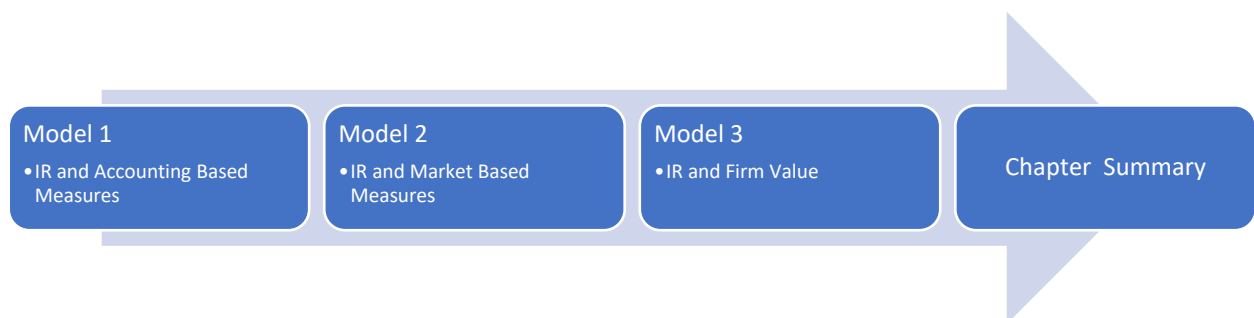


Figure 4. 1: The three models

4.2. Model 1: Integrated reporting and accounting-based measures

The first model sought to evaluate the impact of integrated reporting on accounting-based measures using ROA. The model addressed the first objective and the first research question.

Does integrated reporting impact a company's financial performance through accounting-based measures?

4.2.1. Descriptive Statistics

Table 4.1 reflects descriptive statistics of the dependent, independent and control variables used to investigate whether integrated reporting has an impact on the company financial performance.

Table 4. 1: Descriptive Statistics of the variables

Variable	Obs	Mean	Std. Dev.	Min	Max
ESG	346	41.4398	11.8001	12.9187	67.7686
ROA	380	0.0850	0.2158	-3.6271	1.4320
EVA	380	1092.242	3414.969	-40247.55	35271.55
TQ	377	3.4659	3.4917	-23.1120	20.6849
SRISK	380	0.8578	0.2606	0.0174	1.9301
SGRW	344	0.1165	0.2314	-0.771	2.4513
BS	380	13.1947	3.6298	8	24
LEV	366	0.8922	2.0583	-28.8137	9.3583

This table includes all variables used in the study. ESG = Environmental, Social and Governance, ROA = Return on Assets, EVA = Economic Value Added, TQ = Tobin's Q, SRISK = Systematic Risk, SGRW = Sales Growth, BS = Board Size, LEV = Leverage. Source: Author's Compilation

As indicated previously indicated in Section 3.4.5, the selected sample consisted of 37 companies from 2009 to 2017. The years that companies did not have an integrated report have been given a dummy variable of 0 and those that did have a variable of 1.

The maximum observations in the study was 380. This is the maximum observations for each variable sampled, over a period of nine years. The observations for ESG were less than the maximum observations because the score was awarded to companies that were producing integrated reports. Even though integrated reporting was mandatory, the companies did not start at the same time. Very few companies in South Africa participated in the pilot phase in 2010, thereafter other companies started producing integrated reports at different dates. The observations for Tobin Q, sales growth and leverage were also less than the maximum number of observations being 377, 344 and 366 respectively. This is most likely attributed to different performances of the companies over the years.

To date the highest ESG score was 67.77 out of 100, depicting a significant improvement since the introduction of integrated reporting. However, this also indicated the need for companies to do more when it comes to disclosures of such issues. On average, the quality of the integrated reports measured by the ESG score was 41.43% of the given period. This means that on average, a company would have adopted integrated reporting for at least 3 years within the given 8-year period after its introduction. This suggests that on an average a firm would have adopted integrated reporting or published its first integrated report in 2013. This is quite low considering that all JSE listed companies have been and are still mandated to adopt integrated reporting since 2010. These findings are consistent with Mitchell (2014) who also reported an average of 48.5% on a sample of 110 JSE listed companies in 2013.

The average value for ROA was 8.4%. On the overall, the average of ROA was consistent with previous studies undertaken in South Africa on JSE listed companies. Tshipa (2017) reported 11.32% from 2002 to 2014. Similarly, using a panel study sample, Tshipa and Mokoaleli-Mokoteli (2015) found an average ROA of 8% on 137 companies listed on the JSE from 2002 to 2011. This was also consistent with Waweru (2014) who reported an ROA average of 9% on the Top 50 largest JSE companies. This shows that listed companies continuously create value for their shareholders.

4.2.2. Correlation Matrix

Table 4.2 represents the correlation coefficients of the variables used. If there is a statistically high correlation, this is a sign of the problem of multicollinearity. The results show the strength and course of the linear relationship between the variables (Brooks, 2014).

Table 4. 2: Pearson Correlation Matrix for variables used in the study

	ROA	EVA	TQ	SYSRISK	SGRW	ESG	LEV	BS
ROA	1.0000							
EVA	0.5733**	1.0000						
TQ	0.1943**	0.0253	1.0000					
SYSRISK	0.0455	0.2618**	-0.1895**	1.0000				
SGRW	0.0481	0.0207	0.0518	-0.1484	1.0000			
ESG	-0.1188*	0.1705**	-0.1164*	-0.4082**	-0.1506**	1.0000		
LEV	-0.0258	0.0193	0.4989**	-0.0703	0.0055	-0.0053	1.0000	
BS	-0.0267	0.1377**	-0.1782**	0.0811	-0.0768	-0.0850	0.1036*	1.0000

*This table includes all variables used in the study. ESG = Environmental, Social and Governance, ROA = Return on Assets, EVA = Economic Value Added, TQ = Tobin's Q, FS = Firm Size, SRISK = Systematic Risk, SGRW = Sales Growth, BS = Board Size. * and ** denote level of significance at 5% and 1% respectively. Source: Author's Compilation*

As depicted in Table 4.2, the highest correlation was between ROA and EVA. These are both performance measures. A company that can make effective decisions and effectively manage operations and assets will result in an increase profits, increase in shareholder wealth thereby increasing EVA. This supports findings by Kangarloe et al. (2012) who found a strong positive correlation between EVA and ROA .

The ROA was negatively correlated with the ESG score with a significant weak correlation coefficient of -0.1188. This means that the as the ESG decreases, the ROA will increase and vice versa. This supports literature, for example, Balatbat et al. (2012) found an unfavourable relationship between ESG scores and accounting based measures. This means that even though firms are participating in ESG activities, there is a very slight negative effect on the synergies that exist on the profitability and the better use of assets (Pasquini-Descomps and Sahut, 2013).

4.2.3. Main Regression Results

The following section presents the main findings of the regression starting with the Hausman test followed by preliminary results, then finally the regression analysis.

4.2.3.1. Hausman Test

As previously stated in 3.5.3.2, the Hausman test was employed to decide on which method to use between the random effects model and the fixed effects model. The results are shown in table 4.3 below.

Table 4. 3: Hausman test: Selection between fixed and random effects Model 1

---- Coefficients ----				
	(b)	(B)	(b-B)	sqrt(diag(V_bV_B))
	fe	Re	Difference	S. E
ESG	-0.0032	-0.0033	0.0002	0.0015
SRISK	0.1632	0.1369	0.2624	0.4326
SGRW	0.4711	0.639	-0.0168	0.0184
LEV	0.0033	0.0014	0.00199	0.0029
BS	0.1659	0.0005	0.0161	0.0073

b = consistent under Ho and H₁; obtained from xtreg
 B = inconsistent under H₁, efficient under Ho; obtained from xtreg
 Test: Ho: difference in coefficients not systematic
 $\chi^2(5) = (b-B)'[(V_b-V_B)^{-1}](b-B) = 6.53$
Prob>chi2 = 0.2581

Source: Author's Compilation

Where probability (p-value) is less than 5% (0.05), we reject the null hypothesis and if it is more than 5% (0.05), the null hypothesis is retained. In relation to the Hausman test, the null hypothesis implies that the random effects model is favoured over the fixed effects model (Torres-Reyna, 2007b). As depicted in Table 4.3, the p-value is 0.2581. The null hypothesis was therefore retained at the 5% level. Thus, a random effect model is suitable and preferred. The fact that this model is preferred is consistent with Wooldridge (2018) who concluded that that when dealing with unbalanced panel data sets, the random effects model is more appropriate.

4.2.3.2. Multicollinearity

The selected model sought to investigate the impact of integrated reporting on financial performance through accounting-based measures. The level of multicollinearity between the variables was assessed using Pearson's Correlation Matrix. Table 4.2 presents these results.

A statistically high correlation signals the problem of multicollinearity. If a linear relationship is present among the independent variables in a regression model, those variables are considered to be multicollinear (Verbeek, 2004). Such problems may result in defective approximations with high standard errors and unexpected indicators.

Gujarati (2009) states that the problem of multicollinearity arises when the correlation between two variables transcends 0.8. Fundamentally, multicollinearity weakens the statistical power of the analysis by switching the signs of coefficients, thus making it hard to identify the correct model. The study did not find any significant correlation amongst the variables as all the correlation results are all below 0.8. Therefore, there is no problem of multicollinearity between the variables in this model.

4.2.3.3. Heteroscedasticity

The study then tested for heteroscedasticity using the modified Wald Test. The null hypothesis assumes homoscedasticity and there is no heteroscedasticity. Table 4.4 below shows the results.

Table 4. 4: Modified Wald Test

Wild Test = 7. 86e + 0.7, p-value > Chi2(37) = 0.0000

Source: Author's Compilation

From Table 4.4, the p-value was 0.0000, and since it was less than 1%, the null hypothesis of homoscedasticity at all levels of significance was rejected and the alternate hypothesis of heteroscedasticity was accepted. This suggests existence of significant variability in the model. To address this issue, the robust estimator of variance were used in performing the regression analysis (Torres-Reyna, 2007b)

4.2.3.4. Serial Correlation

The study also tested for serial correlation with Wooldridge test for serial correlation. Presence of serial correlation results in inefficient coefficient estimates and standard errors that are biased (Marais, 2016). Table 4.5 below shows the results.

Table 4. 5: Wooldridge Test for Serial Correlation

Ho: No first order autocorrelation
Prob > F = 0.6100

Source: Author's Compilation

From Table 4.5, the p-value was 0.6100. The p-value is insignificant at all levels thus showing no serial correlation. We fail to reject the null hypothesis. Therefore, there is no problem of autocorrelation in this model.

4.2.3.5. Normality

The Shapiro Wilk W-test tested for the normality of the error residual. The null hypothesis assumes that variables are normally distribution of distributed. Table 4.6 shows the results of the test below.

Table 4. 6: Shapiro-Wilk W-Test

Variable	W	V	z	Prob>Z
ee	0.2437	166.363	12.025	0.0000

Source: Author's Compilation

As shown in the table above, the null hypothesis is rejected at the one percent level of significance. This indicates that the error residuals are not normally distributed.

Non-normality of the error residuals affects the estimation and the inferences of the models. Wooldridge (2013) argues that asymptotic assumptions based on the Central Limit theory can be relied upon especially when the sample is large enough. This then allows a study to ignore the assumption of normality. This is also supported by Torres-Reyna (2007a), who also states that normality does not represent much of a problem in large samples.

Prior studies such as Marais (2016), Niap (2013), Bradley (2011) with sample sizes of two hundred and sixty (fifty-two companies over five years), two hundred and forty-nine (eighty-three companies over three years) and two hundred (forty companies over five years) respectively and were able to ignore the assumption of normality. This study uses observations of three hundred and eleven. Based on these prior studies and the large sample size, this study ignored the normality assumption and invoke the asymptotic assumptions through the Central Limit Theory.

4.2.3.6. Regression Analysis

As discussed above, the research employed the Random Effects model to approximate the impact of integrated reporting on financial performance through the

accounting-based measures. The robust estimator of variance was used to address the problem of heteroscedasticity. Table 4.7 shows the main regression results.

Table 4. 7: Accounting-based measures regression model

ROA	Coefficient	Robust Standard. Error	z-statistic
ESG	-0.0034	0.0029	-1.17
SYSRISK	0.1369	0.1583	0.86
SGRW	0.0639	0.0289	2.21**
LEV	0.0014	0.0047	0.30
BS	0.0005	0.0048	0.09
_cons	0.0831	0.0990	0.84
Theta	0.2434		
Wald chi ²	10.29***		
# of groups	37		

*ESG = Environmental, Social and Governance, ROA = Return on Assets, SGRW = Sales Growth, SYSRISK = Systematic Risk, LEV = Leverage, BS = Board Size ** and *** denote level of significance at 5% and 10% respectively Source: Author's Compilation*

Table 4.7 presents the results obtained from integrated reporting and accounting-based measures research model. From the table, the columns represent coefficients, the standard error, the z-statistic and the p-value. ROA represents the dependent variable in this model with sales growth being a control variable.

Consistent with the correlation coefficient in table 4.2, but contrary to the expectations for this study, the regression model found a negative correlation between ROA and ESG. The regression also showed that ESG has no significant effect on ROA based on the p-value which is 0.243. Therefore, we retain the null hypothesis. The study showed an insignificant relationship with the control variables specifically risk, leverage and board size. A relationship with sales growth was found at the 5% level of significance. The model also shows a Wald Chi² score of 10.29. This means that the model does have explanatory power at the 10% level of significance.

The results above show, integrated reporting has no impact on financial performance through accounting-based measures. These results suggest that even if companies

disclose their economic, social and governance issues in the integrated report, it has a no effect on the profitability and the use of its assets. However, these results differ to prior studies such as Velte (2017) and Pasquini-Descomps and Sahut (2013) that reported that ESG positively impacts the ROA of a company.

These findings could be a sign that firms producing integrated reports do not fully recognise the synergies that exist or are triggered between integrated reporting and financial performance. For example, by engaging more with stakeholders by providing a wholistic report on the company, there may be higher demand for their products and services, thus also increasing goodwill.

4.3. Model 2: Integrated Reporting and Market Based Measures

The second model sought to evaluate the impact of integrated reporting on market-based measures using EVA. The model addresses the first objective and the second research question.

Does integrated reporting impact a company's financial performance through market-based measures?

4.3.1. Descriptive Statistics

As outlined in Table 4.1, Economic value added (EVA) had a mean of 1092.242 suggesting an average company performance and value increase of 1092.242 points. Ideally, the companies are on average producing value from the funds invested in them. This positive mean result was similar to those of a study by Pamburai, Chamisa, Abdulla and Smith (2015) on companies in South Africa companies during 2012.

4.3.2. Correlation Matrix

Table 4.2 reflects the correlation coefficients of all the variables employed in the study. Consistent with assertions by Gujarati (2009), who claimed that the problem of multicollinearity is regarded serious in a situation where the correlation coefficient amongst explanatory variables exceeds 0.8. There was no significant correlation between the explanatory variables of this model.

Notably, EVA was strongly correlated to ROA. This indicates that most companies by increasing their profitability are in turn increasing the company value. This is consistent

with studies such as the one by Tshipa (2017) who found a favourable relationship between EVA and ROA.

ESG was also positively related to EVA with a correlation of 0.1705 at 1% level of significance. Thus, when one variable increases, so does the other. In general, when a company integrates economic, social and governance activities into its reporting structures, it generates superior performance thus increasing its company value. These results are in line with the expectations of this study.

4.3.3. Main Regression Results

Similar to model 1, this section discusses and presents the findings of the regression starting with the Hausman test, this is followed by preliminary results and finally the regression analysis.

4.3.3.1. Hausman Test

The Hausman Test was also used to determine which method to be used in the regression analysis between the random effects model and the fixed effects model. Table 4.8 below shows the results.

Table 4. 8: Hausman test: Selection between fixed and random effects Model 2

---Coefficients---				
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	Fe	re	Difference	S.E.
SYSRISK	2845.88	2950.881	-105.003	538.2498
SALEGROW	1715.654	1721.318	-5.6646	223.4350
ESG	0.9343	19.7749	-18.8405	19.5853
LEV	-36.0674	-4.4456	-31.6218	34.6956
BS	288.3028	176.0443	112.2585	99.2452

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg
 Test: Ho: difference in coefficients not systematic
 $\chi^2(5) = (b-B)[(V_b-V_B)^{-1}](b-B) = 2.50$
Prob>chi2 = 0.7758

Source: Author's compilation

As depicted in Table 4.8, the p-value was 0.7758. Since the p value was greater than 5%, we fail to reject the null hypothesis. Thus, a random effects model is appropriate and preferred. This model is appropriate as this study focuses on the Top 40 companies and inference is restricted to those companies (de Jager, 2015).

4.3.3.2. Multicollinearity

The model sought to investigate whether integrated reporting impacts company financial performance through market-based measures. Consistent with model 1, the level of multicollinearity was tested using The Pearson's Correlation Matrix. These results are presented in Table 4.2.

The study did not find any significant correlation amongst the variables as all the correlation results are below 0.8. Therefore, there is no problem of multicollinearity in this model.

4.3.3.3. Heteroscedasticity

The model was then tested for heteroscedasticity using the modified Wald Test. The null hypothesis for this test assumes homoscedasticity and there is no heteroscedasticity. Table 4.9 below depicts the results.

Table 4. 9: Modified Wald Test

Wild Test = 7. 14e + 0.7, p-value > Chi2(37) = 0.0000

Source: Author's Compilation

From Table 4.9, the p-value was 0.0000, and since it was less than 1%, the null hypothesis of homoscedasticity at all levels of significance was rejected and the alternate hypothesis of heteroscedasticity was accepted. This suggests significant variability in the model. To address this issue, the robust estimator of variance were used in performing the regression analysis (Torres-Reyna, 2007b).

4.3.3.4. Serial Correlation

The study also tested for serial correlation on model 2 using the Wooldridge test. The presence of serial correlation results in inefficient coefficient estimates and standard errors that are biased (Marais, 2016). Table 4.10 below shows the results.

Table 4. 10: Wooldridge Test for Serial Correlation

Ho: No first order autocorrelation
Prob > F = 0.2059

Source: Author's Compilation

From the results in Table 4.10, the p-value was 0.2059. The p-value is insignificant at all levels thus showing no serial correlation. We fail to reject the null hypothesis. Therefore, autocorrelation is not a problem in this model.

4.3.3.5. Normality

Normality of the error residual was tested using The Shapiro Wilk W-test. The null hypothesis assumes variables are normally distributed. Table 4.11 shows the results of the test below.

Table 4. 11: Shapiro-Wilk W-Test

Variable	W	V	z	Prob>Z
ee	0.3976	132.510	11.491	0.0000

Source: Author's Compilation

As shown in the table above, the null hypothesis is rejected at the one percent level of significance. Therefore, error residuals are not normally distributed.

These results are similar to those obtained for model 1. Based on prior studies such as Marais (2016), Niap (2013) and Bradley (2011) and the large sample size employed, this study ignored the normality assumption and invoked the asymptotic assumptions through the Central Limit Theory.

4.3.3.6. Regression Analysis

Using the Random Effects Robust Estimator of Variance, the results are presented Table 4.12.

Table 4. 12: Market-based measures regression model

EVA	Coefficient	Robust Standard Error	z-statistic
ESG	19.7748	37.7414	0.52
SYSRISK	2950.881	1778.018	1.66***
SALEGROW	1721.318	693.589	2.48*
LEV	-4.4456	27.0425	-0.16
BS	176.0443	85.1740	2.07**
_cons	-4804.019	1713.493	-2.80
Theta	0.4501		
Wald chi ²	13.64*		
# of groups	37		

*ESG = Environmental, Social and Governance, EVA= Economic Value Added, SGRW = Sales Growth, SYSRISK = Systematic Risk, LEV = Leverage, BS = Board Size *, ** and *** denote level of significance at 1%, 5% and 10% respectively Source: Author's Compilation*

Table 4.12 presents the results obtained from integrated reporting and market-based measures research model. From the table, the columns represent coefficient, the robust standard error, the z-statistic and the p-value.

Despite the positive correlation between EVA and ESG as shown in table 4.2, the random effects model regression results show that ESG has no significant effect on EVA with a p-value of 0.600. Therefore, the null hypothesis was retained. The results also depicted that EVA has an insignificant impact on leverage and significant impacts on all other control variables mainly sales growth, board size and risk at all levels of significance. The model also shows a Wald Chi² score of 13.64. This means that the model had explanatory power at the 1% level of significance.

Therefore, integrated reporting did not have an impact on financial performance through market-based measures. These results are similar to the findings of Atan et al. (2016) who also concluded that there was no significant relationship between ESG scores and EVA. However, these results contradict the expected results of the study.

The fact that no substantial relationship existed shows that there is no value added to the company, when they offer a wholistic approach of the company through integrated reporting to their stakeholders.

Atan et al. (2016) stated that the possible reason for the insignificant relationship was due to time. Their study was based on two years and recommended that a longer period of study would probably yield a significant result. However, this study focused on seven years and still yielded the same result. Another possible reason for this would be the inherent limitation that exists in EVA as it uses historical market values. The insignificant relationship can also be due to the costs associated in integrating these issues into business strategy. It has also been pointed out that managers do not implement integrated thinking as there is a belief that there is no value added to the company or any increase in stakeholder and shareholder value. However, while there are no evident monetary benefits, there may be immeasurable, intangible benefits such as company standing, a well-informed stakeholder body and company self-satisfaction.

4.4. Model 3: Integrated Reporting and Firm Performance

The final model sought to determine whether a relationship existed between integrated reporting and firm performance. The Tobin's Q was used as a variable. The model addresses the third research question.

What is the relationship between integrated reporting and firm performance?

4.4.1. Descriptive Statistics

The descriptive statistics are displayed in Table 4.1. The mean value for Tobin's Q was 3.4659. As alluded to in chapter 3, Tobin's Q evaluates company performance. The mean value was above 1 which indicates good investment prospects. The mean being above 1 is similar to prior South African studies on JSE listed companies like Tshipa (2017) and Pamburai et al. (2015), who reported averages of 2.2 and 1.56 respectively. This suggests that market values of companies on the JSE have been increasing over the years.

4.4.2. Correlation Matrix

With reference to table 4.2, a weak negative correlation of -0.1164 at the 5% level of significance emerges between Tobin's Q and ESG score. Thus, when the ESG score decreases, the Tobin's Q value increases. This contradicts the expectations of this study as integration of economic, social and governance activities into its reporting structures would be expected to generate superior performance, thus increasing its company performance. This however depicts an opposite effect. These results are also contradictory with other studies such as Huijgevoort (2017) who found an extremely weak and insignificant positive correlation of 0.005 between ESG and Tobin's Q.

4.4.3. Main Regression Results

Similar to the other two models above, this section discusses results of the regression starting with the Hausman test followed by preliminary results then finally the regression analysis

4.4.3.1. Hausman Test

The Hausman test was used to investigate whether to apply the random effects model or the fixed effects model. The results are in Table 4.13 below.

Table 4. 13: Hausman test: Selection between fixed and random effects Model 3

----Coefficients----				
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fe	re	Difference	S.E.
SYSRISK	0.5734	0.3294	0.2440	0.0991
SALEGROW	0.4720	0.5028	-0.0308	0.0000
ESG	0.1309	0.0048	0.0083	0.0043
LEV	0.8823	0.8835	0.0012	0.0037
BS	-0.0095	-0.0518	0.0424	0.0253

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg
 Test: Ho: difference in coefficients not systematic
 $\chi^2(5) = (b-B)'[(V_b-V_B)^{-1}](b-B) = 9.51$
Prob>chi2 = 0.0203

Source: Author's Compilation

Based on the results above, the p value was 0.0203. Since the p value was less than 5%, we reject the null hypothesis, and accept the alternate hypothesis. Thus, a fixed effects model was appropriate and preferred for this model. The appropriateness of the model is also validated by the fact that this study is focusing on the Top 40 companies and inference is restricted to those companies (de Jager, 2015).

4.4.3.2. Multicollinearity

The model sought to investigate whether a relationship existed between integrated reporting and firm performance. Consistent with the other two models above, the level of multicollinearity was tested using The Pearson's Correlation Matrix. These results are presented in Table 4.2.

The study did not find any significant correlation amongst the variables as all the correlation results are below 0.8. Therefore, no problem of multicollinearity exists between in this model.

4.4.3.3. Heteroscedasticity

The model was then tested for heteroscedasticity using the modified Wald Test. The null hypothesis for this test assumes that the variables are homoscedastic and there is no heteroscedasticity. Table 4.14 below shows the results.

Table 4. 14: Modified Wald Test

Chi2 (37) = 1.2e + 32, Prob > Chi2 = 0.0000

Source: Author's Compilation

From Table 4.14, the p-value was 0.0000, and since it was less than 1%, the null hypothesis of homoscedasticity at all levels of significance was rejected and the alternate hypothesis of heteroscedasticity was accepted. This suggests existence of significant variability in the model. To address this issue, the robust estimator of variance was used in performing the regression analysis (Torres-Reyna, 2007b).

4.4.3.4. Serial Correlation

The Wooldridge test for serial correlation was also used in this model. The presence of serial correlation results in inefficient coefficient estimates and standard errors that are biased (Marais, 2016). Table 4.15 below shows the results.

Table 4. 15: Wooldridge Test for Serial Correlation

Ho: No first order autocorrelation

Prob > F = 0.0005

Source: Author's Compilation

From the results in Table 4.15, the p-value was 0.0005. The p-value is significant at the 1% level thus showing a problem of serial correlation. We reject the null hypothesis and accept the alternative. Serial correlation is addressed the same way as heteroscedasticity using the robust estimator of variance.

4.4.3.5. Normality

As in the other models, the normality of the error residual was tested using the Shapiro Wilk W-test. The null hypothesis states that the variables are normally distributed. Table 4.16 shows the results of the test below.

Table 4. 16: Shapiro-Wilk W-Test

Variable	W	V	z	Prob>Z
ee	0.9010	21.787	7.245	0.0000

Source: Author's Compilation

As shown in the table above, the null hypothesis is rejected at the one percent level of significance. This indicates the error residuals that are not normally distributed.

These results are similar to those obtained in the other models above. Based on the assumptions used in model 1 and 2, prior studies such as Marais (2016), Niap (2013) and Bradley (2011) and the large sample size employed, this study ignored the normality assumption and invoked the asymptotic assumptions through the Central Limit Theory.

4.4.3.6. Regression Analysis

From the above discussion, the study employed the Fixed Effect Robust Estimator of Variance to approximate the relationship between integrated reporting on firm performance. The findings of the regression are presented in Table 4.17. below.

Table 4. 17: Firm performance regression model

TOBINQ	Coefficient	Robust Standard Error	t-statistic	p>t
ESG	0.0131	0.0145	0.86	0.389
SYSRISK	0.5734	0.5822	1.07	0.285
SALEGROW	0.4720	0.4170	0.92	0.356
LEV	0.8823	0.0974	17.19	0.000*
BS	-0.0095	0.0645	-0.15	0.883
_cons	1.5513	1.0812	1.38	0.167
r ²	0.8194			
Adjusted r ²	0.7918			
# of groups	37			

ESG = Environmental, Social and Governance, TobinQ= Tobin's Q, SGRW = Sales Growth, SYSRISK = Systematic Risk, LEV = Leverage, BS = Board Size *, ** and *** denote level of significance at 1%, 5% and 10% respectively Source: Author's Compilation

Table 4.17 presents the results obtained from integrated reporting and firm performance research model. From the table, the columns represent coefficient, the standard error, the t-statistic and the p-value. Tobin's Q represents the dependent variable in this model, with all the other variable being the control variables.

Inconsistent with table 4.2, there was a very weak positive correlation of 0.0131 between ESG and Tobin's Q. However, the p-value of the model was 0.389. This amount is greater than 0.1 and thus shows that this result was statistically insignificant. There was no relationship between Tobin Q and ESG scores, thus no relationship between integrated reporting and firm performance. Therefore, we fail to reject the null hypothesis.

The model also showed a r^2 and adjusted r^2 value of 0.8194 and 0.7918 respectively. r^2 is a goodness of fit measure that shows how well the values of the dependant variables and the independent variable match the actual observations on a scale of 0 to 1 (Drury, 2013). The r^2 and adjusted r^2 values are close to 1, thus showing that there is a relatively strong relationship between the independant and the dependent variables in this model and the model does have explanatory power.

With regards to the relationship between integrated reporting and firm performance, no relationship was found. These results contradict this study's expected results which assumed a significant relationship between integrated reporting and firm performance. This is so because ESG contains non-financial information that would add value and provide more insight to investors and stakeholders and eventually increase company performance. The results are however consistent with studies such as Velte (2017) and Atan et al. (2016) who did not find any relation between ESG and firm value using the Tobin's Q calculation.

4.5. Chapter Summary

This chapter presented econometric results drawing on the three research models discussed in Chapter 3. Each model was aligned to a research question. All models detected the problem of heteroscedasticity thus the study employed the robust estimator or variance to address this problem. Two of the models used the random effects model with model 3 using the fixed effects model.

The study concluded that integrated reporting has no impact on financial performance through accounting-based measures such as ROA and thus failed to reject the null hypothesis. The study went further to investigate whether integrated reporting has any impact on financial performance through EVA as a market-based measure. The results discovered an insignificant relationship and thus retained the null hypothesis. The final model investigated the relationship between integrated reporting and firm performance using Tobin's Q. The study concluded that there was an insignificant relationship and thus again retained the null hypothesis. Therefore, all regression models did not find any impact or relationship with integrated reporting.

The following chapter summarizes the study and makes inferences from the findings. The chapter will also tender recommendations around integrated reporting and draw conclusions.

Chapter Five: Conclusion and Recommendations

5.1. Introduction

The introduction and adoption of integrated reporting resulted from the dichotomy between non-financial and financial information. Alternative company reporting formats had to be found that presented information in a comprehensive manner that was sought by investors and stakeholders. With South African listed companies, being mandated to produce integrated reports, this study's focus was to establish whether integrated reporting impacted company financial performance

In the previous chapter, empirical findings based on the samples scrutinised were presented. The present chapter discusses the main findings of the study, together with related conclusions and recommendations. There follows a discussion of the study limitations. Recommendations for further research are tendered and finally, a conclusion will tie up the study.

5.2. Review of research objectives

Since the introduction of integrated reporting, many studies (Marx and Mohammadali-Haji, 2014, Mmako and van Rensburg, 2017, Hoque, 2017) have been carried out, focusing mainly on the quality and non-financial aspects of integrated reporting. Against this backdrop, this study focused on the impact of integrated reporting on the financial performance of a company.

This study revolved around one main objective and aim which was to investigate the impact of integrated reporting on financial performance.

To attend to this effectively, the main objective was broken down into three foci which were as follows:

1. To determine the impact of integrated reporting on financial performance through accounting-based measures
2. To determine the impact of integrated reporting on financial performance through market-based measures

3. To establish if there is a relationship between integrated reporting and firm value

From the answers to these research questions, this investigation wanted to explain the impact of integrated reporting on financial performance. The findings from these three research questions are classified into three different models and a summary of the findings will be given below.

5.3. Summary of Findings

5.3.1. Model 1: Integrated reporting and accounting-based measures

The first research model investigated the impact of integrated reporting through accounting-based measures such as return on assets (ROA). This model addressed the first research question being “*Does integrated reporting affect company financial performance through accounting-based measures?*”. The study used the random effects model (REM) to derive its findings.

The findings from the study revealed no relationship between integrated reporting and ROA vis-à-vis accounting-based measures. Thus, the study failed to reject the null hypothesis. This suggests that profitability and better use of assets were not affected by integrated reporting. The results also suggest that the companies may not be effectively using the synergies that exist between integrated thinking, operations, use of assets and profitability. Therefore, integrated reporting appears to have no impact on financial performance through accounting-based measures.

5.3.2. Model 2: Integrated reporting and market-based measures

The second research model investigated the impact of integrated reporting through market-based measures such as Economic Value Added (EVA). This model addressed the second research question: “*Does integrated reporting impact company financial performance through market-based measures?*”. The random effects model (REM) was employed to derive the findings.

The results revealed that integrated reporting does not affect financial performance through EVA. Thus, the study retained the null hypothesis. These results suggest that integrated reporting is not assisting companies in generating any value from invested

funds. Therefore, integrated reporting does not have an impact on financial performance through market-based measures.

5.3.3. Model 3: Integrated reporting and firm value

The third research model investigated the relationship between integrated reporting and firm value using Tobin's Q. The model focused on the third research question which sought to determine the relationship between integrated reporting and firm value. The fixed effects model was used to derive the results.

The results suggested no relationship between integrated reporting and firm value. Therefore, the study retained the null hypothesis. In other words, the adoption of integrated reporting in companies has not enhanced the value of a company and there has been no effect on the market returns.

5.4. General Discussion

This study sought to investigate the impact of integrated reporting on company financial performance. It needs to be noted that there is a significant amount of work, time and money involved in producing an integrated report coupled with different levels of conflict that may arise in that process. Since adoption of integrated reporting by the JSE listed companies, it was not known clearly whether integrated reporting affected financial performance effectively through accounting and market-based measures, and whether a relationship existed with firm value.

Based on the findings derived from this study in answer to the research questions, it appears that integrated reporting has had no contribution to financial performance through the accounting-based and market-based measures, and no relationship with firm value. Thus, all the time, money, processes and efforts involved in integrated reporting do not appear to have been beneficial to the organisation's financial performance. Therefore, based on the results of this study, integrated reporting has had no significant impact on the financial performance of a company.

5.5. Recommendations

The study investigated how integrated reporting impacts financial performance of the Top 40 JSE listed companies. This was a small study which involved only those companies. As such, it cannot be viewed as entirely conclusive as there are areas that

may require further development. More comprehensive academic work may be undertaken using a bigger sample of listed companies which may have better ESG scores.

Another observation is that unlisted companies do not necessarily produce integrated reports. It would thus be valuable for future research to conduct a cost-benefit analysis of the adoption of integrated reporting on these types of companies. Another avenue for future research would be to use other measurement methods for variables used, such as the JSE Responsible Index as a proxy for the quality of the integrated report and other types of accounting and market-based measures.

5.6. Limitations of the study

The study only focused on publicly listed companies, moreover the Top 40 companies on the JSE. This probably left out other information-rich companies which may have adopted integrated reporting but not listed on the JSE. However, thirty-seven companies in the Top 40 JSE listed companies were viewed as adequate to provide data to answer the research questions.

Secondly, another limitation could emanate from variables used in the study. The study was limited to Return on Assets (ROA) which measures the efficiency and effectiveness of how the company manages its assets, Economic Value Added (EVA) which measures wealth creation of companies, and Tobin's Q that measures the effectiveness of how the company manages assets to create value. There are various other measures that could have been used, however, the choice to use these variables was based on their strength in the comprehensive evidence that shows interrelatedness of accounting and economic returns (Tshipa, 2017), the importance in measuring financial performance which brings together factors relating to the economy, accounting and the market (Stewart III, 1994) and that the Tobin Q is considered one of the oldest and most preferred measures of firm performance (Tshipa, 2017).

The study also measured the quality of the integrated report using the ESG score. There are other quality measures that may have been used such as the JSE Responsible Index. However, the decision to use the ESG score was because the score has an all-inclusive methodology to assess environmental, social and

governance activities and outcomes of companies (Wang and Sarkis, 2017) and the apparent efficiency of the different kinds of disclosures by made companies together with providing stakeholders with detail about how a company is succeeding in the integration of economic, social, environmental and governance matters in their daily operations (Serafeim, 2015).

5.7. Conclusion

This chapter discussed the research findings and answered the research questions. Viewed through a wider lens, it is interesting to note that although the statistical tests conducted for this study did not support some of the proposed hypotheses, there are signs that indicate that further and expanded research is necessary.

Integrated reporting with its unique blend of capital reporting and traditional reporting allows companies that are willing to be flexible and to embrace integrated thinking to take on opportunities that continue to create value for the company. Basically, integrated reporting is an attempt by these companies to address the evolving needs of the growing number of stakeholders. Increased data and implementation of this method of reporting will demonstrate whether the integrated reporting model currently satisfies these stakeholders' needs. However, from the results of this study, one can conclude that even though integrated reported reporting demands a significant amount of time, money and effort, there appears to be minimal financial benefit for companies that have adopted integrated reporting.

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Appendices

Appendix A: Ethical Clearance



26 October 2018

Ms Takunda Chipochangu Grace Mukeredzi (209535053)
School of Accounting, Economics & Finance
Westville Campus

Dear Ms Mukeredzi,

Protocol reference number: HSS/1462/018M
Project title: Impact of Integrated Reporting on Financial Performance.

Full Approval – No Risk / Exempt Application

In response to your application received on 03 August 2018, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. **PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.**

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

.....
Professor Shenuka Singh (Chair)

/ms

cc Supervisor: Dr Raj Rajaram
cc Academic Leader Research: Professor Josue Mbonigaba
cc School Administrator: Ms Seshni Naidoo

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