

Comparing different profit figures for the benefit of stakeholders

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DECLARATION

I, **Réone Botha**, declare that:

“Comparing different profit figures for the benefit of stakeholders”

is my own work; that all sources used or quoted have been indicated and acknowledged by means of complete references, and that this dissertation has not previously been submitted by me or any other person for degree purposes at this or any other university.

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REMARKS TO THE READER

The reader of this dissertation is reminded of the following:

- Literature sources used throughout this dissertation includes sources from 1979 to 2017. This is to ensure that only the most recent and relevant literature was taken into consideration for the compilation of this dissertation. Sources that were considered during the study include court cases, academic journals, academic articles and electronic newspaper articles.

- The referencing and format of this dissertation are in accordance with the North-West University's (Vaal Triangle Campus) referencing style. The Harvard referencing style was applied in this dissertation in accordance with the latest North-West University's referencing guide (2012 version). For further information on the referencing techniques applied to this study please visit the North-West referencing guide that is publicly available at:

<http://distance.nwu.ac.za/files/files/open-distancelearning/Main/Applications/NWU%20Quoting%20Sources%202012.pdf>

Chapter 4 includes statistical evidence as reported in accordance with Pallant (2016). The statistical results were rounded off to two decimals, with the skewness and kurtosis score as the exception, rounded off to three decimals.

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The Lord is my strength and my shield; my heart trusts in him, and he helps me. My heart leaps for joy and with my song I praise Him.

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ABSTRACT

Title: Comparing different profit figures for the benefit of stakeholders

Keywords: Economic profit, accounting profit, taxable income, profitability, decision making, Johannesburg Stock Exchange

In prior research accounting profit and taxable income is compared. This study was adopted to incorporate the main differences between accounting profit, taxable income and economic profit as well as the standards each method needs to comply to. The aim of this research study was to compare the different sets of profit figures in order to establish the impact it may have on stakeholders' decision making as different stakeholders require different financial information. Financial information can be obtained in either the statement of financial position (balance statement), statement of profit and loss and other comprehensive income (income statement), statement of changes in equity, the cash flow statement and the notes to the statement of financial position.

The International Accounting Standards Board (IASB) provides guidelines to correctly report useful financial information in order for stakeholders to make informed business decisions. The study therefore strived to investigate how accounting profit, taxable income and economic profit can be compared and the influence the three different sets of profit figures will have on the Return on Equity (ROE). The primary objective has been achieved by mainly focusing on the three sets of profit figures and the profitability ratios of companies trading on the Johannesburg Stock Exchange (JSE) according to market capitalisation of each JSE sector, using a sample period from 2001 until 2015.

The literature indicated that stakeholders require different financial information in order to make informed business decisions either for investment activities, day-to-day management or for tax purposes. Furthermore, that in order to correctly determine each set of profit figure, a framework or calculation method was used according to accounting standards, the Income Tax Act or by way of a reconciliation of the accounting profit. During the empirical research the framework and calculation method was applied in determining accounting profit, taxable income and economic profit.

The three different profit figures were used in order to determine the effect it will have on the ROE. The profitability ratios recorded in some instances indicated that overall accounting profit and taxable income will provide stakeholders with more accurate information whereas, economic profit takes future considerations into account. Overall economic profit recorded a negative profitability ratio, which according to the literature study conducted indicates a poor performance and will affect investors' confidence.

Based on the literature study and the empirical research performed and the results obtained, it can be concluded that this study complied with its theoretical and empirical objectives.

OPSOMMING

Title: Vergelyking van verskillende wins waardes vir die bevoordeling van aandeelhouers

Keywords: Ekonomiese wins, rekeningkundige wins, belastingsinkomste, winsgewentheid, besluitneming, Johannesburg Aandele Mark

In vorige navorsing word rekeningkundige wins en belasbare inkomste vergelyk. Hierdie studie is aangeneem om die belangrikste verskille tussen rekeningkundige wins, belasbare inkomste en ekonomiese wins in te sluit asook die standarde waaraan elke metode moet voldoen. Die doel van hierdie navorsingsstudie was om die verskillende stelle wins syfers te vergelyk ten einde die impak daarvan op belanghebbendes se besluitneming te bepaal, aangesien verskillende belanghebbendes verskillende finansiële inligting benodig. Finansiële inligting kan verkry word in die staat van finansiële posisie (balansstaat), staat van wins en verlies en ander omvattende inkomste (inkomstestaat), staat van veranderinge in ekwiteit, die kontantvloeietaal en die aantekeninge by die staat van finansiële posisie.

Die Internasionale Rekeningkundige Standaard Raad (IASB) verskaf riglyne om nuttige finansiële inligting korrek te rapporteer sodat belanghebbendes ingeligte besigheidsbesluite kan neem. Die studie het dus gestreef om te ondersoek hoe rekeningkundige wins, belasbare inkomste en ekonomiese wins vergelyk kan word en die invloed wat die drie verskillende stelle winsgeld op die Opbrengs op Ekwiteit (OE) sal hê. Die primêre doelwit is bereik deur hoofsaaklik te fokus op die drie stelle wins syfers en die winsgewendheidsverhoudings van maatskappye wat op die Johannesburgse Effektebeurs (JSE) verhandel volgens markkapitalisasie van elke JSE-sektor, met behulp van 'n steekproefperiode van 2001 tot 2015.

Die literatuur het aangedui dat belanghebbendes verskillende finansiële inligting benodig om ingeligte sakebesluite te neem vir beleggingsaktiwiteite, daaglikse bestuur of vir belastingdoeleindes. Verder, ten einde elke stel wins syfer korrek te bepaal, is 'n raamwerk of berekeningsmetode gebruik volgens die rekeningkundige standarde, die Inkomstebelastingwet of as 'n rekonsiliasie van die rekeningkundige wins. Tydens die empiriese navorsing is die raamwerk en berekeningsmetode toegepas by die bepaling van rekeningkundige wins, belasbare inkomste en ekonomiese wins.

Die drie verskillende wins syfers waar gebruik word om te bepaal watter uitwerking dit op die ROE sal hê. Die winsgewendheidsverhoudings wat in sommige gevalle aangeteken is, het aangedui dat algehele rekeningkundige wins en belasbare inkomste die belanghebbendes meer akkurate inligting sal gee, terwyl die ekonomiese wins die toekoms in ag neem. Algehele ekonomiese wins het 'n negatiewe winsgewendheidsverhouding aangeteken, wat volgens die literatuurstudie gedoen is, dui op 'n swak prestasie en sal beleggers se vertroue beïnvloed.

Op grond van die literatuurstudie en die empiriese navorsing wat uitgevoer is en die resultate wat verkry is, kan daar afgelei word dat hierdie studie aan sy teoretiese en empiriese doelwitte voldoen het.

TABLE OF CONTENTS

DECLARATION	ii
REMARKS TO THE READER	iii
ACKNOWLEDGEMENTS	iv
ABSTRACT	v
OPSOMMING	vii
TABLE OF CONTENTS.....	ix
LIST OF TABLES	xiv
LIST OF FIGURES	xv
LIST OF FORMULAE	xixx
LIST OF ABBREVIATIONS.....	xix
CHAPTER 1 INTRODUCTION TO THE STUDY.....	1
1.1. INTRODUCTION	1
1.2. PROBLEM STATEMENT	6
1.3. OBJECTIVES OF THE STUDY	7
1.3.1. Theoretical objectives.....	7
1.3.2. Empirical objectives.....	7
1.4. RESEARCH DESIGN AND METHODOLOGY	7
1.4.1. Literature review.....	8
1.4.2. Empirical study.....	8
1.5. DATA ANALYSIS.....	11
1.5.1. Trend analysis	11

1.5.2.	Correlation modelling	12
1.5.3.	Reliability and validity	12
1.5.4.	Cronbach's alpha	12
1.6.	ETHICAL CONSIDERATIONS	12
1.7.	CHAPTER CLASSIFICATION	13
1.8.	CHAPTER SUMMARY	14
	CHAPTER 2 PROFIT DISCLOSURE REQUIREMENTS	15
2.1.	INTRODUCTION	15
2.2.	USEFULNESS OF FINANCIAL STATEMENTS	16
2.2.1.	Relevance of financial information	17
2.2.2.	Reliability of financial information	18
2.2.3.	Comparability of financial information	18
2.2.4.	Consistency of financial information.....	19
2.2.5.	Concluding on the usefulness of financial statements.....	19
2.2.6.	Du Pont Analysis	20
2.3.	FINANCIAL INFORMATION REQUIRED BY STAKEHOLDERS	26
2.3.1.	Financial information used by internal stakeholders.....	27
2.3.2.	Financial information used by external stakeholders	28
2.4.	STATUTORY REPORTING REQUIREMENTS	33
2.4.1.	Statements of Generally Accepted Accounting Practise	33
2.4.2.	International Financial Reporting Requirements for small- and medium-size enterprises	34
2.4.3.	The Companies Act	35
2.4.4.	JSE security exchange listing requirements	36
2.4.5.	King report of corporate governance	39

2.5.	NON-STATUTORY REPORTING REQUIREMENTS	42
2.5.1.	Sustainability reporting requirements.....	42
2.5.2.	Integrated reporting requirements.....	43
2.6.	METHODS TO DETERMINE PROFIT.....	44
2.6.1.	Accounting profit.....	44
2.6.2.	Taxable income.....	46
2.6.3.	Economic profit	47
2.7.	USE, ADVANTAGES AND DISADVANTAGES OF PROFIT METHODS	49
2.8.	CHAPTER SUMMARY	53
CHAPTER 3 RESEARCH DESIGN AND METHODOLOGY		54
3.1.	INTRODUCTION	54
3.2.	RESEARCH PHASES	54
3.3.	RESEARCH PROBLEM AND FORMULATION	56
3.3.1.	Research problem	56
3.3.2.	Research formulation.....	56
3.4.	RESEARCH DESIGN	57
3.5.	RESEARCH METHODOLOGY	59
3.5.1.	The type of research	60
3.5.2.	Population and sampling.....	64
3.5.3.	Data collection	88
3.5.4.	Techniques for data analysis	88
3.5.5.	Validity and reliability of data.....	89
3.5.6.	Ethical considerations	90
3.6.	CHAPTER SUMMARY	91

CHAPTER 4 DATA ANALYSIS AND FINDINGS	93
4.1. INTRODUCTION	93
4.2. ORGANISATION OF EMPIRICAL FINDINGS.....	94
4.3. DATA ANALYSIS.....	95
4.4. THE EMPIRICAL RESEARCH FINDINGS.....	127
4.4.1. Basic resource sector	129
4.4.2. Chemicals/Health care sector	136
4.4.3. Consumer goods sector	142
4.4.4. Consumer services sector.....	148
4.4.5. Financials sector	154
4.4.6. Industrial sector.....	160
4.4.7. Oil and gas sector	166
4.4.8. Technologies sector.....	172
4.4.9. Telecommunications sector	178
4.5. CHAPTER SUMMARY	191
CHAPTER 5 CONCLUSION AND RECOMMENDATIONS	192
5.1. INTRODUCTION	192
5.2. RESEARCH OBJECTIVES	194
5.3. PROBLEM STATEMENT	197
5.4. LIMITATIONS AND SHORTCOMINGS OF THE STUDY	197
5.5. SUGGESTIONS FOR FURTHER RESEARCH	198
5.6. CHAPTER SUMMARY AND FINAL REMARKS	199
REFERENCES	200
APPENDIX A	223

APPENDIX B 259

LIST OF TABLES

Table 1-1: Ten industrial strands listed on the JSE	10
Table 2-1: Effect of profitability ratio	24
Table 2-2: Usefulness of financial information by internal and external stakeholders....	30
Table 2-3: Accounting profit framework	45
Table 2-4: Taxable income framework	46
Table 2-5: Economic profit framework	48
Table 2-6: Advantages and disadvantages of different profit methods	51
Table 3-1: The application of research design based on four dimensions	59
Table 3-2: Key characteristics between quantitative and qualitative research.....	62
Table 3-3: Probability sampling methods.....	66
Table 3-4: Non-probability sampling methods	67
Table 3-5: Purposive sampling applied to the study	68
Table 3-6: Coding of JSE sectors	69
Table 3-7: Observations of sample for the study	71
Table 3-8: Financial year ends and presentation of financial currencies used by companies	74
Table 3-9: Percentage held by companies in each sector	76
Table 3-10: Percentage held by each sector compared to percentage held of the JSE	87
Table 4-1: Codebook identifying variables.....	99
Table 4-2: Codebook for companies.....	101
Table 4-3: Summary of the Mean for both the Net profit in rand and ROE	103

Table 4-4: Mean for APAVE and APROEAVE in terms of C7.....	104
Table 4-5: Summary of the Min range for both the Net profit in rand and ROE	106
Table 4-6: Summary of the Max range for both the Net profit in rand and ROE	107
Table 4-7: Values obtained in terms of C9 for identifying min and max values	108
Table 4-8: Summary of the Range of values for both Net profit in rand and ROE	109
Table 4-9: Differences identified in the range greater than 10%.....	110
Table 4-10: Summary of the Standard deviation values for both Net profit in rand and ROE.....	112
Table 4-11: Positive and negative skewness.....	113
Table 4-12: Summary of the Skewness including the statistic and standard error for both Net profit in rand and ROE	115
Table 4-13: The Kurtosis including statistic and standard - error	118
Table 4-14: The different types of correlation	120
Table 4-15: Guidelines when interpreting the correlations.....	121
Table 4-16: Summary of correlations for net profit in rand and ROE	123
Table 4-17: Benchmarks of ROE	128
Table 4-18: Profitability ratios for C1 from 2001 to 2015	130
Table 4-19: ROE benchmark for C1	133
Table 4-20: Profitability ratios for C2 from 2001 to 2015	137
Table 4-21: ROE Benchmark of C2	140
Table 4-22: Profitability ratios for C3 from 2001 to 2015	143
Table 4-23: ROE Benchmark of C3	146
Table 4-24: Profitability ratios for C4 from 2001 to 2015	149

Table 4-25: ROE Benchmark of C4	152
Table 4-26: Profitability ratios for C5 from 2001 to 2015	155
Table 4-27: ROE Benchmark of C5	158
Table 4-28: Profitability ratios for C6 from 2001 to 2015	161
Table 4-29: ROE Benchmark of C64	164
Table 4-30: Profitability ratios for C7 from 2001 to 2015	167
Table 4-31: ROE Benchmark of C75	170
Table 4-32: Profitability ratios for C8 from 2001 to 2015	173
Table 4-33: ROE Benchmark of C86	176
Table 4-34: Profitability ratios for C9 from 2001 to 2015	179
Table 4-35: ROE Benchmark of C9	182
Table 4-36: Most effective method used among stakeholders.....	186

LIST OF FIGURES

Figure 2-1: Link between main sections and theoretical objectives	16
Figure 2-2: Qualitative characteristics of financial statements.....	17
Figure 2-3: The Du Pont analysis	22
Figure 3-1: Applied phases of research	55
Figure 3-2: The dimensions of research design	58
Figure 3-3: A model of mixed method research	63
Figure 3-4: Sample selection process	65
Figure 3-5: Headquarter area of companies	72
Figure 3-6: Headquarter area of companies within South Africa vs overseas	73
Figure 4-1: Empirical findings organisation	95
Figure 4-2: Statistical problem solving.....	96
Figure 4-3: The data clean-up cycle	97
Figure 4-4: Skewness of total observations for C1 to C9.....	116
Figure 4-5: Negative skewness of 12 observations	117
Figure 4-6: Kurtosis as a measure of peakedness	119
Figure 4-7: Interpretation of the correlations for the study	122
Figure 4-8: Summary of results of categories of correlation	125
Figure 4-9: Frequencies of observations made per company.....	126
Figure 4-10: Total frequencies of observations made per company.....	127
Figure 4-11: Graph on basic resources sector.....	135
Figure 4-12: Graph on chemicals/healthcare sector	141

Figure 4-13: Graph on consumer goods sector 147

Figure 4-14: Graph on consumer services sector 153

Figure 4-15: Graph on financials sector 159

Figure 4-16: Graph on industrial sector 165

Figure 4-17: Graph on oil and gas sector 171

Figure 4-18: Graph on technology sector 177

Figure 4-19: Graph on telecommunication sector 183

Figure 5-1: Overview of Chapter 5 193

LIST OF FORMULAE

Formula 1: Du Pont formula	20
Formula 2: Economic profit formula	47
Formula 3: Economic profit formula adjusted	48

LIST OF ABBREVIATIONS

AFS	Annual financial statements
APN	Aspen Pharmacare Holdings Ltd
ATR	Asset turnover ratio
BAW	Barloworld Ltd
BIL	BHP Billiton Plc
CMTR	Creamer Media Telecommunication Report
CSR	Corporate social responsibilities
EOH	EOH Holdings Ltd
EP	Economic profit
ERB	External Reporting Board
EVA	Economic Value Added
FLM	Financial leverage multiplier
FRP	Financial Reporting Pronouncements
FRSC	Financial Reporting Standards Council
GAAP	Generally Accepted Accounting Principles
GDP	Gross Domestic Profit
GRI	Global Reporting Initiative
IAS	International Accounting Standards
IASB	International Accounting Standards Board
ICB	Industrial Classification Benchmark
IDC	Industrial Development Corporation

IFC	International Financial Corporation
IFRS	International Financial Reporting Standards
IoDSA	Institute of Directors Southern Africa
IRCSA	Integrated Reporting Committee of South Africa
ISA	International Standards on Auditing
JSE	Johannesburg Stock Exchange
MTN	MTN Group Ltd
N	Number of statistical observations
NAAMSA	National Association of Automobile Manufacturers of South Africa
NPM	Net Profit Margin
NRV	Net Realisable Value
OSC	Ordinary Shareholders Capital
PWC	PricewaterhouseCoopers
ROA	Return on Assets
ROE	Return on Equity
SAB	SABMiller Plc
SAEEEC	South African Electrotechnical Export Council
SAICA	South African Institute of Chartered Accountants
SARS	South African Revenue Services
SBK	Standard Bank Group Ltd
SHP	Shoprite Holdings Ltd
SOL	Sasol Ltd

T	Turnover
TA	Total Assets
TAT	Total Asset Turnover
USD	United States Dollar
ZAR	Zuid-Afrikaanse Rand

CHAPTER 1

INTRODUCTION TO THE STUDY

1.1. INTRODUCTION

Reporting profit is an integrated part of accountancy and accounting professionals need to report to an array of stakeholders. Stakeholders can affect or be affected by a company's actions (Business dictionary, 2017). Banhegyi, Botha, Cunningham, Musengi, Visser, Williams, Lots, Booysen, Smith and Bosch (2011:126) established that it is not only shareholders who have an interest in the financial performance of a company, but also customers, employees, suppliers and the general public. This phenomenon is known as the stakeholder theory. Service (2016:1200) differentiates the following stakeholders: tax authorities, directors, managers, investors, financial service providers, business analysts and auditors. Financial information may be used by stakeholders for a multitude of different reasons, namely:

- Directors and managers require financial information to make informed business decisions (Adams & Media, 2014).
- Employees use financial information during bargaining agreements for compensation, bonuses and promotions (Correia, Flynn, Uliana, Wormald & Dillon, 2015:5-10).
- Prospective investors use financial information to assess the viability of investing in the company (Service, 2016:1200).
- Financial service providers use financial information to determine whether or not to grant the company working capital or to extend debts (Correia *et al.*, 2015:5-10).
- Tax authorities use financial information to determine the accuracy of taxes to be paid by the company (Oberholster, Koppeschaar, Janse van Rensburg, Binnekade, Hattingh, De Klerk, Russouw & Du Toit, 2011:26).

One of the major reasons, aforementioned from the above, is that stakeholders use financial information mainly for decision-making purposes. Decision-making can be seen as the process by which alternative solutions to a problem are purposefully considered and the best is chosen (Van Rensburg, 2010:55). Correia *et al.* (2015:1-13) argues that

decisions are based on available information at the time when making the decision. Thus, stakeholders will base financial decisions on information that is made readily available to them.

Stakeholder decision making is based on financial statements. IAS 1.10 sets out that financial statements consist out of five different elements, namely: statement of financial position (balance statement), statement of profit or loss and other comprehensive income (income statement), statement of changes in equity, the cash flow statement and the notes to the statement of financial position (IFRS, 2014:A836). Financial statements play an important role as the main source of financial information as different parts of the statements are used by different stakeholders. Financial statements are the main source (Deysel, Koppeschaar, Sturdy, Du Toit, Rossouw, Van Wyk, Gaie-Booyesen, Papageorgiou, Smith & Van der Merwe, 2015:8) of comparable, complete and verifiable financial information about the company's activities, profitability and financial performance (Oberholster *et al.*, 2011:11). As a result, financial statements are a very important tool to predict a company's future as financial information needs to be comparable, complete and verifiable.

The fair presentation of financial statements is a concept that enhances the reliability of financial information, since it comprises general features of International Accounting Standards (IAS) 1 which includes faithful representation. Deysel *et al.* (2015:28) explains that faithful representation is a characteristic embodied in the compiling of financial statements that will assure the reliability of financial statements to the users. Faithful representation is attributed by providing information to the users of the financial statements that is fair and dependently represents the economic situation and events of the company in terms of International Financial Reporting Standard (IFRS) (IFRS, 2014:A757).

The most important line item on a company's statement of profit or loss and other comprehensive income is the profit or loss, which is used by many stakeholders to determine if a company is profitable (Dalci, Tanis & Kosan, 2010:6) and also used in order to analyse profitability. In addition to the statement of profit or loss and other comprehensive income, the statement of financial position according to Higgins (2009:6) is used as a major indicator of financial performance. The financial performance can be measured by applying ratio analysis to financial statements measuring profitability,

liquidity, cash flow, asset management, debt management and market valuations (Block, Hirt & Danielsen, 2009:57).

Tulsain (2014:19) outlines profitability as an arrangement between “profit” and “ability”. Profit is mere income less expenses, whereas, ability is described as the incentive of a company to generate profits (Tulsain, 2014:19). “Profitability” is defined as “generating worthwhile rewards” (Merriam-Webster Dictionary, 2017a) or as the capability to generate income (Hermanson, Edwards & Maher, 2000:18). It is important to consider the different profit concepts in order to determine if a company can be regarded as profitable. Profitability can also play an important role in a company’s sustainability.

Sustainability can be outlined as expanding corporate, social, environmental and financial performance in a steady and cohesive manner (Holton, Glass & Price, 2010:3) that also merges the philosophy of traditional economic and legal responsibility of a business to be competitive for the purpose of establishing a profit (Banhegyi *et al.*, 2011:319). In order to have a profitable and sustainable company good leadership is required (Abbott, 2008:15) as well as a high level of commitment to corporate social responsibilities (CSR) (Robins, 2015).

For accounting purposes, financial statements are limited to a financial year where current gains and losses have been calculated according to Generally Accepted Accounting Principles (GAAP). Profit is essentially a bottom line figure used by analysts and auditors during the review of financial statements; for income tax purposes by the South African Revenue Services (SARS) and for day-to-day decision making by directors and managers (Oberholster *et al.*, 2011:19). Profit can be determined in three unrelated ways, namely accounting profit, economic profit and taxable income.

Horngren, Datar and Rajan (2015:41) express accounting profit as the oversupply of revenue to expenses. According to IAS 1.7, profit is income less all expenses but not taking into account components of other comprehensive income (IFRS, 2014:A836). IAS 1.7 characterises profit as the total amount of revenue less expenses, excluding other comprehensive income (IFRS, 2014:A836). Accounting profit can therefore be seen as all income less all expenses excluding other comprehensive income. The difference between accounting- and economic profit is that accounting profit takes into account explicit costs, whereas, economic profit takes into account implicit and explicit costs. Therefore, economic profit will be lower than the accounting profit. From these

interpretations it can be reasoned that the difference between accounting profit and economic profit is the calculation of costs.

Summarised from the above, one of the clear distinctions between accounting profit and economic profit is that economic profit is determined by applying economic principles and not GAAP. Economic profit is used to judge the total value of a company, similar to the performance metric, Economic Value Added (EVA) and calculating the total production costs (Correia *et al.*, 2015:8-14). Economic profit examines the total income obtained by a company's production less all the explicit and implicit cost related to the production (Mohr & Fourie, 2011:213). Knight (1971:12) explains the concept of economic profit as the firm's total income less all opportunity costs (explicit and implicit) to deliver the goods or services sold to the consumer. Tucker (2011:183) proves the theory of Knight, Mohr and Fourie that economic decisions are based on the inclusion of both implicit and explicit costs.

From the interpretations economic profit can be described as total income less all opportunity costs. Correia *et al.* (2015:1-2) clearly state that there is a direct link between accounting and economics as economic indicators can have an adverse effect on accounting. Grossman and Livingstone (2009:26) are of the opinion that with accounting profits the company's goal is to report the correct profit in order to pay the correct amount of tax. Shirvani and Sales (2016:430) outline the difference between taxable income and accounting profit as with accounting there are standards involved and with tax, there is tax regulations, therefore, pre-tax profits will differ from taxable income.

Income tax is a compulsory tax that is payable at a standard rate of 28% based on the company's taxable income and was the main source of R1,0699 trillion of the budgeted income in South Africa in 2016 (Anon, 2016). Stiglingh, Koekemoer, Van Zyl, Wilcocks and De Swardt (2016:6) are of the opinion that taxable income is the amount that remains after all allowable deductions under section 11 and section 23, as well as assessed losses in terms of section 20 are deducted. The Income Tax Act, No. 58 of 1962 (the Act) defines taxable income as the remaining income after all allowable deductions have been deducted and all deemed income has been included for the assessment year. Within the accounting standards a link is identified between accounting and tax as the effect tax will have on the accounting profit (Service, 2016:215). IAS 12 in the accounting standards is applicable to income taxes in order to correctly calculate the amount for current and deferred taxes on specific line items on the financial statements. Deysel *et al.* (2015:149)

explain that taxable income is calculated by adjusting the accounting profit with items that are treated differently according to the Act.

From summarising the aforementioned paragraphs, the mere difference between accounting profit, economic profit and taxable income is the manner in which profit is calculated using GAAP principles, applying economic principles or using the Act. The question remains if companies use different techniques to determine and report profits to fit stakeholders' expectations. Lambert and Sponem (2005:429) define creative accounting as a management tool to obtain some financial gain in the external financial reporting process, while still behaving in an ethical manner.

The Oxford English Dictionary (2017a) interprets "creative accounting" as using substitute methods or approaches in order to achieve an advantage in the company's financial figures. Shareholders place pressure on management to alter the company's profit (Belleflamme, Lambert & Schwienbacher, 2010:585) by selecting the best suitable profit calculated and publishing it in the annual financial statements. The motive behind creative accounting is management incentives for altering financial statements in order to obtain sources of financing from financial service providers i.e. banking industries (Hong, 2014:196). Sakkal (2010:222) is of the opinion that the reason behind creative accounting is reporting unrealistic profits and inflating the companies' share prices to attract investors, also tax evasion occurs by minimising the amount payable for tax purposes by decreasing the profits. Therefore, we can conclude that creative accounting tactics are used in order for companies to appear more financially sound despite harsh economic conditions. Steyn (2013) is of the opinion that South African companies are some of the most profitable companies in the world and the main reason of success is expected in part to the admirable business comprehension and efficiency. Moneyweb (2012) phrase that despite the harsh economic conditions of South Africa, listed companies are performing better than ever and is highly profitable and that a study was performed on 62 financial and industrial industries, where the findings illustrated that 32 companies headline earnings increased with 40% and 17 with at least 20%.

As reported by Saville (2006:342) South Africa has a growing number of companies reporting accounting irregularities and fraud. After fraudulent financial reporting has been identified the necessary legal steps can be taken. During previous years many public listed companies had been identified where in some or other way altered the financial statements. Enron Corporation (Enron) is well-known for the creative accounting

principles used on the financial statements, by not correctly reporting debt. Although the alterations increased the share prices and revenue, the company was identified as a political target and were in financial difficulty soon thereafter (Pavel & Encontro, 2012:2). One of Enron's previous employees reported that certain measures were taken to beat analysts' expectations with regards to the company's earnings (Fowler, 2006).

For companies to be listed on the JSE, each company should adhere to JSE-listing requirements and King IV. Early in 2014, global regulators began investigating evidence that large banking sectors used online services to disclose information in order to alter and maximise profit (Effinger, 2015). African Bank was fined R300 million for the alteration of the bank's affordability calculations with a value of R15,5 million in loans (Arde, 2013). Another more recent event that has taken place according to Mutegi (2015) is where Tiger Brands have been accused for altering the operating profit with R879 million, resulting in key management laid off.

It is clear that well-known public-listed companies regularly utilise different principles to determine the profit of the company by window dressing the financial statements (Cassim, 2014:22) influencing the usefulness of financial information that stakeholders require in order to make informed financing, investment or asset management decisions (Correia *et al.*, 2015:1-19).

1.2. PROBLEM STATEMENT

Stakeholders compare financial information of different companies in order to determine whether each company will render the best possible return or if each company is financially sound (Adams & Media, 2014). Stakeholders rely on financial information when making investment decisions, financial decisions or operational decisions. Stakeholders decision making is based on the financial information disclosed in the company's financial statements, thus decision making can be impacted by the three different sets of profit figures (taxable income, economic- and accounting profit).

It is compulsory for companies listed on the JSE to publish their Annual Financial Statements (AFS). These AFS will among other, disclose the company's profit for the financial year-end.

In doing a primary literature review it became evident that researchers focused more on the background and difference between taxable income, economic- and accounting profit.

There was a limited amount of studies that analysed the relationship between these three profits. Therefore, the gap that has been identified is the application of the three types of profits on the listed companies in South Africa and the effect it will have on stakeholders' decision making.

1.3. OBJECTIVES OF THE STUDY

The main objective of this study was to perform the Du Pont analysis for each of the different sets of profit figures accounting profit, economic profit and taxable income, to determine which method discloses company profits most efficiently for the benefit of stakeholders. In Chapter 2 each method was discussed highlighting important key elements how stakeholders' decision making can be influenced by each individual method.

The main objective was achieved through the following theoretical and empirical objectives.

The following objectives have been formulated for the study:

1.3.1. Theoretical objectives

- i. Investigate the disclosure requirements of financial information used by different stakeholders.
- ii. Identify the different framework and calculation methods to determine economic profit, accounting profit and taxable income that are used among different stakeholders.
- iii. Establish the use, advantages and disadvantages of each profit method.

1.3.2. Empirical objectives

- i. Determine the most effective profit figure used for decision-making purposes among stakeholders.

1.4. RESEARCH DESIGN AND METHODOLOGY

Research methodology is identified as conducting a search and by way of comparing the differences between research methods, determining which method provides the most appropriate and correct information (Greener, 2011:5). However, Mouton (2011:55) argues that research design can be perceived as a "blueprint" of specifically how the

research will be conducted, to achieve the research objectives. The study consists out of an empirical and literature review using a mixed research methodology.

The mixed research methodology comprises out of both quantitative and qualitative methods. Maree (2013:263) describes a mixed approach as the development of the research study as it will contribute to the understanding of the principles, measuring instruments and emphasising different viewpoints. Quantitative research can be defined as the collection, analysis, interpretation and presentation of numerical information (Teddlie & Tashakkori, 2009:8). For the quantitative section of the study the McGregor database was used to extract numerical data. Furthermore, according to Repko (2012:208) qualitative research places importance on the meanings, thoughts and definitions that are not expressed numerically. For the qualitative portion of the study secondary data sources was used to address the theoretical objectives of the study.

1.4.1. Literature review

The study was based on secondary data that were obtained through the analysis of related journal articles, textbooks, case laws, available online sources and relevant peer reviewed literature.

1.4.2. Empirical study

The empirical section of this study comprises the following methodological dimensions:

1.4.2.1. Target population

The targeted population for this study consisted out of the JSE companies that were listed on the JSE from the year 2001 to 2007 and 2008 to 2015 to determine the effect the economic crisis had on listed companies before and after 2008. Data collection for this study was based on the selection of JSE companies to determine if economic profit, accounting profit or taxable income will best reflect each company's financial performance.

1.4.2.2. Sampling frame

According to Dane (2011:333) a sample frame can be described as the "concrete listing of elements in a population". Content analysis is a useful tool used for analysing reporting companies listed on the JSE (Barac & Moloi, 2010:20). Dane (2011:275) also describes

content analysis as a method to “make objective and systematic inferences about theoretical messages”. The study focused only on South African companies listed on the JSE based on their market capitalisation and has information available on the McGregor database. In order to determine the sample frame of the study a trend of 15 years was used to select companies with the highest market capitalisation within each of the 10 industries, which were collected and converted into understandable information.

1.4.2.3. Sample method

For the purpose of the study, a non-probability sampling technique was used. According to Bless, Higson-Smith and Sithole (2013:106-107) non-probability sampling can be described as the sample selection where the probability will be unknown. Swanepoel, Van Graan, Swanepoel, Allison and Santana (2011:12) support this theory as non-probability sampling will be used to collect data in the population with subjective considerations.

Judgement sampling also known as purposive sampling has been selected for this study to select the sample from the targeted population that is probable to achieve the specific research objectives (Zikmund, Babin, Carr & Griffin, 2013:393). Quinlan (2011:213) supports this statement by explaining that the researcher will primarily collect information that will make a contribution towards the study.

1.4.2.4. Sample size

The sample size consists out of the ten industrial strands on the JSE with the highest capitalisation for the last 15 years. A total of 150 samples were used that resulted in a more accurate and complete analysis. The industrial strand is an indicator of the different types of industries that are listed on the JSE.

The Industrial Classification Benchmark (ICB) consists out of the following ten industries at the top level of classification:

Table 1-1: Ten industrial strands listed on the JSE

Industry	Industry
Oil & Gas	Basic Resources
Industrials	Consumer Goods
Chemicals/ Healthcare	Consumer Services
Telecommunications	Utilities
Financials	Technology

Source: JSE (2016)

1.4.2.5. Measuring instrument and data-collection method

The study gathered data regarding profits of listed companies by investigating correlations among these variables. Financial information was analysed for a period of 15 years from 2001 to 2015. Information referring to the different categories of profits was analysed from this date up to the date of the latest accessible financial reports. Financial statements according to section 30 of the Companies Act (71 of 2008), further referenced to as “Companies Act”, requires companies to publish their reports within six months after year-end.

This section of the study discusses data analysis that can be divided between measuring instruments and the data collection method. The reason behind data analysis is to diminish unnecessary data, provide structure to the needed data and process the data to meaningful information (Grove, Burns & Gray, 2012:46). The study was designed to explore the ability of financial information identifying which profit will be considered the most reliable among companies in South Africa. JSE-listed companies have been chosen for the wide range of information that is made available to the public as well as the accessibility, reliability and completeness of the published information. Data were generated from the McGregor (INET BFA) (2016) database that is known to provide financial feeds and used as an analysis tool.

1.5. DATA ANALYSIS

For the qualitative section of the study secondary data sources were obtained relating to the research topic and scrutinised for information portraying to the statutory or legislative reporting requirements for companies listed on the JSE. Furthermore, information was also selected that could be linked to either accounting profit, taxable income or economic profit by either identifying the applicable reporting standard and framework or calculation method.

For the quantitative section of the study raw data were collected and analysed relating to the market capitalisation at a specific date of the JSE-listed companies. During the collection of data, the BMI SPSS Statistics Software and the McGregor (INET BFA) database were used.

This study adopted a technique that illustrated the comparisons between the three types of profit figures for each listed company for the years 2001 till 2015, compared to the Du Pont analysis determining the effect of the accounting profit, taxable income and economic profit on the Return of Equity (ROE) for 15 years on the ten identified industries. Du Pont was chosen as a structure and effective model to determine the achievements of a company during a financial period.

Correia *et al.* (2015:5-27) describes the Du Pont analysis as a model used to express the overall success of a company by using the ROE. Asaftei, Kumbhakar and Regul (2008:254) states that the Du Pont analysis indicates the affect a company's Net Profit Margin (NPM) and Asset Turnover Ratio (ATR) can have on the Return of Assets (ROA) as well as that the ROA and a company's Financial Leverage Multiplier (FLM) can affect the ROE.

The following statistical methods were applied on the empirical data section of the study:

1.5.1. Trend analysis

Kivikunnas (1998:1) interprets trend analysis as widening the scope of information as a trend can be seen as a pattern in 1-dimensional data. The difference in market capitalisation has been outlined over the period of the study as the technique identified if the company's conditions have expanded or deteriorated throughout time. Trend analysis

has been applied to determine if the trend is increasing or decreasing for the trend of companies over all three profits.

1.5.2. Correlation modelling

A correlation coefficient is the positive relation, negative relation or the unrelated relation between variables (Field, 2009:167). Levin (1987:508) is of the opinion that correlation defines the nature and strength of the relationships between variables. For the purpose of this study, the correlation was measured by applying the Pearson product-moment coefficient and an R-square were the correlations illustrated on a scatterplot.

1.5.3. Reliability and validity

Validity attempts to determine what the obtained results intend (Bless *et al.*, 2013:156) and that the researcher is investigating what needs be investigated (Henning, Van Rensburg & Smit, 2009:147). Bryman and Bell (2007:162) explain that reliability measures the exactness of the research instrument and is confirmed with similar results and findings under the same conditions (Brynard & Hanekom, 2008:48). The study meets the criteria of both reliability and validity as the data were acquired from the JSE portal, which is a reputable database. The data are publicly accessible and accurate. For the purpose of the study, validity refers to the capacity of a research instrument to accurately measure what is intended to be measured and reliability that can also be tested statistically by way of Cronbach's alpha.

1.5.4. Cronbach's alpha

Field (2009:674) clarifies that Cronbach's alpha is a commonly used scale of reliability that divide data into two and processes correlations for every feasible split. In the study Cronbach's alpha was used as a coefficient to measure the consistency or reliability of the test sample. Cronbach's alpha has been applied to the selected variables of this study and if the outcome of the feasible split was .7 or more, it has been an indication of reliable variables (Field, 2009:674).

1.6. ETHICAL CONSIDERATIONS

Research should be executed in an ethical manner as it may have consequences due to the participation of research participants (Greener, 2011:143). Secondary sources of information that were used in the study were obtained from public domains, therefore

public knowledge. Furthermore, the financial information used during the study is also publicly available as published by each company. The study was conducted to comply with the minimal ethical standards concerning the academic research of this paper.

1.7. CHAPTER CLASSIFICATION

This study comprises the following chapters:

Chapter 1 Introduction and background to the study

A brief introduction to the study is provided, followed by the problem statement that constitutes out of the theoretical and empirical dimensions of the study. This chapter includes a summary of the research design and methodology that is concluded by a chapter overview of the study.

Chapter 2 Literature review:

This chapter focus on the discussion of related studies. The discussion focusses on; defining and presenting the different profit concepts, as well as establishing if profit manipulation has an adverse effect on company sustainability. This chapter forms the literature study and is compiled from gathering information in peer reviewed journals, relevant text books and companies published annual financial statements. From interpreting the sources of information, the most suitable profit among stakeholders was determined.

Chapter 3 Research design and methodology

This chapter provides a description of how the needed data were gathered and analysed by way of research stages. It also included the problem statement, research design and methodology. The chapter further identified the type of research that was conducted during the study, the target population, the sample size, sample method and collection of data that were used, the reliability and validity of data, and finally ethical considerations that were taken into consideration.

Chapter 4 Results and findings

The chapter outlined the measures adopted for the analysis of the data that was used; which also includes the methods applied according to the methodology as per Chapter 3.

Chapter 5 Conclusions and recommendations:

This chapter compiles a summary that discusses any limitations that the researcher experienced during the study, as well as any recommendations that can improve the study for any further studies.

1.8. CHAPTER SUMMARY

The main objective of this study is to compare accounting profit, economic profit and taxable income to establish the impact it may have on stakeholders when making sound business decisions. The aim of this chapter is to provide background information on the direct interest stakeholders have in the financial performance of a company.

The overall performance of a company can be determined by applying the Du Pont analysis that takes into consideration the profit before tax for each year. Accounting profit, economic profit and taxable income varies in the way principles are applied. For accounting purposes IFRS combined with IAS and GAAP principles are applied. Taxable income is determined in accordance with the Act within the income tax framework, whereas with economic profits, economic principles are applied based on the user's discretion.

National and international researchers studied the theoretical comparisons between accounting profit and economic profit. This study attempts to answer the research question by applying three sets of profit figures collected from listed companies with the highest market capitalisation for each industrial sector on the JSE.

CHAPTER 2

PROFIT DISCLOSURE REQUIREMENTS

2.1. INTRODUCTION

Literature review performs a valuable role by enabling the researcher to limit the scope of the study to primarily place focus on topics of importance (Creswell, 2014:25). Terblanche (2013:7) asserts that literature review promotes a way of innovative thinking. Terblanche (2013:7) furthermore explains that some philosophies cannot be verified, thus specific evidence is needed to support the philosophies of researchers. Previous studies on the research topic were based on economic profit and not accounting profit (Hogan & Lewis, 2005:721) and furthermore, the study of examining the relationship between the difference of accounting profit and taxable income (Shirvani & Sales, 2016:432). There is limited research available on economic profit applied to financial statements of JSE-listed companies in South Africa, but previous studies that are available have been used as a benchmark to compare the results of this current study.

In Chapter 1 emphasis was placed on the main difference between accounting profit, economic profit and taxable income. This research study established that South African companies need to have published audited annual financial statements that are based on IFRS and adhere to the Companies Act and comply with JSE-listing requirements in order to be able to be listed on the JSE. These annual financial statements only include accounting profit and taxable income.

This chapter commence with an investigation into the profit disclosure requirements of the various stakeholders. Subsequently, identifying the different frameworks and calculation methods to determine economic profit, accounting profit and taxable income that is used among different stakeholders. Finally establishing the use of each profit method as well as each method's, advantages and disadvantages. Consequently, the main purpose of this chapter is to address the theoretical research objectives one to three, as discussed in Chapter 1, Section 1.3.2. Figure 2.1 below provide a brief indication on how each section is linked to the theoretical objectives of this study.

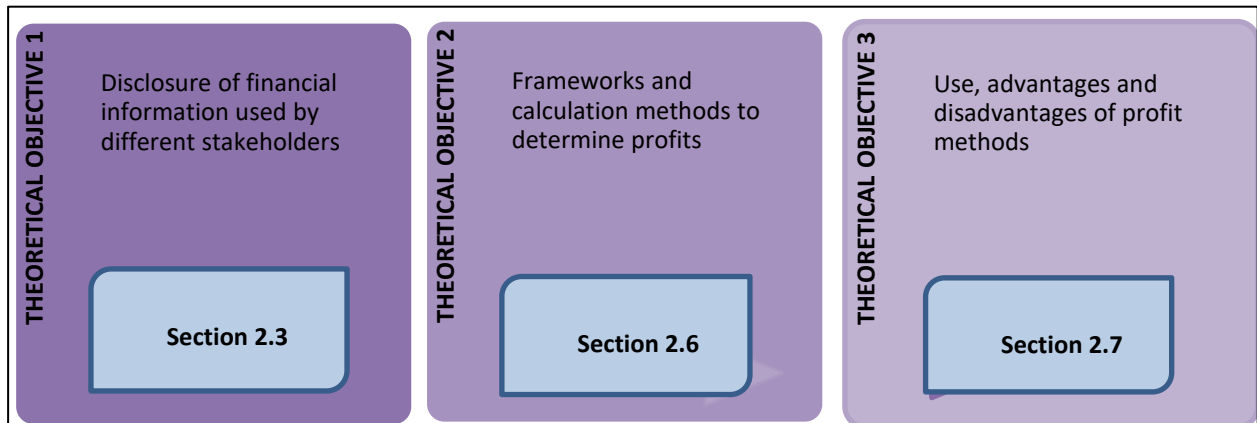


Figure 2-1: Link between main sections and theoretical objectives

Source: Own research

Figure 2.1 illustrates the theoretical objectives that are addressed in this chapter. Section 2.2 elaborates on the usefulness of financial statements, followed by disclosure of financial information used by different stakeholders in Section 2.3.

In order to determine the financial information that is required by the different stakeholders, the usefulness of financial statements needs to be addressed first in order to provide stakeholders with relevant and reliable financial information.

2.2. USEFULNESS OF FINANCIAL STATEMENTS

Companies are required, according to the Companies Act to prepare annual financial statements in accordance with the conceptual framework (Lubbe, Modack & Watson, 2012:21). The conceptual framework provides fundamental accounting principles that assist in the preparation of financial statements (Deysel *et al.*, 2015:11). Service (2016:40) opines that the main purpose of financial statements is to provide useful financial information to stakeholders while Jarolim and Öppinger (2012:70) regard financial statements as the foundation of theoretical measurement during their decision-making process. Accordingly, Short, Libby, Libby and Giullian (2011:81) point out that financial information is used to advise stakeholders to make sound business decisions.

Nagy and Obenberger (1994:66) assert that financial information can normally include quantitative and qualitative attributes found in annual reports, published financial statements and a company prospectus. In order for financial information to be regarded as useful to stakeholders, it should comply with qualitative characteristics of financial

statements (Jeter & Chaney, 2011:30) including reliable and relevant information (Kadous, Koonce, & Thayer, 2012:1353) as well as comparable and consistent information (Dunn, 2010:102). Lubbe *et al.* (2012:24) stresses that financial statements should possess these qualitative characteristics in order to effectively inform the stakeholders during their decision-making process. Figure 2.2 provides a graphical depiction of the four qualitative characteristics of financial statements.

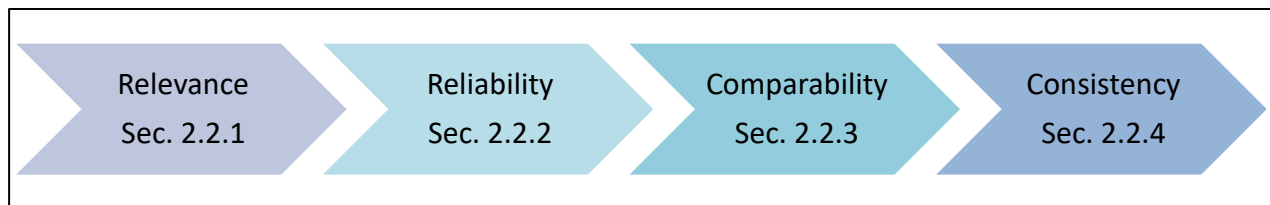


Figure 2-2: Qualitative characteristics of financial statements

Source: Adapted from Jeter and Chaney (2011:30)

From Figure 2.2 the qualitative characteristics of financial statements are clear. The four elements are dependent elements that play an important role in order to report relevant and reliable financial information. These qualitative characteristics assist to provide stakeholders with useful financial information as a reliable foundation for decision-making purposes.

In order to gain a better understanding of the usefulness of financial information, the qualitative characteristics of financial statements are discussed in the following sub-sections.

2.2.1. Relevance of financial information

Dunn (2010:103) defines relevance as the decisions made by users of financial statements by way of looking forward rather than backwards. Service (2016:42) reiterates that relevant information has an impact on the users' decisions. Nevertheless, Dempsey, Watson, Joubert and Britz (2011:8) explain that relevant information should include predictive values or confirmation values, or both in order to make a difference in the decision-making process.

Predictive values must offer information that users can apply to company forecasts (Service, 2016:42) whereas confirmation values confirm the financial information from

previous company evaluations (Deysel *et al.*, 2015:11). Value relevance can be effectively measured when investors are able to make decisions based on financial information and it has an adverse effect on the prices (Alali & Foote, 2012:91). Christensen, Lee and Walker (2009:1187) emphasise that the usefulness of financial statements is extremely depended on the relevancy of financial information. Aforementioned states that when financial information is confirmed to be relevant it positively impacts the users' decision-making process. Another important element of the usefulness of financial statements is the reliability of financial information that is discussed in Section 2.2.2.

2.2.2. Reliability of financial information

Short *et al.* (2011:272) explain that reliable financial information is accurate, unbiased and verifiable and (Chea, 2011:14) gives users the assurance that financial statements are reasonably free from errors. As such, Landsman (2007:24) suggests that information can be manipulated by management that will influence the reliability and usefulness of financial information. Kadous *et al.* (2012:1341) indicate that the reliability of financial information is strongly influenced by the manipulation of financial statements.

Summarised from the above, reliability presents the users of financial statements the assurance that all the financial information is reasonably free from error and has not been manipulated in any way. Besides relevance and reliability, comparability also influences the usefulness of financial information.

2.2.3. Comparability of financial information

Kaya (2013:129) predicts comparability will increase the usefulness of financial information by way of applying similar accounting methods within different companies (Short *et al.*, 2011:272). Service (2016:45) argues that if financial information from one company can be compared to a similar company, the value of the financial information will increase.

Godfrey, Hodgson, Tarca, Hamilton and Holmes (2010:9) further points out that financial information can also be compared from one year to the next. Dempsey *et al.* (2011:8) stress that users must have the ability to compare financial statements from year to year in order to identify trends in companies' financial performance. Furthermore, Deysel *et al.*

(2015:13) argue that users should be given comparable financial information to assist in the decision-making process or to identify trends between companies.

Comparability of financial information is a very important factor within financial statements. As discussed, comparability is a key characteristic that will enhance the usefulness of financial information for users to base decision-making processes on. Providing users with comparable financial information will not be possible without the application of consistency (Service, 2016:44) that is discussed in Section 2.2.4.

2.2.4. Consistency of financial information

For financial information to be consistent, similar accounting methods need to be applied over a period of time to a company's financial statements (Short *et al.*, 2011:272). Likewise, Lubbe *et al.* (2012:24) indicate that for information to be consistent, similar reporting methods and accounting policies should be applied in the same reporting period across companies. Bayat and Fox (2007:145) further explain that consistency should be maintained when (Philander, 2016:55) tests, models and measurements are performed. Consistency can therefore be seen as the application of methods and policies within a company that have been applied consistently over a period of time.

2.2.5. Concluding on the usefulness of financial statements

From the above information it is apparent that qualitative characteristics i.e. relevance, reliability, comparability and consistency increase the usefulness of financial information (Hitz, 2007:327). In agreement with Hitz, Philander (2016:14) recalls that the usefulness concept forms part of the standard-setting objectives.

Conversely, Gassen and Schwedler (2010:495) explain that within the financial reporting objectives decision usefulness forms part of these financial objectives. Decision usefulness according to Whittington (2008:144) can be explained as compiling financial statements that are used to measure managements' performance by investors. Christensen *et al.* (2009:1187) indicate that through IFRS disclosure requirements relevancy also increases the usefulness of financial statements.

Providing useful financial statements to stakeholders without any deficiencies mainly rely on relevancy and the faithful presentation of financial disclosure, simultaneously increasing the usefulness of financial information (Van der Spuy, 2015:809). It can be

argued that providing accurate financial information to the users, assists in identifying trends among companies' financial performance and for decision-making purposes.

Florin-Constantin (2012:202) further argues that stakeholders are interested in future profits and stability of companies to use as a basis for decision making. By addressing quantitative characteristics of financial information, analysis techniques can be applied to financial statements. Correia *et al.* (2015:5-5) proposes that financial statement analysis forecasts a company's future prospects by examining the company's financial position and returns in relation to the risks. Financial statement ratio analysis can be implemented to predict a future financial crisis (Gassen & Schwedler, 2010:495). Furthermore, Correia *et al.* (2015:5-21) identify the Du Pont model as a "frequently used and structured financial analysis technique" that is applied in predicting profitability. The Du Pont analysis is discussed in the following sub-sections.

2.2.6. Du Pont Analysis

Saunders (2016:40) identifies that the Du Pont analysis is a financial performance technique (Correia *et al.*, 2015:5-21) that determines the overall success of companies. In agreement with Saunders, Benade, De Graaf, Esterhuyse, Jonker, Ndlovu, Nobyati, Pienaar, Plant, Skae, Steyn, and Steyn (2012:290) highlight that companies use the Du Pont analysis to determine the Return on Equity (ROE) that is divided into three categories, namely income activities, investment activities and capital structure. Income activities are expressed by the NPM that includes key performance indicators such as the profitability ratios (Correia *et al.*, 2015:5-16). Van Horne and Wachowicz (2008:151) identify that investment activities are expressed by the total asset turnover rate (TAT), which illustrates how efficiently companies utilise company assets to generate income. Lastly, capital structure is the financial leverage expressed by assets as a percentage of equity. By adopting these three performance indicators into a mathematical expression, the Du Pont analysis can be illustrated as follow:

Formula 1: Du Pont formula

<i>Net profit</i>	X	<i>Sales</i>	X	<i>Total assets</i>
<i>Sales</i>		<i>Total asset</i>		<i>Total shareholder's interest</i>

Source: Correia *et al.* (2015:5-21)

Figure 2.3 illustrates when different formulas are combined the Du Pont analysis can be calculated.

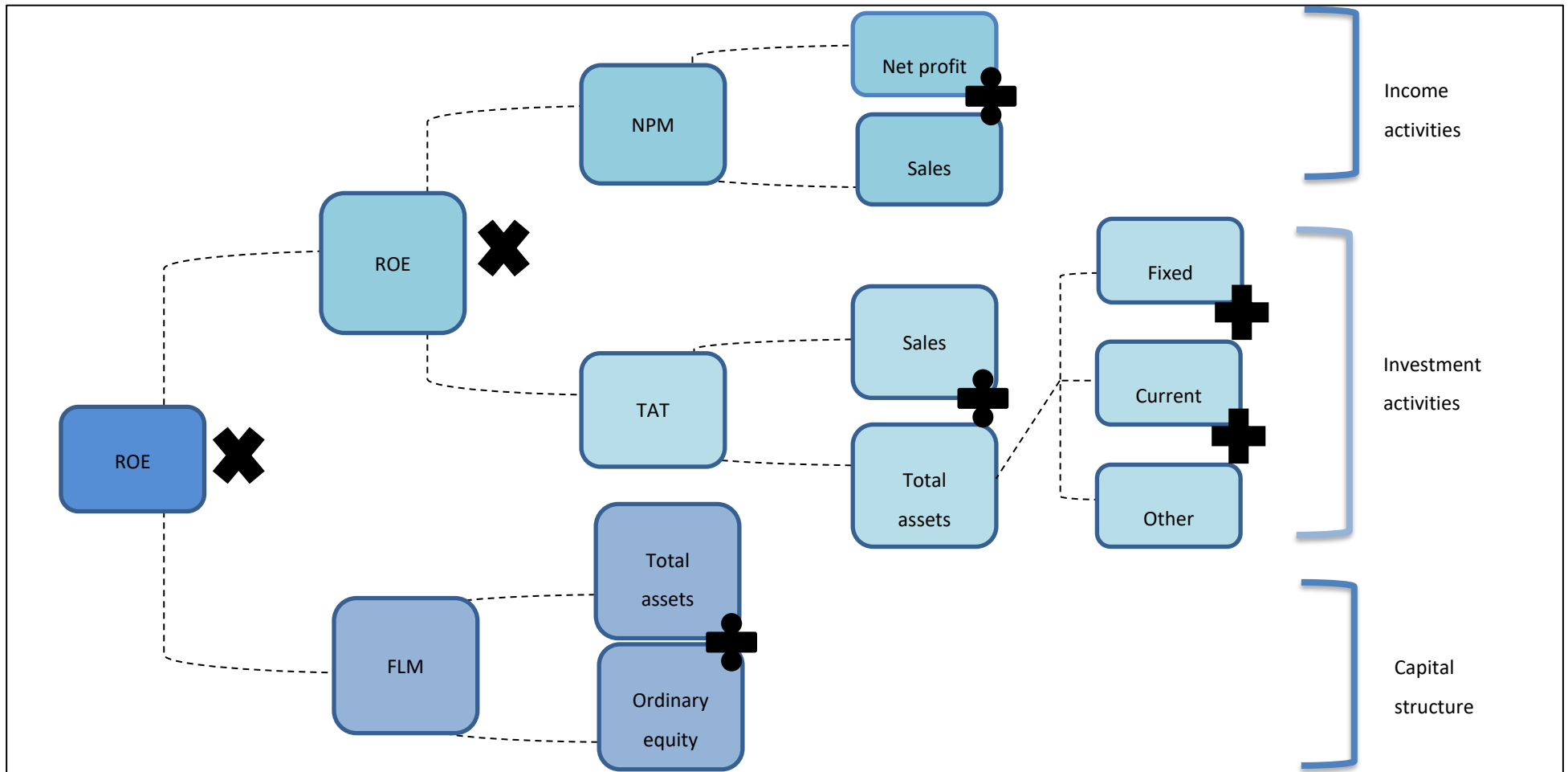


Figure 2-3: The Du Pont analysis

Source: Van Horne and Wachowicz (2008:151); Correia *et al.* (2015:5-22)

Deviating from these ratios will influence management's behaviour and decisions whereas changes in the profitability will influence the usefulness of company valuation from a market perspective (Fulbier, Silvia & Pferdehirt, 2008:128).

The financial ratios included in Figure 2.3 above can be used when evaluating the usefulness of financial statements and measuring the correlations between profits and the impact it will have on the ROE and is therefore applied in Chapter 4.

An up to date ROE is among other a very important key performance indicator (Jayabal & Kasilingam, 2012:54) used by stakeholders (Dissanayake, 2012:27) and a financial statement indicator for profitability (Callahan & Mauboussin, 2014:12). Damash, Kabajeh, and Nu'aimat, (2012:116) further asserts that ROE is a useful tool applied to measure shareholders' return on capital investments in a company. De Wet and Du Toit (2007:59) claim that ultimately, shareholders' wealth should be produced by means of equity returns which exceed the cost of capital.

According to several controversies, shareholders' wealth is greatly impacted by internal drivers (De Wet & Du Toit, 2007:59). Financial analysts focus on internal drivers (Rappaport, 1986:31) such as ROE, dividends and earnings per share (Damash *et al.*, 2012:116), but for purposes of the study the only internal driver that will be taken into account is ROE. In agreement with Rappaport, Monteiro (2006:3) claim ROE is a measurement technique widely used for corporate performance considered by all stakeholders.

Table 2.1 illustrates the profitability ratios that reveal the considerations that indicate the effect the profitability will have on the company.

Table 2-1: Effect of profitability ratio

RATIO	FORMULA	INFORMATION	EFFECT
NPM	$\frac{\text{Net profit}}{\text{Sales}}$	<p>The net profit margin expresses net profit as a percentage of the total sales of the company.</p>	<p>This ratio is affected by the way assets are financed.</p> <p>Equity financing will not affect the net profit, whereas debt finance has incurred expenses, i.e. interest payable, that affects the net profit. Essentially assets are bought and financed through debt financing affecting the overall net profit of the company.</p>
ROE	$\frac{\text{Net profit}}{\text{Total Equity}}$	<p>The return on equity signifies investors return on financial investment within the company.</p>	<p>This ratio is affected by the way investors invest within the company.</p> <p>If investors receive a decreased return from previous quarters/years, investors may seek alternative investment opportunities yielding a higher return on their capital investment.</p>

RATIO	FORMULA	INFORMATION	EFFECT
ROA	$\frac{\text{Net profit}}{\text{Total assets}}$	<p>The return on assets expresses net profit in relation to the total assets within the company. This ratio generates profit by utilising the company assets.</p>	<p>This ratio is affected by the way assets are applied in order to generate profits.</p> <p>Interest and tax implications will be taken into account when calculating other changes in ratios such as interest cover, thus net profit and interest will be affected by proposed accounting standards.</p>

Source: Cinca, Molinero and Gallizo Larraz (2005:40); Vigarío (2008:238); De Andres, Landajo and Lorca (2009:8956); Correia *et al.* (2015:5-16)

For the data collected the value of each company will be determined by its ROE that gives a clearer picture of the company's profitability and assists stakeholders in the overall decision-making process as illustrated in Table 2-1 and Figure 2-3.

2.3. FINANCIAL INFORMATION REQUIRED BY STAKEHOLDERS

Florin-Constantin (2012:202) aptly states that stakeholders assess companies' future cash flow. Alexander, Bonaci and Mustata (2012:85) reiterate that each stakeholder uses financial statements for specific reasons as they have different informational needs. Therefore, a conclusion can be drawn that stakeholders normally have different disclosure requirements when examining financial statements.

Stakeholders of financial statements can be divided into two categories, namely internal and external stakeholders. Internal stakeholders of financial statements include owners, board of directors, managers and employees (Lubbe *et al.*, 2012:20) whereas, external stakeholders include tax authorities, potential and existing investors, financial service providers, business analysts, auditors, creditors, suppliers and customers (Banhegyi *et al.*, 2011:126).

Important company information is provided in the form of financial statements to users (Brealey, Myers & Allen, 2008:787). Users analyse financial statements to evaluate their interest in the company's performance (Nagy & Obenberger, 1994:65). Therefore, the argument can be made that the analysis of financial statements enables users to ensure their interests are being fulfilled by the company.

Internal and external stakeholders are both attracted by company profits as it plays an important role in the decision-making process (Florin-Constantin, 2012:202). Financing decisions, investment decisions and asset management decisions are three main decision functions identified (Brigham & Houston, 2013:5).

Users of financial information have different individual objectives when evaluating a company's financial statements from other users. Due to this fact, users must be divided into categories based on their needs for specific financial information (Correia *et al.*, 2015:5-5). Therefore, Section 2.3.1 discusses the use of financial information by internal stakeholders.

2.3.1. Financial information used by internal stakeholders

As indicated in Section 2.3, internal users of financial statements are owners, board of directors, managers and employees that are discussed in detail as follows:

- i. Owners and board of directors
Board of directors is reliant on financial information to analyse the profitability of their investments and assessing the possibility of paying out dividends to shareholders (Van der Zwan & Van der Merwe, 2013:1043).
- ii. Managers
Abu-Nassar and Rutherford (1996:73) stresses that managers attract funds from external parties using financial statements to evaluate the financial wealth and performance of a company. Van der Zwan and Van der Merwe (2013:1047) explain that managers utilise financial information during the companies' planning, controlling and decision-making process. Managers play an important role as they are responsible for decision making that can influence users of financial statements (Correia *et al.*, 2015:5-10) as it leads to short- and long-term financial obligations as well as expenditure by the company (Paramasivan & Subramanian, 2009:25).
- iii. Employees
Employees evaluate financial information in order to determine their job security and remunerations (Brigham & Houston, 2013:23). Furthermore, Collis and Jarvis (2000:10) point out that employees show an interest in financial information of a company as it has a direct influence on retirement benefits and future employment opportunities. Employees hold equal interest in the current financial stability and long-term viability of a company as it has an effect on future job security (Correia *et al.*, 2015:5-7). Employees and union representatives study financial statements in order to negotiate increases on wages and salaries, as well as assessing future employment opportunities (Deysel *et al.*, 2015:10).

According to Alexander, Britton and Jorissen (2009:4) internal stakeholders use financial information for internal-business decisions whereas, external stakeholders require financial information for other purposes. In Section 2.3.2 financial information required by different external stakeholders is discussed.

2.3.2. Financial information used by external stakeholders

Pointed out in Section 2.3, external users of financial statements include creditors, suppliers, financial service providers, customers, business analysts, auditors, tax authorities, potential and existing investors that are discussed in detail as follows:

i. Creditors, suppliers and financial service providers

Van der Zwan and Van der Merwe (2013:1051) argue that creditors include suppliers and financial service providers, such as banks that utilise financial information to determine the credit worthiness of a company. Suppliers obtain financial information over a short period of time to determine if the company will have the necessary funds to settle their accounts, whereas financial service providers i.e. banks take financial information into consideration over a longer period of time (Brigham & Houston, 2013:31). Financial information is used by bankers in order to grant a loan to a company and to determine the appropriate interest rates to be charged (Abu-Nassar & Rutherford, 1996:69).

ii. Customers

Customers are dependent on financial information to assess the company's financial position in order to determine whom will meet their consumer needs and demands with a stable source of supply (Van der Zwan & Van der Merwe, 2013:1051).

iii. Business analysts

A business analyst assesses the risk of a company and then compares it to company returns (Cassim, 2014:66). Alexander *et al.* (2009:6) explain that business analysts will require more in detail financial information (Correia *et al.*, 2015:5-7) in order to determine the economic value of a company.

iv. Auditors

Auditors have a responsibility to prepare a report containing a fair presentation of the company's financial statements, possible risk of material misstatements and errors or fraud (Cassim, 2014:66). Furthermore, Correia *et al.* (2015:1-31) explain that auditors require financial information to verify if financial statements fairly represent the financial position and performance of the company.

v. Tax authorities

In South Africa, SARS requires company financial statements to evaluate the rationale behind company tax (Correia *et al.*, 2015:5-8). Similarly, Brigham and Houston (2013:37) explain that published financial information is required by

government bodies for purposes of company tax and Value Added Tax. Alexander *et al.* (2009:6) predicts that governments use financial information for decision-making purposes and forward-looking economic decisions within numerous sectors of the economy.

vi. Potential and existing investors

According to Tsalavoutas, André and Evans (2012:267) investors fall under the main users of financial information as they have different uses for financial information compared to other users (Biondi, 2011:29). Dvořáková (2013:154) argues that investors are risk capital providers using financial information to assess a company's financial performance and position. Equally so, Higgins (2009:6) explains that financial statements are a very good indicator to determine a company's financial performance.

External stakeholders of financial statements, in some form, are normally involved in the buying, selling or holding debt- or equity instruments (Haji, Marx & Coetsee, 2014:67) in a company or by some means provide sources of financing towards a company (Philander, 2016:31). In addition, Strouhal (2015:561) identifies that financial statements provide stakeholders with the ability to make informed decisions.

In order for stakeholders to make informed business decisions, based on useful financial statements the information provided should be considered to be reliable, relevant and complete.

Taking the above information into account, different stakeholders use different financial information in order to make informed business decisions. Table 2.2 expresses the usefulness of financial information for both internal and external stakeholders, by way of identifying the most used financial statement of the overall five elements identified in Chapter 1, Section 1, the profit disclosure requirements for each stakeholder and the calculation or framework method used.

Table 2-2: Usefulness of financial information by internal and external stakeholders

Stakeholders	Internal external users	Element of financial statements	Profit disclosure requirements	Framework or calculation method used
Owners and board of directors	Internal users	All five elements of the financial statements	Shareholders wealth, dividends and profits	Accounting framework
Management	Internal users	All five elements of the financial statements	Forward-looking (Budgeting)	Accounting, tax and economic methods
Employees	Internal users	Statement of profit or loss and other comprehensive income; statement of cash flow and notes to the financial statement	Inherently non-financial information (measuring and evaluating the performance of individuals)	Not applicable
Investors	External users	Statement of financial position; statement of profit or loss and other comprehensive income; statement of cash flow and notes to the financial statements	Income and money return by way of dividends or capital gains and money return by way of selling shares at a higher price than the purchase price.	Accounting, tax and economic methods

Stakeholders	Internal external users	Element of financial statements	Profit disclosure requirements	Framework or calculation method used
Creditors, suppliers and financial service providers	External users	Statement of profit or loss and other comprehensive income; notes to the financial statements (contingent liabilities and obligations, leases and long-term debts and disclosure of accounting policies)	Income, current liabilities, current- and future cash flow. Also, the net realisable value (NRV) of company assets	Accounting framework
Customers	External users	Statement of profit or loss and other comprehensive income	Assessing if needed resources are available in order to satisfy consumer needs	Accounting framework
Business analysts	External users	Statement of profit or loss and other comprehensive income; notes to financial statements	To value and analyse a company, in order to make appropriate recommendations to increase company efficiency and profitability	Accounting, tax and economic methods
Auditors	External users	All five elements of financial statements	In order to write a sufficient and appropriate auditor's report	Accounting and tax framework

Stakeholders	Internal external users	Element of financial statements	Profit disclosure requirements	Framework or calculation method used
Tax authorities	External users	Statement of profit or loss and other comprehensive income; notes to financial statements	Profit before tax, current and deferred tax liabilities	Tax framework

Source: Van der Zwan and Van der Merwe (1996:74); Haji *et al.* (2014:68); Correia *et al.* (2015:5-5); Stiglingh *et al.* (2016:6)

Table 2.2 highlight that internal and external stakeholders have similar disclosure requirements, both requires information obtained in the statement of profit or loss and other comprehensive income and in some form applies all three different profit calculation methods. Internal and external stakeholders are therefore greatly dependent on financial statements as their decisions are mainly based on financial information disclosed within financial statements.

In order to provide stakeholders with financial information, company's annual financial statements should comply with relevant reporting requirements as required for public listed companies. In Section 2.4, the minimum statutory and legislative reporting requirements are addressed.

2.4. STATUTORY REPORTING REQUIREMENTS

Financial performance is a key indicator for effectively functioning companies, but another key element in a company's overall performance is the adherences towards laws and regulations. Everingham and Kana (2008:1) identify that there are different sources of reporting requirements for companies that they need to adhere to, namely:

- Statements of Generally Accepted Accounting Practise
- International Financial Reporting Requirements
- IFRS for small- to medium-size enterprises (IFRS for SMEs)
- The Companies Act
- JSE Security Exchange Listing Requirements
- King Report of Corporate Governance

2.4.1. Statements of Generally Accepted Accounting Practise

Service (2016:23) clearly states that GAAP will on or after 1 December 2012, no longer be applied by listed companies within South Africa. Kaya (2013:129) predicts that shifting from GAAP to IFRS will tremendously improve the transparency, comparability and usefulness of financial statements.

Standards that will be applied in future will include IFRS and IFRS for small- to medium-size enterprises as discussed in Section 2.4.2.

2.4.2. International Financial Reporting Standards for small- and medium-size enterprises

According to Service (2016:23) in South Africa financial reporting standards now refer to IFRS and IFRS for SMEs. With the shift in reporting standards from GAAP to IFRS there was a purpose behind adopting an IFRS system in South Africa (Kaya, 2013:129). These objectives set out by IFRS includes:

- a) Develop, for the interest of the public, a single set of quality, understandable, enforceable and globally accepted financial reporting standards based on clear and articulate principles.
- b) To promote the use and rigorous application of these standards.
- c) Fulfilling the objectives associated with (a) and (b), to account as appropriately as possible the needs of a range of sizes and types of companies in diverse economic settings.
- d) To promote and facilitate adoption of IFRS.

All companies listed on the JSE need to comply with IFRS to ensure financial information is accurately disclosed for the different stakeholders. The standard of IFRS (OB2-OB11) (IFRS, 2014:A833) further states that financial statements are commonly directed to the needs of indirect and direct users, with the objectives of financial statements to provide information on the company's financial position, cash flow and performance to assist the users in decision making.

In order to determine the financial position, cash flow and performance of a company the financial statements should include five key elements. In accordance, IAS 1.10 (IFRS, 2014:A835) highlights that a complete set of financial statements is required to include:

- a Statement of financial position as at the end of the period;
- a Statement of profit or loss and other comprehensive income for the period;
- a Statement of changes in equity for the period;
- a Statement of cash flows for the period; and
- Notes to the financial statements including accounting policies.

2.4.2.1. IFRS for small- and medium-size enterprises

Small companies globally have the option to operate in a number of different formats i.e. private and public companies, personal liability companies, partnerships and trusts (Deysel *et al.*, 2015:1045). Deysel *et al.* (2015:1045) further explain that “the application of full-scale accounting standards to small and medium-size entities has been controversial”. The adoption of IFRS in December 2011 and the alignment with additional accounting standards made it challenging for small- to medium-size enterprises (SMEs) (Koen, 2015:15) to adhere to IFRS procedures and requirements when compiling financial statements (Stainbank & Wells, 2005:55). In agreement with Stainbank and Wells, Zanzig and Flesher (2006:1) state that a recommendation was therefore made that an additional set of accounting standards are adopted for smaller entities, private companies and SMEs.

For the purpose of the study, IFRS for SMEs were not considered as it does not form part of the study’s scope.

2.4.3. The Companies Act

According to Section 29 of the Companies Act, all South African listed companies must apply Financial Reporting Standards (FRS) better known as IFRS (Service, 2016:23) to comply with reporting regulations that clearly states financial statements must:

- Be prepared according to the accounting standards.
- Present fairly the state of affairs and business of the entity, and explain the transactions and financial position.
- Show the assets, liabilities and equity, as well as the entity’s income and expenses.
- Disclose the date the statements were produced and the accounting period.
- On the first page state whether it is audited, reviewed or not.
- The name and professional designation of the individual who prepared it or the supervised the preparation thereof.

According to Marx, Van der Watt and Bourne (2016:4-14) Section 30 of the Companies Act further explains that listed companies must prepare annual financial statements within six months after year-end. Jackson & Stent (2016:3-25) furthermore explains that the financial statements must be audited by a qualified auditor.

2.4.4. JSE security exchange listing requirements

According to the South African Institute of Chartered Accountants (SAICA) (2017) for companies to be listed on the JSE certain requirements need to be met. Companies should meet the disclosure requirements of the JSE, according to 8.62 of the JSE-listing requirement that states that listed companies' financial statements must:

- Be drawn up in accordance with the national law applicable to a listed company.
- Be prepared in accordance with IFRS and the Financial Reporting Pronouncements (FRP's) issued by the Financial Reporting Standards Council (FRSC).
- Be audited in accordance with International Standards on Auditing (ISA) or, in the case of overseas companies, in accordance with national auditing standards acceptable to the JSE.
- Be in consolidated form if the listed company has subsidiaries, unless the JSE otherwise agrees, but the listed company's own financial statements must also be published if they contain significant additional information.
- Fairly present the financial position, changes in equity, the results of operations and cash flows of the group.
- Comply with the Companies Act, 2008.
- And finally, complies with the requirements of the King Code on corporate governance.

PriceWaterhouseCoopers (PWC) (2011:23) further highlights that in accordance with IAS 34 and the preface to South African statements and the interpretation of statements of GAAP (AC 500 standards). KPMG (2015) asserts that paragraph 8.57 of the JSE-listing requirements requires a statement included in the company's annual report expressing that the financial statements have been prepared as per paragraph 8.62 discussed above and confirms that the accounting policies are in line with IFRS and similar to previous published annual financial statements.

In addition to paragraph 8.62 of the JSE-listing requirements, companies should also adhere to the key principles for listing a company. JSE limited (2015:8) indicate that these key principles for listing a company is identified as follow:

- The company applying to list should at least have a subscribed capital of R50 million.
- There should be at least 25 000 000 equity shares available to be issued.

- An audit history for the past three financial years that is satisfactory, as whether the last financial year reported a profit of not less than R15 000 000 before taking into account taxes.
- Reasonable liquidity will be ensured where 20% of each class of equity shares that shall be held by the public.

Section 7 and 11 of the JSE-listing requirements according to KPMG (2015) prescribe that there should be compliance with the following, including, inter alia:

- The confirmation that financial procedures are overall well-established by the company's directors.
- The directors fully understand their responsibilities stated as by the Listing Requirements.
- Directors declaration of each director must be submitted in terms of Schedule 21.
- That the audit committee can confirm the financial information obtained within the JSE circular.
- And finally, that the board has discharged their responsibility in terms of the working capital statement.

Section 12.11(iii) of the JSE-listing requirements according to Deloitte (2011:1) explains that the disclosure requirements for mining companies differ from the disclosure requirements of non-mining companies. Mining companies must disclose the following financial information in the company's annual reports:

- a description of any exploration activities, expenditures, results and feasibility studies undertaken;
- a description of the geological setting and model;
- a description of the mining and mining activities, including a brief history of the workings or operations;
- production figures, including a comparison with that of previous financial years;
- a statement that the company has the legal entitlement to the minerals being reported upon, together with any known impediments;
- the estimated Mineral Resources and Mineral Reserves;
- a description of the methods and the key assumptions and parameters by which the Mineral Resources and Mineral Reserves, were calculated and classified;
- a comparison of the Mineral Reserve and Mineral Resource estimates with the previous financial years estimates together with explanations of material differences;
- whether or not the Inferred Mineral Resource category has been included in feasibility studies and, if so, the impact of such inclusion;
- any material risk factors that could impact the Mineral Resource and Reserve Statement;
- a statement by the directors on any legal proceedings or other material conditions that may impact the company's ability to continue mining or exploration activities, or an appropriate negative statement;
- appropriate locality maps and plans; and
- a summary of environmental management and funding.

One of the key disclosure requirements according to paragraph 8.62 of the JSE-listing requirements is for companies to fully comply with the King Code of corporate governance; therefore, in Section 2.4.5 the King Report is addressed.

2.4.5. King report of corporate governance

Governance is descended from the Latin word “gubernare” that implies to steer (Hough, Arthur, Thompson, Strickland & Gamble, 2011:9). In support of this definition, Marx *et al.* (2016:2-2) define corporate governance as a system introduced to ensure that management and board of directors manage companies in a manner that will be in the best interest of the stakeholders. Correspondingly, Klazema (2014) further states that corporate governance is various structures incorporated into one that consists out of duties, obligations and rights that considers the control and direction of a company. In addition, the International Financial Corporation (IFC) (2016) is of the opinion that the relationship between stakeholders forms an important part of corporate governance. Nevertheless, corporate governance should ensure that management and the board of directors act in the best interest of the company as well as other stakeholders (Correia *et al.*, 2015:1-28).

According to Jackson and Stent (2016:4-5) King IV was introduced to continue to keep South Africa up-to-date with local and international developments in international corporate governance since King III was released, as with the previous three King Reports. In Section 2.4.5.1 the first King Report is briefly discussed, followed by an updated version of the King I report in Section 2.4.5.2.

2.4.5.1. The King I report on corporate governance

In 1994, King I was published as a tool for improving ethical, environmental, financial and social principles within companies and the state of corporate governance within South Africa. The King I report encourage an integrated approach for the interest of the stakeholders outside the normal financial and regulatory views of corporate governance (King Report I, 1994).

2.4.5.2. The King II report on corporate governance

In 2002, King I was updated from the 1994 version and republished (Ehlers & Lazenby, 2010:5). The King II report identified that the focus should be shifted to a triple-bottom line rather than the normal shareholders profit (King Report II, 2002). Mashwama (2015:41) explains that triple-bottom line incorporates economic, environmental and social views of company activities. Vaughn and Ryan (2006:5) highlight that within the

company's annual reports the minimum corporate governance and standards should be disclosed.

2.4.5.3. The King III report on corporate governance

The third report of corporate governance, referred to as the King III code of corporate governance was published in 2009. King III became relevant when the new Companies Act was released (IoDSA, 2009). According to Meyer (2009:4) King III mainly revolves around leadership and sustainability, indicating that the board of directors is a crucial element for good corporate governance (IoDSA, 2009).

2.4.5.4. The King IV report on corporate governance

On 1 November 2016, the King IV report on corporate governance was published replacing King III entirely but will only be in effect for the financial years commenced on or after 1 April 2017 (KPMG, 2015). According to Deloitte (2016:3) King IV is a structured framework that is applied effortlessly by all companies while focusing to ensure the application of these principles are achieved with specific outcomes.

Within each of the first three King Reports, specific characteristics of good corporate governance were identified. King IV added additional characteristics and all of these characteristics should improve corporate governance. Corporate governance is summarised in Section 2.4.5.5.

2.4.5.5. Characteristics of good corporate governance

A combination of the King Reports identified several primary characteristics (Du Plessis, McConvill & Bagaric, 2005:8) for companies to fully comply with in order to have good corporate governance namely; transparency, accountability, responsibility, fairness, discipline and independence (IoDSA, 2002).

i. Transparency

Transparency can be defined as the ability to analyse important matters related to a company's actions and economic fundamentals (Marx *et al.*, 2016:2-3). Bushman, Piotroski and Smith (2004:208) concur that transparency is to assist the users of financial information with specific information used during the analysis of the company. Humpherys, Moffitt, Burns, Burgoon, and Felix (2011:586), supported by Vasarhelyi,

Chan and Krahel (2012:158) explain that transparency for users of financial information is a desirable characteristic that also increases the accountability of decision making based on financial information.

ii. Accountability

Management and board of directors of a company need to be held accountable for the decisions that they make based on financial information, therefore providing stakeholders the means to question and assess the actions of the board of directors (Marx *et al.*, 2016:2-4).

iii. Responsibility

According to Marx *et al.* (2016:2-4) responsibility refers to managements' and the board of directors behaviour to guide the company in the right direction. Mashwama (2015:43) implies that management is held accountable by the board of directors and the board of directors is held accountable by the stakeholders of the company.

iv. Fairness

Fairness should be an integrated system within the company acknowledging all parties holding interest in the company (Wickramanayake, 2007) and minority shareholders receive equal consideration to majority shareholders (Du Plessis *et al.*, 2005:8).

v. Discipline

Senior management has the obligation to follow a proper behavioural pattern that is recognised to be good and proper (Naidoo, 2002:157) and incorporates company awareness and commitment to fundamental principles of good governance mainly at senior management level (Farrar, 2003:68). Therefore, discipline can be seen as the commitment by senior management to implement strategies, find resolutions and adhere to company policies.

vi. Independence

Independence within a business setting is addressed by the authority of majority shareholders or chief executive directors to minimise and avoid potential conflict of interests (Du Plessis *et al.*, 2005:9).

In summary, good corporate governance revolves around universal characteristics that ensure accountability to shareholders, systems that dictate management behaviour, laws that are in line with management styles and that over all governance is facilitated (Tricker, 1994:9; Keasy and Wright, 1997:3; Dunlop, 1998:1).

2.5. NON-STATUTORY REPORTING REQUIREMENTS

In Section 2.4 the statutory and legislative reporting requirements were identified that is compulsory for each of the companies listed on the JSE. In the King report on corporate governance (Section 2.4.5) it became evident that companies may also apply non-statutory reporting requirements (voluntary) such as sustainability- and integrated reporting. According to Correia *et al.* (2015:1-29) South African companies are world leaders when it comes to sustainability and integrated reporting. In Section 2.5.1, the sustainability reporting requirements will be discussed followed by the integrated reporting requirements.

2.5.1. Sustainability reporting requirements

According to Correia *et al.* (2015:1-29) sustainability can be expressed as a source of risks and opportunity for companies and an important shift is needed in the manner a company is organised. Furthermore, Correia *et al.* (2015:1-29) is of reason that sustainability criteria offered by the Global Reporting Initiative (GRI) identifies that companies must integrate sustainability with its normal business operations as part of its performance evaluation. Marx *et al.* (2016:15-21) explains that sustainability reporting varies greatly from the traditional financial reporting requirements that primarily caters for company stakeholders and not only the investors and board of directors of the company.

Although sustainability reporting incorporates, triple-bottom line reporting, it remains voluntary. Previous research suggests companies have two distinct reasons for incorporating sustainability reporting (Smith & Van Zyl, 2016:71). The first reason being for companies to behave ethically by have social and moral obligations to the surrounding communities (Marx & Van Dyk, 2011:39). Secondly, economic theories highlight that sustainability reporting assists in creating a healthier reputation within the surrounding communities that, in turn, maximises shareholder wealth (Borkowski, Welsch & Wentzel, 2010:32).

Choudhuri and Chakraborty (2009:48) elaborates that sustainability reporting represents a three-way reporting framework highlighting economic, environmental and social performance of a company. Sustainability reporting also forms part of adding value to shareholder's wealth (Choudhuri & Chakraborty, 2009:49). Therefore, concluding that sustainability reporting has become an essential tool for investor as it directly drives a company to reach economic, social and environmental obligations while creating shareholders' wealth.

2.5.2. Integrated reporting requirements

According to Eccles and Krzus (2010:147) there is two main reasons for companies adopting integrated reports within their external reporting framework. Firstly, as discussed in Section 2.5.1, sustainability is a key element for companies addressing CSR (Smith & Van Zyl, 2016:71). Secondly, to increase the disclosure and transparency by simplifying integrated reporting for all stakeholders (Eccles & Krzus, 2010:147).

Identifying shortcomings within existing reporting standards and the urgency to find a more effective reporting framework (Steyn, 2014:476), more focus is being placed on integrated reporting (IRCSA, 2011:1).

Dahms (2012:22) explains that in addition to laws, regulations and listing requirements there is an increase in the information provided through:

- More complex financial reports and management commentaries;
- Increased reporting on governance and remuneration; and
- Stand-alone sustainability reporting that has evolved rapidly over the past decade.

Companies have become more complex therefore additional and new reporting requirements are constantly added. Steyn (2014:479) elaborates that South African companies listed on the JSE are one of the global leaders applying integrated reporting as part of the external reporting framework. The application of integrated reporting is vastly growing as the published global reports includes the GRI's database as integrated reporting (Hughen, Lulseged & Upton, 2014:60). Hughen *et al.* (2014) and Eccles and Krzus (2010) attributed to JSE listing requirements being altered to include integrated reporting.

Eccles and Krzus (2010:148) identify four major benefits of applying integrated reporting:

- Greater transparency regarding relationships and commitments.
- Decisions based on better information that was provided.
- Deeper engagement with all stakeholders eliminating artificial or unhelpful information.
- Lowering the risk of company's reputation.

Although non-statutory reporting requirements remain voluntary some companies disclose sustainability- and integrated reporting within their annual financial statements required by the JSE listing requirements. Statutory, legislative and non-statutory reporting requirements discussed in Section 2.4 and Section 2.5 requires that either a framework or calculation method is used in order to disclose financial information.

2.6. METHODS TO DETERMINE PROFIT

Different framework and calculation methods fall within the statutory or non-statutory reporting requirements that are implemented within companies' annual financial statements. According to the External Reporting Board (ERB) (2017) a framework involves a multi-standard, multi-tiered approach. In the following sub-Section 2.6.1, the framework to determine accounting profit is discussed.

2.6.1. Accounting profit

Godfrey *et al.* (2010:32) classify accounting as a process of identifying, measuring, recording and expressing economic information of a company for sound decision-making purposes. A financial reporting framework according to Marx *et al.* (2016:16-27) can be identified as a basis of laws and regulations established by standard-setting bodies.

According to IAS 1, the objective of the standard is to ensure that the appropriate amount is accounted for and disclosed in the financial statements (Deysel *et al.*, 2015:149; IFRS, 2014:A836). Furthermore, IAS 1.81 discloses information that should be presented in the statement of profit or loss namely:

- a) Revenue, consists out of separate interest revenue calculated using the effective interest method;
- b) Gains and losses arising from the de-recognition of financial assets measured at amortised cost;
- c) Finance costs;

- d) Impairment losses determined in accordance with Section 5.5 of IFRS 9;
- e) Share of the profit or loss associates and joint ventures accounted for using the equity method; and
- f) If a financial asset is reclassified out of the amortised cost measurement category so that it is measured at fair value through profit and loss, any gain or loss arising from a difference between the previous amortised cost of the financial asset and its fair value at the reclassification date. (IFRS, 2014:A856)

The statement of profit or loss reflects a company's accounting profit and is scrutinised by investors to determine the company's financial performance (Abu-Nassar & Rutherford, 1996:75; Service, 2016:79). Therefore, accounting profit can be explained as the difference between revenue and expenses that measures the success of the company for a financial year that can be expressed as follows:

Table 2-3: Accounting profit framework

Statement of profit or loss	R xxx
Revenue/Sales	xxx
Less: Cost of sales	(xxx)
Plus: Other income	xxx
=Gross income	XXX
Less: Expenses	(xxx)
Less: Finance costs	(xxx)
=Profit before tax	XXX

Source: Service (2016:83)

Profit not only plays an important role in in a company's day-to-day activities but is also one of the key indicators that investors consider during their company evaluations

(Correia *et al.*, 2015:8-14). Therefore, the statement of profit or loss gives a clear indication of the company's income, expenses and yearly profit compared to that of previous years.

2.6.2. Taxable income

Taxable income is a profit consisting out of gross receipts and accruals in cash and deducting expenditure required to generate such receipts or accruals (Bittker, 1968:1035). Abu-Nassar and Rutherford (1996:76) highlights that taxable income normally differs from profit before tax reported on the statement of profit or loss, which is based on IFRS principles. The difference between these two methods is the corrective adjustments that is not indicated on the statement of financial position but rather included in the notes to the financial statements. These adjustments will either increase the taxable income by adding back value or reduce the taxable income by applying a deductible deduction (Dick & Missonier-Piera, 2010:211). The taxable income of a company is finalised by means of the Act, where the accounting profit is adjusted by way of a reconciliation as the Act does not account for all accounting entries.

Collyer (2016:23) classifies Sections of the Act in the following order to determine taxable income for a year under assessment:

- Include all amounts of gross income;
- deduct exempt income;
- deduct amounts that qualify under the general deduction formula;
- add amounts deemed to be included in income;
- add the taxable portion of capital gains made on the disposal of capital assets;
- deduct assessed losses from previous year.

The National Treasury has documented that taxable income may also be reduced by setting off an assessed loss (National Treasury, 2014:22) carried forward from previous years when taxable income is calculated (Dick & Missonier-Piera, 2010:193). In agreement with Dick and Missonier-Piera, Collyer (2016:23) and Stiglingh *et al.* (2016:13) recorded a reconciliation of the taxable income framework that can be illustrated as follows:

Table 2-4: Taxable income framework

Taxable income reconciliation		R xxx
	Profit before tax (par.2.6.2)	XXX
Add:	Amounts added back (expenses recorded but not tax-deductible and not recorded but taxable income)	XXX
Deduct:	Deductions (not recorded but taxable expenses and income recorded but tax-deductible)	(XXX)
TAXABLE INCOME		R xxx

Source: Stiglingh *et al.* (2016:13)

The government and tax regulators pay more attention to the taxable income of companies as taxable income is the part of the income that will be liable to SARS.

2.6.3. Economic profit

Economic profit examines the total income obtained by a company’s production less all the explicit and implicit cost related to the production (Mohr & Fourie, 2011:213). Krugman and Wells (2013:245) elaborate that economic profit is revenue less the opportunity costs of resources used and is normally less than accounting profit. From the interpretations economic profit can be described as total income less all opportunity costs. Economic profit can therefore be mathematically expressed as follows:

Formula 2: Economic profit formula

Economic profit = total revenue - total economic cost

Source: Krugman and Wells (2013:246)

Formula 3: Economic profit formula adjusted

Economic profit = accounting profit - implicit costs (opportunity costs)
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Source: Mohr and Fourie (2011:213)

Clark (1996:351) states that economic costs include implicit or opportunity costs connected to redistributing company resources for the best alternative use. Drury (2007:45) regards opportunity cost as the measurement of a sacrificed opportunity when an alternative choice is abandoned. Correspondingly, Spiller (2011:595) theorises that opportunity costs may differ from company to company but identifies inventory, cost of capital and bad debt reserves as common opportunity costs within companies.

Relying on the interpretation of Drury (2007:45), Mohr and Fourie (2011:213) and Krugman and Wells (2013:246), the following table was developed by first applying the accounting profit framework (Section 2.6.2) and then adjusting the profit with other economic costs. Table 2.5 provides the framework for determining economic profit.

Table 2-5: Economic profit framework

Economic profit reconciliation	Rxxx
Profit before tax (Sec.2.6.2)	XXX
<u>Adjust accounting profit for:</u>	
Implicit costs	(XXX)
Cost of capital (Sec. 2.6.3.1)	(xxx)
Inventory (Sec. 2.6.3.1)	(xxx)
= Economic profit	XXX

Source: Mohr and Fourie (2011:213)

2.6.3.1. Opportunity cost of capital and inventory

Inventory can be measured at the lower of cost or net realisable value (Service, 2016:631) and incorrectly measuring inventory can have a significant impact (Deysel *et al.*, 2015:57) on determining and presenting the correct financial position in the statement of profit or loss (Cassim, 2014:22). In agreement with Cassim, Deysel *et al.* (2015:57) predict that the manner in which inventory is valued may distort the company's profitability. Opportunity cost of capital includes costs such as warehouse rent, labourer salaries, obsolete costs, shrinkage costs and breakage cost that changes according to the inventory levels held (Horngren *et al.*, 2015:709). The opportunity cost of keeping inventory levels is capital that is sacrificed by not re-investing the capital elsewhere. The opportunity cost is not recorded in the accounting framework as the capital is invested in inventory, therefore there will be no return on an investment to record. Opportunity cost of inventory is when investment capital is forgone by investing the capital in inventory (Horngren *et al.*, 2015:709).

Although opportunity costs are mainly not taken into account for accounting and tax purposes it may have a positive outcome for economic purposes as it takes future considerations into account. In order to determine which method of determining profit is the most appropriate and useful to the user, one should consider the benefits of applying a specific method.

Each of the methods discussed in Section 2.6 has a specific way in which it should be used, but selecting a method based on user-friendliness may have negative aspects to take into consideration. In Section 2.7 the uses, advantages and disadvantages are discussed for each individual method.

2.7. USE, ADVANTAGES AND DISADVANTAGES OF PROFIT METHODS

In order for internal and external stakeholders to make informed decisions, financial statements should include relevant, reliable, comparable and consistent financial information. Financial statements are disclosed according to statutory and legislative reporting requirements i.e. IFRS, Companies Act, JSE-listing requirements and the King Report on corporate governance. Companies can also select to adopt a triple-bottom line reporting method that falls within a non-statutory reporting requirements framework.

Therefore, stakeholders utilise financial statements that are relevant to their informational needs that either complies with statutory or non-statutory reporting requirements. These needs are met by different advantages they receive by applying a specific method to determine company profits. Table 2.6 addresses the advantages and disadvantages of accounting profit, economic profit and taxable income.

Table 2-6: Advantages and disadvantages of different profit methods

Profit	Disclosed within financial statements	Uses of certain financial statements	Advantage	Disadvantage
Accounting profit	Accounting profit is disclosed in the statement of profit or loss i.e. income statement.	The income statement is primarily used to calculate and express the profitability of a company over a financial period.	IAS provides a detailed framework for the calculation of profit.	Window dressing of profits. Different accounting policies and procedures can be incorrectly applied, that can have an adverse effect on determining the correct profit.
Economic profit	Economic profit is not disclosed within a company's annual financial statements.	Not part of financial statements.	Takes future considerations into account.	Profit can easily be manipulated to meet users' requirements. No fixed method or formula to determine economic profit.
Taxable income	Taxable income forms part of a company's notes to the	Notes to the financial statements are used to further	Company receives general and specific deductions	Tax laws are complex and is a separate specialised field of study.

Profit	Disclosed within financial statements	Uses of certain financial statements	Advantage	Disadvantage
	<p>statement of financial position.</p> <p>The Act includes a compilation to determine the taxable income of a company what will be consistent with that disclosed in the financial statements.</p>	<p>explain single line items on the face of the balance sheet.</p>	<p>under the Tax Act that reduces the taxable income.</p> <p>Companies are taxed at a corporate tax rate of 28% for the past several years.</p> <p>Assessed losses built up by a company can be deducted for tax purposes.</p>	<p>Companies are subjected to capital gains tax at 80%, increasing their taxable income.</p>

Source: Mohr and Fourie (2011:213); Deysel *et al.* (2015:19); Stiglingh *et al.* (2016:14)

2.8. CHAPTER SUMMARY

This chapter highlights that the usefulness of financial statements can be improved through qualitative characteristics such as relevance, reliability, comparability and consistency, whereas the quantitative characteristics of financial statements can be enhanced through applying financial statement ratio analysis i.e. the Du Pont analysis. Previous studies have identified that both internal and external stakeholders are users of financial statements and the literature has also identified statutory, legislative and non-statutory reporting requirements companies need to adhere to.

Statutory and legislative reporting requirements that were identified, includes GAAP that was replaced by IFRS in 2012, IFRS for SMEs that is not included in the scope of the study, the Companies Act that requires companies to publish audited annual financial statements, JSE-listing requirements for companies that is or in future wants to be listed on the JSE and the King Report on corporate governance that increases the accountability to stakeholders. Non-statutory reporting requirements include sustainability reporting and integrated reporting; both reporting requirements identified by the King Report and can voluntarily be adopted by companies.

Finally, the chapter concluded by presenting the framework, calculation methods and formulas used to determine accounting profit, economic profit and taxable income, as well as the use, advantages and disadvantages of each method.

Chapter 3 presents the research design and methodology used in this study, as well as the reason for selecting the research design based upon the purpose of the study.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1. INTRODUCTION

Research entails applying scientific methods and procedures (Welman, Kruger & Mitchell, 2005:2) without any limitations given for addressing questions, problems or issues, but creates a foundation to ensure the accuracy of research outcomes for possible further studies (Bayat & Fox, 2007:2). Research is associated with relevant and researchable questions (Boeije, 2010:11) that can be answered by selecting a research method providing suitable explanations for problems that are investigated (Layder, 2013:6). Creswell (2009:32) points out four reasons for conducting research to expand the researcher's knowledge base:

- i. Adding new information to address a gap in existing research topics.
- ii. Replicating existing research by retesting the old results with new participants or data.
- iii. Expanding research topics by developing new ideas.
- iv. Broadening researchers' perspectives.

The purpose of Chapter 3 is to provide a comprehensive understanding of the research design and methodology that were applied during this study, as well as to enlighten the reader on the research process followed in conducting the empirical study. The research methodology is formulated to answer the research question in Chapter 1, Section 1.2, and to fulfil the research objectives set out in Chapter 1, Section 1.3. Included in this chapter is the research type, the collection of data and data analysis method adopted for this study.

3.2. RESEARCH PHASES

“Research” can be defined according to Oxford English Dictionary (2017b) as the systematic investigation of study materials and sources to establish facts and reach new conclusions while Merriam-Webster Dictionary (2017b) theorises that “research” is the investigation aimed at the discovery and interpretation of facts, revision of accepted

theories or laws in the light of new facts, or the application of such new or revised theories. From these interpretations, “research” can be formulated as collecting, documenting, analysing and interpreting data that enables the researcher to identify new assumptions.

Mouton (2011:56) is of the opinion that research can be divided into four phases: recognising the research problem, formulating the research design, shaping the research methodology to be applied and finally the documentation of research findings. Zikmund *et al.* (2013:59) correspond to Mouton’s theory that research can be divided into six stages namely:

- Research problem
- Research design
- Population and sampling
- Data collection
- Data analysis
- Conclusion

Considering both of the research processes, a combination thereof was applied to this study. A brief overview of the phases the research went through to reach the completion phase of the study is illustrated by Figure 3.1:

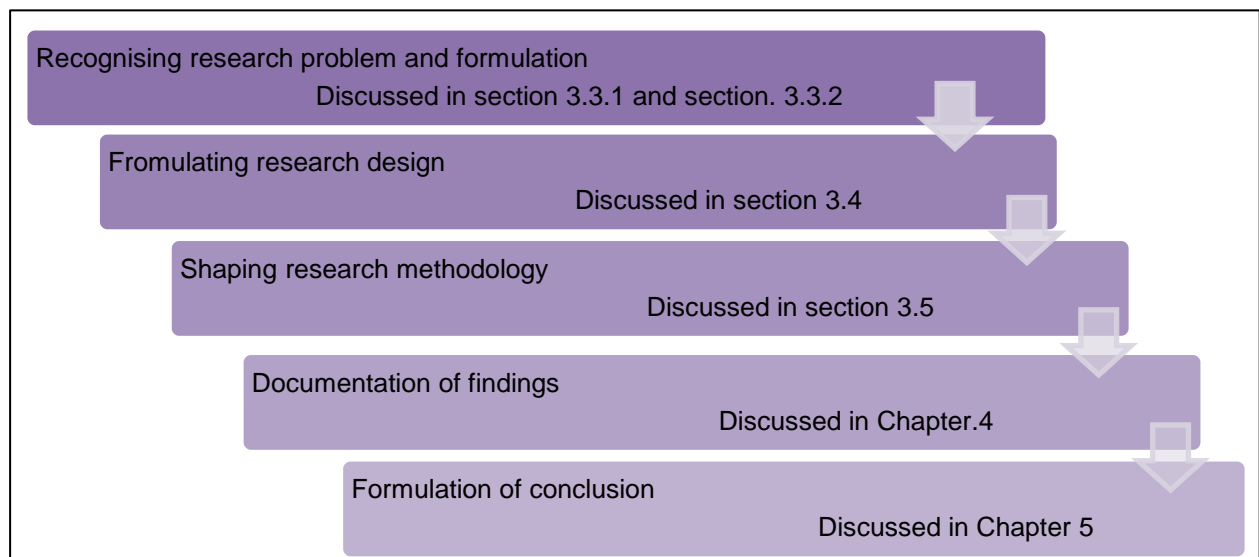


Figure 3-1: Applied phases of research

Source: Adapted from Mouton (2011:56) and Zikmund *et al.* (2013:59)

In view of the research phases, the study focused on the concerns that were identified within the literature, in relation to the current study.

The layout of this chapter is based on the applied research phases as per Figure 3.1. Attention is given to the research problem and formulation, as well as the research design and methodology that were applied to this study. In addition, a conclusion was reached based on the information gathered in this chapter.

3.3. RESEARCH PROBLEM AND FORMULATION

3.3.1. Research problem

A research problem can be defined as “an issue that needs to be addressed” (Creswell, 2014:20), furthermore enlightens the reader of the intention of the research (Kumar, 2014:40). Greener (2011:27) elaborates that the research problem narrows the focus of the study. Creswell (2009:32) further explains by accumulating the results to obtain a deeper grasp of the research problem. Gaps that were identified by previous literature create concerns within the research topic and appropriate approaches needs to be applied in order to develop an efficient method to deal with research problems (Singh, 2006:23). According to Leedy and Ormrod (2014:47) the research problem can be refined in the following ways:

- Conduct a detailed literature review.
- View the research problem from a critical view to gain a new perspective.
- Apply available resources and tools to the research problem.
- Seek advice from experts by discussing similar research problems.

In this study, the research problem was formulated in Chapter 1, Section 2, as the application of the three different types of profits used by listed companies in South Africa and the effect it will have on the stakeholders’ decision making. The purpose of this study is to perform the Du Pont analysis for each of the different sets of profit figures accounting profit, economic profit and taxable income, to determine which method discloses company profits most efficiently for the benefit of stakeholders.

3.3.2. Research formulation

Zikmund *et al.* (2013:8) distinguishes that problems and opportunities will be identified throughout the research but is also an initial phase of research. The formulation of the

problem establishes the extent and direction of the research (Davis, 2005:103). Kumar (2014:39) proposes that to determine the direction or the extent of testing the following should be considered: the available time, the easy accessibility of resources, and knowledge of the study area as well as the requirement of statistics for analysis purposes. With the research problem recognised, the direction of this study was the analysis of secondary data and the extent of research covered over the years from 2001 till 2015. Walliman (2011:79) explains that there were numerous types of secondary data namely documentary sources and survey sources. McGregor (INET BFA) was used for extracting secondary data used in this study such as annual financial statements and notes to the annual financial statements of listed companies within the ten JSE sectors with the highest market capitalisation per sector. The next Section explains step two of Zikmund *et al.* and Mouton's research phases (Figure 3.1) as the research design.

3.4. RESEARCH DESIGN

Subsequently after the identification and formulation of the research problem, the research design was shaped. Creswell (2014:12) identifies that the research design relates to a specific direction within three recognised approaches to conduct research: qualitative, quantitative and mixed to conduct research. In Section 3.5.1 that follows these three approaches are discussed in detail.

Kumar (2014:39) is of meaning that a research design is a crucial stage as it empowers the researcher to achieve valid findings, comparisons and conclusions. In addition, Welman, Kruger and Mitchell (2012:52) state that research design can be associated to the strategy of collecting data from research participants. A flawed design may lead to misinformed results and findings (Cassim, 2014:45). A research design can be theorised as an approach or "blueprint" on how the research will be performed by the researcher, in order to accomplish the research objectives (Mouton, 2011:55). Four research design dimensions were identified by Mouton (2011:145) as: the conceptual properties of data, new or existing data, the type of data and the control over the research design. These dimensions are illustrated in Figure 3.2 as follows:

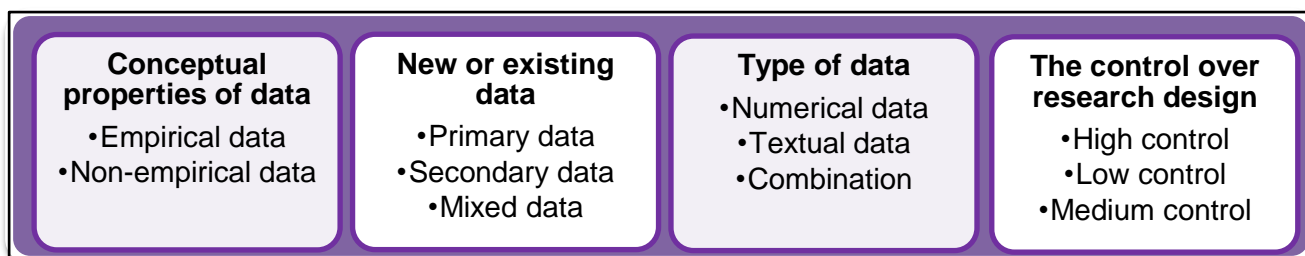


Figure 3-2: The dimensions of research design

Source: Adapted from Mouton (2011:146)

Figure 3.2 details that a research design can be split into four dimensions. Firstly, conceptual properties of research identify whether the study is empirical or non-empirical. Empirical studies mainly rely on experience, testing and observations without any concern for theory (Singh, 2006:9), whereas non-empirical studies are based on theory rather than on data (Kumar, 2011:29).

Secondly, the gathering of new or existing data. Raw data refers to “first hand” data that the researcher collects, as where secondary data is collected from previous work from similar studies (Greener, 2011:2). Moreover, a mixed method approach for the collection of data can be used, combining both primary and secondary sources.

Thirdly, targeting whether data are textual or numerical. The researcher can also utilise a combination of both textual and numerical data in a study. Textual data implies that information is in words while numerical data entails statistics or numbers (Barbour, 2008:10).

Lastly, the degree of control the researcher has over the research design is discussed, namely; high, medium or low. *Welman et al.* (2005:115) states that the variables that are studied have a direct influence on the researcher’s control over the study.

The four dimensions of research design identified by Mouton (2011:146) were applied to this study and the results were summarised as follow:

Table 3-1: The application of research design based on four dimensions

Dimension	Application
Dimension 1	This study comprises out of an empirical analysis, where data was collected and analysed to ensure the primary objective of the study are achieved.
Dimension 2	This portion of the study is based on secondary data, including a combination of both a literature review and empirical study.
Dimension 3	The primary objective of the study is achieved with the use of numerical data. Empirical data were accumulated as numerical information and analysed statistically for the fulfilment of the primary objective.
Dimension 4	Judgement was utilised for the selection of sources and methods, but as secondary data cannot be manipulated, the overall control over the research design was medium.

Source: Own research

From Table 3.1, it is clear that this study is based on a medium controlled empirical study. This study used secondary sources of information where the researcher had medium control over the information. This collected numerical data were statistically analysed in fulfilment of the research objectives (Section 1.6). In accordance with Figure 3.2, step three of the research phases, the research methodology is discussed in the following section set out below.

3.5. RESEARCH METHODOLOGY

Research methodology is used to compare the different research methods in order to determine which method will offer the best knowledge (Greener, 2011:5). Similarly, Henning *et al.* (2009:36) interpret research methodology as the reason why the study has been chosen and not why the methods have been accumulated. According to Mouton (2011:56) research methodology stresses the importance on the procedures that ought

to be applied to the study and simultaneously places emphasis on the steps of the research process. Therefore, the term research methodology signifies a specific research method mixed with procedures enabling the researcher to obtain the needed knowledge.

In order to study the research methodology in detail, the following are considered:

- The type of research (Sec. 3.5.1);
- Population selection and sampling method (Sec. 3.5.2);
- Data collection (Sec. 3.5.3);
- Techniques for data analysis (Sec. 3.5.4);
- Validity and reliability of data (Sec. 3.5.5); and
- Ethical considerations (Sec. 3.5.6).

Firstly, the type of research is discussed followed by the three different approaches of conducting research.

3.5.1. The type of research

In order to determine the answer to the posed research question, different types of research methods can be appropriate (Kumar, 2014:11) that is primarily subjected to the characteristics of data gathered (Flick, 2011:86). Christensen, Burke-Johnson and Turner (2014:361) suggest that researchers commonly used research methods which include qualitative, quantitative and mixed research methods. Bray, Adamson and Mason (2014:322) support this statement that many current studies apply a mixed method approach to benefit from qualitative and quantitative research. Chapter 1 introduced a mixed method approach, including two techniques namely qualitative and quantitative methods. Maree (2013:263) stresses that mixed method research builds on qualitative and quantitative approaches. Therefore, the qualitative and quantitative approaches are outlined first and then mixed method research is introduced.

3.5.1.1. Qualitative method research

Qualitative research stresses the importance of the meaning and processes and does not study or measure in terms of amount, quantity or frequency (Gast, 2010:16). According to Nagy, Biber and Leavy (2011:3) qualitative research is significant as it forms part of the study's foundation by extracting valuable knowledge from the data. Van Maanen

(1979:541) clarifies that qualitative research is an informative method used to decode raw data and afterwards translates the data into relevant information. Barbour (2008:11) explains that qualitative research interprets links that have been observed by quantitative research.

According to Flick (2011:13), one of the advantages of qualitative research is that the research problem is thoroughly investigated to guarantee accurate and relevant information. As soon as the qualitative objectives of the study has been identified, the quantitative objectives will form part of the empirical study.

3.5.1.2. Quantitative method research

Teddlie and Tashakkori (2009:8) describe quantitative research as the analysis, interpretation and the presentation of numerical information Zikmund *et al.* (2013:135) also add that quantitative research allocates numbers in an orderly and meaningful manner to the data collected, prioritising the data from important to less important. Maree (2013:145) concludes that quantitative research employs numerical data obtained by way of a research sample and provides results relating to the field that is being studied. Walliman (2011:113) restates that quantitative research deals with numbers and usually applies mathematical software to investigate the data. One of the main advantages of quantitative research is that in a larger population the researcher can express a simplified result (Flick, 2011:13).

The key characteristics between qualitative and quantitative research designs are the research question, sample size and data collection. These key characteristics are expressed by Maree (2013:265) in the following table:

Table 3-2: Key characteristics between quantitative and qualitative research

Qualitative research	Element	Quantitative research
General and broad questions are posed	Research question	Specific and narrow questions are posed
Small and purposefully selected individuals with experience of studied phenomenon	Sample size	Large and randomly selected from larger population
Theory or previous literature research is collected	Data collection	Numerical data are collected

Source: Maree (2013:265); Ivankova (2015:4); Creswell and Plano Clark (2013:256)

Although most researchers either apply quantitative or qualitative research methods to their work (Maree, 2013:51) numerous researchers combined quantitative and qualitative research methods to obtain a more valuable research outcome (Saunders, 2016:51).

3.5.1.3. Mixed method research

Mixed method research combines both quantitative and qualitative research (Christensen *et al.*, 2014:361). A mixed method approach will include at least one quantitative and qualitative element (Gray, 2009:199). A mixed method approach enriches the research study as it assists in understanding the principle, measurement instruments and highlights different perspectives (Maree, 2013:263). Ivankova (2015:4) illustrates when using a mixed method approach statistical trends can be obtained as the quantitative section of the study and individual perspectives to explain these trends as part of the qualitative section of the study. In agreement with Ivankova, Creswell (2014:537) expresses mixed method research as an approach applied to gather, analyse and combine quantitative and qualitative research methods in a study to better explain and analyse the research problem.

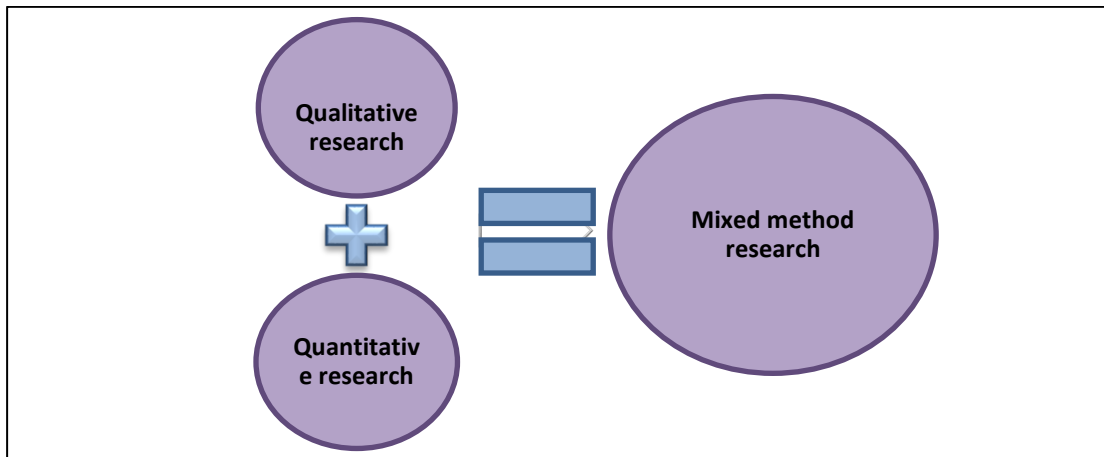


Figure 3-3: A model of mixed method research

Source: Ivankova (2015:7)

From Figure 3.3, it is apparent that applying a mixed research method the qualitative and quantitative findings are strengthened. A mixed research method can be outlined as the collection and interpretation of qualitative and quantitative data, thereby supporting the researcher to understand the research problem clearer (Kumar, 2011:190).

The research methodology adopted for this study is discussed in the subsequent section based on the information gathered.

3.5.1.4. Research method adopted for this study

As mentioned above, the empirical study followed a mixed method research approach that was implemented by applying both a qualitative and quantitative research methodology throughout the study to achieve the research objectives by obtaining a deeper understanding of the research problem. Research methodology regulates the direction in which the study needs to be performed (Leedy & Ormrod, 2010:12).

The present study collected qualitative data (literature) and quantitative data (numeric) within the mixed research method. The aim of this study is to compare the different profit figures namely; accounting profit, economic profit and taxable income, as well as to determine the benefit for the various stakeholders.

In Chapter 2, paragraph 3 onwards the qualitative data analysis was performed by way of content analysis to provide the baseline for exploring the different profit figure perceptions among JSE-listed companies. Chapter 4 presents quantitative data analysis

by extracting three sets of profit figures for the ten listed companies on the JSE, to measure the Du Pont analysis for each of the different sets of profit figures to determine which method discloses company profits most efficiently for the benefit of stakeholders.

3.5.1.5. Data collection methods

Data collection can be described as a process that is followed in stages when applying a mixed method research approach (Creswell & Plano Clark, 2011:171). Data collection should be arranged in a manner that qualitative and quantitative aspects are equally addressed (McCoy, 2016:99). For the empirical section of the study, data pertaining to the sample were collected and analysed in detail by extracting documents from McGregor (INET BFA). Companies' annual financial statements were also obtained from their official company website, where the content of the documents was analysed. This form of analysis is known as content analysis, where Gray (2009:432) highlights that data can be divided into primary and secondary sources. In Chapter 1, Section 1.4 it was stated that documents were analysed for the qualitative (literature study) and quantitative (empirical study). Secondary sources normally include similar research by previous researchers that is analysed to determine the usefulness of information for the current study while under time constraints (Boeije & Hox, 2005:596; Johnston, 2014:619). Secondary data is readily available on public domains that can be obtained through the Internet or retrieved from historical records (Gray, 2009:432) and assessed by the researcher to establish if findings are valid and reliable (Boeije & Hox, 2005:596). The data collected from secondary resources should be valid and reliable, which is discussed in Section 3.5.5.

After identifying that a mixed research method is adopted for this study, the population selection and sampling method are discussed.

3.5.2. Population and sampling

Collis and Hussey (2014:344) speculate that a sample frame can be seen as a record of the population from where a sample can be drawn. A sample frame can be defined as the process in which a probability sample can be developed including elements from the population (De Vos, Strydom, Fouche & Delpont, 2011:53) and in some instances the sample frame can be larger than the population (Gray, 2009:148). Nevertheless, Babbie (2013:201) states that a sample is selected from an actual list of sampling units, namely the sample frame. Gray (2009:149) illustrates that there is a process that needs to be followed for sample selection.

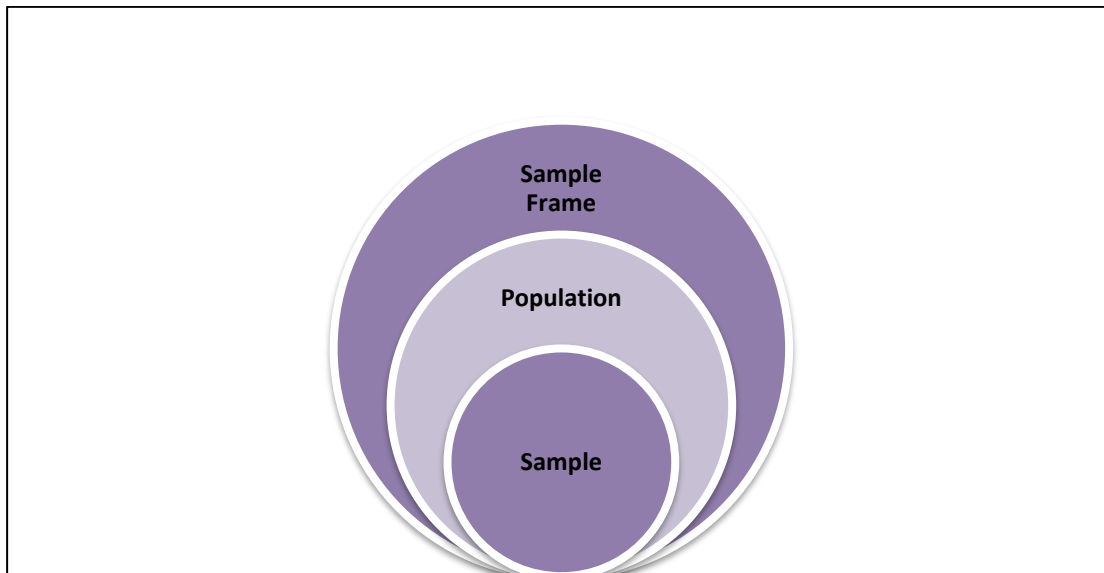


Figure 3-4: Sample selection process

Source: Gray (2009:149)

From Figure 3.4, it can be seen that the sample will be drawn from the population of the study, which falls within the sample frame.

Zikmund *et al.* (2013:385) perceive a population as a group with similar characteristics that are shared in a group. McMillan and Schumacher (2014:5) theorise population as a group of individuals within a sample from which results can be extracted. In addition, Gray (2009:148) states that a population is the number of possible elements included in the study. According to Welman *et al.* (2012:52) the population can be regarded as the object of the study. In other words, the population is of importance for each individual item in the research area to be studied. The targeted population of this study includes the companies with the highest market capitalisation for each of the ten sectors on the JSE for the period 2001 to 2015.

A sample can be defined as a subset of the population (Bless *et al.*, 2013:84). McMillan (1996:86) states that the purpose for selecting a sample is to acquire a smaller group that will represent a larger group. In agreement with McMillan, Brynard and Hanekom (2008:54) classify sampling as a method for selecting a small group out of a bigger population. Equally so, Welman *et al.* (2012:55) state that a sample is the certain selection within a group that the research will be based on. De Vos *et al.* (2011:56) argue that sampling can be divided in two different categories, probability sampling and non-probability sampling.

Probability sampling can be explained as the probability that an item will form part of the research sample (Welman *et al.* 2005:56). Blackstone (2012:176) supports the theory of Welman *et al.* that each item has the equal opportunity to be selected for the sample. In order to select the sample, different methods are available. Methods that fall under a probability sampling method are: simple random sampling, systematic sampling, stratified sampling and cluster sampling (Christensen *et al.*, 2014:157).

Table 3-3: Probability sampling methods

Simple random sampling	Systematic sampling	Stratified sampling	Cluster sampling
Selecting data from a population in a random manner	Selecting a systematic sample (k^{th} element) from the sample frame	Random or systematic selection from dividing population into non-overlapping groups (strata)	Random selection from dividing population into smaller non-overlapping groups (clusters)

Source: Gray (2009:151-152); Blackstone (2012:185); Maree (2013:172)

The other category that forms part of sampling technique is non-probability sampling technique. Non-probability sampling can be defined as items that are not likely to be included in the sample frame (Creswell, 2014:158). Non-probability sampling is commonly used for convenience (Creswell, 2014:158; Welman *et al.*, 2012:57). Methods that fall under a non-probability sampling method is: convenience sampling, purposive sampling, quota sampling and snowball sampling that are discussed in Table 3.4.

Table 3-4: Non-probability sampling methods

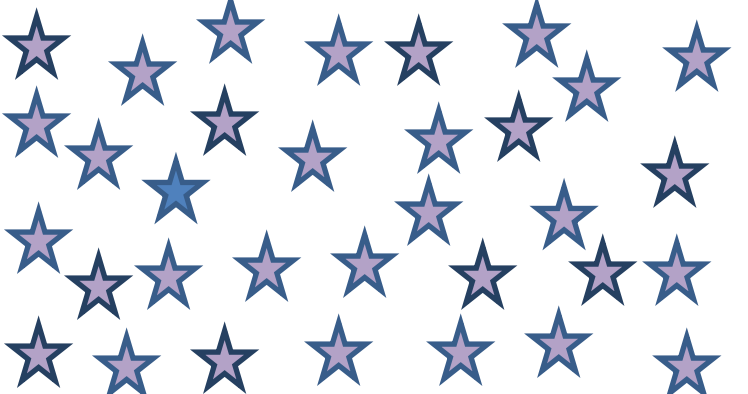
Convenience sampling	Purposive sampling	Quota sampling	Snowball sampling
Selecting sample that is easy and conveniently available	Selecting sample with a specific purpose in mind	Identifying categories that needs to be included in the sample and the quotas that needs to be reached	Difficult to identify the population as interests are interconnected, sample selected from previous research

Source:; McMillan (1996:91); Gray (2009:152-153); Blackstone (2012:175); Maree (2013:178)

The non-probability technique was applied to this study as there is no assurance or way of forecasting to confirm that all items from the population will be included as part of the sample (Leedy & Ormrod, 2014:220).

The sampling applied to the study consists out of both convenient- and purposive sampling. The convenient sampling portion consists out of financial information that is easily and readily available that has been extracted from McGregor (INET BFA). While, with the purposive sampling portion, a sample were selected that met the characteristics of the population and supports the objectives of the study.

Table 3-5: Purposive sampling applied to the study

Population	Sample
	

Source: Own Research

As illustrated by Table 3.5, the population includes all the companies. From the population only companies that have met the selection criteria were selected to form part of the sample.

This study was conducted by using purposive sampling combined with convenience sampling, which is a sampling technique that selects data that is easily available for a specific purpose in mind (Leedy & Ormrod, 2014:220).

The financial year 2016 was selected as the sample year to apply to this study by identifying companies currently trading on the JSE that hold relevant information for the study. Companies were selected based on the highest market capitalisation during July 2016 within each of the ten JSE sectors. Himmelweit, Simonetti and Trigg (2001:479) explain that market capitalisation is the ongoing market valuation of a company that trades shares on the JSE. Whereas, Chabalala (2014:44) defines market capitalisation as a value that is determined by the company share price that is likely to change on a daily basis, and the total value of the company is consistent on a short period.

The JSE was chosen for their availability of information, as well as the accessibility and reliability of the needed information.

The selection criteria for companies were as follows:

- Listed on the JSE for the period 2001 to 2015; and
- Company with the highest market capitalisation for the period July 2016 within its sector.

Ten of the companies met the above-mentioned selection criteria for this study as illustrated by the sample in Table 3.5 above. BHP Billiton, Aspen Pharmacare, SABMiller, Shoprite, Standard Bank, Barloworld, Sasol, EOH, MTN and Eskom.

In order to classify the data selected for ease, reference coding needs to be done. Henning (2014:104-114) and Welman *et al.* (2012:214) identify several types of coding, the main coding types are: grounded theory, open coding, in vivo coding and priori codes. Henning (2014:115) explains that grounded theory is achieved by “theoretical position and existing knowledge” from the researcher. Open coding is developed by the researcher as the data are being captured or examined (Welman *et al.*, 2012:214). Vivo coding uses a master list of codes selected before examining the data (Chandra & Sharma, 2013:121). Creswell, Ebersöhn, Eloff, Ferreira, Ivankova, Jansen, Nieuwenhuis, Pietersen, Plano Clark and Van der Westhuizen (2010:107) outline that with priori coding, relevant coding from previous related studies are used.

Open coding has been applied to this study as data have been captured. Coding for the JSE sectors are as follows:

Table 3-6: Coding of JSE sectors

C1	Basic resources	C6	Industrials
C2	Chemical/Healthcare	C7	Oil and gas
C3	Consumer goods	C8	Technology
C4	Consumer services	C9	Telecommunications
C5	Financials	C10	Utilities

Source: Own Research

These companies had the highest market capitalisations for the ten different sectors on the JSE as indicated in Table 3.7:

Table 3-7: Observations of sample for the study

	Sector	Company Name	Market Capital at 30 July 2016 (ZARbillion)	JSE Ticker	Observations (✓ or X)															Total	
					Financial years																
					201	201	201	201	201	201	200	200	200	200	200	200	200	200	200		200
Company	C1	Basic resources	BHP Billiton Plc	366 423	BIL	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15
	C2	Chemicals/ Healthcare	Aspen Pharmacare Holdings Ltd	171 151	APN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15
	C3	Consumer goods	SABMiller Plc	1 354 878	SAB	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15
	C4	Consumer services	Shoprite Holdings Ltd	116 464	SHP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15
	C5	Financials	Standard Bank Group Ltd	224 198	SBK	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15
	C6	Industrials	Barloworld Ltd	17 519	BAW	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15
	C7	Oil and gas	Sasol Ltd	240 193	SOL	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15
	C8	Technology	EOH Holdings Ltd	19 944	EOH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15
	C9	Telecommunications	MTN Group Ltd	258 683	MTN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15
	C10	Utilities	Eskom Holdings Ltd	No data available	N/A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0
N=																				135	

Source: Adjusted from Business Tech (2016) and McGregor (2016)

From Table 3.7, ten companies have been identified based on their market capitalisation as the biggest companies within the JSE sector. Summarising the observations collected by way of McGregor and published annual financial statements illustrating where no observations were available.

C10 has no financial information available on the McGregor (INET BFA) database from 2001 till 2015. In the attempt to contact the company telephonically, there was no response or by any other means to communicate with the company. For this reason, no financial information was available for the utilities sector (C10) during the analysis period as per Table 3.7. Market capitalisation was not available for C10 but identified by McGregor as the largest company within the sector. Cassim (2014:61) explains that if no financial statement information is available for a company over a period of five years, the company is excluded from the sample. Therefore, for purposes of this study C10 was excluded from the sample and as illustrated by Table 3.7, the sample size as a result only consists out of nine companies, with 135 observations over a period of 15 years.

Figure 3.5 identifies where each of the nine companies are headquartered that may have an effect on their financial statement reporting requirements

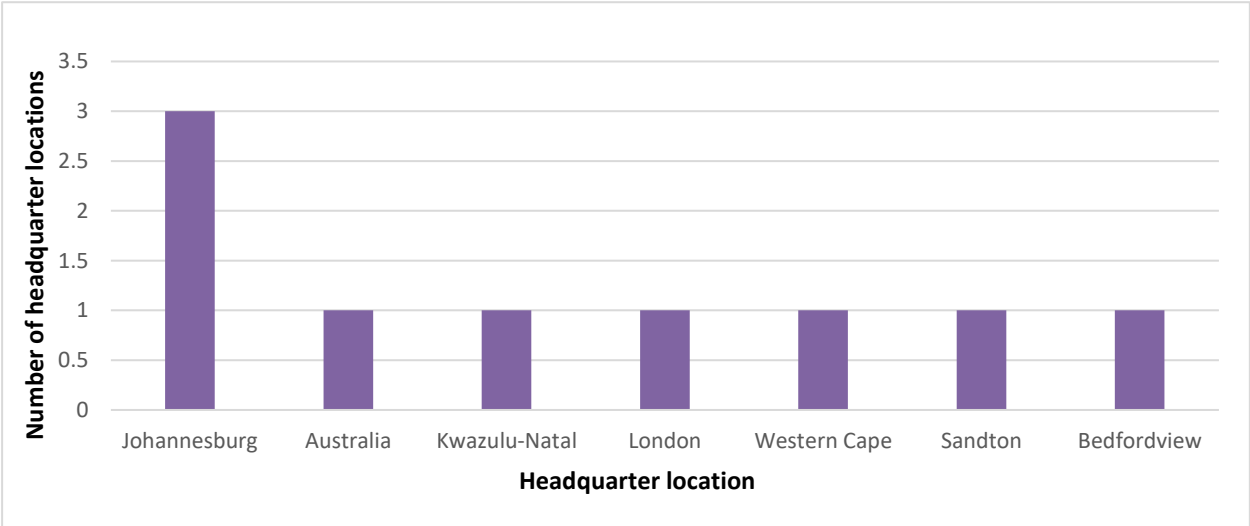


Figure 3-5: Headquarter area of companies

Source: JSE (2016) and McGregor (2016)

From Figure 3.5, it is clear that seven of the nine companies are established within South Africa, whereas the other two is headquartered in Australia and London.

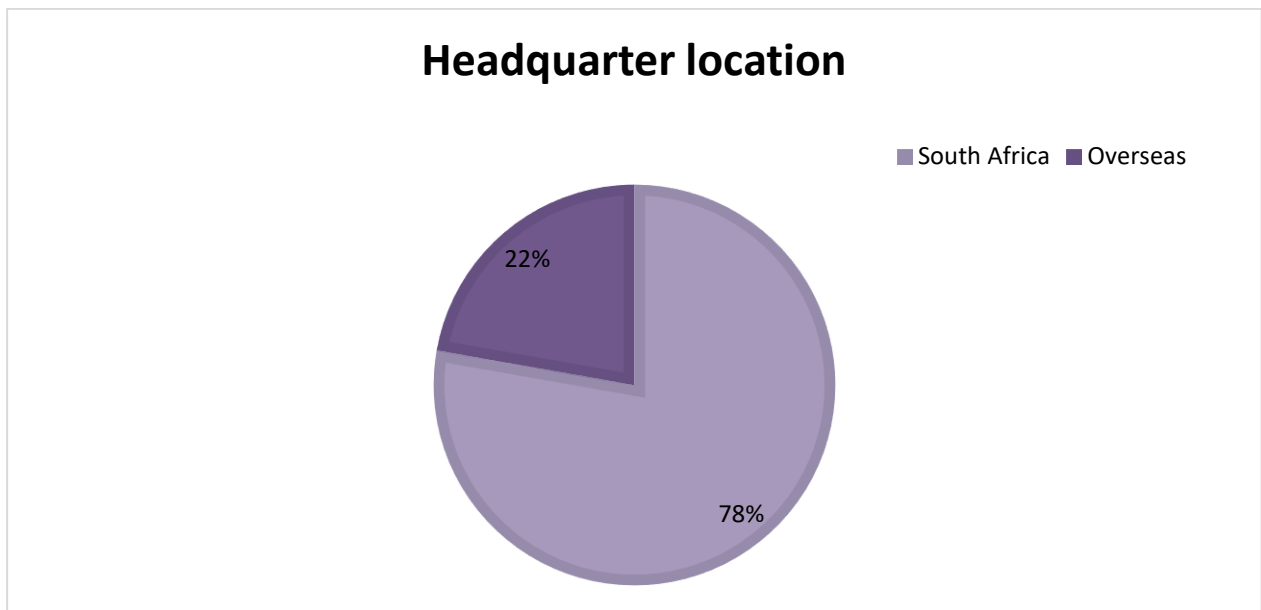


Figure 3-6: Headquarter area of companies within South Africa vs overseas

Source: JSE (2016) and McGregor (2016)

Figure 3.6 illustrates that 22% of the sample size is headquartered in overseas countries. The location where these companies are headquartered can impact the currency in which the financial statements will be disclosed. With further investigation during the collection of financial statement information, three companies had been identified to disclose their financial statements with a currency other than the Zuid-Afrikaanse Rand (ZAR). Table 3.8 provide an overview of the currency used per company in which their financial statements are disclosed.

Table 3-8: Financial year ends and presentation of financial currencies used by companies

	Company name	Financial year-end used	Presentation currency of financial statements	Primary resources used for relations
C1	BHP Billiton Plc	30-June	USD	BHP Billiton (2015:16)
C2	Barloworld Ltd	30-September	ZAR	Barloworld (2015:22)
C3	SABMiller Plc	31-March	USD	SABMiller (2015:24)*
C4	Sasol Ltd	30-June	ZAR	Sasol (2015:5)
C5	Aspen Pharmacare Holdings Ltd	30-June	ZAR	Aspen Pharmacare Holdings (2015:63)
C6	MTN Group Ltd	31-December	ZAR	MTN (2015:9)*
C7	Shoprite Holdings Ltd	30-June	ZAR	Shoprite (2017:1)
C8	Standard Bank Group Ltd	31-December	USD	Standard Bank (2017:1)*
C9	EOH Holdings Ltd	31-July	ZAR	EOH (2015:7)

Source: McGregor (2016)

From the above Table 3.8, three of the nine companies disclosed their annual financial statements in United States Dollar (USD). The Oanda currency converter database was used to convert the financial statements of the three companies from USD to ZAR on the respective year-end dates (Appendix B). The financial statements that were converted included the statement of financial position i.e. balance sheet and the statement of profit or loss and other comprehensive income i.e. income statement. Deysel *et al.* (2015:441) highlight that the balance sheet is converted at the exchange rate on the last day of the financial year-end and the income statement at the average exchange rate for the last

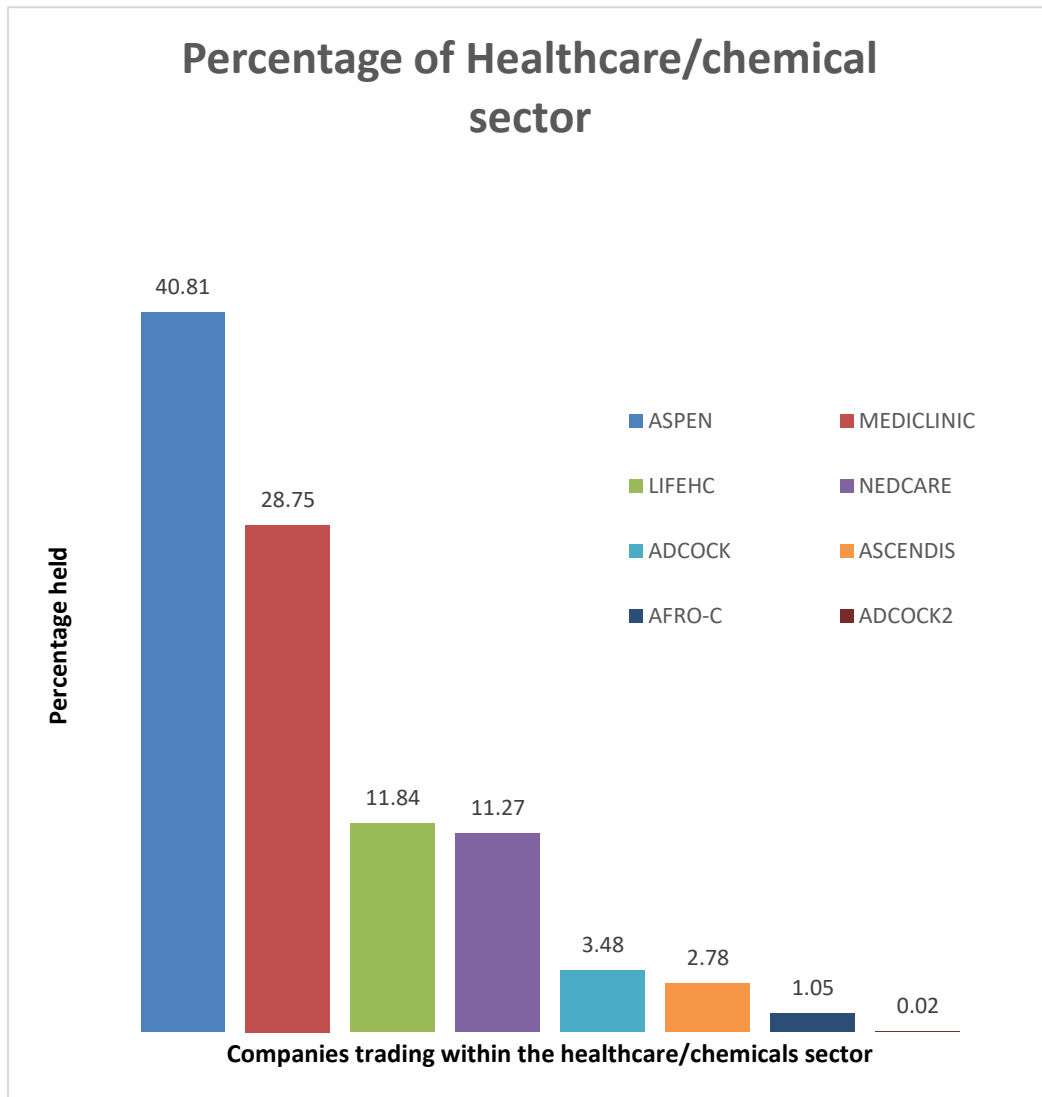
day of the financial year-end. For the currency conversion on the balance sheet the exchange rate of the financial year-end was used, whereas with the income statement the average exchange rate of the financial year-end was used.

Table 3.9 illustrates the percentage held by each company within their specified area of expertise, holding majority control of the JSE sector. The sample was selected based on companies that held the highest market capitalisation within the JSE sectors, although some of the companies selected do not hold the largest portion within the sector as identified by percentages.

Table 3-9: Percentage held by companies in each sector

Code	Graph	Company information																																										
C1	<p style="text-align: center;">PERCENTAGE OF BASIC RESOURCES</p> <table border="1"> <caption>Percentage held by companies in the basic resources sector</caption> <thead> <tr> <th>Company</th> <th>Percentage held</th> </tr> </thead> <tbody> <tr><td>BHPBILL</td><td>18.27</td></tr> <tr><td>GLENCORE</td><td>30.69</td></tr> <tr><td>ANGLO</td><td>11.38</td></tr> <tr><td>SASOL</td><td>8.99</td></tr> <tr><td>SOUTH32</td><td>5.52</td></tr> <tr><td>MONDPLC</td><td>4.58</td></tr> <tr><td>ANGLOPLAT</td><td>3.38</td></tr> <tr><td>KUMBA</td><td>2.38</td></tr> <tr><td>ANGGLOD</td><td>1.9</td></tr> <tr><td>SAPPI</td><td>1.74</td></tr> <tr><td>GFIELDS</td><td>1.7</td></tr> <tr><td>SIBANYE</td><td>1.66</td></tr> <tr><td>MONDILT</td><td>1.48</td></tr> <tr><td>EXXARO</td><td>1.39</td></tr> <tr><td>ASSORE</td><td>1.31</td></tr> <tr><td>IMPLATS</td><td>1.08</td></tr> <tr><td>NORTHAM</td><td>0.89</td></tr> <tr><td>ARM</td><td>0.8</td></tr> <tr><td>AECI</td><td>0.46</td></tr> <tr><td>HARMONY</td><td>0.4</td></tr> </tbody> </table>	Company	Percentage held	BHPBILL	18.27	GLENCORE	30.69	ANGLO	11.38	SASOL	8.99	SOUTH32	5.52	MONDPLC	4.58	ANGLOPLAT	3.38	KUMBA	2.38	ANGGLOD	1.9	SAPPI	1.74	GFIELDS	1.7	SIBANYE	1.66	MONDILT	1.48	EXXARO	1.39	ASSORE	1.31	IMPLATS	1.08	NORTHAM	0.89	ARM	0.8	AECI	0.46	HARMONY	0.4	<p>In 2016, 20 companies were trading in the basic resource sector of the JSE.</p> <p>The highest being Glencore with 30.69% and the lowest being Harmony with 0.4%</p> <p>Although Glencore holds the biggest portion of the sector, BHP Billiton Plc (BIL) was selected as Glencore’s market capitalisation is lower than that of BIL.</p> <p>BIL is the second largest company trading in the basic resources sector holding 18.27%</p> <p>BIL is a multinational mining, metal and petroleum company.</p>
Company	Percentage held																																											
BHPBILL	18.27																																											
GLENCORE	30.69																																											
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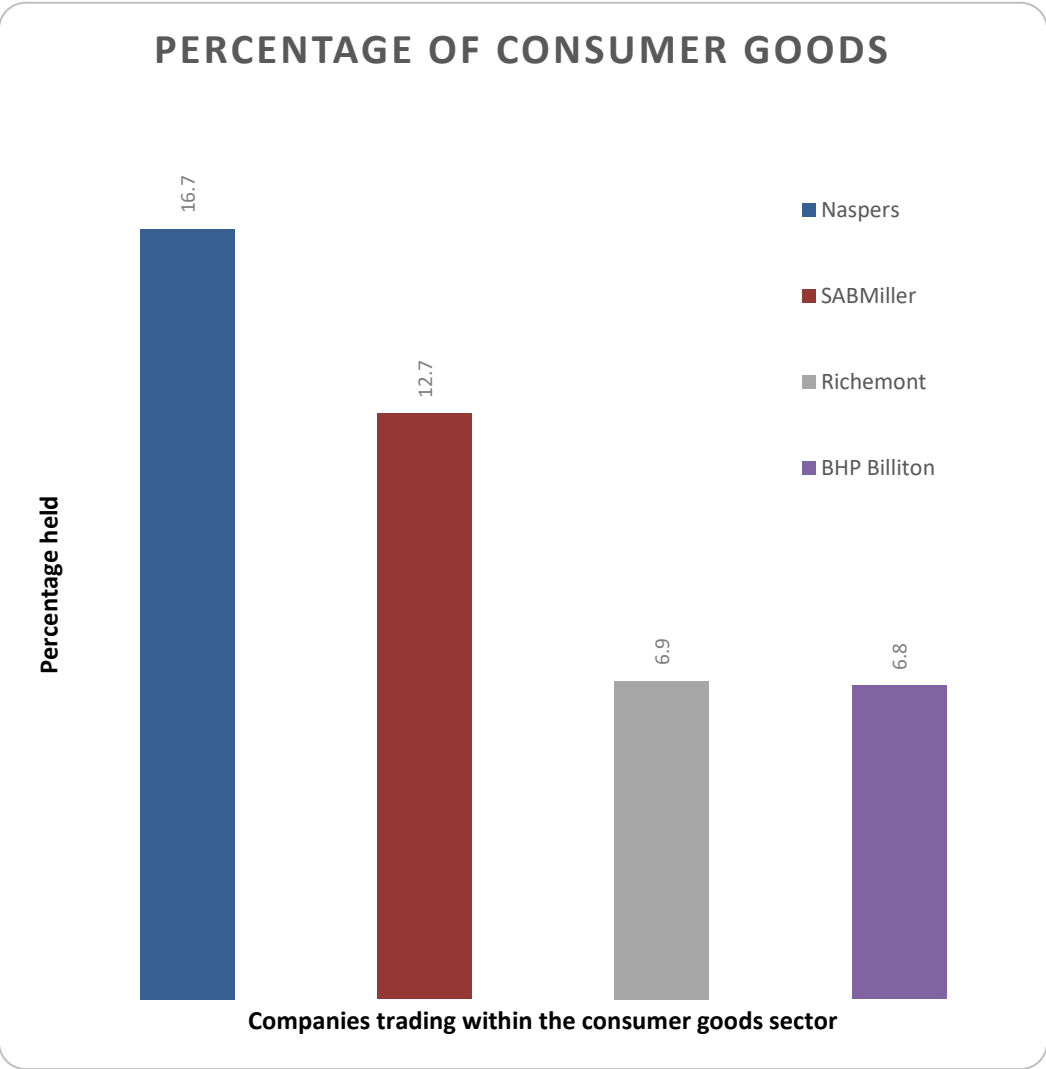
C2



The healthcare/chemical sector subsists out of 8 health care companies.

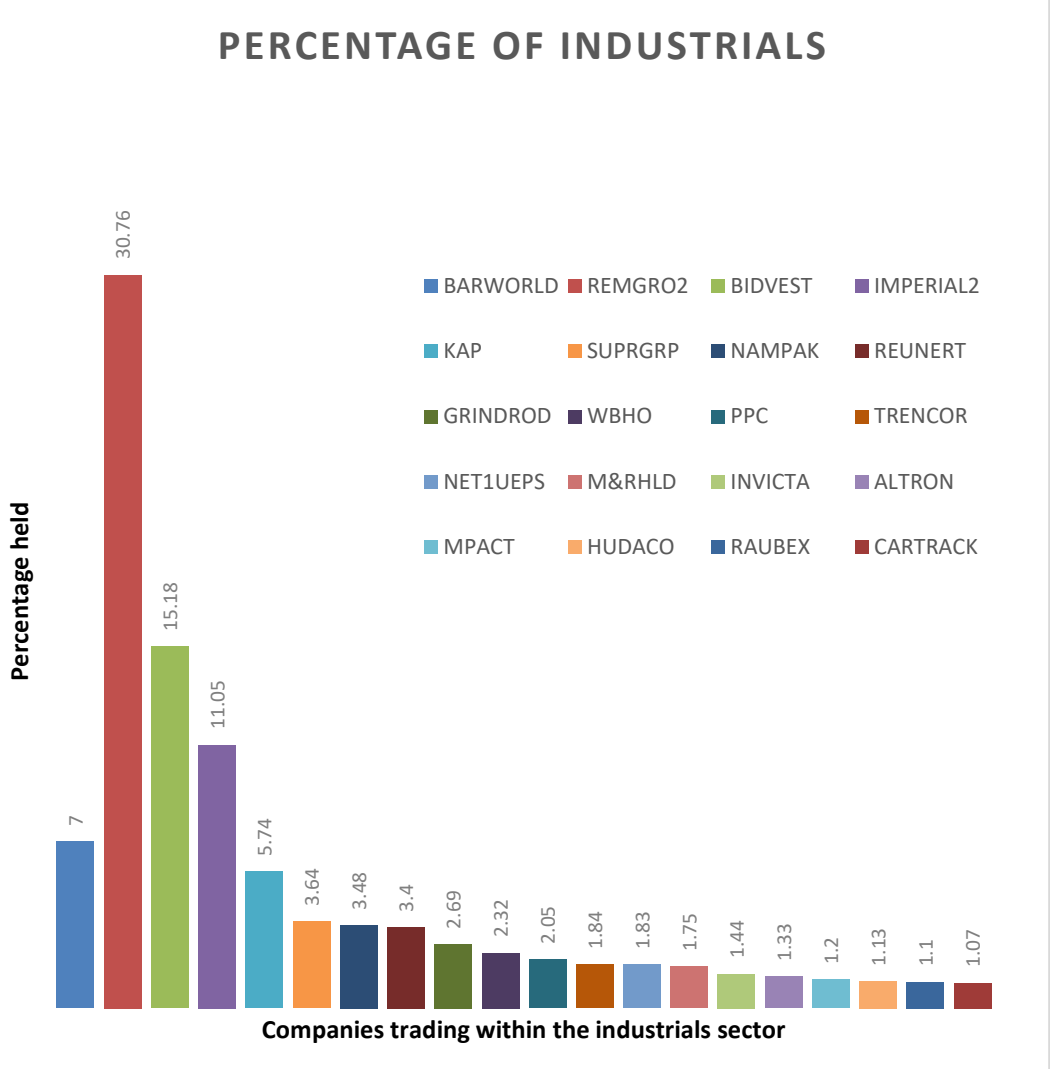
Aspen Pharmacare Holdings Ltd (APN) has been identified as the largest healthcare company trading on the JSE, currently holding 40.81% of the sector. The second largest competitor is Mediclinic with 28.75%

APN is a pharmaceutical and chemical company and is also the largest drug company in Africa.

Code	Graph	Company information										
C3	 <p>PERCENTAGE OF CONSUMER GOODS</p> <p>Percentage held</p> <p>Companies trading within the consumer goods sector</p> <table border="1"> <thead> <tr> <th>Company</th> <th>Percentage held</th> </tr> </thead> <tbody> <tr> <td>Naspers</td> <td>16.7</td> </tr> <tr> <td>SABMiller</td> <td>12.7</td> </tr> <tr> <td>Richemont</td> <td>6.9</td> </tr> <tr> <td>BHP Billiton</td> <td>6.8</td> </tr> </tbody> </table>	Company	Percentage held	Naspers	16.7	SABMiller	12.7	Richemont	6.9	BHP Billiton	6.8	<p>Naspers has a lower market capitalisation than SABMiller Plc (SAB) therefore SAB was selected.</p> <p>SAB holds 12,7% of consumer goods, the second largest consumer goods manufacturer trading on the JSE. Where the largest company is Naspers with 16,7%</p> <p>SAB is a brewing and beverage company.</p>
Company	Percentage held											
Naspers	16.7											
SABMiller	12.7											
Richemont	6.9											
BHP Billiton	6.8											

Code	Graph	Company information																																										
C4	<p style="text-align: center;">PERCENTAGE OF CONSUMER SERVICES</p> <p style="text-align: center;">Companies trading within the consumer services sector</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Company</th> <th>Percentage held</th> </tr> </thead> <tbody> <tr><td>SHOPRIT</td><td>6.81</td></tr> <tr><td>NASPERS</td><td>65.77</td></tr> <tr><td>BIDCORP</td><td>5.17</td></tr> <tr><td>WOOLIES</td><td>3.2</td></tr> <tr><td>MR PRICE</td><td>2.44</td></tr> <tr><td>TRUWTHS</td><td>1.87</td></tr> <tr><td>TFG</td><td>1.87</td></tr> <tr><td>CLICKS</td><td>1.87</td></tr> <tr><td>SPAR</td><td>1.7</td></tr> <tr><td>PICKNPAY</td><td>1.59</td></tr> <tr><td>MASSMART</td><td>1.37</td></tr> <tr><td>DIS-CHEM</td><td>1.34</td></tr> <tr><td>TSGO SUN</td><td>1.19</td></tr> <tr><td>CURRO</td><td>0.82</td></tr> <tr><td>ITLTILE</td><td>0.76</td></tr> <tr><td>FAMBRANDS</td><td>0.6</td></tr> <tr><td>ADVTECH2</td><td>0.49</td></tr> <tr><td>CASHBIL</td><td>0.49</td></tr> <tr><td>SUNINT</td><td>0.34</td></tr> <tr><td>CITYLDG</td><td>0.31</td></tr> </tbody> </table>	Company	Percentage held	SHOPRIT	6.81	NASPERS	65.77	BIDCORP	5.17	WOOLIES	3.2	MR PRICE	2.44	TRUWTHS	1.87	TFG	1.87	CLICKS	1.87	SPAR	1.7	PICKNPAY	1.59	MASSMART	1.37	DIS-CHEM	1.34	TSGO SUN	1.19	CURRO	0.82	ITLTILE	0.76	FAMBRANDS	0.6	ADVTECH2	0.49	CASHBIL	0.49	SUNINT	0.34	CITYLDG	0.31	<p>20 companies are currently trading in the consumer services sector.</p> <p>Naspers is identified as the largest company in this sector with 65,77% but has a lower market capitalisation than Shoprite Holdings Ltd (SHP) trading in the consumer services sector holding 6,81%.</p> <p>SHP retails in over 2653 outlets across the Indian Ocean and Africa.</p>
Company	Percentage held																																											
SHOPRIT	6.81																																											
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C5	<p style="text-align: center;">PERCENTAGE OF FINANCIALS</p> <table border="1"> <thead> <tr> <th>Company</th> <th>Percentage held</th> </tr> </thead> <tbody> <tr><td>STANBANK</td><td>12.78</td></tr> <tr><td>FIRSTRAND</td><td>14.75</td></tr> <tr><td>OLDMUTUAL</td><td>8.01</td></tr> <tr><td>SANLAM</td><td>7.2</td></tr> <tr><td>B-AFRICA</td><td>5.94</td></tr> <tr><td>NEDBANK CAPITAL</td><td>5.12</td></tr> <tr><td>CAPITEC</td><td>4.77</td></tr> <tr><td>NEPIROCK</td><td>4.64</td></tr> <tr><td>DISCOVERY</td><td>4.49</td></tr> <tr><td>RMBH</td><td>4.4</td></tr> <tr><td>HAMMERSON</td><td>3.47</td></tr> <tr><td>GROWPNT</td><td>3.31</td></tr> <tr><td>INVPLC</td><td>3.09</td></tr> <tr><td>RMIH</td><td>2.96</td></tr> <tr><td>REDEFINE</td><td>2.79</td></tr> <tr><td>PSG1</td><td>2.77</td></tr> <tr><td>INTUPLC</td><td>2.59</td></tr> <tr><td>REINET</td><td>2.52</td></tr> <tr><td>RESILIENT</td><td>2.47</td></tr> <tr><td>FORTRESS</td><td>1.93</td></tr> </tbody> </table>	Company	Percentage held	STANBANK	12.78	FIRSTRAND	14.75	OLDMUTUAL	8.01	SANLAM	7.2	B-AFRICA	5.94	NEDBANK CAPITAL	5.12	CAPITEC	4.77	NEPIROCK	4.64	DISCOVERY	4.49	RMBH	4.4	HAMMERSON	3.47	GROWPNT	3.31	INVPLC	3.09	RMIH	2.96	REDEFINE	2.79	PSG1	2.77	INTUPLC	2.59	REINET	2.52	RESILIENT	2.47	FORTRESS	1.93	<p>Standard Bank Group Ltd (SBK) holds 12,78% in the financial sector with the highest market capitalisation in this sector, alongside FirstRand Bank with 14,75%</p> <p>SBK is one of South Africa's largest financial service providers.</p>
Company	Percentage held																																											
STANBANK	12.78																																											
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Code	Graph	Company information																																										
C6	<p style="text-align: center;">PERCENTAGE OF INDUSTRIALS</p>  <table border="1" data-bbox="315 320 1361 1394"> <thead> <tr> <th>Company</th> <th>Percentage held</th> </tr> </thead> <tbody> <tr><td>BARWORLD</td><td>7</td></tr> <tr><td>REMGRO2</td><td>30.76</td></tr> <tr><td>BIDVEST</td><td>15.18</td></tr> <tr><td>IMPERIAL2</td><td>11.05</td></tr> <tr><td>KAP</td><td>5.74</td></tr> <tr><td>SUPRGRP</td><td>3.64</td></tr> <tr><td>NAMPAK</td><td>3.48</td></tr> <tr><td>REUNERT</td><td>3.4</td></tr> <tr><td>GRINDROD</td><td>2.69</td></tr> <tr><td>WBHO</td><td>2.32</td></tr> <tr><td>PPC</td><td>2.05</td></tr> <tr><td>TRENCOR</td><td>1.84</td></tr> <tr><td>NET1UEPS</td><td>1.83</td></tr> <tr><td>M&RHLD</td><td>1.75</td></tr> <tr><td>INVICTA</td><td>1.44</td></tr> <tr><td>ALTRON</td><td>1.33</td></tr> <tr><td>MPACT</td><td>1.2</td></tr> <tr><td>HUDACO</td><td>1.13</td></tr> <tr><td>RAUBEX</td><td>1.1</td></tr> <tr><td>CARTRACK</td><td>1.07</td></tr> </tbody> </table>	Company	Percentage held	BARWORLD	7	REMGRO2	30.76	BIDVEST	15.18	IMPERIAL2	11.05	KAP	5.74	SUPRGRP	3.64	NAMPAK	3.48	REUNERT	3.4	GRINDROD	2.69	WBHO	2.32	PPC	2.05	TRENCOR	1.84	NET1UEPS	1.83	M&RHLD	1.75	INVICTA	1.44	ALTRON	1.33	MPACT	1.2	HUDACO	1.13	RAUBEX	1.1	CARTRACK	1.07	<p>In the industrial sector there are 20 companies trading in this sector.</p> <p>Remgro2, Bidvest and Imperial2 are three of the largest companies trading within the industrial sector.</p> <p>Barloworld Ltd (BAW) is the fourth largest company trading in the industrials sector holding 7%, but based on the highest market capitalisation BAW was selected.</p> <p>BAW trades in multiple industries from mining to information technology.</p>
Company	Percentage held																																											
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Code	Graph	Company information																
C7	<p style="text-align: center;">PERCENTAGE OF OIL AND GAS</p> <p>The bar chart displays the percentage of oil and gas held by seven companies. The y-axis is labeled 'Percentage held' and the x-axis is labeled 'Companies trading within the oil and gas sector'. The bars are color-coded: SASOL (blue, 89.15%), AECI (red, 4.52%), OMNIA (green, 3.34%), AFROX (purple, 2.71%), ROLFES (light blue, 0.25%), DELTA (orange, 0.02%), and SPANJAARD (dark blue, 0.01%).</p> <table border="1"> <thead> <tr> <th>Company</th> <th>Percentage held</th> </tr> </thead> <tbody> <tr> <td>SASOL</td> <td>89.15</td> </tr> <tr> <td>AECI</td> <td>4.52</td> </tr> <tr> <td>OMNIA</td> <td>3.34</td> </tr> <tr> <td>AFROX</td> <td>2.71</td> </tr> <tr> <td>ROLFES</td> <td>0.25</td> </tr> <tr> <td>DELTA</td> <td>0.02</td> </tr> <tr> <td>SPANJAARD</td> <td>0.01</td> </tr> </tbody> </table>	Company	Percentage held	SASOL	89.15	AECI	4.52	OMNIA	3.34	AFROX	2.71	ROLFES	0.25	DELTA	0.02	SPANJAARD	0.01	<p>The oil and gas sector consists out of 7 companies with Sasol Ltd (SOL) being the largest company trading in its sector holding 89,15% of oil and gas.</p> <p>Other competitors include AECI, Omnia and Afrox.</p> <p>SOL was established in the early 1950's in Sasolburg, South Africa.</p> <p>SOL is known as an integrated energy, mining and chemicals company.</p>
Company	Percentage held																	
SASOL	89.15																	
AECI	4.52																	
OMNIA	3.34																	
AFROX	2.71																	
ROLFES	0.25																	
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SPANJAARD	0.01																	

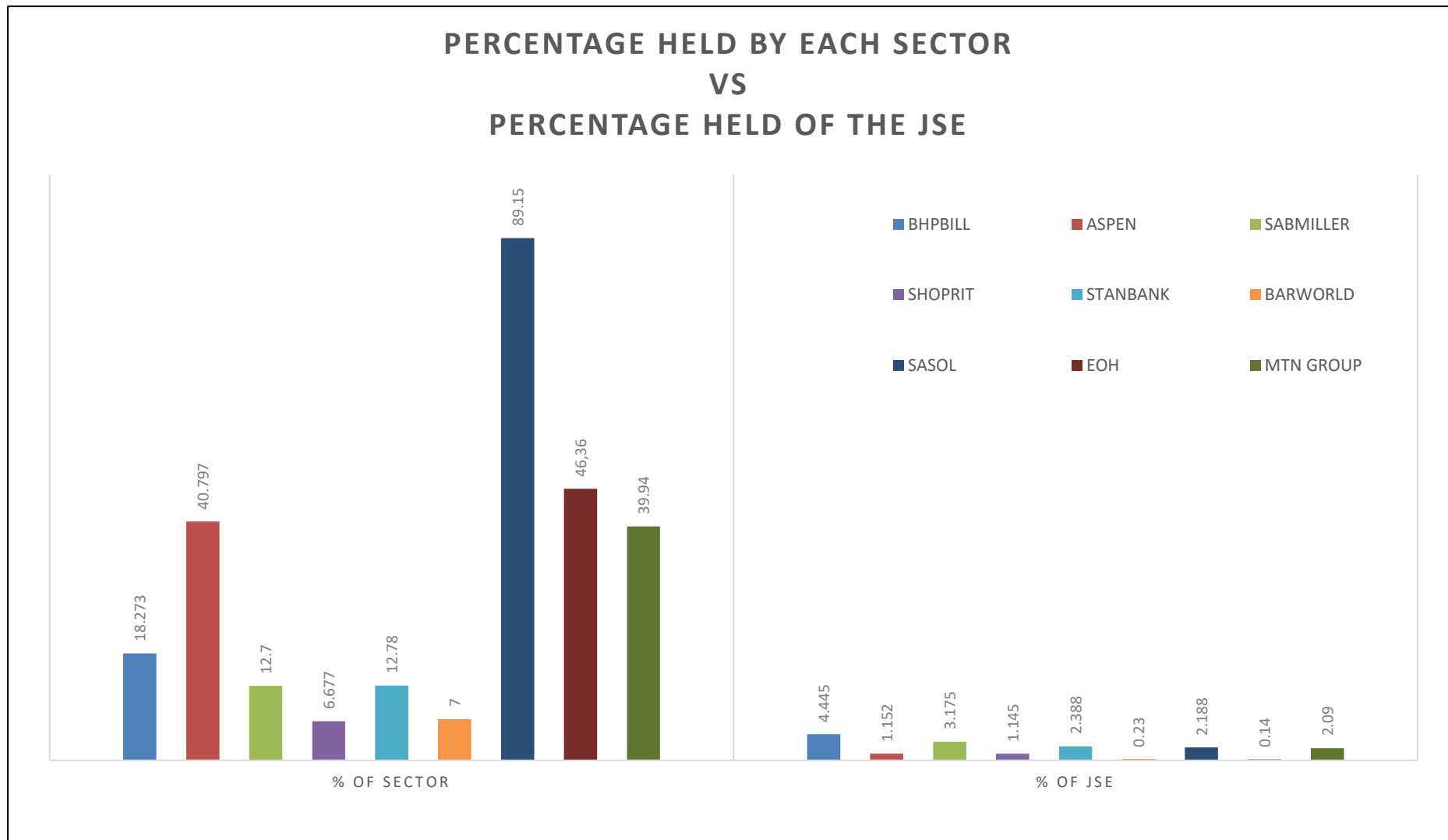
Code	Graph	Company information																				
C8	<p style="text-align: center;">PERCENTAGE OF TECHNOLOGY</p> <table border="1"> <caption>Data for Percentage of Technology</caption> <thead> <tr> <th>Company</th> <th>Percentage held</th> </tr> </thead> <tbody> <tr> <td>EOH</td> <td>46.36</td> </tr> <tr> <td>DATATEC</td> <td>33.72</td> </tr> <tr> <td>ALVIVA</td> <td>9.81</td> </tr> <tr> <td>ADAPTIT</td> <td>3.88</td> </tr> <tr> <td>CAPPREC</td> <td>3.21</td> </tr> <tr> <td>MUSTEK</td> <td>1.09</td> </tr> <tr> <td>PBT GROUP</td> <td>0.84</td> </tr> <tr> <td>COGNITION</td> <td>0.58</td> </tr> <tr> <td>JASCO</td> <td>0.51</td> </tr> </tbody> </table>	Company	Percentage held	EOH	46.36	DATATEC	33.72	ALVIVA	9.81	ADAPTIT	3.88	CAPPREC	3.21	MUSTEK	1.09	PBT GROUP	0.84	COGNITION	0.58	JASCO	0.51	<p>EOH Holdings Ltd (EOH) is identified as the largest company specialising in the technology sector with 46,36% among its peers such as DataTec, Alviva and Adaptit.</p> <p>EOH also provides additional services such as information and communication infrastructure.</p>
Company	Percentage held																					
EOH	46.36																					
DATATEC	33.72																					
ALVIVA	9.81																					
ADAPTIT	3.88																					
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PBT GROUP	0.84																					
COGNITION	0.58																					
JASCO	0.51																					

Code	Graph	Company information												
C9	<p style="text-align: center;">PERCENTAGE OF TELECOMMUNICATIONS</p> <p style="text-align: center;">Companies trading within the telecommunications sector</p> <table border="1"> <caption>Data for Percentage of Telecommunications</caption> <thead> <tr> <th>Company</th> <th>Percentage held</th> </tr> </thead> <tbody> <tr> <td>MTN GROUP</td> <td>39.94</td> </tr> <tr> <td>VODACOM</td> <td>51.76</td> </tr> <tr> <td>TELKOM</td> <td>5.34</td> </tr> <tr> <td>BLUETEL</td> <td>2.72</td> </tr> <tr> <td>HUGE</td> <td>0.24</td> </tr> </tbody> </table>	Company	Percentage held	MTN GROUP	39.94	VODACOM	51.76	TELKOM	5.34	BLUETEL	2.72	HUGE	0.24	<p>Vodacom is one of the largest companies trading in the telecommunications sector.</p> <p>Although Vodacom holds 51,76%, MTN Group Ltd (MTN) holds the highest market capitalisation within the telecommunications sector.</p> <p>MTN is identified as one of Vodacom’s major competitors holding 39,94%</p>
Company	Percentage held													
MTN GROUP	39.94													
VODACOM	51.76													
TELKOM	5.34													
BLUETEL	2.72													
HUGE	0.24													

Sources: McGregor (2016) and JSE (2016)

There are currently an estimated 383 companies listed on the JSE Index trading within the ten JSE sectors (Anon, 2017; JSE, 2016). Table 3.10 demonstrates each percentage held by the company compared to the percentage held by the same company but within the entire JSE Index. This gives a brief indication what percentage a company owns in totality of the JSE Index.

Table 3-10: Percentage held by each sector compared to percentage held of the JSE



Sources: McGregor (2016)

Although the percentage held by the company itself is a lot more significant in comparison to the percentage held by the JSE Index, it still constitutes relevant information that is taken into account as each sector is individually assessed.

Data collection should follow as soon as the sampling process is completed (Adams, Khan, Reaside & White, 2009:87). The following sub-section describes how data collection has taken place for the study.

3.5.3. Data collection

Data collection consists out of two procedures: the qualitative method by applying interview-, observation- and secondary source-techniques (Kumar, 2014:192) and the quantitative method that utilises techniques such as observations, surveys and existing data (Christensen *et al.*, 2014:28).

The research question should be solved by way of gathering data that is directed to the research question (Bless *et al.*, 2013:112). Data collection plays an important role in the research study (Sobopha, 2015:54). Welman *et al.* (2013:134) suggest that there are several advantages and disadvantages for each measuring instrument and data-collection method. Furthermore, what might be an advantage for one method can be seen as a disadvantage for another method.

In the current research stage, the research problem has been formulated, research design has been created and the population has stated the use of secondary data as well as, the sample of the JSE's nine sectors that has been selected for the years 2001 to 2015. Data have also been collected that will be analysed to come to a conclusion (Kumar, 2014:41).

3.5.4. Techniques for data analysis

Zikmund *et al.* (2013:68) describes data analysis as the analysis of the collected data that to obtain a better understanding. Mouton (2011:108) considers data analysis as a method of grouping data into "smaller manageable groups" with the purpose of understanding the data. Grove *et al.* (2012:46) explains that data analysis is there to organise, reduce and give meaning to data.

This study adopted a technique that pointed out the comparison of the three types of different profit figures for each listed company for the years 2001 till 2015. To determine the most effective profit figure used and if it is used to fit stakeholders requirements. Collected data should be prepared in a way that can easily be analysed by applying statistical software packages (Antonius, 2013:43). The collected data were analysed by the services of a statistical consultant applying SPSS Software Version 23.

3.5.5. Validity and reliability of data

According to Bless *et al.* (2013:156) the validity of data is used to interpret what the findings actually mean. Welman *et al.* (2005:142) also reiterate that validity accurately represent the situation of the research findings. Data can only be considered as valid if it addresses the research objectives and research problem (Leedy & Ormrod, 2010:159). From the above interpretations, validity is explained as the use of a research instrument to specifically measure what is important of the data.

The data extracted for the empirical section of the study can be considered as valid. Data were extracted mainly from McGregor (INET BFA), published annual financial statements and reputable newspapers. The financial statements extracted for each company have been audited and published, enhancing both the validity and credibility of the data. Similar studies used McGregor (INET BFA) as a reputable data source like the study by Cassim (2014).

Bryman and Bell (2007:162) clarify that reliability is the measurement of consistency and accuracy of different research instruments. Bless *et al.* (2013:156) pose that reliability controls the accuracy and consistency of research instruments and if the study was to be repeated that similar findings would be reached (Bryman, 2012:46). Therefore, reliability signifies the accuracy and consistent measurement of research results.

The data extracted for the empirical section of the study can be considered as reliable, as published annual financial statements were used to obtain data for each company. Similar studies that used published annual financial statements as a reputable data source include the study by Philander (2016).

For the purpose of this study, data were obtained and processed in order to fulfil the research objectives set out in Chapter 1, Section 3. During the collection of the applicable

data, the McGregor (INET BFA) was used and is recognised as a reliable research instrument. Furthermore, data were analysed by applying a selected numerical technique, as well as applying the Du Pont analysis. The Du Pont analysis was performed in which the value of each company for the three different sets of profit figures was calculated and compared in order to determine which method used disclose company profits most efficiently for the benefit of stakeholders.

3.5.5.1. Dependent variances

Dependent variances are influential by other variances (Saunders, 2016:66). The Du Pont analysis was performed as part of the quantitative section of the empirical study, where the following ratios, NPM, ROA, FLM, TAT and ROE were all identified as dependent variances. These dependent variances (ratios) were also influenced by various independent variances as discussed in sub-section 3.5.5.2.

3.5.5.2. Independent variances

Independent variances are known not to be affected by other variances but rather to be consistent (Mouton, 1996:94). Independent variances identified in this study were the Net Profit (NP), Total Assets (TA), Turnover (T) and Ordinary Shareholders Capital (OSC). These independent variables were by no means calculated by applying a formula that could impact the dependent variances. The Du Pont analysis is extensively used in practise and applied in similar studies by researchers. Therefore, the data applied to the numerical techniques and Du Pont analysis is confirmed as valid and reliable.

3.5.6. Ethical considerations

Greener (2011:143) highlights that research must be conducted in an ethical manner as it can have an influence on the research participants. “Ethics” can be defined as a study area that “deals with what is morally right and wrong” (Merriam-Webster Dictionary, 2017c) combined with the “necessary level of integrity” (Adams *et al.*, 2009:35). McMillan and Schumacher (2001:196) also agree that research that is ethically based will take into account what is adequate or inadequate and useful or unreliable. Researchers should apply objectivity and integrity to their studies to adhere to the ethical standards, identifying

the limitations of the findings, expressing the researchers' judgements accurately and not distorting the findings (Mouton, 2011:240).

For the purpose of this study, minimal ethical issues were present. The study did not rely on any contributions by research participants. Secondary data sources were mainly attained from public domains and are considered to be public knowledge. Furthermore, the ethics committee of the North-West University (Vaal Triangle Campus) approved the conducting of the research study. Nevertheless, the researcher had to report the research findings and judgements in an objective manner.

3.6. CHAPTER SUMMARY

In summary, Chapter 3 provides an overview of the research problem and formulation, research design and research methodology applied in this study. Firstly, the chapter starts with an outline of the research phases: recognising the research problem, formulating the research design, shaping the research methodology, documentation of research findings and formulating a conclusion. The research problem is identified including an interpretation on the construction of the research problem. Four research design dimensions were pointed out namely: the conceptual properties of data, new or existing data, the type of data and the control over the research design. Based on the four dimensions, the study is based on a medium control over the research design using empirical information, dependent on secondary- and numerical data.

With regard to research design and methodology, a mixed research method was applied to the study incorporating both quantitative and qualitative data, enriching the data and research findings. The population and sampling are specified, indicating that a non-probability sampling technique known as convenience sampling was applied. Three sets of data were gathered: accounting profit, economic profit and taxable income from McGregor (INET BFA) where SPSS Software package was used for the analysis of the collected data.

The conclusion is drawn that the data is valid and reliable as reliable research instruments were used. Lastly, for the purpose of this study, minimal ethical issues were present as the study did not rely on any contributions by research participants.

In Chapter 4, the data analysis is discussed by way of data collection, and analysed in detail. The results obtained from the data analysis are investigated and interpreted in detail.

CHAPTER 4

DATA ANALYSIS AND FINDINGS

4.1. INTRODUCTION

In Chapter 4, comparisons are drawn between the Du Pont analysis (ROE) for accounting profit, taxable income and economic profit based on the literature review as discussed in Chapter 2. Furthermore, Chapter 3, identifies the data collection (Section 3.5.3) and data analysis (section 3.5.4) methods used in the study. Zikmund *et al.* (2013:68) describe data analysis as applying reason to understand the collected data in the easiest form to come to a conclusion. Mouton (2011:108) also concurs that data analysis is the interpretation of raw data to come to an understanding. Therefore, data can be divided into smaller portions that can more easily be interpreted.

If data is not appropriately collected and entered incorrectly, the results and conclusion will be insufficient. In this chapter, unedited, raw data discussed in Chapter 3, are converted into information (Zikmund *et al.*, 2013:459).

The purpose of this chapter is to analyse and discuss the findings of the data discussed in Chapter 3. The main objective of this study was to perform the Du Pont analysis for each of the different sets of profit figures accounting profit, economic profit and taxable income, to determine which method discloses company profits most efficiently for the benefit of stakeholders. The main objective is supported by empirical objective set out in Chapter 1, Section 3.2 as follows:

- Determine the most effective profit figure used for decision-making purposes among stakeholders.

In order to achieve the empirical objective, an empirical study was conducted following a mixed research methodology, as explained in Chapter 3, Section 5.1.4, where the qualitative research (literature review) was performed followed by the quantitative research (empirical findings). Quantitative research methods will be applied to achieve these empirical objectives. The statistical methods applied to achieve the empirical objectives are discussed and will assist to establish trends. Methods used to illustrate

trends include frequency counts, bar graph presentations and scatter-plots graph presentations.

The Microsoft Office Excel system (MS Excel) (2010 version) was implemented to process data and display the findings by graph presentation. Frequency counts will be presented in bar graphs as a result of the small sample size (N = 9). McGregor's Factsheet and annual financial statement for the sample were drawn where required data were extracted and compiled in Excel data sheets, from which visual presentations were designed.

4.2. ORGANISATION OF EMPIRICAL FINDINGS

According to Bless *et al.* (2013:3) empirical research can be explained as the spark the researcher obtains from both the observations and knowledge. Mouton (2011:113) on the other hand defines empirical findings as the confirmation of the existence of a phenomenon. For the purpose of this study, the connection between the nine listed companies' fluctuation in their profit before tax was observed to elaborate on the phenomenon that profit before tax can be associated with fluctuating effect on the framework or calculation methods. In order for information to be gathered from the data, statistical observations have been organised in a logical manner. Figure 4.1 illustrates the manner in which the empirical findings were organised:

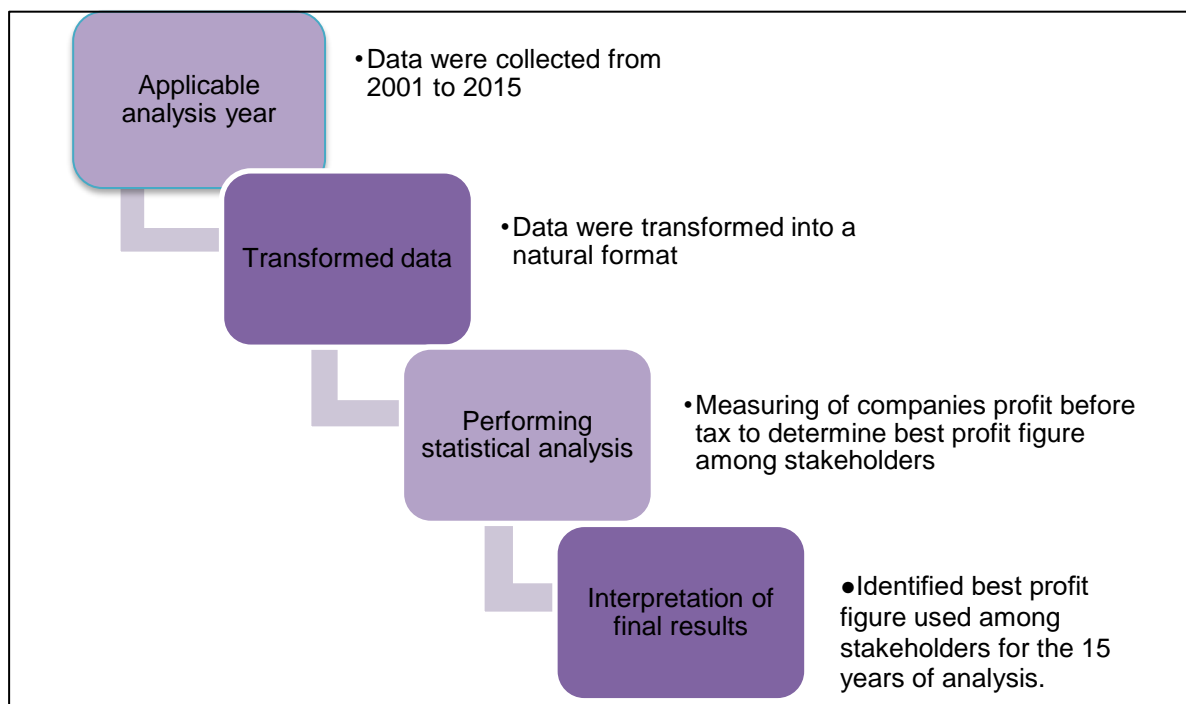


Figure 4-1: Empirical findings organisation

Source: Own research

Figure 4.1 illustrates how statistical observations were organised in the discussions to follow, where measurements have been done for the nine JSE-listed companies for the years 2001 to 2015. The figure continues to indicate that data must be converted into a natural format in order for statistical methods to be applied successfully.

4.3. DATA ANALYSIS

Data analysis is theorised as applying descriptive statistics that assists the researcher to determine the direction of analysis that needs to be performed on the data (Field, 2009:436). Additionally, descriptive statistics contributes to addressing the research questions or problem (Pallant, 2016:54). Figure 4.2 illustrates the statistical process followed to solve the research question or problem.

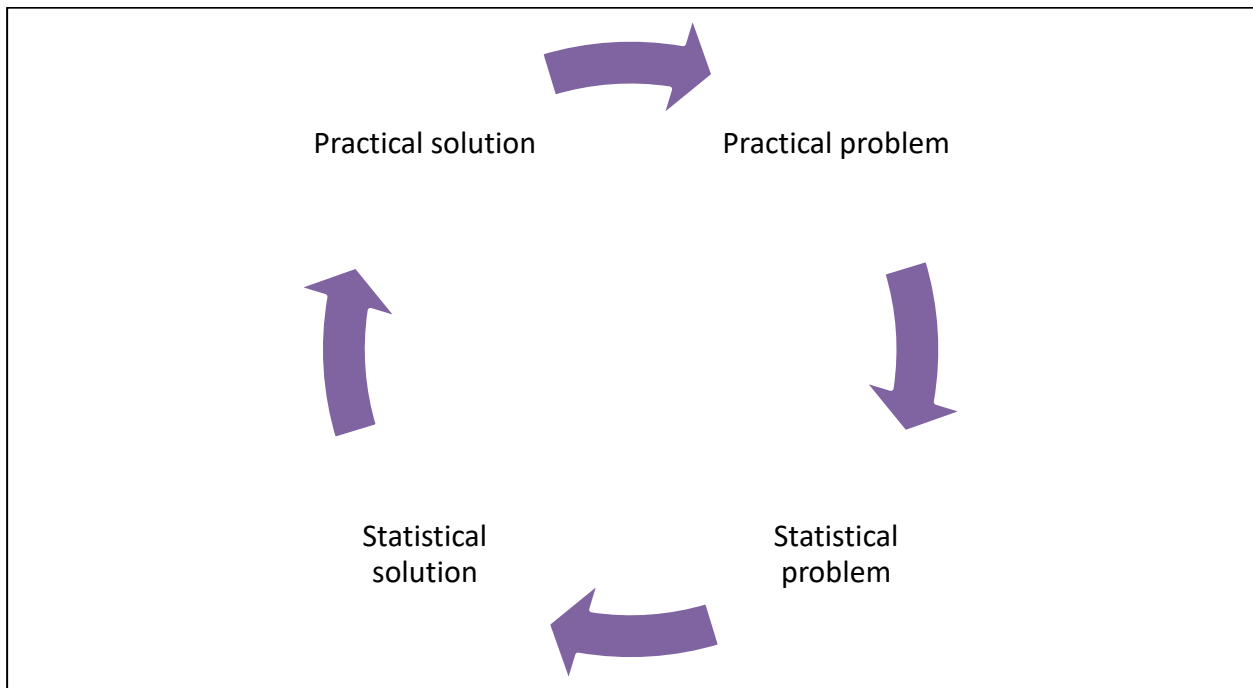


Figure 4-2: Statistical problem solving

Source: Goose and Meintrup (2015:2)

Figure 4.2 points out that in order to solve practical problems, statistical analysis can be applied to solve the practical problem. For purposes of the study statistical analysis was used in order to address the research problem. Before attending to the research problem, based on the descriptive statistical analysis as stated in Section 4.1, the obtained financial information must be converted into useable data for the data analysis methods.

As explained in Section 4.1, the data were collected, captured and recorded in MS Excel and additionally used to manipulate the financial information by populating financial ratio's discussed in Chapter 2, Section 2.2.6. After the data is collected certain data were excluded that does not fall within the scope of the study. Figure 4.3 illustrates the data clean-up process for excluding data not used in a study.

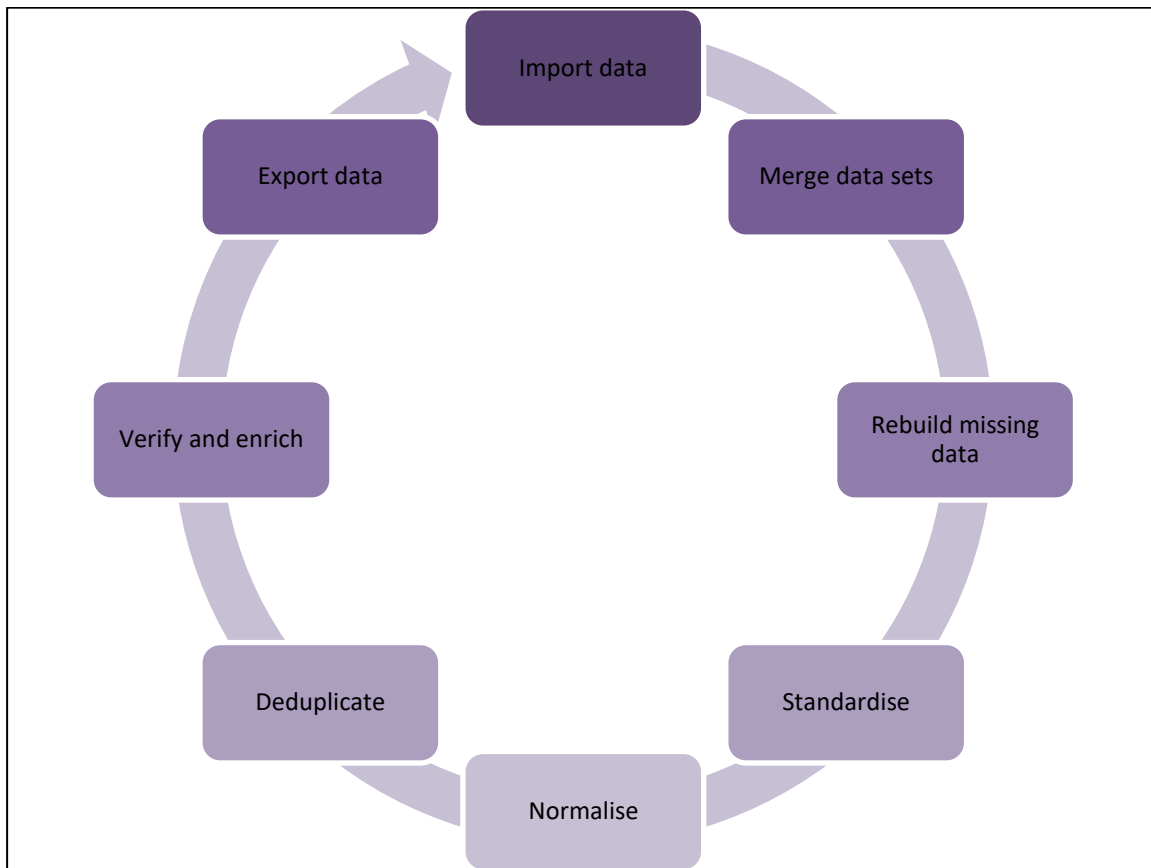


Figure 4-3: The data clean-up cycle

Source: Hogarth and Furuta (2012:83)

The data clean-up process (Figure 4.3) was applied to the collected data used in the study. Firstly, the collected data were imported to MS Excel. Secondly, the collected data was merged into four different data sets, three sets for the different profit figures (Accounting profit, Taxable income and Economic profit) and one set for the ROE. Thirdly, missing data were identified and then missing data were obtained through financial statement analysis. Fourthly, all the collected data were standardised and normalised by converting three company's financial statements disclosed in USD to ZAR. Fifthly, the data were inspected to identify any duplicated data. No duplicated data were identified within the data sets during the data analysis. Second to last, the data needs to be verified, the collected data were obtained from a reputable data source (McGregor INET BFA) considered to be a verifiable and reputable data source. And finally, the data sets containing the data of the study were exported to a statistical software package, SPSS© (2013).

The statistical data analysis was performed using SPSS© (2013). Pallant (2016:55) clarifies that SPSS© (2013) functions can be applied to create a codebook. Pallant (2016:11) furthermore explains that a codebook is required by the SPSS© (2013) system in order for the data to be converted into a format which can interface with SPSS© (2013). A codebook summarises the characteristics of each variable obtained through frequencies, descriptive- or explorative procedures (Philander, 2016:61). Goose and Meintrup (2015:9) recommend assigning code numbers or code letters to different variables in SPSS© (2013), assisting in the capturing of data collected.

Table 4.1 illustrates the codebook compiled as aid to identify and abbreviate the different variables that is used during the statistical data analysis.

Table 4-1: Codebook identifying variables

Code	Description of variable	Explanation of variable
AP	Accounting profit	The accounting profit of each company is shown in Rand value
TI	Taxable income	The taxable income of each company is shown in Rand value
EP	Economic profit	The economic profit of each company is shown in Rand value
TAP	Total accounting profit	The accounting profit of each company is shown in Rand value for the total period of 15 years
TTI	Total taxable income	The taxable income of each company is shown in Rand value for the total period of 15 years
TEP	Total economic profit	The accounting profit of each company is shown in Rand value for the total period of 15 years
APAVE	Accounting profit average	The total accounting profit is taken and divided by 15, to achieve an accounting profit average for each company
TIAVE	Taxable income average	The total taxable income is taken and divided by 15, to achieve a taxable income average for each company
EPAVE	Economic profit average	The total economic profit is taken and divided by 15, to achieve an economic profit average for each company

Code	Description of variable	Explanation of variable
APDPAVE	Accounting profit Du Pont average	The total Du Pont for accounting profit divided by 15, to achieve an average for each company
TIDPAVE	Taxable income Du Pont average	The total Du Pont for taxable income divided by 15, to achieve an average for each company
EPDPAVE	Economic profit Du Pont average	The total Du Pont for economic profit divided by 15, to achieve an average for each company
APROE	Accounting profit ROE	Accounting profit is used to determine the profitability ratio ROE of each company shown as a percentage
TIROE	Taxable income ROE	Taxable income is used to determine the profitability ratio ROE of each company shown as a percentage
EPROE	Economic profit ROE	Economic profit is used to determine the profitability ratio ROE of each company shown as a percentage
APROEAVE	Accounting profit ROE Average	The total accounting profit ROE divided by 15, to achieve an average for each company
TIROEAVE	Taxable income ROE Average	The total taxable income ROE divided by 15, to achieve an average for each company
EPROEAVE	Economic profit ROE Average	The total economic profit ROE divided by 15, to achieve an average for each company

Source: Adjusted from Pallant (2016:34)

Table 4.1 specifies the codenames of the variables as identified in SPSS© (2013). Furthermore, In Table 4.2 the codenames of each company selected for testing as part of the sample is identified in Section 3.5.2.

Table 4-2: Codebook for companies

Code	Company	Sector
C1	BHP Billiton Plc	Basic resources
C2	Aspen Pharmacare Holdings Ltd	Chemical/Healthcare
C3	SABMiller Plc	Consumer goods
C4	Shoprite Holdings Ltd	Consumer services
C5	Standard Bank	Financials
C6	Barloworld Ltd	Industrials
C7	Sasol Ltd	Oil and gas
C8	EOH Holdings Ltd	Technology
C9	MTN Group Ltd	Telecommunications

Source: Adapted from Pallant (2016:34)

Values for each company in Table 4.2 were used supporting the translation of data into SPSS© (2013) with the purpose of obtaining valuable data (Fuller, 2009:3; Pallant, 2016:1).

The following statistical terms are explained in order to perform the data analysis: descriptive statistics, mean, standard deviation, skewness, kurtosis, correlation and frequencies. Firstly, descriptive statistics are addressed in Section 4.3.1

4.3.1. Descriptive statistics

According to Pallant (2016:57) and Philander (2016:62) descriptive statistics will affect the identified variables. For this study, as identified in Chapter 3, the dependent variables identified are the financial ratios that are included in the Du Pont analysis and the independent variables are the nine JSE companies. The dependent and independent variables assist to recognise the mean, minimum, maximum, range, standard deviation, skewness, kurtosis and correlation. Reference to the descriptive statistics can be found in Appendix A for C1 to C9 respectively.

4.3.1.1. Mean

Goose and Meintrup (2015:54) explain that the mean performs an important role for variable measures. According to Field (2009:22) the mean can be defined as the “central tendency” or average. Swanepoel *et al.* (2011:57) assert that the mean can be determined by the sum of all observations divided by the total number of observations. If the mean falls within the minimum and maximum range, findings can be deemed as consistent and reasonable (Pallant, 2016:43).

For each set of profit figures the mean per company is illustrated in Table 4.3.

Table 4-3: Summary of the Mean for both the Net profit in rand and ROE

		Company								
		C1	C2	C3	C4	C5	C6	C7	C8	C9
Profits in Rand	APAVE	13 254,27	2 207,91	2 409,20	2 655,93	18 225,33	2 162,87	25 124,53	216,87	22 763,05
	TIAVE	14 031,67	2 205,49	2 919,60	2 682,43	2 051,33	2 237,53	25 681,93	217,20	23 200,34
	EPAVE	7 133,20	-1 434,37	-3 606,87	-3 305,95	-531 229	-6 076,73	6 559	158,51	14 380,31
ROE	APROEAVE	4,42%	41,17%	2,34%	36,92%	27,34%	17,18%	32,94%	29,70%	21,04%
	TIROEAVE	4,82%	40,54%	2,63%	38,47%	31,03%	17,67%	33,18%	25,52%	20,26%
	EPROEAVE	1,92%	-9,08%	-2,21%	-34,64%	-65,53%	-46,51%	8,91%	25,63%	17,22%

Source: SPSS© (2013)

To give meaning to Table 4.3, the mean for both APAVE and APROEAVE for C7 will be discussed. In order to determine APAVE and APROEAVE, the sum of all 15 years where added together divided by the total number of years.

Table 4-4: Mean for APAVE and APROEAVE in terms of C7

Net profit and ROE	Observed values
APAVE	10 473 + 14 030 + 11 667 + 9 230 + 14 068 + 20 593 + 25 298 + 33 403 + 23 925 + 23 155 + 29 124 + 35 524 + 40 046 + 41 762 + 44 570
	<u>376 868</u> 15 years
	25 124.5
APROEAVE	47.14% + 46.66% + 34.81% + 26.35% + 32.32% + 39.34% + 41.06% + 43.53% + 28.54% + 24.44% + 27.06% + 28.37% + 26.76% + 24.43% + 23.26%
	<u>494.05%</u> 15 years
	32.94%

Source: SPSS© (2013)

The means entered in Table 4.3 for each observation (both profits in rand-value and the ROE) were obtained through the manipulation of data by applying SPSS© 2013. The level of confidence was set at 90% where the results were accurate nine out of the ten times therefore, the observations shown in Table 4.3 are considered to be reasonable.

As illustrated in Appendix A the minimum and maximum for C7 were as follow:

AP's minimum and maximum were 9230 and 44570 whereas the APROE's minimum and maximum were 23,26% and 47,17%.

From the above illustration for computing the mean we can state that both means fall within the minimum and maximum value range. Additionally, the means illustrated in Table 4.3 were reasonable as the observations fall within the minimum and maximum range as classified in Section 4.3.1.2 obtained from Appendix A.

4.3.1.2. Minimum, maximum and range

The minimum value expresses the lowest observation whereas the maximum value expresses the highest observation, in order to better understand the collected data (Pallant, 2016:42). In agreement with Pallant, Goose and Meintrup (2015:63) examines the minimum- and maximum values to determine if the values fall within the range. Firstly, Table 4.5 and Table 4.6 illustrates the minimum (min) and maximum (max) values for each company followed by Table 4.8 that indicates the range values of the net profit for AP, TI and EP as well as the ROE.

Table 4-5: Summary of the Min range for both the Net profit in rand and ROE

			Company								
			C1	C2	C3	C4	C5	C6	C7	C8	C9
Minimum range	Profits in Rand	AP	2 429	254,4	571	279,7	6 657	528	9 230	12,8	1 771,7
		TI	2 143	248,4	646	344,8	8 175	544	9 182	12	1 359,9
		EP	-1,36	-7 978,3	-8 961	-7 883	-897 082	-12 721	184	12,2	-17 228
	ROE	APROE	0,94%	19,15%	1,27%	5,76%	18,11%	4,99%	23,26%	5,81%	2,94%
		TIROE	1,00%	19,15%	1,58%	5,76%	21,06%	5,14%	24,33%	5,87%	3,05%
		EPROE	-0,92%	-43,34%	-4,94%	-61,91%	-83,44%	-69,61%	0,53%	2,42%	-15,05%

Source: SPSS© (2013)

Table 4-6: Summary of the Max range for both the Net profit in rand and ROE

			Company								
			C1	C2	C3	C4	C5	C6	C7	C8	C9
Maximum range	Profits in Rand	AP	31 255	6 583	4 451	5 984	36 034	4 169	44 570	940,60	46 855
		TI	31 255	6 538	5 603	5 982	36 713	4 228	46 627	951	51 063
		EP	24 359	189,10	554	-1 805,60	-174 601	-2 427	12 531	524,50	32 803
	ROE	APROE	8,15%	72,69%	5,12%	60,88%	39,19%	30,50%	47,14%	87,14%	58,06%
		TIROE	8,68%	72,01%	4,91%	60,88%	44,70%	30,94%	47,53%	87,61%	58,15%
		EPROE	6,35%	30,80%	1,24%	45,49%	-51,06%	-18,24%	22,08%	82,76%	54,64%

Source: SPSS© (2013)

In addition to Hogarth and Furuta (2012:83) data clean-up process and elimination of errors, Pallant (2016:40) theorises that if the mean falls within the minimum and maximum range the data are free from errors. Table 4.5 illustrates the min values whereas Table 4.6 shows the max values for both the net profit in rand and ROE. Table 4.7 takes into consideration the data obtained for the net profits of C9 where the values were as follow:

Table 4-7: Values obtained in terms of C9 for identifying min and max values

Net profit	Observed values
AP	1771.70; 2025.10; 3500; 6003; 16833; 14667; 19699; 28490; 25778; 28043; 37678; 37161; 39276; 46855; 33666.
For AP the min value was identified as 1771.70 and the max value as 46855.	
TI	1359.90; 1428.20; 2905; 5413; 16861; 14690; 19707; 28490; 25773; 28095; 37640; 36981; 42707; 51063; 34892.
For TI the min value was identified as 1359.90 and the max value as 51063.	
EP	EP = 1501.50; 1475.10; 2672; 5153; 15843; 13551; 18472; 26058; 22794; 25152; 32368; 32803; 23296; 11794; -17228
For EP the min value was identified as -17228 and the max value as 32803.	

Source: SPSS© (2013)

Table 4.7 identifies the min and max values for C9 and as per the mean expressed in Table 4.5 and Table 4.6 falls between the min and max values for AP, TI and EP the data is considered to be reliable.

By subtracting the min value from the max value, the range is identified. In Table 4.8 the range is illustrated to highlight the consistency of the data.

Table 4-8: Summary of the Range of values for both Net profit in rand and ROE

		Company								
		C1	C2	C3	C4	C5	C6	C7	C8	C9
Profits in Rand	AP	28 826	6 283,60	3 880	5 704,30	29 377	3 641	35 340	927,80	45 083,30
	TI	29 112	6 289,60	4 957	5 637,20	28 538	3 684	37 445	939	49 703,10
	EP	25 495	8 167,40	9 515	6 077,40	72 248	10 294	12 347	512,30	50 031
ROE	APROE	7,21%	53,53%	3,86%	55,19%	21,08%	25,52%	23,88%	81,34%	55,17%
	TIROE	7,67%	52,86%	3,34%	55,12%	23,64%	25,80%	23,20%	81,75%	55,10%
	EPROE	7,27%	74,14%	6,18%	107,40%	32,38%	51,38%	21,56%	80,34%	69,70%

Source: SPSS© (2013)

According to Pallant (2016:49) one of the main reasons the range is applied in studies is to determine if the data collected includes any errors. Table 4.8 shows that the range between the min and max values by subtracting the min value from the max value. For instance, C1’s AP range can be determined by taking the max value (31255) and deducting the min value (2429), thus the range for C1’s AP was 28826. In some instances, from the distribution of data misleading opinions can be drawn from extreme values. Therefore, in extreme instances the notion of range is introduced where 10% is dropped on the largest values and 10% on the smallest values. The range values in Table 4.8 is consistent throughout except for the differences in the range that are identified to be greater than 10% (Philander, 2016:74).

In order to determine if the range for C9’s EPROE was greater than 10%, the value of 69,70% is deducted from 55,10%, a difference of 14,60% is obtained, divide 14,60% by 55,10% and 26% is the range greater than 10%. In Table 4.9 the differences greater than 10% in comparison to Table 4.8 were identified as:

Table 4-9: Differences identified in the range greater than 10%

Companies	Identified variances where the data range is greater than 10%
C2	EP = 30% and EPROE = 40%
C3	EP = 92% and EPROE = 85%
C4	EPROE = 95%
C5	EP = 153% and EPROE = 37%
C6	EP = 179% and EPROE = 97%
C7	EP = -67%
C8	EP = -45%
C9	EPROE = 26%

Source: SPSS© (2013)

Indicated by Table 4.9 the range fluctuates (increases and decreases) by more than 10% among the financial information where the outliers for the dataset is identified. For

the purpose of the study the range was applied to identify any errors that may be included in the data, but no errors were identified as the range falls within the min- and max values range.

4.3.1.3. Standard deviation

In accordance with Griffith (2007:335), Field (2009:335) defines standard deviation is the “calculated indicator of the extent of deviation for a specific collection of data”. In a similar manner, Swanepoel *et al.* (2011:82) theorises standard deviation as the average distance between the observations and the mean, with the difference being positive or negative.

Standard deviation can be measured through applying a square root to the sample variances as per Appendix A, for instance the standard deviation for C7’s TI can be determined as follow:

$$\begin{aligned}\text{Standard deviation} &= \sqrt{161\,964\,570,90} \\ &= 12\,726,53\end{aligned}$$

In Table 4.10 the standard deviation is shown for each company per accounting profit, taxable income, economic profit and Du Pont analysis (ROE).

Table 4-10: Summary of the Standard deviation values for both Net profit in rand and ROE

		Company								
		C1	C2	C3	C4	C5	C6	C7	C8	C9
Profits in Rand	AP	9 052,33	2 115,12	1 156,23	1 992,11	8 240,03	890,59	11 922	276,71	14 890,70
	TI	9 046,90	2 117,97	1 597,32	1 961,13	8 670,26	916,40	12 726,50	279,11	15 934,30
	EP	7 835,92	2 507,28	3 878,70	1 957,49	242 275	3 057,28	4 226,50	167,52	13 746,70
ROE	APROE	2,25%	19,31%	1,10%	14,29%	6,96%	6,80%	8,48%	23,27%	15,39%
	TIROE	2,63%	18,94%	0,94%	13,41%	9,30%	6,73%	7,92%	20,74%	15,55%
	EPROE	2,14%	20,38%	2,02%	26,07%	9,84%	15,52%	5,88%	21,28%	16,87%

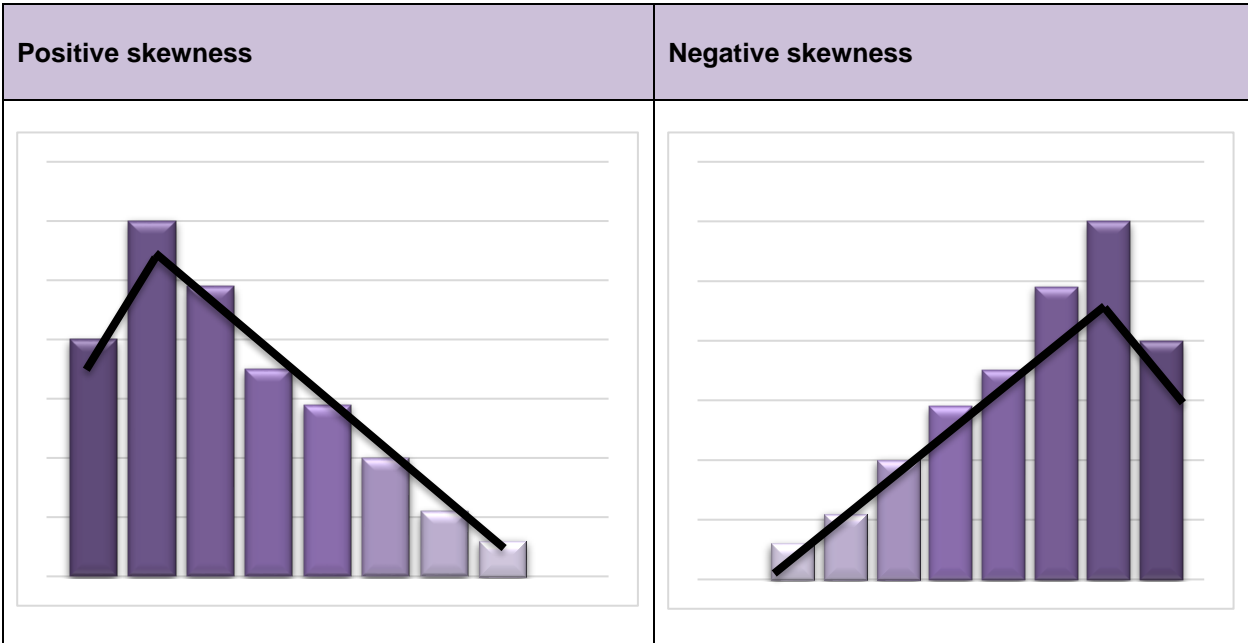
Source: SPSS© (2013)

Antonius (2013:50) asserts that standard deviation is “the most powerful tool of dispersion for quantitative data”. For purpose of the study the standard deviation was applied to the collected data as shown in Table 4.10, when applying standard deviation, the deviations are squared and thus eliminates the negative signs. It is important to apply standard deviation as in some instances the deviations are positive and negative, thus the sum will be zero.

4.3.1.4. Skewness

Goose and Meintrup (2015:76) define skewness as “dividing by the sample standard deviation to obtain a measure that is independent of the unit of measurement”. Pallant (2016:52) divide skewness between a positive and a negative value, Swanepoel *et al.* (2011:71) further indicates that a positive skewness is clustered to the right and a negative skewness is clustered to the left. Table 4.11 graphically illustrates the difference between a positive and a negative skewness.

Table 4-11: Positive and negative skewness



Source: Swanepoel *et al.* (2011:72)

According to Table 4.11, a positive skewness clusters the values to the left (lower values) whereas with a negative skewness values are clustered to the right (higher values). A normal skewness has a curve of 0, but if the skewness is larger than 1 the curve will be significantly different from a symmetrical distribution. In addition to Field (2009:19), Goose

and Meintrup (2015:78) assesses kurtosis as the measurement of steepness. Pallant (2016:52) explains that kurtosis values can either be positive (centred cluster) or negative (distributed or flat clustered). The skewness per company for each set of profit figures are shown in Table 4.12.

Table 4-12: Summary of the Skewness including the statistic and standard error for both Net profit in rand and ROE

		Company								
		C1	C2	C3	C4	C5	C6	C7	C8	C9
Profits in Rand	AP	0,423	1,172	-0,118	0,352	0,531	0,266	0,224	1,715	-0,108
	TI	0,202	1,166	0,079	0,380	0,412	0,105	0,316	1,728	0,018
	EP	0,822	-1,918	-0,211	-1,506	-0,041	-0,848	0,107	1,103	-0,697
ROE	APROE	0,254%	0,145%	1,368%	-0,340%	0,246%	0,222%	0,594%	1,484%	1,023%
	TIROE	0,297%	0,247%	1,089%	-0,665%	0,450%	0,122%	0,567%	2,108%	1,133%
	EPROE	-0,227%	0,268%	0,375%	2,318%	-0,227%	0,401%	0,723%	1,619%	0,419%

Source: SPSS© (2013)

Field (2009:43) interprets the skewness standard of error as the standard deviation of the means (Table 4.12), the greater the standard error the higher the variability of the mean representing the population. The skewness statistics indicate that 42 of the 54 statistical observations in Table 4.12 were positive suggesting that the positive skewness values are clustered to the left.

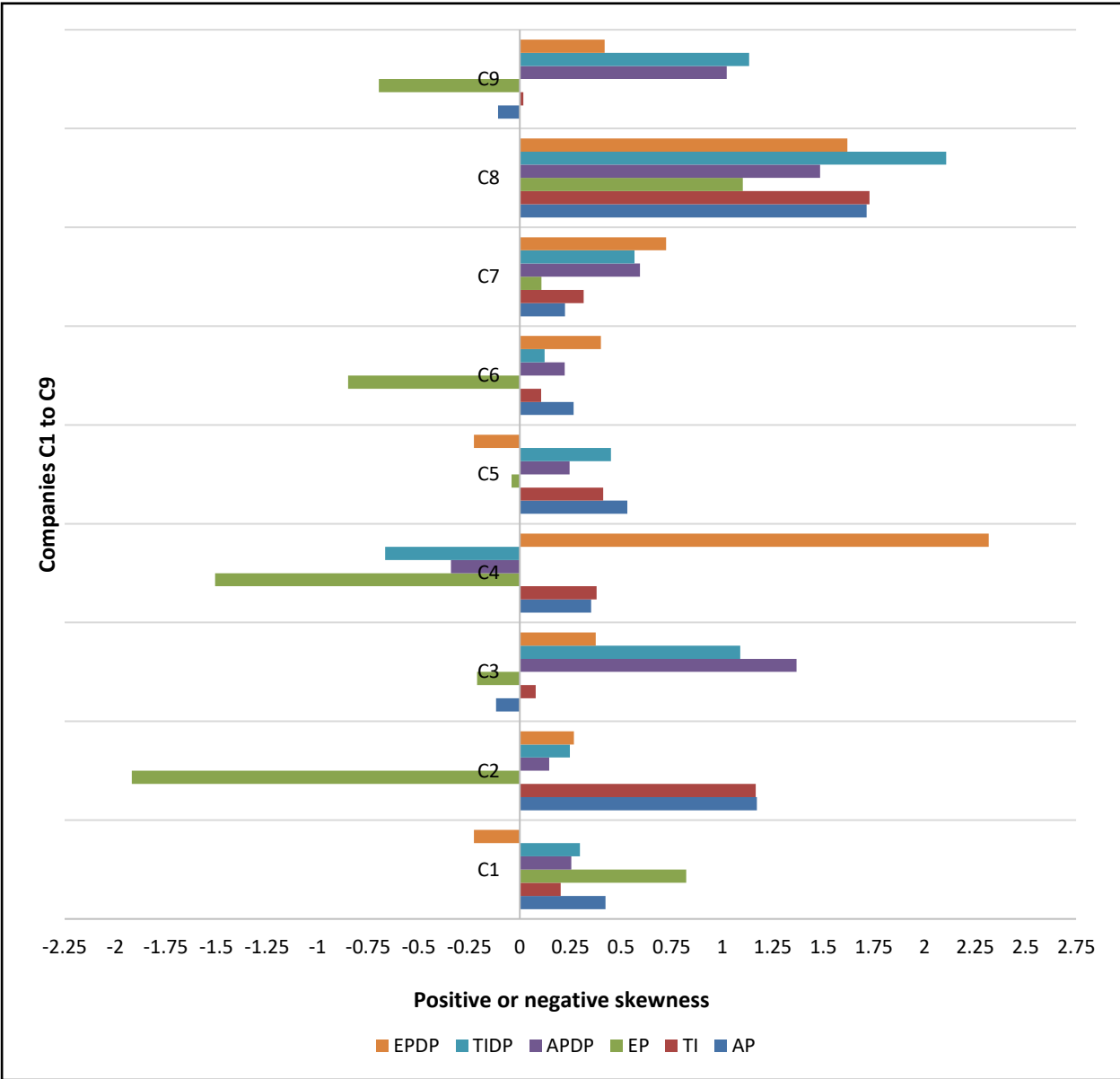


Figure 4-4: Skewness of total observations for C1 to C9

Source: SPSS© (2013)

The correlation between the positive and negative skewness values as shown in Figure 4.4 were 12 values was identified as negatively skewed.

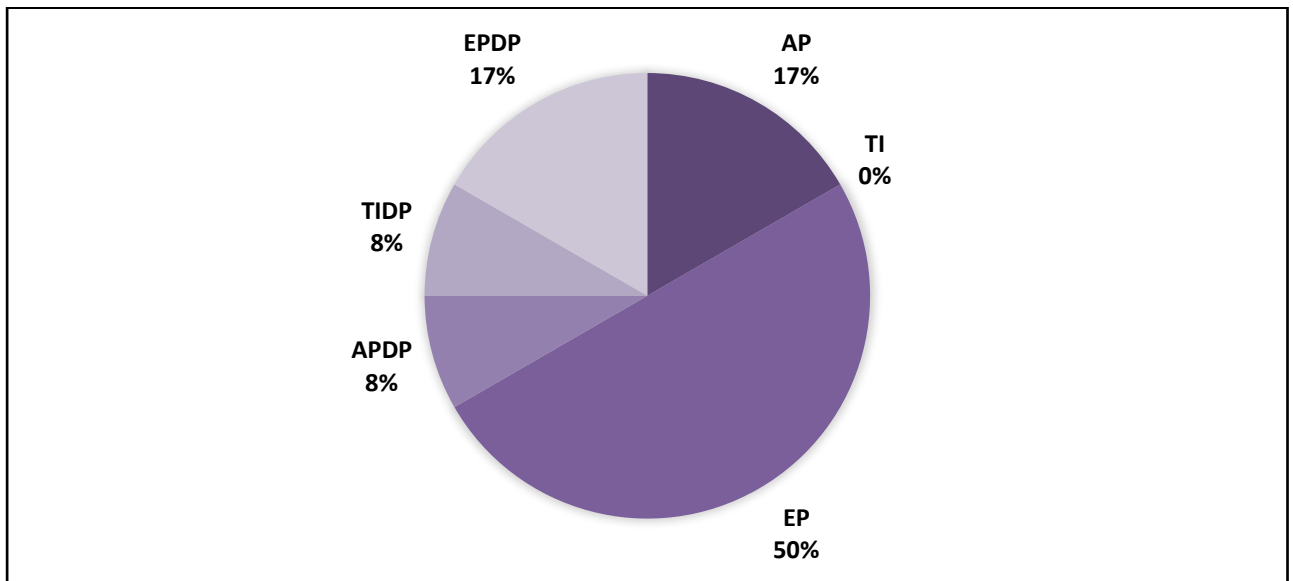


Figure 4-5: Negative skewness of 12 observations

Figure 4.5 illustrates that the majority negative skewness is held by EP with 50%, whereas AP and EPDP both holds 17% and TIDP and ADDP consists of 8%. The only profit that does not include a negative skewness is TI with 0%. As shown in Figure 4.5 the data is negatively skewed, indicating that the left tail will be longer, whereas the TI with 0% will be perfectly symmetrical.

The skewness discussed in this paragraph identifies that the distributions of the graphs applied in Section 4.4 will not be only be symmetric, but skewed, as one side of the graphs will be more stretched than the other side.

4.3.1.5. Kurtosis

In addition to Field (2009:19), Goose and Meintrup (2015:78) define kurtosis as the measurement of steepness. Pallant (2016:52) explains that kurtosis values can either be positive (centred cluster) or negative (distributed or flat clustered). In Table 4.13 the kurtosis including statistic- and standard error are illustrated. Similar to skewness as discussed in Section 4.3.1.4, with the kurtosis standard of error the bigger the error, the higher the variability of the mean that signifies the population.

Table 4-13: The Kurtosis including statistic and standard - error

		Company								
		C1	C2	C3	C4	C5	C6	C7	C8	C9
Profits in Rand	AP	-0,828	0,247	-0,591	-1,353	0,059	1,002	-1,272	2,396	-1,263
	TI	-0,983	0,242	-1,013	-1,342	-0,512	0,690	-1,101	2,473	-1,082
	EP	-0,195	2,639	-2,073	1,245	-1,192	-0,100	-1,572	-0,025	0,363
Profits in %	APROE	-1,187%	-1,520%	1,549%	0,305%	-1,115%	-0,166%	-1,237%	1,826%	0,804%
	TIROE	-1,516%	-1,251%	0,990%	1,508%	-1,563%	0,013%	-1,285%	5,410%	0,947%
	EPROE	-0,771%	-0,161%	-1,298%	6,442%	-0,771%	-0,485%	0,230%	2,783%	0,854%

Source: SPSS© (2013)

In Table 4.13 the kurtosis including statistic- and standard error are illustrated. Similar to skewness as discussed in Paragraph 4.3.1.4, with the kurtosis standard of error the bigger the error, the higher the variability of the mean that signifies the population.

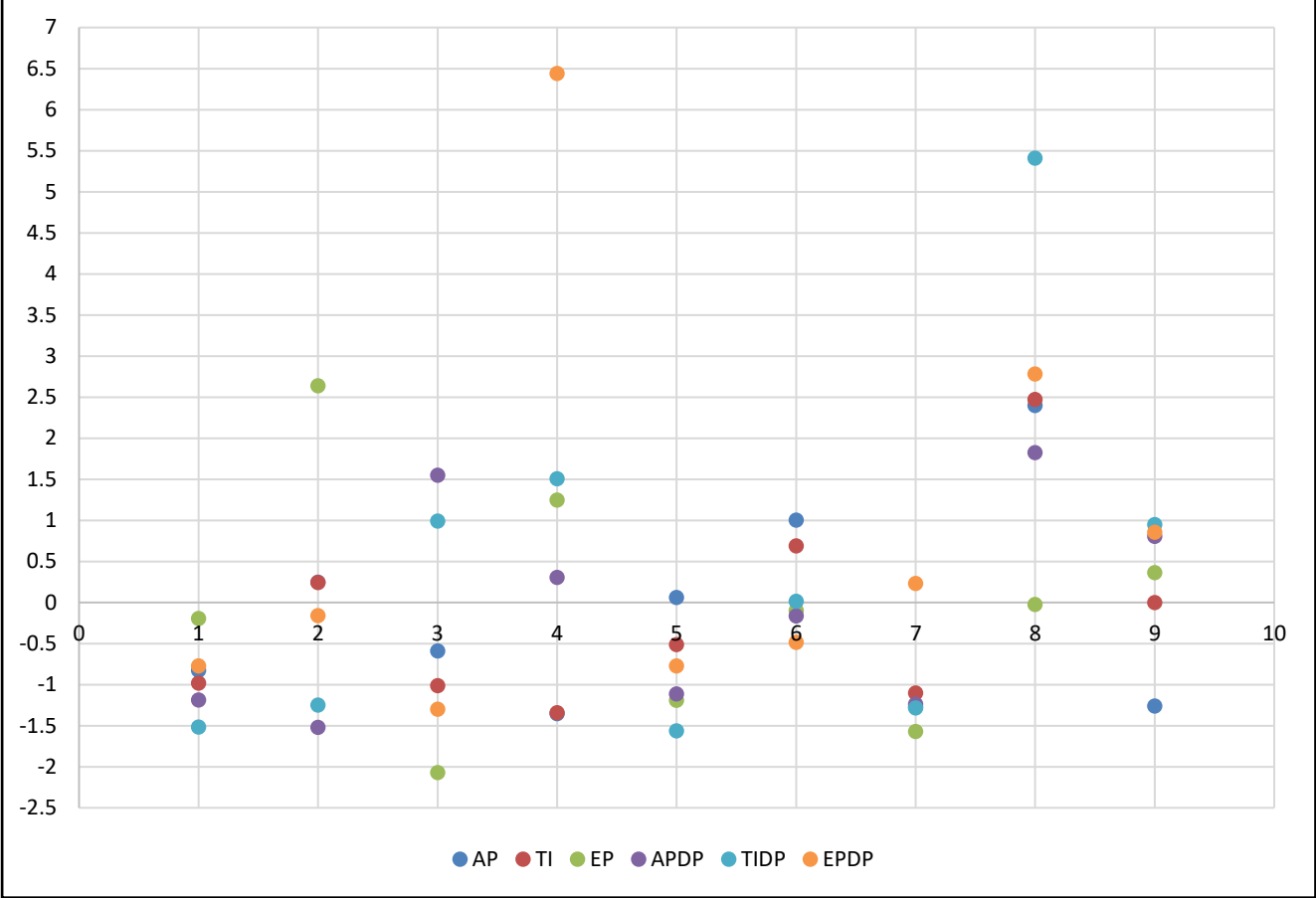


Figure 4-6: Kurtosis as a measure of peakedness

Source: SPSS© (2013)

Figure 4.6 illustrates the degree of peakedness that will rather be curved than peaked or flat. In Table 4.13 and Figure 4.6, 23 of the 54 kurtosis statistics were identified as positive (centred clustered) and the remaining 31 kurtosis statistics were negative (distributed or flat), providing an indication of the distribution of data discussed in Section 4.4. As indicated in Table 4.13 if the values are further from zero the data will not be normally distributed. The kurtosis discussed in this paragraph identifies the curves of the graphs applied in Section 4.4 will not only be clustered in the centre but also distributed and flat.

4.3.1.1. Correlation

According to Field (2009:167) and Pallant (2016:6) a correlation falls between two scores ranging from zero to one. A high score gives an indication of the increased reliability. Bryman and Cramer (1999:175) explain that the measure of a correlation indicates the relationship and strength between variables. Similar to Bryman and Cramer, Field (2009:167) explains there are three different types of correlation relationships, namely: none; positive; and negative correlation. An example followed by a meaning of each type of correlation is outlined in Table 4.14.

Table 4-14: The different types of correlation

Correlation	Example	Meaning
None	The difference between the profits has no influence on the result of the financial ratios	There is no effect on the relationship. One variable is not affected by the other variable.
Positive correlation	The impact on the profits has the same result on the financial ratios.	There is a similar effect on the relationship. The higher the one variable the higher the other variable.
Negative correlation	The impact on the profits has a contrary result on the financial ratios.	There is an inverse effect on the relationship. As one variable increases the other variable decreases.

Source: Adapted from Field (2009:167)

The conclusion that can be drawn from Table 4.14 is that with the different types of correlation, identifying the correlation between the profits will be much easier and also contributes in identifying occurrences (negative correlations) where economic factors have an influence on the profits and could have an effect on the usefulness of financial information.

Kerr, Hall and Kozub (2014:169) asserts that correlation analysis recognises strengths between variables. Each of the selected companies that were included in the sample are analysed according to the correlation analysis. Pallant (2016:127) explains that a small sample selection influences the statistical significance within a large correlation relationship group and a larger sample selection influences the statistical significant within the large and medium correlation relationship group. Kerr *et al.* (2014:170) further explains that with a zero correlation there is no relationship whereas, one suggests a

correlation. Pallant (2013:126) highlights the guidelines for each correlation relationship categories summarised in Table 4.15.

Table 4-15: Guidelines when interpreting the correlations

	Correlation relationship categories	Correlation interval	Explanation of correlation relationship
Intervals of correlation	Small (weak correlation)	The relationships between the variables are weak .	
		$r = 0,10$ to $0,29$	A positive correlation ($r = 0,10$ to $0,29$) indicates a similar weak relationship (variables acting in a similar manner).
		$r = -0,10$ to $-0,29$	A negative correlation ($r = -0,10$ to $-0,29$) indicates an inverse weak relationship (variables reacting in an opposite manner).
	Medium (moderate correlation)	The relationships between the variables are medium/moderate .	
		$r = 0,30$ to $0,49$	A positive correlation ($r = 0,30$ to $0,49$) indicates a similar moderate relationship (variables acting in a similar manner).
		$r = -0,30$ to $-0,49$	A negative correlation ($r = -0,30$ to $-0,49$) indicates an inverse moderate relationship (variables act in an opposite manner).
	Large (strong correlation)	The relationships between the variables are strong .	
		$r = 0,50$ to $1,00$	A positive correlation ($r = 0,50$ to $1,00$) indicates a similar strong relationship (variables act in a similar manner).
		$r = -0,50$ to $-1,00$	A negative correlation ($r = -0,50$ to $-1,00$) indicates an inverse strong relationship (variables act in an opposite manner).

Source: Adapted from Pallant (2013:126)

It can be concluded from Table 4.15 that the guidelines for interpreting the correlations can be divided into three categories, namely small-, medium- and large correlations depending on the sample size whether it be small or large. Table 4.15 was applied to the study as illustrated in Figure 4.7.

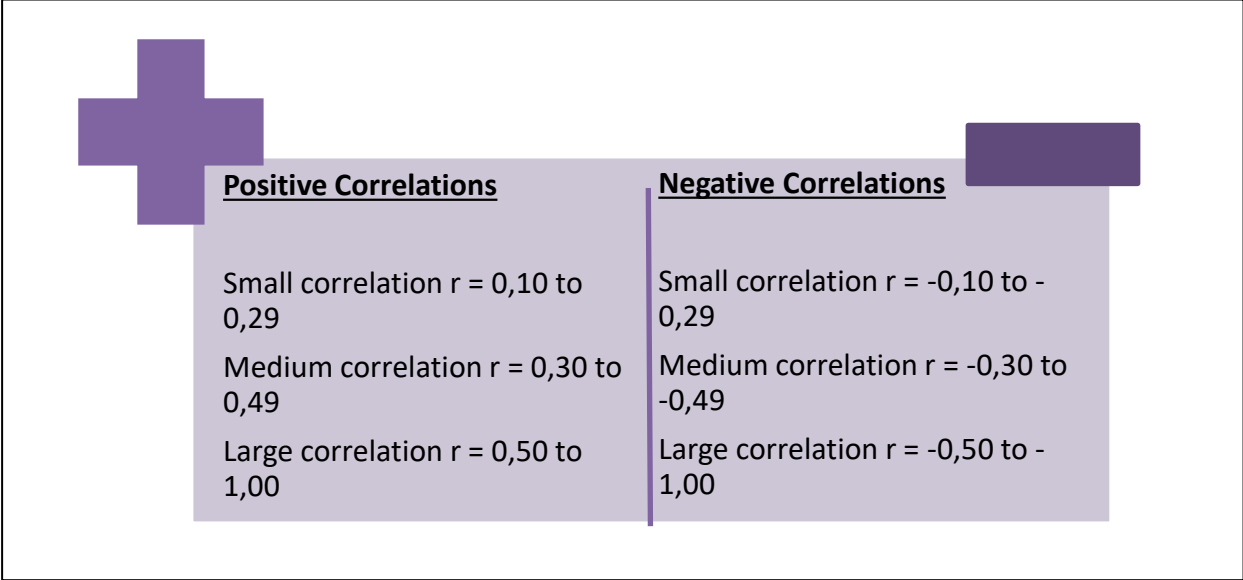
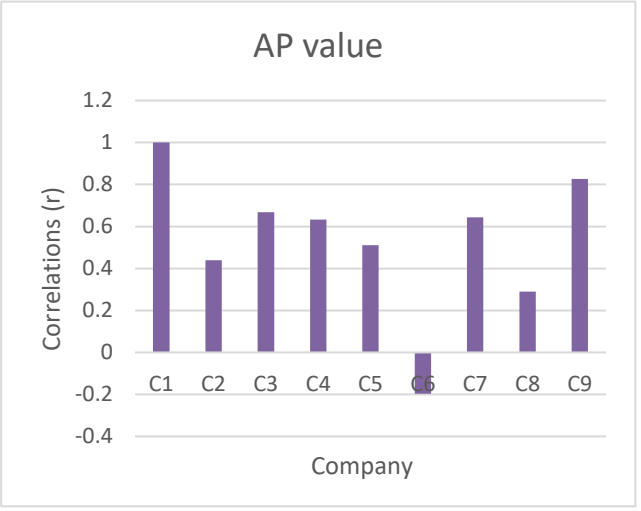
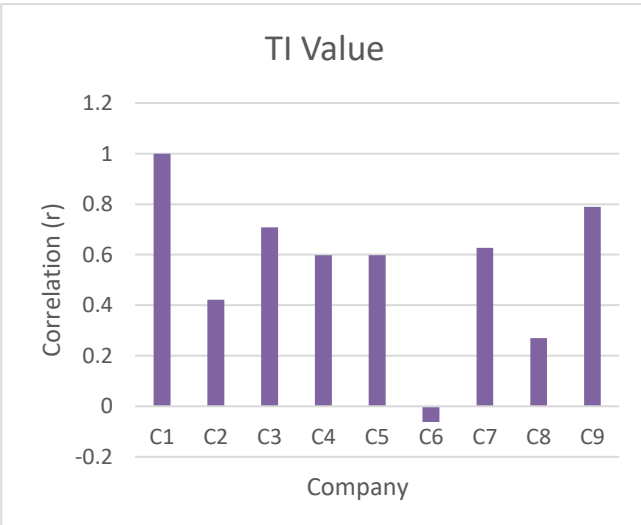


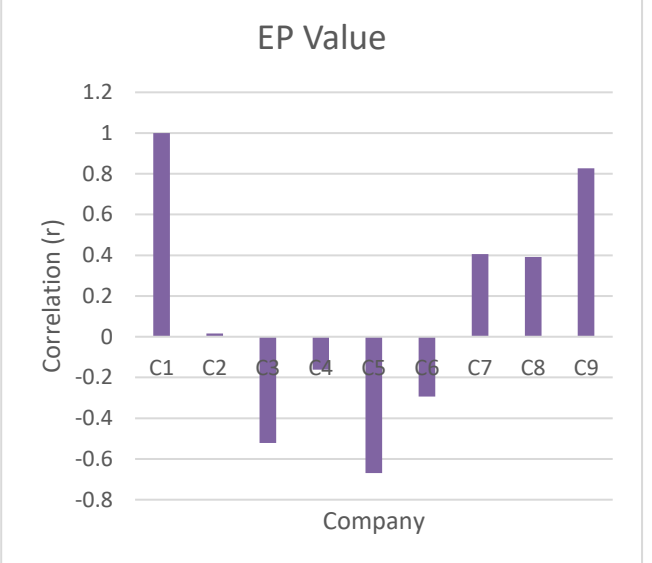
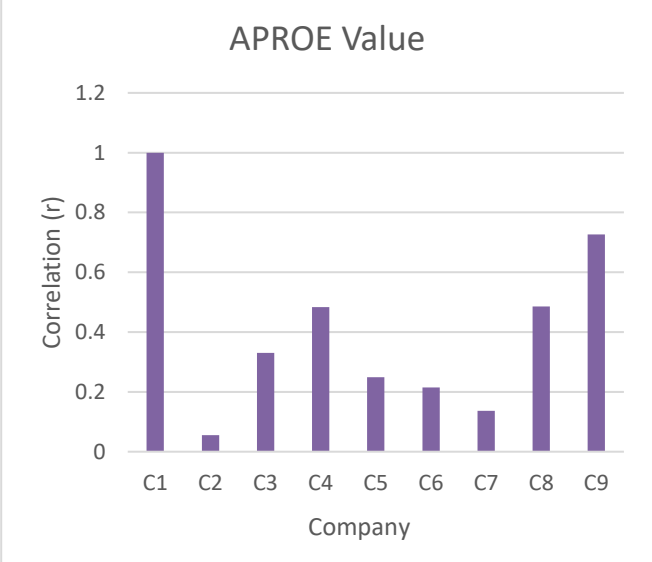
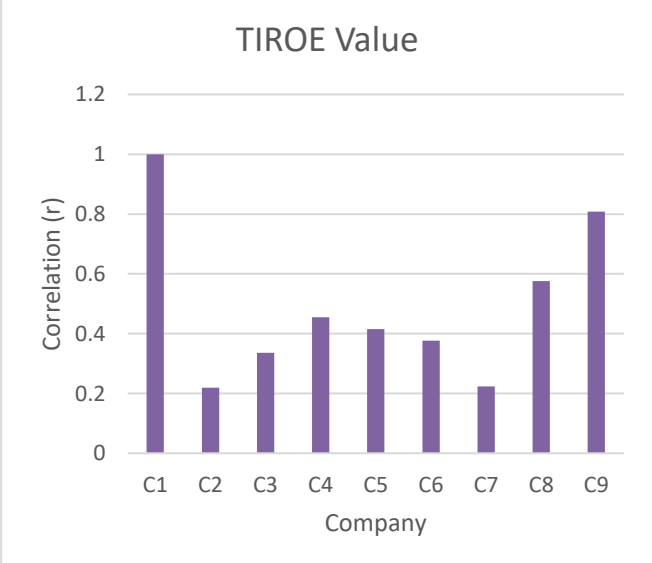
Figure 4-7: Interpretation of the correlations for the study

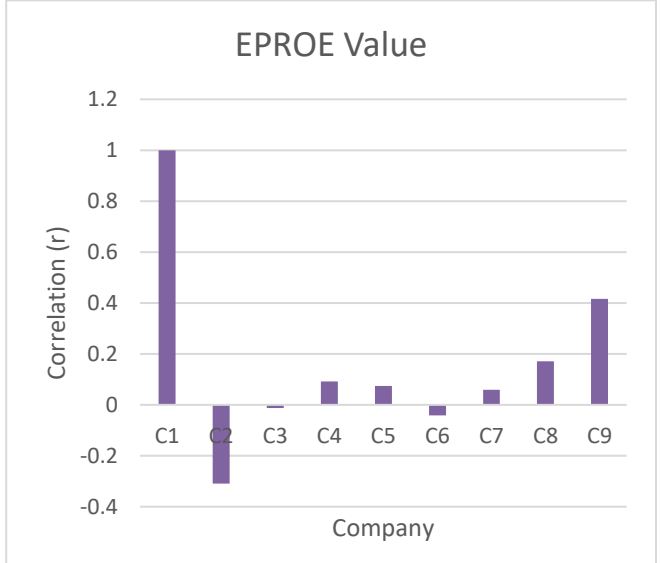
Source: Adapted from Pallant (2016:126)

The identified correlation statistics of the net profit in rand and ROE per company are summarised in Table 4.16.

Table 4-16: Summary of correlations for net profit in rand and ROE

Correlation for net profit in rand and ROE	Interpretation of correlation graph																				
 <p style="text-align: center;">AP value</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <caption>AP Value Correlation Data</caption> <thead> <tr> <th>Company</th> <th>Correlation (r)</th> </tr> </thead> <tbody> <tr><td>C1</td><td>1.0</td></tr> <tr><td>C2</td><td>0.45</td></tr> <tr><td>C3</td><td>0.65</td></tr> <tr><td>C4</td><td>0.6</td></tr> <tr><td>C5</td><td>0.5</td></tr> <tr><td>C6</td><td>-0.2</td></tr> <tr><td>C7</td><td>0.65</td></tr> <tr><td>C8</td><td>0.3</td></tr> <tr><td>C9</td><td>0.8</td></tr> </tbody> </table>	Company	Correlation (r)	C1	1.0	C2	0.45	C3	0.65	C4	0.6	C5	0.5	C6	-0.2	C7	0.65	C8	0.3	C9	0.8	<p>A large positive correlation ($r = 0,50$ to $1,00$) for C1, C3, C4, C5, C7 and C9 was identified. A medium positive correlation ($r = 0,30$ to $0,49$) was identified for C2 and C8. Whereas for C6 a small negative correlation of $-0,20$ was identified.</p> <p>For the strong positive correlation, no differences were identified that will not influence the stakeholders' decisions.</p>
Company	Correlation (r)																				
C1	1.0																				
C2	0.45																				
C3	0.65																				
C4	0.6																				
C5	0.5																				
C6	-0.2																				
C7	0.65																				
C8	0.3																				
C9	0.8																				
 <p style="text-align: center;">TI Value</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <caption>TI Value Correlation Data</caption> <thead> <tr> <th>Company</th> <th>Correlation (r)</th> </tr> </thead> <tbody> <tr><td>C1</td><td>1.0</td></tr> <tr><td>C2</td><td>0.4</td></tr> <tr><td>C3</td><td>0.7</td></tr> <tr><td>C4</td><td>0.6</td></tr> <tr><td>C5</td><td>0.6</td></tr> <tr><td>C6</td><td>-0.1</td></tr> <tr><td>C7</td><td>0.65</td></tr> <tr><td>C8</td><td>0.25</td></tr> <tr><td>C9</td><td>0.8</td></tr> </tbody> </table>	Company	Correlation (r)	C1	1.0	C2	0.4	C3	0.7	C4	0.6	C5	0.6	C6	-0.1	C7	0.65	C8	0.25	C9	0.8	<p>There is a large positive correlation ($r = 0,50$ to $1,00$) identified for C1, C3, C4, C5, C7 and C9. A Small positive correlation ($r = 0,30$ to $0,49$) was identified for C2 and a small negative correlation for C6.</p> <p>For the strong positive correlation, no differences were identified that will not influence the stakeholders' decisions.</p>
Company	Correlation (r)																				
C1	1.0																				
C2	0.4																				
C3	0.7																				
C4	0.6																				
C5	0.6																				
C6	-0.1																				
C7	0.65																				
C8	0.25																				
C9	0.8																				

Correlation for net profit in rand and ROE	Interpretation of correlation graph																				
<p style="text-align: center;">EP Value</p>  <table border="1" data-bbox="204 309 858 869"> <caption>EP Value Correlation Data</caption> <thead> <tr> <th>Company</th> <th>Correlation (r)</th> </tr> </thead> <tbody> <tr><td>C1</td><td>1.0</td></tr> <tr><td>C2</td><td>0.0</td></tr> <tr><td>C3</td><td>-0.5</td></tr> <tr><td>C4</td><td>-0.1</td></tr> <tr><td>C5</td><td>-0.7</td></tr> <tr><td>C6</td><td>-0.3</td></tr> <tr><td>C7</td><td>0.4</td></tr> <tr><td>C8</td><td>0.4</td></tr> <tr><td>C9</td><td>0.8</td></tr> </tbody> </table>	Company	Correlation (r)	C1	1.0	C2	0.0	C3	-0.5	C4	-0.1	C5	-0.7	C6	-0.3	C7	0.4	C8	0.4	C9	0.8	<p>Four of the companies (C3 to C6) have a negative correlation of which two are strong negative. Furthermore, a large positive correlation ($r = 0,50$ to $1,00$) for all of the other companies was identified, except for C7 and C8 with a medium positive correlation ($r = 0.30$ to 0.49).</p> <p>For the strong positive correlation, no differences were identified that will not influence the stakeholders decisions</p>
Company	Correlation (r)																				
C1	1.0																				
C2	0.0																				
C3	-0.5																				
C4	-0.1																				
C5	-0.7																				
C6	-0.3																				
C7	0.4																				
C8	0.4																				
C9	0.8																				
<p style="text-align: center;">APROE Value</p>  <table border="1" data-bbox="204 900 858 1460"> <caption>APROE Value Correlation Data</caption> <thead> <tr> <th>Company</th> <th>Correlation (r)</th> </tr> </thead> <tbody> <tr><td>C1</td><td>1.0</td></tr> <tr><td>C2</td><td>0.1</td></tr> <tr><td>C3</td><td>0.3</td></tr> <tr><td>C4</td><td>0.45</td></tr> <tr><td>C5</td><td>0.25</td></tr> <tr><td>C6</td><td>0.2</td></tr> <tr><td>C7</td><td>0.15</td></tr> <tr><td>C8</td><td>0.45</td></tr> <tr><td>C9</td><td>0.75</td></tr> </tbody> </table>	Company	Correlation (r)	C1	1.0	C2	0.1	C3	0.3	C4	0.45	C5	0.25	C6	0.2	C7	0.15	C8	0.45	C9	0.75	<p>C1 has a large positive correlation of $r = 1$ compared to that of C2 with a small positive correlation of $r = 0.10$ to 0.29. All the correlations for APROE are positive where four companies are largely positive, one is medium positive and the remaining four are small positive correlations.</p> <p>For the strong positive correlation, no differences were identified that will not influence the stakeholders decisions</p>
Company	Correlation (r)																				
C1	1.0																				
C2	0.1																				
C3	0.3																				
C4	0.45																				
C5	0.25																				
C6	0.2																				
C7	0.15																				
C8	0.45																				
C9	0.75																				
<p style="text-align: center;">TIROE Value</p>  <table border="1" data-bbox="204 1491 858 2051"> <caption>TIROE Value Correlation Data</caption> <thead> <tr> <th>Company</th> <th>Correlation (r)</th> </tr> </thead> <tbody> <tr><td>C1</td><td>1.0</td></tr> <tr><td>C2</td><td>0.2</td></tr> <tr><td>C3</td><td>0.35</td></tr> <tr><td>C4</td><td>0.45</td></tr> <tr><td>C5</td><td>0.4</td></tr> <tr><td>C6</td><td>0.35</td></tr> <tr><td>C7</td><td>0.2</td></tr> <tr><td>C8</td><td>0.55</td></tr> <tr><td>C9</td><td>0.8</td></tr> </tbody> </table>	Company	Correlation (r)	C1	1.0	C2	0.2	C3	0.35	C4	0.45	C5	0.4	C6	0.35	C7	0.2	C8	0.55	C9	0.8	<p>There is a strong positive correlation for C1, C8 and C9 between $r = 0.50$ and 1. C3 to C6 indicates a medium correlation ranging from 0.30 to 0.38. For the small positive correlation C2 and C7 falls between 0.10 and 0.29.</p> <p>For the strong positive correlation, no differences were identified that will not influence the stakeholders decisions</p>
Company	Correlation (r)																				
C1	1.0																				
C2	0.2																				
C3	0.35																				
C4	0.45																				
C5	0.4																				
C6	0.35																				
C7	0.2																				
C8	0.55																				
C9	0.8																				

Correlation for net profit in rand and ROE	Interpretation of correlation graph
 <p>The bar chart displays the correlation coefficient (r) for nine companies (C1-C9). The y-axis ranges from -0.4 to 1.2. C1 shows a strong positive correlation of 1.0. C2, C3, and C6 show small negative correlations of approximately -0.3, -0.1, and -0.1 respectively. C4, C5, C7, C8, and C9 show small positive correlations of approximately 0.1, 0.1, 0.1, 0.2, and 0.4 respectively.</p>	<p>For the EPROE values only one result indicates a strong positive correlation on 1 for C1. A medium positive correlation is indicated for C9, whereas C4, C5, C7 and C8 falls within the small positive correlation between 0.10 to 0.29. Furthermore, three instances (C2, C3 and C6) indicates a small negative correlation between -0.10 and -0.29.</p> <p>For the strong positive correlation, no differences were identified that will not influence the stakeholders decisions</p>

Source: SPSS© (2013)

Table 4.16 identifies where the net profit in rand and ROE falls within a strong positive relationship and in some cases a negative relationship. The results obtained from Table 4.16 illustrates that the correlations can be summarised and assists in organising the correlations into three categories namely; positive, negative and none. Figure 4.8 will highlight the findings of Table 4.16 by categorising the correlations into three categories.

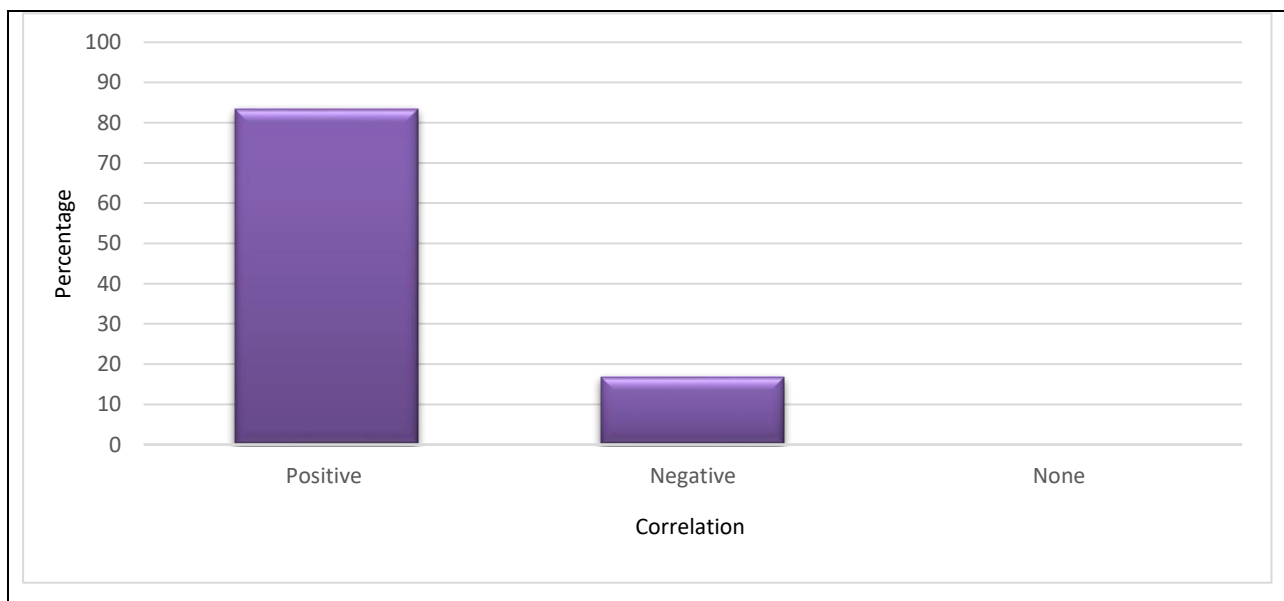


Figure 4-8: Summary of results of categories of correlation

Source: SPSS© (2013)

There are no instances recognised where no correlation could not be obtained. From the total correlations discussed in Table 4.16 and in relation to Figure 4.8, a total of 83% of the sample resulted in a positive correlation, whereas 17% indicated a negative correlation. The inverse relationship results in the influence of stakeholders' decisions.

4.3.1.2. Frequency

In order to perform descriptive statistics frequencies are essential to determine if all observations are included in the study. Similar to the range, errors can also be identified through frequencies. Field (2009:96) remarks that with frequencies data are divided per variable identified, for the study the data were divided per company into variables. In Chapter 3, Table 3.7 indicates that data were available for C1 to C9, for C10 no data were obtained and will therefore not only influence one variable but all variables used for the company. The frequencies of observations are illustrated by a straightforward histogram in Figure 4.9.

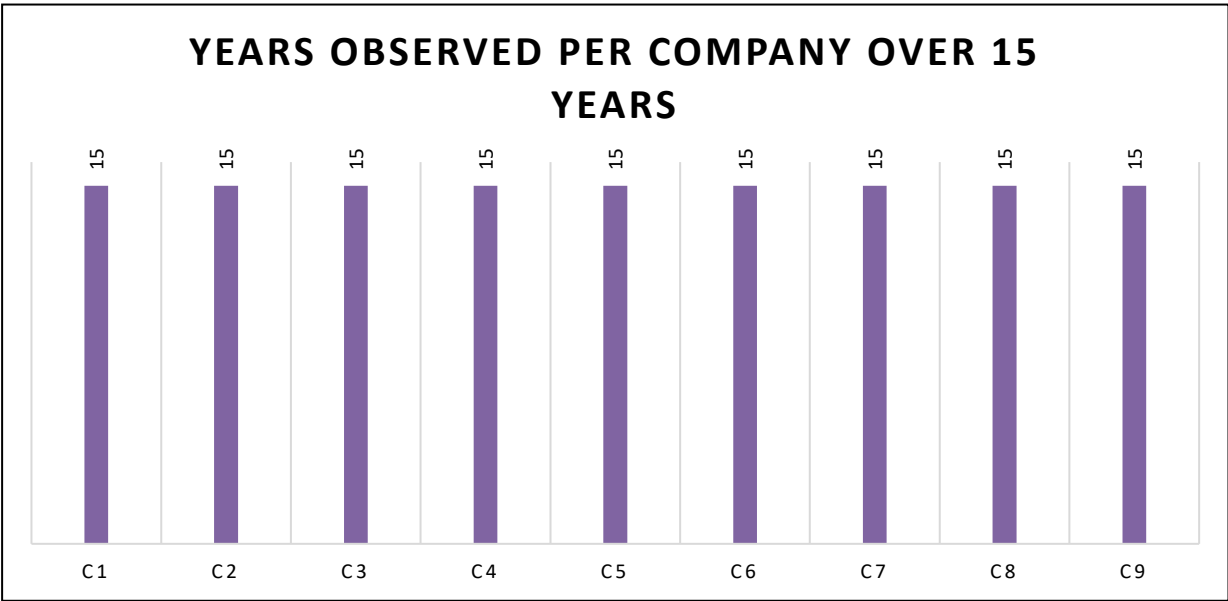


Figure 4-9: Frequencies of observations made per company

Source: SPSS© (2013)

The variables are consistent for each company individually. As previously discussed in Chapter 3 illustrated in Table 3.7, instances where no financial data were obtained as a result of no published audited financial statements being available, the missing period

was excluded from the sample and all other financial periods where published audited financial statements were available were included in the sample.

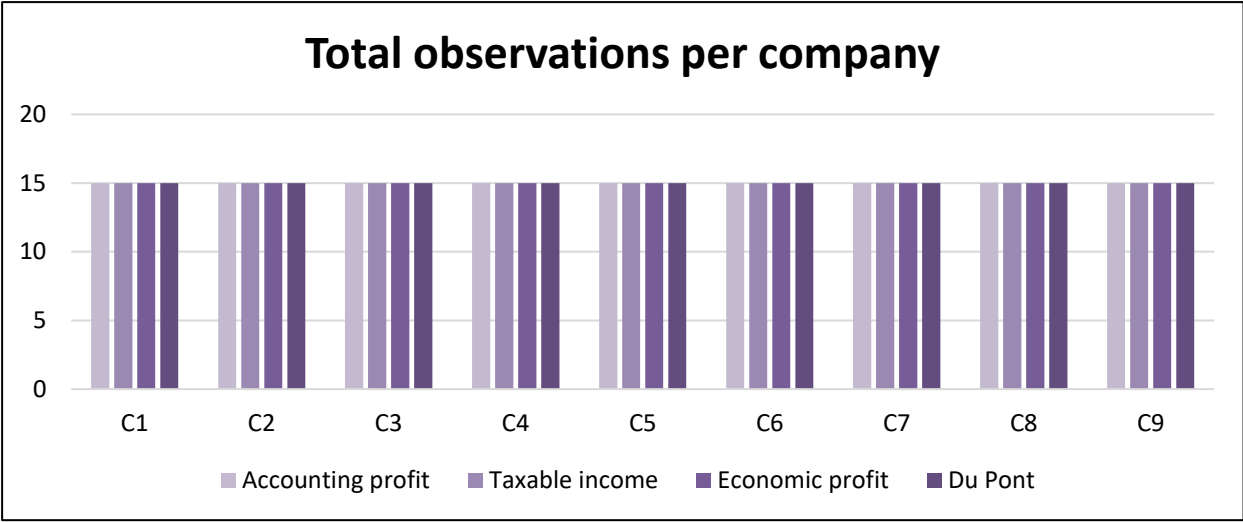


Figure 4-10: Total frequencies of observations made per company

Source: SPSS© (2013)

Figure 4.9 illustrates that a total of 135 frequency observations were made (nine companies over a period of 15 years) whereas, Figure 4.10 illustrates that the overall total of frequency observation was 540, for three different sets of profit figures and the Du Pont analysis (ROE). With the high number of the total frequency observations the relevance of the information is increased.

4.4. THE EMPIRICAL RESEARCH FINDINGS

According to Welman *et al.* (2012:241) the results should only be interpreted once the final research has been conducted. Therefore, from the collected information a conclusion should be drawn. According to Mouton (2011:53) the results should, preferably resolve the research question. The purpose of this section is to investigate the relationship between each set of profit figures (AP, TI and EP) compared to that of the ROE. Profitability ratios identified in Section 2.2.6 are used in the analysis as stakeholders assess company performance by applying profitability ratios. The benchmarks in Table 4.17 are calculated using profitability ratios from the year 2001 until 2015 based on the mean (average) for each sector.

Table 4-17: Benchmarks of ROE

ROE	APDPAVE	TIDPAVE	EPDPAVE
C1	4,42%	4,82%	1,92%
C2	41,17%	40,54%	-9,08%
C3	2,34%	2,63%	-2,21%
C4	36,92%	38,47%	-34,64%
C5	27,34%	31,03%	-65,53%
C6	17,18%	17,67%	-46,51%
C7	20,64%	21,25%	4,63%
C8	206,35%	206,21%	181,03%
C9	106,73%	108,22%	81,00%

Source: SPSS© (2013)

The researcher focused on the profitability ratios included in the Du Pont analysis as a key measuring tool assessing the relationship between AP, TI and EP. An in-depth analysis of the profitability ratios will furthermore be discussed in this chapter. Damodaran (2002:47) explains that in order to measure profitability, risk and financial leverage of each company, historical ratios will be used. The observations obtained for the nine companies for 2001–2015 are presented in the paragraphs to follow, in order for a conclusion to be drawn from the data. In Section 4.4.1 the basic resources sector is addressed followed by chemicals/healthcare sector.

4.4.1. Basic resource sector

Table 4.18 depicts financial information taken from the financial statements obtained from McGregor (INET BFA) for C1 from 2001 to 2015 to determine the impact between difference AP, TI and EP has when calculating the profitability ratio.

Table 4-18: Profitability ratios for C1 from 2001 to 2015

Description	Values in Rand (R'billion)														
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Sales	144 302	159 887	124 505	149 587	199 937	217 934	286 693	474 805	404 080	407 392	491 861	604 181	672 062	722 041	646 590
Total assets	227 135	296 170	224 849	200 343	281 370	327 462	420 518	604 791	632 000	683 897	695 158	107 9180	1 405 535	1 625 297	1 539 758
Equity	91 898	123 832	95 227	91 135	115 055	163 461	214 474	305 508	320 565	373 498	383 499	549 887	719 147	849 537	800 507
AP	2 502	2 429	2 593	4 115	7 969	10 489	13 345	23 484	11 618	19 572	31 255	23 022	17 872	21 041	7 508
TI	2 143	2 766	2 949	4 541	8 766	14 183	18 012	23 484	11 618	19 572	31 255	23 022	17 872	22 236	8 056
EP	-715	-1 136	-339	863	3 778	2 993	4 504	17 065	5 254	12 728	24 359	16 041	11 414	10 707	-518
Net profit % AP	1.73	1.52	2.08	2.75	3.99	4.81	4.65	4.95	2.88	3.82	6.35	3.81	2.66	2.91	1.16

Values in Rand (R'billion)															
Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net profit % TI	1.48	1.73	2.37	3.04	4.38	6.51	6.28	4.95	2.88	4.80	6.35	3.81	2.66	3.08	1.25
Net profit % EP	-0.50	-0.71	-0.27	0.58	1.89	1.37	1.57	3.59	1.30	3.12	4.95	2.65	1.70	1.48	-0.08
Total asset turnover	0.64	0.54	0.55	0.75	0.71	0.67	0.68	0.79	0.64	0.60	0.71	0.56	0.48	0.44	0.42
ROA % AP	1.11	0.82	1.15	2.05	2.84	3.20	3.17	3.89	1.84	2.28	4.49	2.13	1.27	1.29	0.49
ROA % TI	0.95	0.93	1.30	2.28	3.11	4.36	4.27	3.91	1.84	2.88	4.51	2.13	1.28	1.36	0.52
ROA % EP	-0.32	-0.38	-0.15	0.43	1.34	0.92	1.07	2.84	0.83	1.87	3.52	1.49	0.82	0.65	-0.03
FLM	2.47	2.39	2.36	2.20	2.45	2.00	1.96	1.98	1.97	1.84	1.81	1.96	1.95	1.91	1.92

Values in Rand (R'billion)															
Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
ROE AP	2.74	1.96	2.72	1.65	6.95	6.41	6.22	7.70	3.63	4.17	8.14	4.18	2.48	2.47	0.94
ROE TI	2.34	2.22	3.07	5.02	7.63	8.72	8.37	7.74	3.62	5.30	8.16	4.17	2.50	2.60	1.00
ROE EP	-0.79	-0.92	-0.35	0.95	3.29	1.84	2.09	5.62	1.64	3.45	6.36	2.90	1.59	1.25	-0.06

Source: SPSS© (2013)

The net profit percentage of C1 for AP and TI has significantly increased from 2001 to 2008. The AP net profit percentage for 2008 were 4,95%, similar to that of TI, whereas, EP has a slightly lower net profit percentage of 3,59%. From 2008 onwards, there were a fluctuation between the net profit percentages of AP, TI and EP. In 2015 the net profit percentage for AP were 1,16%, compared to that of TI with 1,25%. EP had a significant decrease in net profits as the percentage reached a negative of 0,08%.

The ROA were unstable during the first three years and increased minimally. In 2004 the ROA of AP increased by 0,9%, compared to that of the previous year. The ROA of TI increased with more that 0,98%, whereas the ROA for EP slightly increased with 0,58%. The highest ROA is identified in 2011, were AP obtained 4,49%, TI were 4,51% and EP a mere 3,52%. The ROA from 2012 to 2015 deteriorated as a result of low profits. Although the ROA declined the total fixed assets increased by 29,91%.

The ROE from 2004 to 2008 has increased with 6,05% for AP, 2,72% for TI and 4,67% for EP. In 2011 the peak reached for AP, TI and EP were 8,14% ,8,16% and 6,36% respectively.

As identified the ROE benchmarks set for C1 as illustrated in Table 4.17 were:

Table 4-19: ROE benchmark for C1

ROE AP	ROE TI	ROE EP
4,42%	4,82%	1,92%

The benchmarks set were reached by AP from 2005 to 2008, then once again in 2011, whereas TI satisfied the benchmark set from 2004 until 2008, then again in 2010 and 2011. EP on the other hand has a significantly lower benchmark set due to lower profit but were reached in 2005, 2007, 2008 and 2010 to 2012.

As a result of the findings above, it can be stated that the net profit percentage of AP, TI and EP has an adverse effect on the profitability ratios and impacts the ROE of C1 significantly.

The net profit percentage is affected by two variables namely, net profit and sales. In the study sales remained constant whereas the net profit changed based on the framework and

calculation methods as discussed in Chapter 2, paragraph 2.6. Figure 4.11 illustrates the relationship between AP, TI and EP as determined by applying Chapter 2, section 2.6.

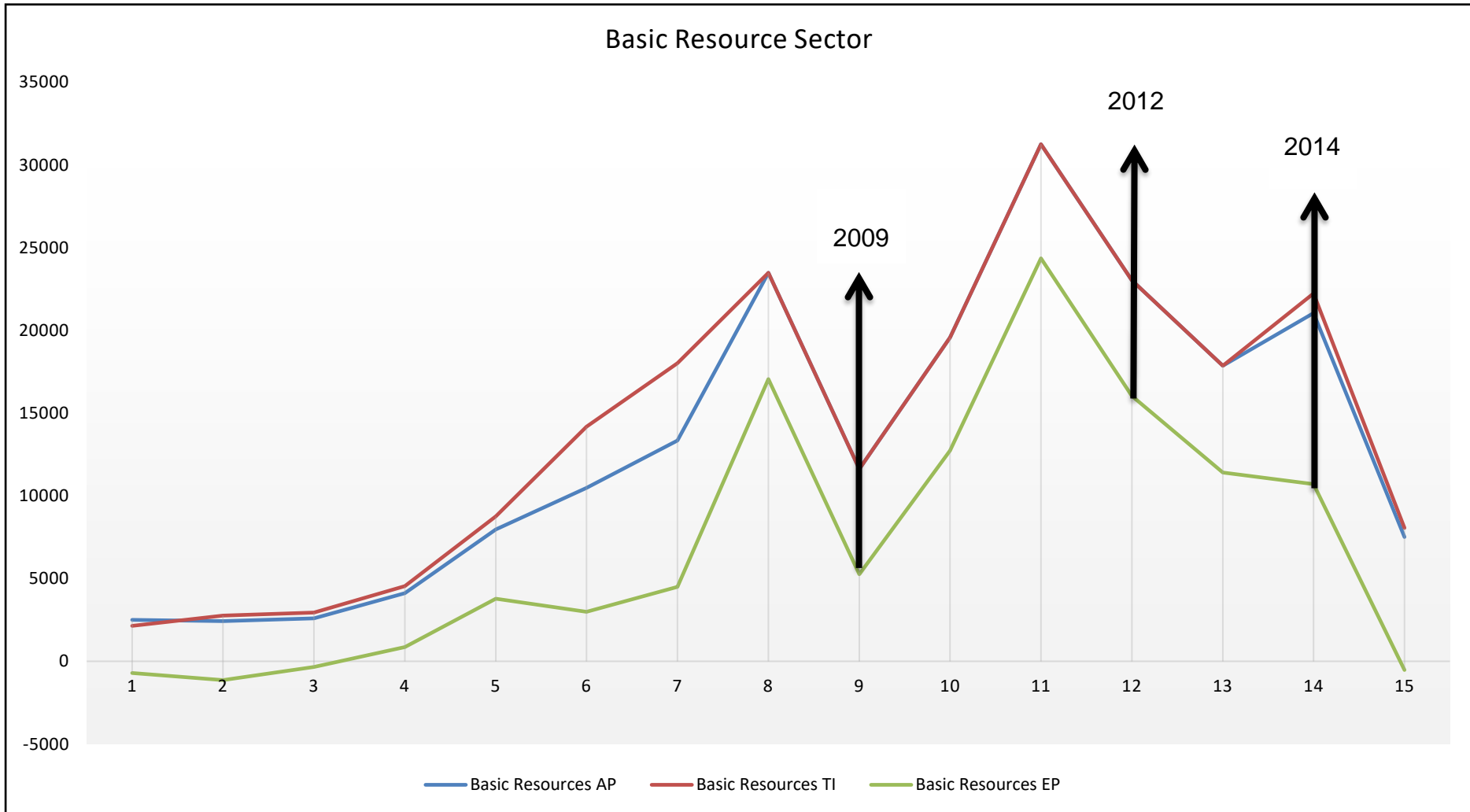


Figure 4-11: Graph on basic resources sector

Figure 4.11 illustrates the basic resource sector, better known as the mining sector where the AP, TI and EP were compared to one another and consistently applied over 15 years. The graph shows a negative skewness with the higher values distributed to the right. It is important to note that the mining industry is considered a specialised industry and the profitability ratios and structures differ greatly from other industries, therefore this may also impact the manner in which profit is determined (Cassim, 2014:38).

In 2009 the mining sector experienced a significant decrease in profits, as the strike season was announced on 6 August 2008. After the strikes ended in 2009, the mining sector started to increase the profitability and grew by 29,09%. The year 2011 is identified as the most profitable period for the mining sector where AP and TI obtained over R30 000 million whereas EP achieved R25 000 million.

In addition to yearly strikes, the mining sector is influenced by economic conditions of the country. Mo (2013:256) explains that in 2012 the mining sector experienced negative returns due to the weakening South African currency compared to that of international countries (USD) and lower product demands exported to international markets. In 2012, 39 mining companies market capitalisation decreased by 9%, from R910 billion to R833 billion (PWC, 2012:3). In 2014 there was a slight increase in the mining market and in 2015 the market plummeted to values last recorded in 2005 due to a production decline (coal, gold and iron ore).

4.4.2. Chemicals/Health care sector

The table below (Table 4.20) provides the profitability ratios of C2 based on line items obtained from company financial statements in comparison with the set benchmarks.

Table 4-20: Profitability ratios for C2 from 2001 to 2015

		Values in Rand (R'billion)														
Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
Sales	1 149	1 582	1 900	2 201	2 869	3 449	4 025	4 881	8 736	10 203	12 876	15 255	19 308	29 515	36 126	
Total assets	934	1 169	1 184	158	2 331	3 186	6 392	6 535	8 019	1 073	13 254	14 504	20 515	40 206	42 869	
Equity	350	614	787	1 066	1 086	1 551	2 220	3 095	4 020	10 669	13 064	17 389	22 793	28 874	34 138	
AP	254,4	402,7	414,5	542,2	704,5	882,8	1 041,8	1 246,9	1 746,3	2 272,4	2 763,2	3 463,1	4 489,4	6 356,5	6 538	
TI	248,4	340,4	388,9	528,5	782	882,7	1 041,8	1 245,7	1 743	2 270,7	2 763,2	3 463,1	4 489,4	6 356,5	6 538	
EP	-3.32	11.95	8.88	5.26	-16.41	-12.84	-19.43	-4.38	-3.64	-3.51	-4.11	-4.18	-29.97	-15.03	-22.08	
Net profit % AP	22.14	25.46	21.82	24.63	24.56	25.60	25.88	25.55	19.99	22.27	21.46	22.70	23.25	21.54	18.10	

Values in Rand (R'billion)															
Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net profit % TI	21.62	21.52	20.47	24.01	27.26	25.59	25.88	25.52	19.95	22.26	21.61	22.70	23.25	21.54	18.10
Net profit % EP	-3.32	11.95	8.88	5.26	-16.41	-12.84	-19.43	-4.38	-3.64	-3.51	-4.11	-4.18	-29.97	-15.03	-22.08
Total asset turnover	1.23	1.35	1.60	13.93	1.23	1.08	0.63	0.75	1.09	9.51	0.97	1.05	0.94	0.73	0.84
ROA % AP	27.24	34.45	35.02	343.10	30.23	27.65	16.30	19.08	21.78	211.76	20.85	23.88	21.88	15.81	15.25
ROA % TI	26.60	29.05	32.75	334.48	33.53	27.64	16.31	19.14	21.75	211.65	20.96	23.84	21.86	15.72	15.20
ROA % EP	-4.08	16.14	14.21	73.33	-20.18	-13.87	-12.24	-3.29	-3.96	-33.34	-3.98	-4.39	-28.17	-10.97	-18.55
FLM	2.67	1.50	1.50	0.15	2.15	2.05	2.88	2.11	1.99	0.10	1.01	0.83	0.90	1.39	1.26

Values in Rand (R'billion)															
Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
ROE AP	72.69	51.68	52.69	51.46	64.89	56.80	46.93	40.29	43.45	21.30	21.15	19.92	19.69	22.01	19.15
ROE TI	71.01	43.57	49.12	50.17	72.08	56.66	46.96	40.39	43.28	21.16	21.17	19.78	19.67	21.85	19.15
ROE EP	-10.89	24.21	21.32	11.00	-43.39	-28.43	-35.26	-6.93	-7.89	-3.33	-4.02	-3.64	-25.35	-15.25	-23.37

Source: SPSS© (2013)

The net profit percentage for AP of C2 recorded in 2001 was 22,14%, TI was 21,62% and EP recorded as -3,32%. The net profit percentage for AP and TI were significantly similar throughout the 15 years. With EP the net profit percentage plummeted into negative percentages up to 29,97% in 2013, with the only positive percentages obtained from 2002 to 2004. These negative percentages will directly influence the ROE. The fluctuation between the net profit percentages of C2 can be explained by expenses incurred from one year to the next resulting in lower profits.

The ROA of AP in 2002 increased to 34,45% compared to the previous year's 27,24%, whereas TI increased to 29,05% and EP increased from -4,08% to 16,14%. In 2004 and 2010 the ROA reached a staggering 343,1% and 211,76% for AP, 334,48% and 211,65% for TI and EP reached 73,33% in 2004. The ROA increased due to the profit and total assets value for the years decreased simultaneously.

The ROE is affected by the company's total assets compared to that of equity. For the periods 2001 until 2009 the company's total assets greatly exceeded the company's equity, whereas in 2010 and 2012 to 2015 the equity exceeded the company's total assets resulting in a decrease in the overall ROE. The ROE of C2 has decreased from 2010 until 2015.

As identified the ROE benchmarks set for C2 as shown in Table 4.17 were:

Table 4-21: ROE Benchmark of C2

ROE AP	ROE TI	ROE EP
41,17%	40,54%	-9,08%

The benchmarks set for AP and TI were reached from 2001 until 2007, then once again in 2009, whereas EP satisfied the benchmark set from 2004 until 2008, then again in 2010 and 2011. EP has a negative benchmark of 9,08% that was only exceeded in 2002 until 2004.

Figure 4.12 expressed the difference between the three sets of profit figures as identified in Table 4.20.

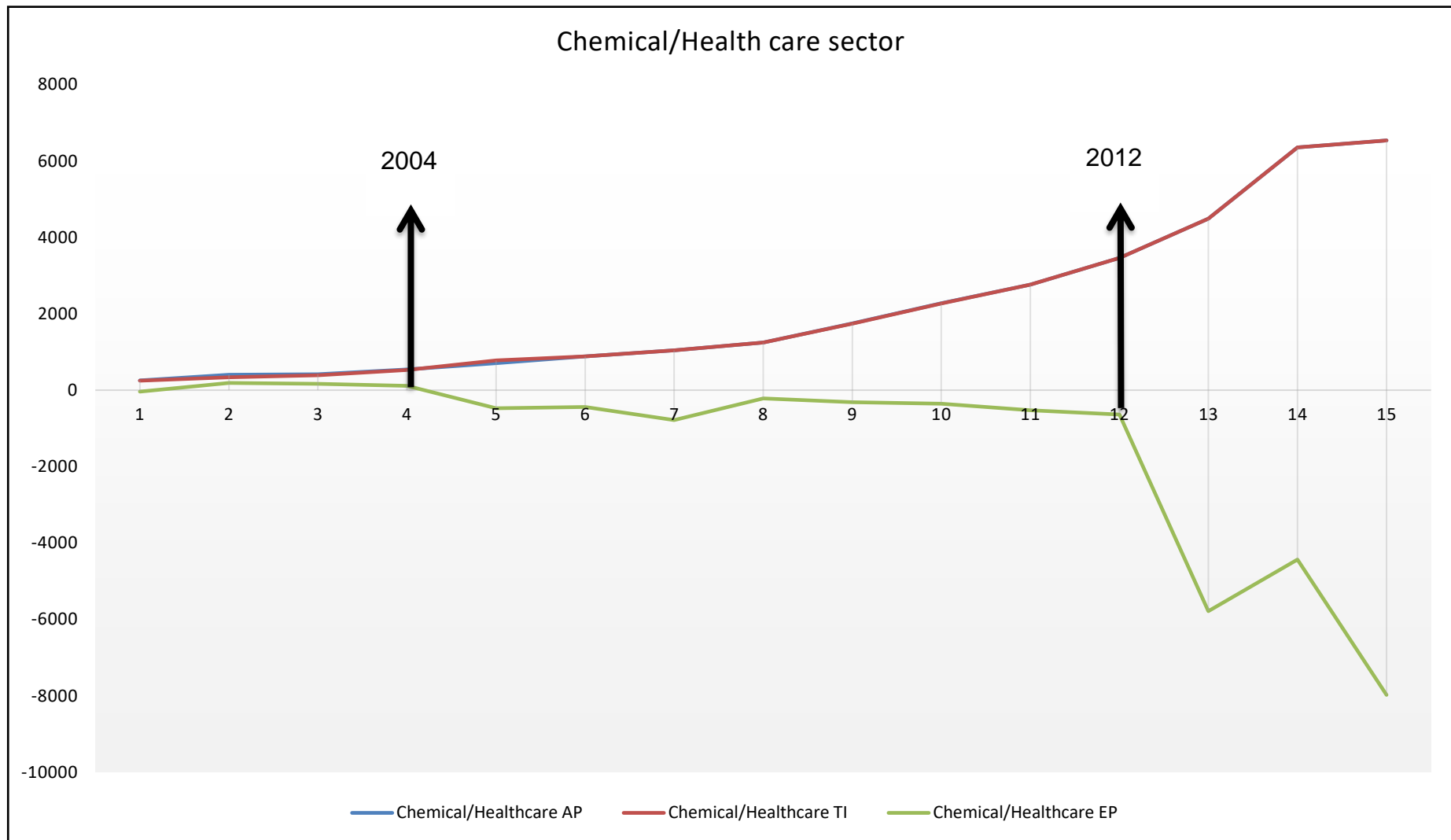


Figure 4-12: Graph on chemicals/healthcare sector

In Figure 4.12 the chemical and healthcare sector were illustrated where the AP, TI and EP were compared to one another and consistently applied over 15 years. The graph shows a negative skewness with the higher values distributed to the right as well as showing the EP plummeted to a negative profit of R8 000 million in 2015. A particularly interesting feature of the results illustrated in Figure 4.12 is the flat trend from 2004–2012.

In 2004 a structural change known as the Tribunal decision improved the health care sector that assisted in the slight increase of profits during 2005. From 2004–2012 there is a steady increase in the market concentration levels for hospitals, medical schemes and medical scheme administrator markets. From 2012 economic profit decreased from negative R 2 000 million to negative R 6 000 million. The global economic recession in 2012 influenced the South African chemicals and healthcare sector worse than the 2009 recession in terms of economic growth in the country.

4.4.3. Consumer goods sector

Table 4.22 depicts the financial information of C3 in order to determine the overall effect on profitability for AP, TI and EP may have compared to the benchmarks set in Table 4.17.

Table 4-22: Profitability ratios for C3 from 2001 to 2015

Description	Values in Rand (R'-billion)														
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Sales	28 079	43 091	65 788	75 598	75 814	96 430	137 872	170 460	192 100	134 227	134 398	165 795	212 276	240 704	272 894
Total assets	34 037	65 401	101 499	91 463	88 727	166 090	209 902	284 772	323 468	278 405	270 191	418 453	514 232	579 253	533 263
Equity	16 249	26 535	48 870	40 862	44 661	80 917	105 228	139 512	157 289	147 799	152 049	188 529	240 902	283 629	285 458
AP	602	571	909	1 538	2 288	2 276	2 599	2 992	2 442	2 056	2 602	4 451	3 468	3 597	3 747
TI	646	791	770	1 391	2 194	2 453	2 804	3 264	2 958	2 929	3 626	5 603	4 712	4 823	4 830
EP	-557	-715	-847	-76	554	287	268	-236	-6 111	-7 305	-7 221	-7 300	-8 692	-8 961	-7 191

Values in Rand (R'billion)															
Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net profit % AP	2.14	1.33	1.38	2.03	3.02	2.36	1.89	1.76	1.27	1.53	1.94	2.68	1.63	1.49	1.37
Net profit % TI	2.30	1.84	1.17	1.84	2.89	2.54	2.03	1.91	1.54	2.18	2.70	3.38	2.22	2.00	1.77
Net profit % EP	-1.98	-1.66	-1.29	-0.10	0.73	0.30	0.19	-0.14	-3.18	-5.44	-5.37	-4.40	-4.09	-3.72	-2.64
Total asset turnover	0.82	0.66	0.65	0.83	0.85	0.58	0.66	0.60	0.59	0.47	0.50	0.39	0.41	0.42	0.51
ROA % AP	1.77	0.88	0.89	1.68	2.58	1.37	1.25	1.05	0.75	0.71	0.96	1.06	0.67	0.62	0.70
ROA % TI	1.89	1.21	0.76	1.53	2.46	1.48	1.34	1.15	0.91	1.03	1.35	1.32	0.91	0.84	0.90
ROA % EP	-1.62	-1.10	-0.84	-0.08	0.62	0.17	0.13	-0.08	-1.88	-2.56	-2.69	-1.72	-1.68	-1.56	-1.34

		Values in Rand (R'billion)													
Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
FLM	2.09	2.46	2.08	2.24	1.99	2.05	1.99	2.04	2.06	1.88	1.78	2.22	2.13	2.04	1.87
ROE AP	3.71	2.17	1.85	3.76	5.13	2.81	2.49	2.14	1.54	1.34	1.71	2.35	1.43	1.27	1.31
ROE TI	3.94	2.98	1.58	3.42	4.90	3.02	2.67	2.34	1.87	1.93	2.40	2.93	1.94	1.72	1.69
ROE EP	-3.39	-2.70	-1.74	-0.19	1.24	0.35	0.26	-0.17	-3.87	-4.81	-4.78	-3.81	-3.58	-3.19	-2.51

Source: SPSS© (2013)

The net profit percentage for AP recorded in 2002 is lower than that of 2001, similarly the net profit percentage for TI in 2002 is also lower than that of 2001, whereas the net profit percentage for EP increased from an adverse -1,98% to -1,66%. Furthermore, the overall net profit percentage remained significantly consistent throughout the 15 years with the exception being in 2004 to 2006 and 2012. C3 incurred higher expenses, such as cost of sales, salaries and management fees resulting in the profits remaining low in comparison to the yearly sales.

The negative net profit percentages for EP will decrease the ROA, as ROA is directly affected by the net profit margin and total asset turnover. C3 supplies consumer goods therefore inventory held as part of assets is quickly converted into sales thus the reason for the asset turnover rate being below 1.

By determining the ROA the net profit margin is multiplied with the total asset turnover, C3 has a negative ROA for EP that will ultimately affect the ROE for EP.

As identified in Table 4.17 the ROE benchmarks set for C3 were:

Table 4-23: ROE Benchmark of C3

ROE AP	ROE TI	ROE EP
2,34%	2,63%	-2,21%

The ROE for AP recorded in 2001, 2004, 2005, 2006, 2007 and 2012 were 3,71%, 3,76%, 5,13%, 2,81%, 2,49% and 2,35%, higher than the benchmark of 2,34%, resulting from higher profits and equity. The benchmark set for TI was satisfied throughout the year except for 2003, 2007 till 2010 and again in 2013 until 2015. EP once again has a negative benchmark of 2,21% that was only exceeded in 2005 until 2007.

From Table 4.22 it can be said that there is an effect in the manner in which profit is determined. The difference between the three different sets of profit figures will be shown in Figure 4.13.

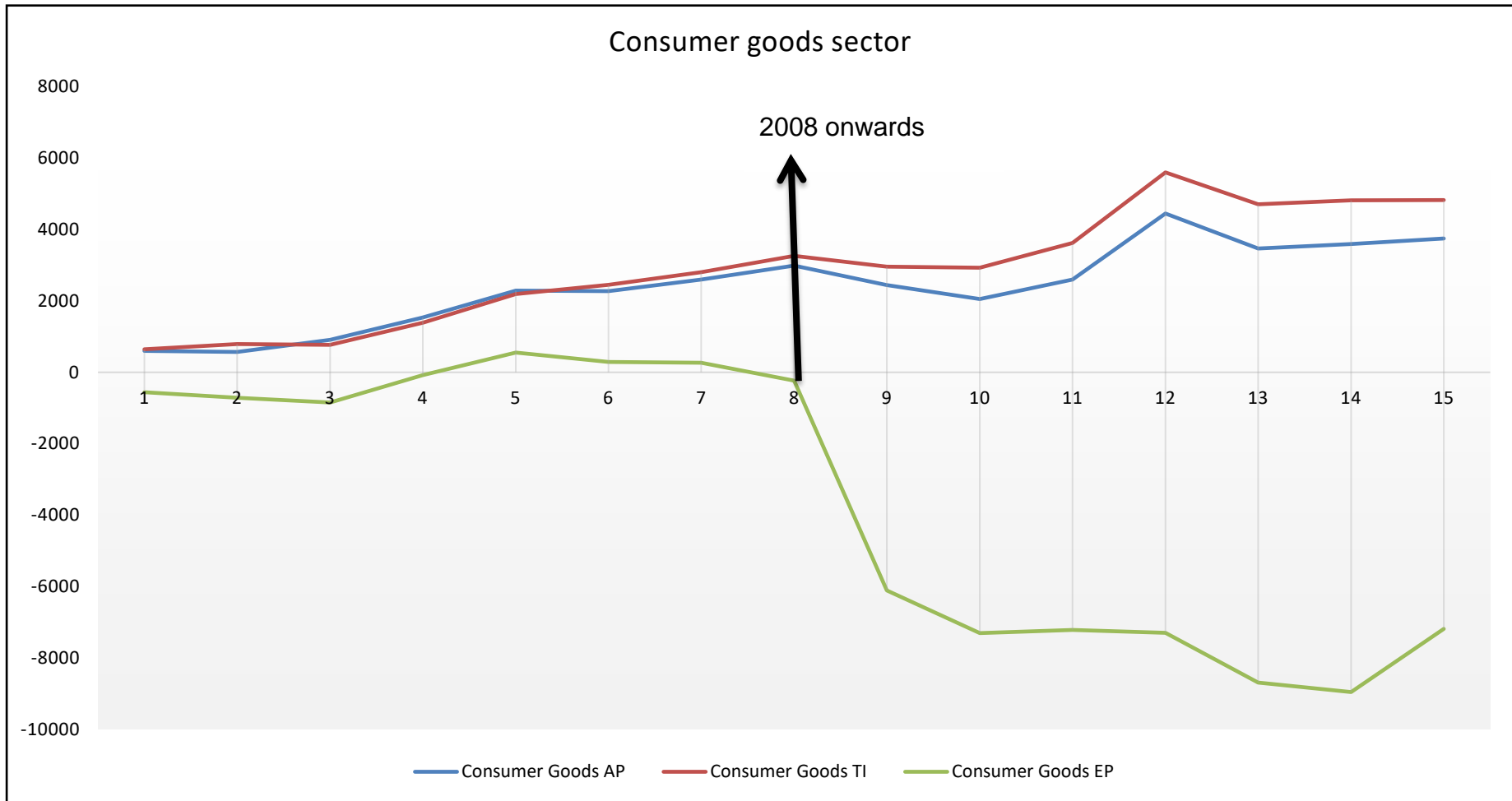


Figure 4-13: Graph on consumer goods sector

In Figure 4.13 the consumer goods sector illustrates the AP, TI and EP applied over 15 years. Negative skewness is illustrated in Figure 4.13 with the data distributed to the right. AP and TI are consistent over the period of 2001–2015, where EP fell dramatically in 2008, 2009, 2010 and further in 2012.

According to PWC (2012:2) the global economic crisis in 2008 brought pervasive uncertainty, with the Gross Domestic Profit (GDP) falling by 1,3% in 2009. Furthermore, growth is restricted in 2010 across retail and consumer products. PWC (2012:2) further explains that sales within the consumer goods sector in 2011 is forecasted to expand moderately slow. In 2012 the GDP was expected to increase by 2,8% with the strain being filtered through by the end of 2015 with the retail sales volumes expected to increase by more than 3,45% from 2013–2016.

4.4.4. Consumer services sector

Table 4.24 provides the profitability ratios of C4 for 2001 until 2015 in comparison with the benchmarks set for ROE.

Table 4-24: Profitability ratios for C4 from 2001 to 2015

Description	Values in Rand (R'-billion)														
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Sales	19 297	22 109	24 971	26 641	29 812	33 511	38 949	47 651	59 318	67 402	72 297	82 730	92 747	102 204	113 694
Total assets	6 442	6 518	6 961	7 901	8 513	9 706	11 601	14 534	16 385	17 380	19 984	30 011	32 450	39 308	42 462
Equity	1422	1 459	1 736	2 128	2 112	3 035	3 639	4 758	4 960	5 904	7 084	12 745	15 184	17 217	19 092
AP	279,7	478,8	456,9	667,8	924,5	1 434,7	1 708,2	2 461,4	3 019,4	3 399,2	3 876,5	4 481,8	5 189	5 477	5 984
TI	344,8	548,2	603,1	812,7	898,4	1 434,7	1 708,2	2 461,4	3 019,4	3 399,2	3 876,5	4 481,8	5 194	5 472	5 982
EP	-1 969,4	-1 883,4	-2 211,6	-1 959,3	-1 805,6	-1 880,4	-2 046	-2 284	-3 070,6	-2 773,2	-3 239,5	-4 302,3	-5 258,9	-7 022	-7 883

Values in Rand (R'billion)															
Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net profit % AP	1.45	2.17	1.83	2.51	3.10	4.28	4.39	5.17	5.09	5.04	5.36	5.42	5.59	5.36	5.26
Net profit % TI	1.79	2.48	2.42	3.05	3.01	4.28	4.39	5.17	5.09	5.04	5.36	5.42	5.60	5.35	5.26
Net profit % EP	-10.21	-8.52	-8.86	-7.35	-6.06	-5.61	-5.25	-4.79	-5.18	-4.11	-4.48	-5.20	-5.67	-6.87	-6.93
Total asset turnover	3.00	3.39	3.59	3.37	3.50	3.45	3.36	3.28	3.62	3.88	3.62	2.76	2.86	2.60	2.68
ROA % AP	4.34	7.36	6.56	8.46	10.86	14.78	14.74	16.95	18.43	19.55	19.39	14.94	15.98	13.94	14.08
ROA % TI	5.37	8.41	8.67	10.28	10.55	14.77	14.74	16.94	18.43	19.57	19.41	14.95	16.02	13.92	14.10
ROA % EP	-30.62	-28.88	-31.80	-24.78	-21.20	-19.36	-17.65	-15.72	-18.74	-15.96	-16.22	-14.35	-16.22	-17.86	-18.58

Values in Rand (R'billion)															
Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
FLM	4.53	4.47	4.01	3.71	4.03	3.20	3.19	3.05	3.30	2.94	2.82	2.35	2.14	2.28	2.22
ROE AP	19.66	32.88	26.30	31.41	43.77	47.27	46.99	51.78	60.88	57.55	54.70	35.18	34.15	31.83	31.31
ROE TI	24.33	37.58	34.77	38.14	42.51	47.27	47.02	51.68	60.81	57.53	54.74	35.14	34.28	31.74	31.30
ROE EP	-138.7	-129.	-127.5	-91.95	-85.43	-61.95	-56.30	-47.95	-61.84	-46.93	-45.74	-33.73	-34.70	-40.73	-41.25

Source: SPSS© (2013)

C4 has a recorded net profit percentage for AP of 1,45% in 2001 that increased with 3,72% until 2008, from 2009 and 2010 there were an insignificant decline of 0,08% and in 2013 an all high of 5,60% was achieved. For the net profit percentage recorded for TI in 2008 the percentage increased with 2,6% than that of 2001.

For C4's EP portion an overall negative percentage were obtained for NPM, ROA and ROE throughout the 15 years.

The total asset turnover for C4 is above one, as sales are turned over more than three times before assets are turned over once.

The ROA for both AP and TI significantly increased from 2001 until 2015. The recorded percentage for AP in 2015 were 14,08% whereas, TI were 14,10%, 0,02% more than that of AP. The overall ROA for AP increased by 9,65% and for TI by 8,73%.

For the ROE AP portion, the highest value recorded were 60,88% in 2009 and the lowest value was recorded in 2001 as 19,66%. TI recorded the highest value of 60,81%, 0,07% lower than that of AP and TI furthermore recorded the lowest value as 24,33%, 4,67% more than that of AP.

As shown in Table 4.17 the benchmarks set for C4 were as follow:

Table 4-25: ROE Benchmark of C4

ROE AP	ROE TI	ROE EP
36,92%	38,47%	-34,64%

The benchmarks set for AP and TI were 36.92% and 38.47% respectively. AP reached the benchmark during the period of 2005 until 2011, similarly TI also satisfied the benchmark from 2005 to 2011.

Compared to the ROE of AP and TI, EP will have to increase by 69,28% in order to reflect a positive equity return. Figure 4.14 illustrates the effect a negative EP has in comparison to AP and TI.

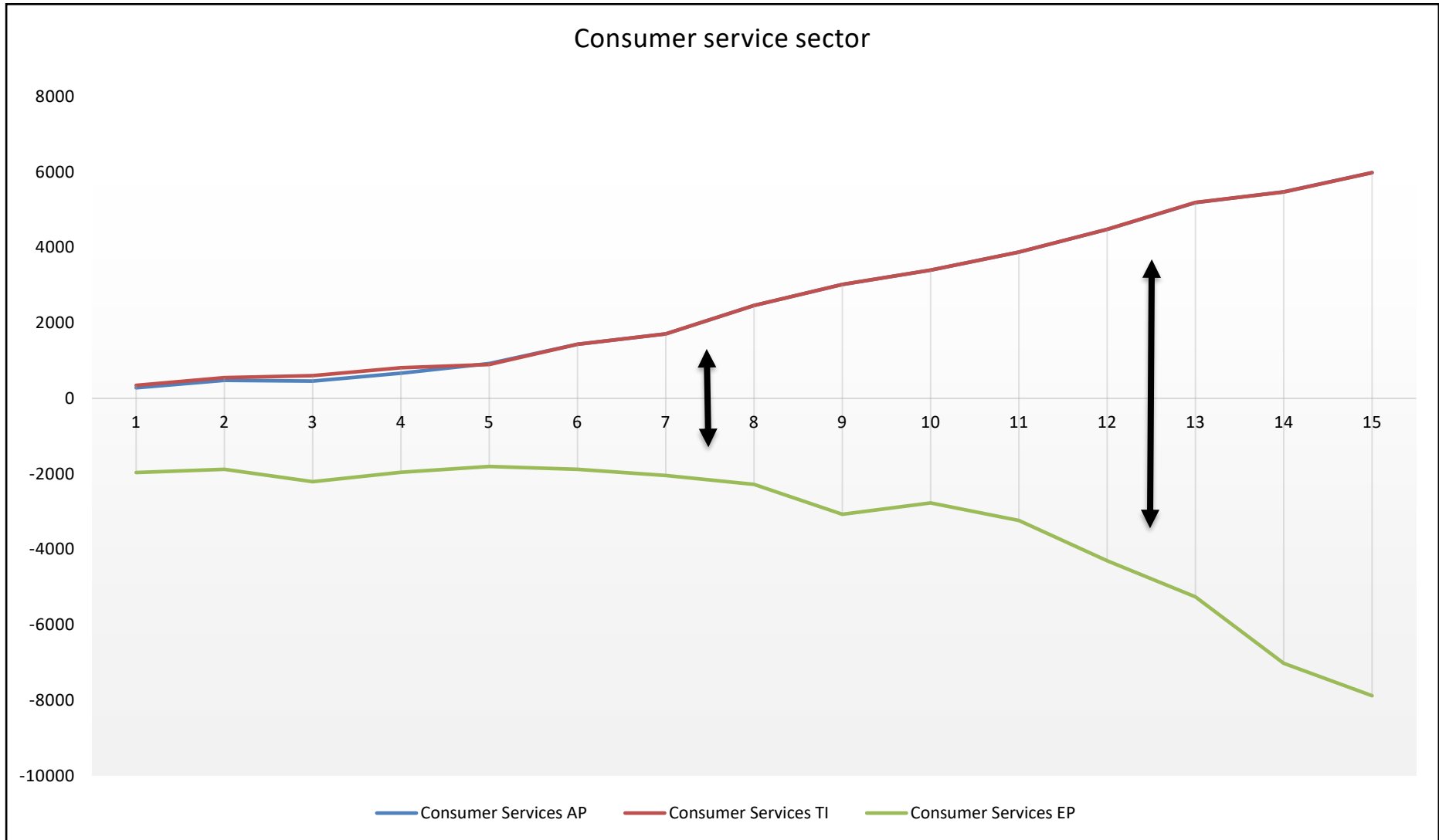


Figure 4-14: Graph on consumer services sector

In Figure 4.14, the consumer services sector is addressed by illustrating AP, TI and EP graphically. The AP, TI and EP were compared to one another and consistently applied over 15 years. The graph shows a steady growth according to the AP and TI to R6 000 million in 2015, whereas with EP a great downfall is illustrated from 2012.

Industrial Development Corporation (IDC) (2013:4) identified that the key consumer service sectors approximately held 19% of the total GDP in 2012. Over the period 2009–2015 the households made a negative contribution to the national savings pool that influenced the consumer service sector greatly. The overall sentiment within the South African economy reflects cyclical conditions for the period 2001–2015.

4.4.5. Financials sector

Table 4.26 depicts the financial information in order to determine the profitability ratios of C5 for the years 2001 until 2015.

Table 4-26: Profitability ratios for C5 from 2001 to 2015

Description	Values in Rand (R'billion)														
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Sales	10 622	13 564	15 196	18 975	21 314	38 544	47 643	63 910	53 273	38 377	44 665	19 455	22 479	84 069	91 115
Total assets	395 813	389 698	540 390	615 577	755 678	968 991	1 182 075	1 503 653	1 339 800	1 336 308	1 492 829	1 544 220	1 690 929	1 902 845	1 979 349
Equity	26 038	26 054	28 659	29 087	32 931	43 326	53 671	81 953	84 022	87 073	99 042	110 370	128 936	136 985	151 069
AP	6 657	8 196	8 684	11 060	12 906	14 582	18 102	23 634	22 568	18 353	18 848	20 572	23 350	29 834	36 034
TI	8 175	8 615	10 950	12 903	14 387	18 362	23 989	22 836	18 386	19 481	20 856	24 051	30 519	36 713	33 547
EP	-17 460	-25 366	-21 574	-25 449	-38 971	-46 775	-48 473	-62 633	-72 576	-67 935	-85 105	-89 708	-54 289	-54 238	-86 285

Values in Rand (R'billion)															
Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net profit % AP	62.67	60.42	57.14	58.29	60.55	37.83	38.00	36.98	42.36	47.82	42.20	105.74	103.87	35.49	39.55
Net profit % TI	76.96	63.51	72.06	68.00	67.50	47.64	50.35	35.73	34.52	50.76	46.69	123.62	135.77	43.67	36.82
Net profit % EP	- 164.38	- 187.01	- 141.97	- 134.12	- 182.84	- 121.35	- 101.74	-98.00	- 136.23	- 177.02	- 190.54	- 461.11	- 241.51	-64.52	-94.70
Total asset turnover	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.03	0.03	0.01	0.01	0.04	0.05
ROA % AP	1.68	2.10	1.61	1.80	1.71	1.50	1.53	1.57	1.68	1.37	1.26	1.33	1.04	1.57	1.82
ROA % TI	2.31	1.91	2.16	2.04	2.03	1.91	2.01	1.43	1.38	1.52	1.40	1.24	1.36	1.75	1.84
ROA % EP	-4.93	-5.61	-4.26	-4.02	-5.49	-4.85	-4.07	-3.92	-5.45	-5.31	-5.72	-4.61	-2.42	-2.58	-4.73

Values in Rand (R'billion)															
Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
FLM	15.20	14.96	18.86	21.16	22.95	22.37	22.02	18.35	15.95	15.35	15.07	13.99	13.11	13.89	13.10
ROE AP	25.54	31.41	30.36	38.09	39.24	33.55	33.70	28.81	26.79	21.03	18.99	18.61	13.64	21.81	23.85
ROE TI	35.10	28.50	40.77	43.17	46.47	42.63	44.35	26.23	22.02	23.38	21.11	17.29	17.80	24.26	24.12
ROE EP	-74.96	-83.93	-80.33	-85.14	- 125.89	- 108.59	-89.61	-71.93	-86.92	-81.52	-86.14	-64.51	-31.66	-35.85	-62.03

Source: SPSS© (2013)

C5 is world renowned and the largest bank trading on the JSE sector to date. In 2001 until 2005 the net profit percentage for both AP and TI slightly fluctuated to 60,55% and 67,50% respectively. In 2006 both AP and TI's net profit percentage deteriorated significantly but during 2007 the ratio improved by 0,17% for AP and 2,71% for TI. The most profitable years identified for C5 were 2012 and 2013.

Once again, the EP portion of Standard Bank indicates that an overall negative percentage were obtained for NPM, ROA and ROE throughout the 15 years.

The total asset turnover for C5 is relatively low as the value of assets held increased throughout the years.

The ROA for AP significantly increased in 2002, recording 2,16% and furthermore during the remaining 14 years could not yet again exceed the 2002 recording. TI on the other hand, recorded from 2001 to 2007 had impressive recordings of 2,31%, 1,91%, 2,16%, 2,04%, 2,03%, 1,91% and 2,01% respectively. At the end of 2015, AP were recorded as 1,82% and TI as 1,84%.

The benchmarks set for C5 as illustrated in Table 4.17 were:

Table 4-27: ROE Benchmark of C5

ROE AP	ROE TI	ROE EP
27,34%	31,03%	-65,53%

For both the ROE on AP and TI strong ratios were obtained throughout the years that exceeds the benchmarks set repeatedly. With regards to AP, the benchmark set as 27,34% is only exceeded in 2002 until 2007. With regards to TI, the benchmark set is 31,03% and is satisfied in 2001 and in 2003 until 2007.

EP worst reflects the overall profitability of C5 as the ROE in some instances plummets to -125,89%. Figure 4.15 further reflects the AP, TI and EP obtained from 2001 to 2015 and the relationship thereof.

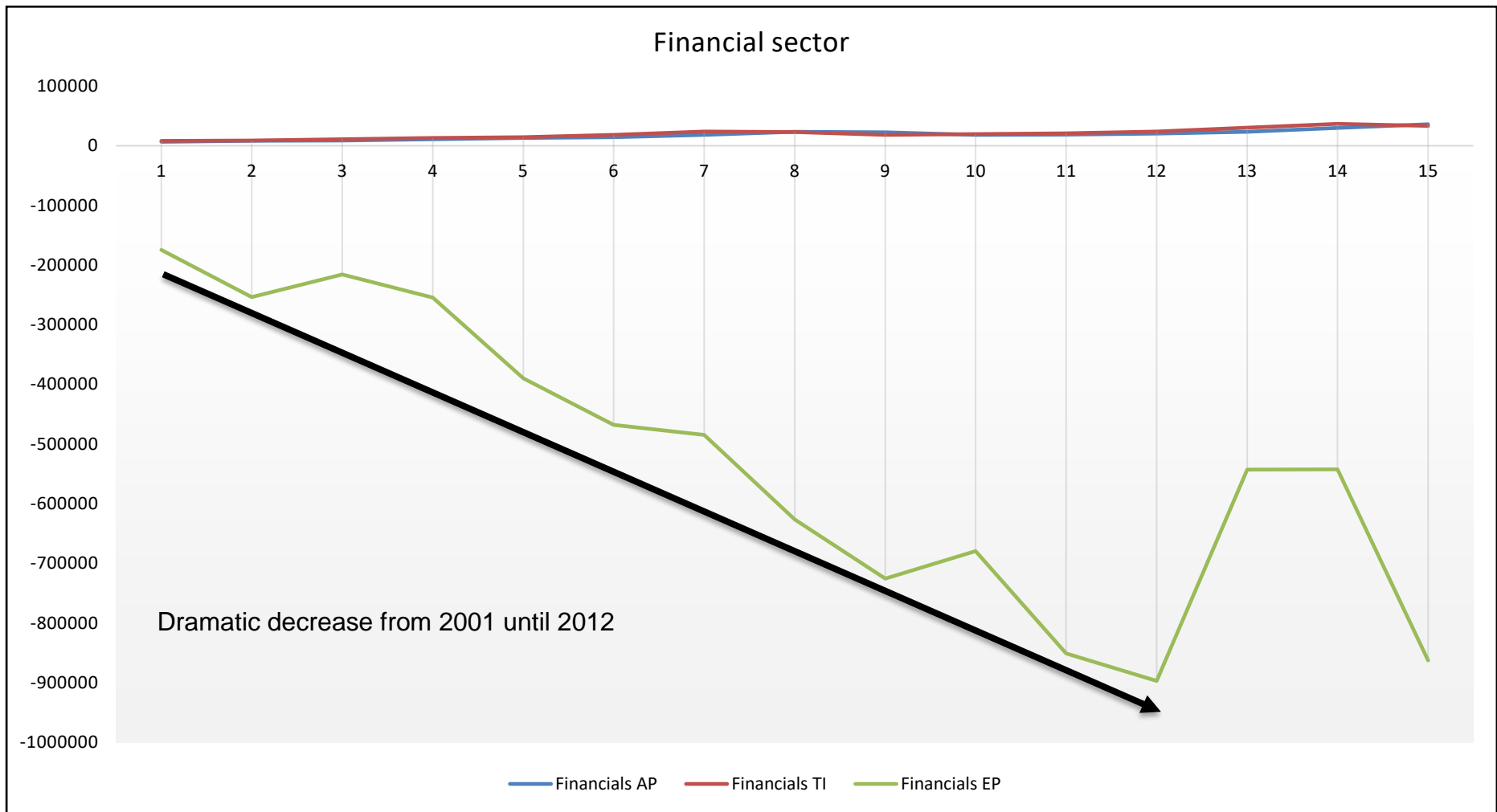


Figure 4-15: Graph on financials sector

Figure 4.15 illustrates the financing sector where the AP, TI and EP were compared to one another and consistently applied over 15 years. The graph shows a flat distribution of AP and TI below R 100 000 million, with the EP plummeting negatively to the right. Rama (2012:7) explains that the financial sector is considered a specialised industry and the profitability ratios and structures differ greatly from other sectors, therefore this may impact the manner in which profit is determined.

According to the IDC (2013:1) the period under review illustrates the external factors that had a great impact on financial sector growth. From 2001 there was a dramatic decrease in economic profits and previous researchers link this matter with the 9/11 events that had taken place in the United States. From 2002–2003 identified factors were the subsequent corporate scandals and more recently, the 2008 global economic crisis that intensified and lead to the global recession in 2009.

The IDC (2013:4) further explains in 2012 the financial sector dominated the industry and in 2013 accounted for 22% of the overall GDP.

4.4.6. Industrial sector

Table 4.28 provides profitability ratios for C6 calculated based on financial statements in comparison with the benchmarks as identified in Table 4.17.

Table 4-28: Profitability ratios for C6 from 2001 to 2015

Description	Values in Rand (R'billion)														
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Sales	27 945	35 999	34 603	36 673	39 401	44 468	50 259	48 730	43 353	42 049	49 823	58 554	65 102	64 884	62 720
Total assets	20 416	25 440	22 176	25 168	25 860	32 326	28 335	31 331	27 496	23 315	28 419	33 002	37 514	40 965	44 915
Equity	9 059	11 197	9 575	11 153	12 078	13 668	11 140	12 847	11 852	10 592	12 388	12 868	15 376	16 881	19 425
AP	1 158	2 343	1 945	2 708	3 176	4 169	2 324	1 860	1 026	528	1 593	2 309	2 419	2 530	2 355
TI	1 101	2 357	1 957	2 667	3 209	4 228	2 392	1 932	1 069	544	1 664	2 450	2 604	2 747	2 642
EP	-4 187	-4 224	-3 899	-3 487	-2 427	-2 493	-4 403	-6 480	-6 497	-5 384	-6 072	-8 958	-9 859	-10 060	-12 721

		Values in Rand (R'-billion)													
Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net profit % AP	4.14	6.51	5.62	7.38	8.06	9.38	4.62	3.82	2.37	1.26	3.20	3.94	3.72	3.90	3.75
Net profit % TI	3,94	6,55	5,66	7,27	8,14	9,51	4,76	3,96	2,47	1,29	3,34	4,18	4,00	4,23	4,21
Net profit % EP	-14,98	-11,73	-11,27	-9,51	-6,16	-5,61	-8,76	-13,30	-14,99	-12,80	-12,19	-15,30	-15,14	-15,50	-20,28
Total asset turnover	1.37	1.42	1.56	1.46	1.52	1.38	1.77	1.56	1.58	1.80	1.75	1.77	1.74	1.58	1.40
ROA % AP	5,67	9,24	8,77	10,77	12,25	12,94	8,18	5,96	3,74	2,27	5,60	6,97	6,47	6,16	5,25
ROA % TI	5,40	9,30	8,83	10,61	12,37	13,12	8,43	6,18	3,90	2,32	5,85	7,40	6,96	6,68	5,89
ROA % EP	-20,52	-16,66	-17,58	-13,88	-9,36	-7,74	-15,51	-20,75	-23,68	-23,04	-21,33	-27,08	-26,34	-24,49	-28,39

		Values in Rand (R'billion)													
Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
FLM	2,25	2,27	2,32	2,26	2,14	2,37	2,54	2,44	2,32	2,20	2,29	2,56	2,44	2,43	2,31
ROE AP	12,76	20,97	20,35	24,34	26,22	30,67	20,78	14,54	8,68	4,99	12,82	17,84	15,79	14,97	12,13
ROE TI	12,15	21,11	20,49	23,98	26,47	31,09	21,41	15,08	9,05	5,10	13,40	18,94	16,98	16,23	13,61
ROE EP	-46,17	-37,82	-40,79	-31,37	-20,03	-18,34	-39,40	-50,63	-54,94	-50,69	-48,85	-69,32	-64,27	-59,51	-65,58

Source: SPSS© (2013)

The net profit percentage for AP in 2002 improved by 2,37% from 2001. In 2003 there once again were a decrease to a net profit percentage of 5,62%. Over the next three years the net profit percentage increased to 9,38%, a total of 3,76% from that of 2003. The net profit percentage for TI in 2002 improved by 2,61% from 2001 recorded 6,55%. In 2003 there once again were a decrease to a net profit percentage of 5,66%. Over the next three years the net profit percentage increased to 9,51%, a total of 3,85% from that of 2003.

The net profit percentage for both AP and TI of C6 deteriorated significantly from 2007 until 2010 but during 2011 the ratio once again started to improve. Once again, the EP portion of C6 indicates that an overall negative percentage were obtained for NPM, ROA and ROE throughout the 15 years.

The ROA for AP and TI improved from 2001 by 3,57% and 3,90% respectively. From 2002 onwards both AP and TI increased due to higher profits. The ROA for AP in 2006 were recorded as 12,94% and TI with 13,12%, 0,18% more than that of AP due to higher profits and assets. At the end of the 2015 period AP were recorded as 5,25% and TI with 5,89%.

The ROE for both AP and TI increased rapidly from 2001, reaching an all-time high of 30,67% for AP and 31,09% in 2006. From 2007 the ROE started to decrease until 2010 where the ROE for AP were recorded as 4,99% and TI as 5,10%. At the end of the 2015 period the ROE percentage became a bit more stable to that of 2007. Table 4.28 illustrates the benchmarks set for ROE, similar to that of Table 4.17.

Table 4-29: ROE Benchmark of C6

ROE AP	ROE TI	ROE EP
17,18%	17,67%	-46,51%

For both the ROE on AP and TI strong ratios were obtained throughout the years that exceeds the benchmarks set repeatedly. With regards to AP, the benchmark set as 17,18% is exceeded in 2002 until 2007, then again in 2012. With regards to TI, the benchmark set is 17,67% and is also satisfied in 2002 until 2007 and once more in 2012.

Figure 4.16 graphically illustrates the relationship between AP, TI and EP for the period under review, 2001 to 2015.

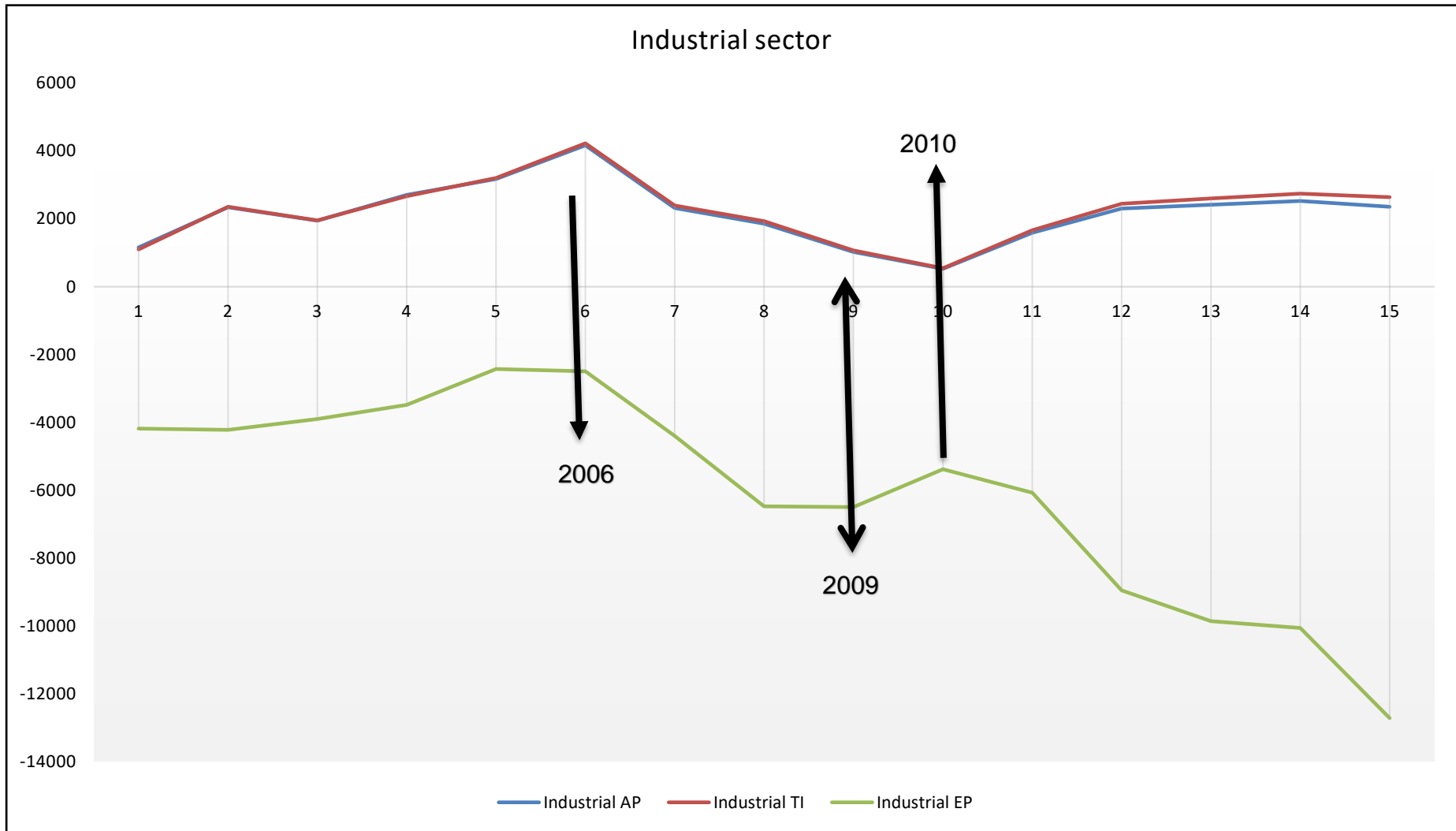


Figure 4-16: Graph on industrial sector

Figure 4.16 illustrates the industrial sector where the AP, TI and EP were compared to one another and consistently applied over 15 years. The graph illustrated a flat correlation over the period under review, with the exception of 2010 where the EP fell dramatically due to the global recession washing over from late 2008.

IDC (2013:15) states that South Africans' business confidence fell as a result of the global and domestic recession of 2008–2009. NAAMSA (2012:19) identifies that in the industrial industry there was a drop in the local sales from mid-2006 to the end of 2009, with a contribution to the GDP of 5,9% in 2009. Compared to international automotive industries, South Africa manufactured 0,6% to 77,8% in relation to countries such as China, Japan, USA and Germany in 2009. From 2010 onwards more than 70% of the vehicles are imported from international manufacturers with the high fluctuation between currencies of USD also influencing the market.

4.4.7. Oil and gas sector

In Table 4.30 the financial information obtained for C7 will be depicted in order to determine the profitability ratios for 2001 until 2015, in relation to the benchmarks set for the ROE.

Table 4-30: Profitability ratios for C7 from 2001 to 2015

Description	Values in Rand (R'billion)														
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Sales	22 217	30 070	33 518	35 027	43 530	52 352	61 617	76 741	83 835	94 730	107 649	125 234	149 625	170 977	191 610
Total assets	18 140	20 992	23 519	24 100	26 813	49 380	62 523	67 882	71 158	85 580	101 702	117 808	138 110	143 875	154 473
Equity	41 289	61 578	64 555	60 151	69 239	82 395	98 127	129 943	137 836	122 256	142 436	169 446	181 269	202 693	185 266
AP	10 473	14 030	11 667	9 230	14 068	20 593	25 298	33 403	23 925	23 155	29 124	35 524	40 046	41 762	44 570
TI	9 491	14 293	11 913	9 182	14 252	20 728	25 703	33 657	24 195	23 372	29 416	36 003	40 491	45 906	46 627
EP	2 418	4 204	1 952	184	3 083	11 560	9 735	11 928	6 955	2 525	6 877	11 584	12 531	3 971	8 878

Values in Rand (R'billion)															
Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net profit % AP	47,14	46,66	34,81	26,35	32,32	39,34	41,06	43,53	28,54	24,44	27,05	28,37	26,76	24,43	23,26
Net profit % TI	42,72	47,53	35,54	26,21	32,74	39,59	41,71	43,86	28,86	24,67	27,33	28,75	27,06	26,85	24,33
Net profit % EP	10,88	13,98	5,82	0,53	7,08	22,08	15,80	9,18	8,30	2,67	6,39	9,25	8,37	2,32	4,63
Total asset turnover	1,22	1,43	1,43	1,45	1,62	1,06	0,99	0,11	1,18	1,11	1,06	1,06	1,08	1,19	1,24
ROA % AP	57,51	66,72	49,78	38,21	52,36	41,70	40,65	4,79	33,68	27,13	28,67	30,07	28,90	29,07	28,84
ROA % TI	52,12	67,97	50,82	38,00	53,04	41,97	41,29	4,82	34,05	27,38	28,97	30,48	29,22	31,95	30,17
ROA % EP	13,27	19,99	8,32	0,77	11,47	23,40	15,64	1,01	9,79	2,96	6,77	9,81	9,04	2,76	5,74

Values in Rand (R'billion)															
Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
FLM	0,44	0,34	0,36	0,40	0,39	0,60	0,64	0,52	0,52	0,70	0,71	0,70	0,76	0,71	0,83
ROE AP	25,30	22,68	17,92	15,28	20,42	25,02	26,02	2.49	17,51	18,99	20,36	21,05	21,96	20,64	23,94
ROE TI	22,93	23,11	18,30	15,20	20,69	25,18	26,43	2.51	17,71	19,17	20,57	21,34	22,21	22,68	25,04
ROE EP	5,84	6,80	3,00	0,31	4,47	14,04	10,01	0.53	5,09	2,07	4,81	6,87	6,87	1,96	4,76

Source: SPSS© (2013)

The net profit percentage of C7 for AP, TI and EP has significantly decreased from 2001 until 2006. The AP net profit percentage for 2007 were 41,06%, similar to that of TI with 41,71%, whereas, EP has a slightly lower net profit percentage of 15,80%. In 2008 the net profit percentages of AP and TI further increased, recorded as 43,53%, 43,86%, whereas EP decreased to 9,18%. From 2009 onwards, the net profit percentage for the three profits decreased.

The ROA for AP, TI and EP were very strong from 2001 until 2007, with a strong decline in 2008, recording 4,79% for AP, 4,82% for TI and 1,01% for EP. In 2009 the ROA of AP increased to 33,68%, for TI 34,05% and EP with 9,79%. At the end of the 2015 period the ROA for AP, TI and EP were recorded as 28,84%, 30,17% and 5,74% respectively.

As identified the ROE benchmarks set for C7 obtained from Table 4.17 were:

Table 4-31: ROE Benchmark of C7

ROE AP	ROE TI	ROE EP
20,64%	21,25%	4,63%

The benchmarks set were reached both by AP and TI during 2001 and 2002, 2006 and in 2012 to 2015. EP on the other hand has a significantly lower benchmark set due to lower profit but were reached in 2001 and 2002, then again in 2006 and 2007, as well as in 2009, then finally from 2011 until 2015.

As a result of the findings above, it can be stated that the net profit percentage of AP, TI and EP has an adverse effect on the profitability ratios and impacts the ROE of C7 significantly.

The adverse effect the different framework and calculation methods used in order to determine AP, TI and EP is illustrated in Figure 4.17.

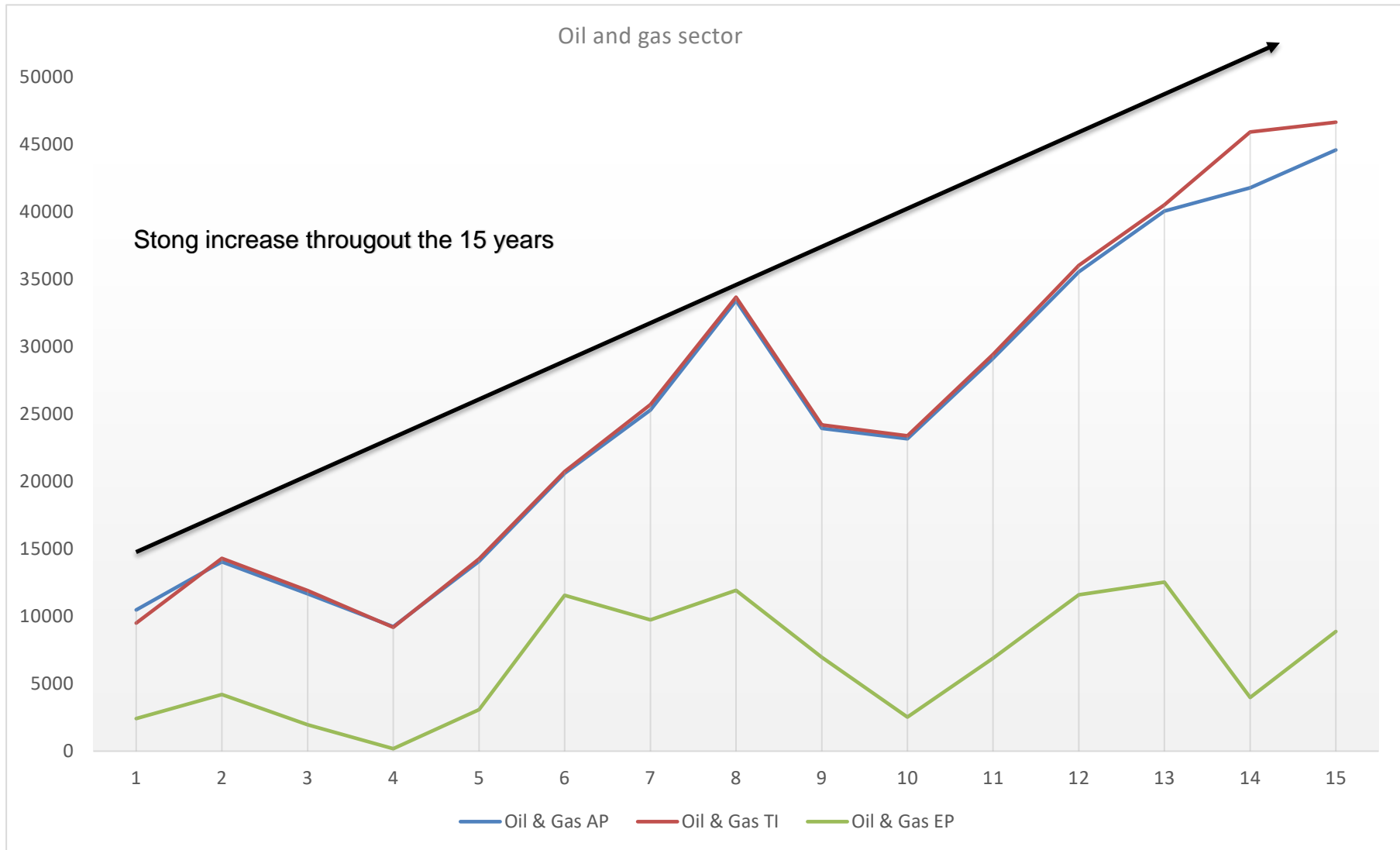


Figure 4-17: Graph on oil and gas sector

Figure 4.17, illustrates the for oil and gas sector AP and TI are very consistent over the 15 years investigated within the study. With EP there is a decline as EP does take into account opportunity costs whereas AP and TI do not account for opportunity costs.

The oil and gas sector are constantly undergoing active transformations explaining the continuous growth from 2001–2015. By 2015, 13% of the oil production takes place in Africa attracting substantial investments due to the low costs in African regions. South Africa includes 19 African countries that produce oil or gas. From 2001–2008 Sub- Sahara African countries have grown by an average 5,9%, whereas from 2009–2015 the growth rate dropped to 4,1%. The decline in the growth rate is the weak commodity prices in Angola, Nigeria and South Africa that is facing economic difficulties.

4.4.8. Technologies sector

In this sub-paragraph the financial information for C8 were obtained in order to determine the effect the three sets of profit figures will have on the profitability ratios compared to that of the ROE benchmark set for C8, determined in Table 4.32 below.

Table 4-32: Profitability ratios for C8 from 2001 to 2015

Description	Values in Rand (R'-billion)														
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Sales	84	114	175	299	420	503	703	950	1255	1733	2428	3636	5071	7199	9701
Total assets	12	12	12	28	42	124	134	21	45	73	171	322	629	1087	2425
Equity	12	12	12	10	10	63	64	14	29	52	89	198	308	709	1620
AP	12,8	14,6	18	24,4	39,6	55,7	72,4	91,4	116,5	159,2	234,4	338	466,7	668,8	940,6
TI	12	14	17	23	37	56	72	91	116	159	234	340	467	669	951
EP	12,2	14,1	17,3	23,9	38	52,9	59,4	83	108,5	149,1	203,4	298,6	400,2	524,5	392,6

Values in Rand (R'billion)															
Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net profit % AP	15,24	12,81	10,29	8,16	9,43	11,07	10,30	9,62	9,28	9,19	9,65	9,30	9,20	9,29	9,70
Net profit % TI	14,29	12,28	9,71	7,69	8,81	11,13	10,24	9,58	9,24	9,17	9,64	9,35	9,21	9,29	9,80
Net profit % EP	14,52	12,37	9,89	7,99	9,05	10,52	8,45	8,74	8,65	8,60	8,38	8,21	7,89	7,29	4,05
Total asset turnover	7,00	9,50	14,58	10,68	10,00	4,06	5,25	45,24	27,89	23,74	14,20	11,29	8,06	6,62	4,00
ROA % AP	106,68	121,70	150,03	87,15	94,30	44,94	54,08	435,21	258,82	218,17	137,03	105,00	74,15	61,50	38,80
ROA % TI	100,03	116,66	141,57	82,13	88,10	45,19	53,76	433,40	257,70	217,70	136,89	105,56	74,23	61,50	39,20
ROA % EP	101,64	117,52	144,20	85,33	90,50	42,71	44,36	395,40	241,25	204,16	119,00	92,69	63,59	48,26	16,20

Values in Rand (R'billion)															
Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
FLM	1,00	1,00	1,00	2,80	4,20	1,97	2,09	1,50	1,55	1,40	1,92	1,63	2,04	1,53	1,50
ROE AP	106,68	121,70	150,03	244,02	396,06	88,53	113,03	652,82	401,17	305,44	263,10	171,15	151,27	94,10	58,20
ROE TI	100,03	116,66	141,57	229,96	370,02	89,02	112,36	650,10	399,44	304,78	262,83	172,06	151,43	94,10	58,80
ROE EP	101,64	117,52	144,20	238,92	380,10	84,14	92,71	593,10	373,94	285,82	228,48	151,08	129,72	73,84	24,30

Source: SPSS© (2013)

C8 recorded a strong net profit percentage for AP and TI, as well as EP, as 15,24%, 14,29% and 14,52%, where EP held the second highest net profit percentage. Within 2002 until 2004 there were a slight decrease in all tree net profit percentages, but during 2005 the net profit percentage once again increased to 3,43%, 8,81% and 9,05% respectively. In 2006 the net profit percentage once more increased before there was a slight decrease in 2007. During 2007 the net profit percentage of AP decreased with 0,77%, TI decreased with 0,89% and EP with 2,07%. From 2008 onwards, the net profit percentage overall remained relatively stable until 2015.

The total asset turnover of C8 is very high as sales of the company is much more than the assets held, as illustrated in Table 4.32. In some instances, the sales are turned around more than 28 times before assets are turned over once. Yielding overall high ROA's for the three different profit figures.

As identified the ROE benchmarks set for C8 illustrated in Table 4.17 above were:

Table 4-33: ROE Benchmark of C8

ROE AP	ROE TI	ROE EP
206,35%	206,21%	181,03%

The benchmarks that were set for AP, TI and EP, was 206,35%, 206,21% and 181,03%. The benchmark for AP were reached by 2005 and from 2008 until 2012. The benchmark for TI and EP were reached from 2004 to 2005 and then from 2008 until 2011.

In Figure 4.18 the strong relationship between AP, TI and EP is illustrated, furthermore showing that from all the sectors, the technology sector is the most profitable.

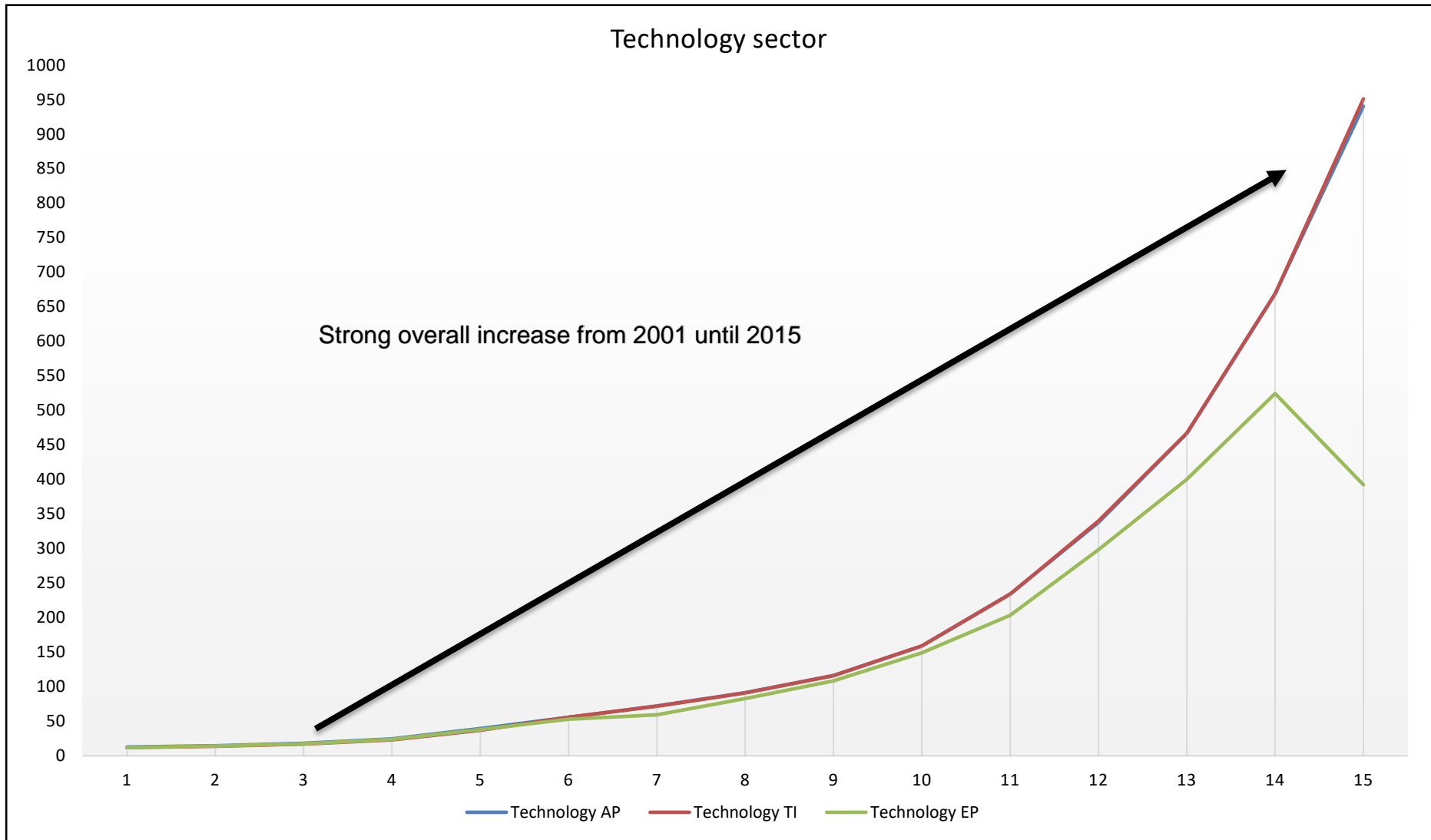


Figure 4-18: Graph on technology sector

In Figure 4.18, the technology sector was illustrated where the AP, TI and EP were compared to one another and consistently applied over 15 years. The graph shows a negative skewness with the higher values distributed to the right as well as showing the EP decreased to a profit of R450 million in 2015. A particularly interesting feature of the results illustrated in Figure 4.18 is the drastic increase in AP, TI and EP from 2004–2014.

In the information technologies sector South Africa is outgrowing the world average, with access to cutting edge technology, equipment and skills, with opportunity for expansion throughout Sub-Sahara Africa. According to South African Electrotechnical Export Council (SAEEC) (2013) the technology markets estimated worth is R468,4 billion.

4.4.9. Telecommunications sector

Lastly, the telecommunication sector, C9 will be discussed. Table 4.34 includes the profitability ratios used in order to comment on the ROE of AP, TI and EP.

Table 4-34: Profitability ratios for C9 from 2001 to 2015

Description	Values in Rand (R'billion)														
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Sales	8337	12432	19405	23871	56206	51595	73145	10252 6	11194 7	11468 4	12188 4	13511 2	13649 5	14693 0	14706 3
Total assets	2216	2741	2815	3200	4481	6482	7042	17199	8216	15595	38105	76789	12017 3	14686 8	18907 0
Equity	1471	1591	1705	1984	28994	46479	49624	78840	14766	17063	19716	47315	70011	88897	11443 8
AP	1771,7	2025,1	3500	6003	16833	14667	19699	28490	25778	28043	37678	37161	39276	46855	33666
TI	1359,9	1428,2	2905	5413	16861	14690	19707	28490	25773	28095	37640	36981	42707	51063	34892
EP	1501,5	1475,1	2672	5153	15843	13551	18472	26058	22794	25152	32368	32803	23296	11794	-17228

Values in Rand (R'-billion)															
Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net profit % AP	21,25	16,29	18,04	25,15	29,95	28,43	26,93	27,79	23,03	24,45	30,91	27,50	28,77	31,89	22,89
Net profit % TI	16,31	11,49	14,97	22,68	30,00	28,47	26,94	27,79	23,02	24,50	30,88	27,37	31,29	34,75	23,73
Net profit % EP	18,01	11,87	13,77	21,59	28,19	26,26	25,25	25,42	20,36	21,93	26,56	24,28	17,07	8,03	-11,71
Total asset turnover	3,76	4,54	6,89	7,46	12,54	7,96	10,39	5,96	13,63	7,35	3,20	1,76	1,14	1,00	0,78
ROA % AP	79,90	73,96	124,30	187,62	375,57	226,30	279,80	165,63	313,90	179,71	98,91	48,40	32,80	31,89	17,85
ROA % TI	61,33	52,16	103,14	169,19	376,20	226,62	279,91	165,63	313,76	180,08	98,82	48,17	35,67	34,75	18,51
ROA % EP	67,72	53,89	94,88	161,06	353,50	209,03	262,35	151,50	277,51	161,19	84,99	42,73	19,46	8,03	-9,13

Values in Rand (R'billion)															
Description	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
FLM	1,51	1,72	1,65	1,61	0,15	0,14	0,14	0,22	0,56	0,91	1,93	1,62	1,72	1,65	1,65
ROE AP	120,65	127,21	205,09	302,07	56,34	31,68	39,17	36,44	175,78	163,53	190,90	78,41	56,41	52,62	29,46
ROE TI	92,60	89,72	170,19	272,40	56,43	31,73	39,19	36,44	175,71	163,87	190,71	78,04	61,35	57,34	30,54
ROE EP	102,25	92,69	156,54	259,31	53,03	29,26	36,73	33,33	155,40	146,68	164,03	69,23	33,47	13,25	-15,07

Source: SPSS© (2013)

C9 is a global telecommunications provider that within 2001 recorded a net profit percentage for AP as strong as 21,25%, compared to that of TI and EP as 16,31% and 18,01%. From 2004 the net profit percentage for AP slightly increased to 25,15% to that of 2003. In 2005 the net profit percentage for AP once again increased with 4,80%. From 2006 there was an overall decrease until 2015 for AP, TI and EP.

The total asset turnover of C9 is very high as sales of the company is much more than the assets held, as illustrated in Table 4.34. The company holds inventory as assets and turns it around into sales. The high net profit percentage and total asset turnover assists in C9 yielding a relatively high ROA.

As identified the ROE benchmarks illustrated in Table 4.17 set for C9 were:

Table 4-35: ROE Benchmark of C9

ROE AP	ROE TI	ROE EP
106,73%	108,22%	81,00%

The benchmarks that were set for AP, TI and EP, was 106,73%, 108,22% and 81,00%. The benchmark for AP, TI and EP were reached during 2001 to 2004 and from 2008 until 2010.

C9 satisfies all the benchmarks set as identified in Table 4.35, all three profits significantly grew from 2001 until 2014, whereas in 2015 there were a dramatic decrease in the overall profits of C9. In Figure 4.19 the decrease will be illustrated.

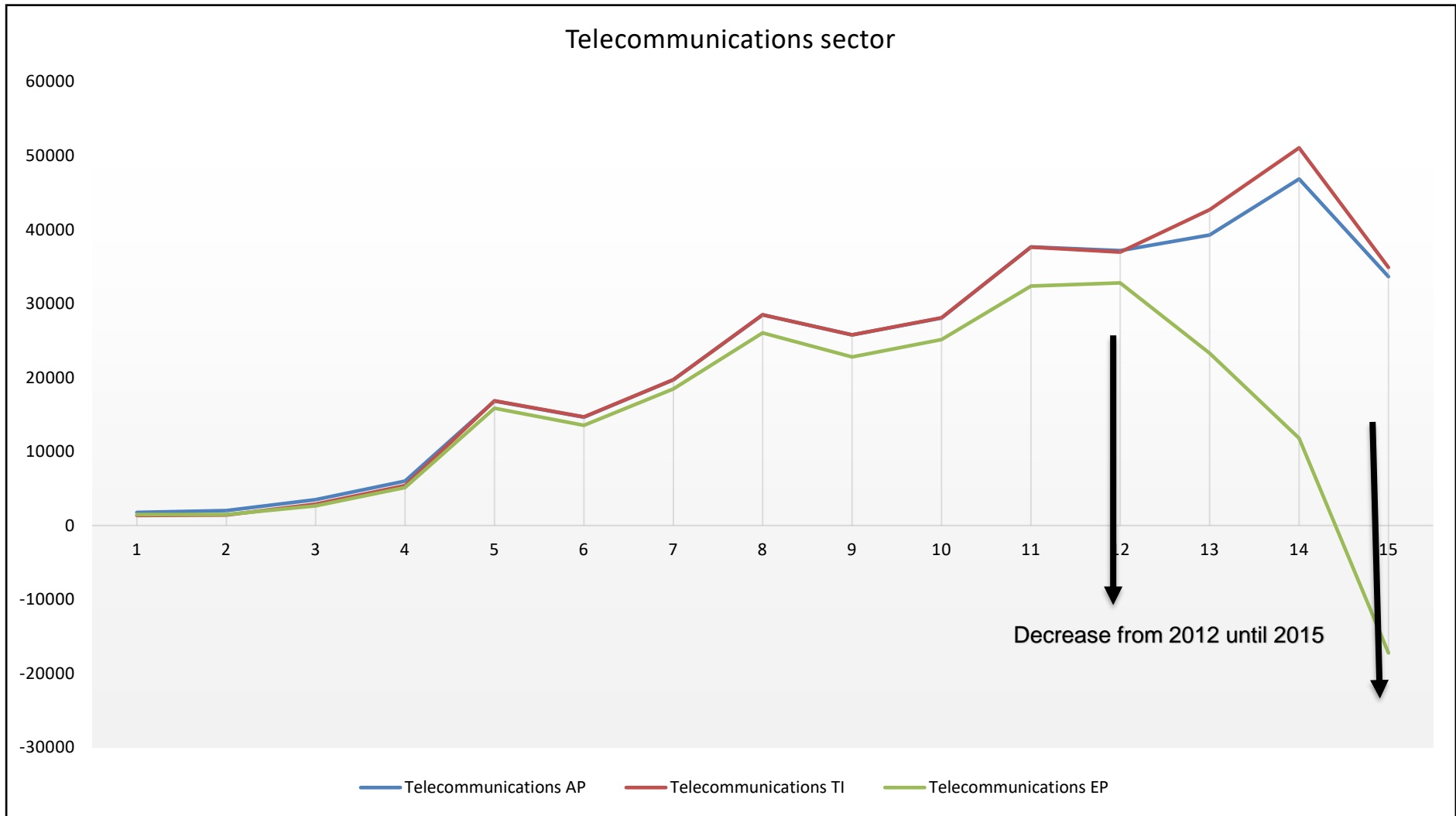


Figure 4-19: Graph on telecommunication sector

In Figure 4.19, the telecommunications sector was illustrated where the AP, TI and EP were compared to one another and consistently applied over 15 years. The graph shows a negative skewness with the high values distributed to the right with a slight decrease in the EP in 2012.

The telecommunications sector is thriving and contributing 7% to the GDP. Growing at a rate of 50% per year as the fourth fastest growing market in the world. According to SAEEC (2013) the technology markets estimated worth was R297,4 billion. According to the Creamer Media Telecommunications Report (CMTR) (2016) the telecommunications sector of South Africa generates revenue of somewhat R147 billion and provides employment to more than 31 000 employees. Furthermore, The World Bank (2017) identifies that Sub-Saharan Africa countries in 2005 had 90 million telecommunication subscribers, in 2010, 400 million subscribers and about 750 million subscribers by the end of 2015.

The decline in the EP in 2012 illustrates the aggressive increase of data and voice offerings by Cell-C, influencing larger telecommunication operators overall financial performance as subscribers cancelled their contracts and joined Cell-C.

4.4.10. Summary of findings

For each stakeholder different financial information is required in order to make informed business decisions. Chapter 2, paragraph 3.1 and paragraph 3.2 highlighted that for internal stakeholders company profitability plays an important role in day-to-day management and decision making, whereas with external stakeholders emphasis is placed on the returned that can be obtained through either investing within the company or being a direct supplier of the company.

In an attempt to answer the research question, determine the most effective profit figure used for decision-making purposes among stakeholders, Table 4.36 summaries the findings obtained from Section 4.4 combined with Chapter 2, paragraph 2.6.

Table 4-36: Most effective method used among stakeholders

Stakeholder	Purpose	Information required	Company	Benchmark			Most effective profit figure used
				APDPAVE	TIDPAVE	EPDPAVE	
Owners and board of directors	Analyse the profitability of investment.	ROE	C1	4,42%	4,83%	1,92%	Taxable income yielding the Highest ROE with an average of 52,32% compared to that of accounting profit with 51,45% and economic profit with 12,29%
			C2	41,17%	40,54%	-9,08%	
			C3	2,34%	2,63%	-2,21%	
			C4	36,92%	38,47%	-34,64%	
			C5	27,34%	31,03%	-65,53%	
			C6	17,18%	17,67%	-46,51%	
			C7	20,64%	21,25%	4,63%	
			C8	206,35%	206,21%	181,03%	
			C9	106,73%	108,22%	81,00%	
Management	Analyse the manufacturing efficiency and marketing effectiveness	NPM	C1	3,34%	3,70%	1,51%	Accounting profit yielding the highest NPM with an average of 19.80% compared to that of taxable income with 18,63% and
			C2	23,00%	22,75%	-7,52%	
			C3	1,8,26%	2,15%	-2,19%	
			C4	4,13%	4,25%	-6,34%	
			C5	55,26%	62,57%	-166,47%	
			C6	4,78%	4,90%	-12,50%	
			C7	32,18%	32,42%	8,44%	

Stakeholder	Purpose	Information required	Company	Benchmark			Most effective profit figure used
				APDPAVE	TIDPAVE	EPDPAVE	
			C8	10,17%	9,96%	8,97%	economic profit with - 17,52%
			C9	25,55%	24,95%	18,46%	
Employees	Analyse the net profit margin for benefits, bonuses and dividends for employees	NPM	C1	3,34%	3,70%	1,51%	Accounting profit yielding the highest NPM with an average of 19,80% compared to that of taxable income with 18,63% and economic profit with - 17,52%
			C2	23,00%	22,75%	-7,52%	
			C3	1,8,26%	2,15%	-2,19%	
			C4	4,13%	4,25%	-6,34%	
			C5	55,26%	62,57%	-166,47%	
			C6	4,78%	4,90%	-12,50%	
			C7	32,18%	32,42%	8,44%	
			C8	10,17%	9,96%	8,97%	
			C9	25,55%	24,95%	18,46%	
Investors	Analyse the profitability of investment.	ROE	C1	4,42%	4,83%	1,92%	Taxable income yielding the highest ROE with an average of 52,32% compared to that of accounting profit with
			C2	41,17%	40,54%	-9,08%	
			C3	2,34%	2,63%	-2,21%	
			C4	36,92%	38,47%	-34,64%	
			C5	27,34%	31,03%	-65,53%	
			C6	17,18%	17,67%	-46,51%	

Stakeholder	Purpose	Information required	Company	Benchmark			Most effective profit figure used
				APDPAVE	TIDPAVE	EPDPAVE	
			C7	20,64%	21,25%	4,63%	51,45% and economic profit with 12,29%
			C8	206,35%	206,21%	181,03%	
			C9	106,73%	108,22%	81,00%	
Creditors, suppliers and financial service providers	Analyse the profitability of investment in relation to total assets.	ROA	C1	2,13%	2,38%	0,99%	Accounting profit yielding the Highest ROA with an average of 44,63% compared to that of taxable income with 43,90% and economic profit with 24,27%
			C2	57,62%	56,70%	-3,56%	
			C3	1,13%	1,27%	-1,08%	
			C4	13,36%	13,74%	-20,53%	
			C5	1,57%	1,75%	-4,53%	
			C6	4,78%	4,90%	-12,50%	
			C7	39,52%	39,82%	9,98%	
			C8	132,50%	130,24%	120,45%	
			C9	149,10%	144,26%	129,25%	

Stakeholder	Purpose	Information required	Company	Benchmark			Most effective profit figure used
				APDPAVE	TIDPAVE	EPDPAVE	
Customers	Analyse market related factors influencing customer demands	Considers economic factors	N/A	N/A	N/A	N/A	Economic profit as current economic factors are taken into consideration
Business analysts	Analyse the overall profitability of the company	ROE	C1	4,42%	4,83%	1,92%	Taxable income yielding the Highest ROE with an average of 52,32% compared to that of accounting profit with 51,45% and economic profit with 12,29%
			C2	41,17%	40,54%	-9,08%	
			C3	2,34%	2,63%	-2,21%	
			C4	36,92%	38,47%	-34,64%	
			C5	27,34%	31,03%	-65,53%	
			C6	17,18%	17,67%	-46,51%	
			C7	20,64%	21,25%	4,63%	
			C8	206,35%	206,21%	181,03%	
			C9	106,73%	108,22%	81,00%	
Auditors	Analyse the overall profitability of the company	ROE	C1	4,42%	4,83%	1,92%	Taxable income yielding the Highest ROE
			C2	41,17%	40,54%	-9,08%	
			C3	2,34%	2,63%	-2,21%	

Stakeholder	Purpose	Information required	Company	Benchmark			Most effective profit figure used
				APDPAVE	TIDPAVE	EPDPAVE	
			C4	36,92%	38,47%	-34,64%	with an average of 52,32% compared to that of accounting profit with 51,45% and economic profit with 12,29%
			C5	27,34%	31,03%	-65,53%	
			C6	17,18%	17,67%	-46,51%	
			C7	20,64%	21,25%	4,63%	
			C8	206,35%	206,21%	181,03%	
			C9	106,73%	108,22%	81,00%	
Tax authorities	Analyse the manufacturing efficiency and marketing effectiveness	NPM	C1	3,34%	3,70%	1,51%	Accounting profit yielding the highest NPM with an average of 19,80% compared to that of taxable income with 18,63% and economic profit with -17,52%
			C2	23,00%	22,75%	-7,52%	
			C3	1,8,26%	2,15%	-2,19%	
			C4	4,13%	4,25%	-6,34%	
			C5	55,26%	62,57%	-166,47%	
			C6	4,78%	4,90%	-12,50%	
			C7	32,18%	32,42%	8,44%	
			C8	10,17%	9,96%	8,97%	
			C9	25,55%	24,95%	18,46%	

Source: Own research

From Table 4.36 the most effective profit figure used among stakeholders were identified based on the ratios applied in the study as discussed in Chapter 2, Section 2.6. From these findings the best profit figure that should be used by the stakeholder strongly depends on the information requirements and the decisions the stakeholder needs to make. Overall the most effective profit figure used among stakeholders is either Accounting profit and taxable income as it provides the best results when applied to financial information, whereas economic profit only in terms of customers provide more informed information as current economic factors are taken into account.

4.5. CHAPTER SUMMARY

In Chapter 4, the aim was to address the empirical objective in order to reach the main objective of the study. In order to interpret the findings, the following process was followed to structure the data analysis, as presented in Chapter 4, Figure 4.1:

1. Collecting data per sample of the nine companies with the highest market capitalisation within each sector on the JSE.
2. Ranking, coding and transformation of data collected.
3. Preparing the data for statistical analysis.
4. Analysing and interpreting the findings.

In Chapter 4 graphs and tables were used to illustrate in detail the trends identified from the data. The correlation study revealed significant relationships between return on assets and total asset turnover with regard to the ROE. This finding indicates that the way an entity utilises its assets and investment decisions have the most significant influence on the company's overall value.

From the information obtained in Chapter 4 the main objective of the study was achieved as the most effective profit figure was identified as both accounting profit and taxable income. Accounting profit and taxable income when applied to financial information provided reasonable and consistent ratios (ROE).

In Chapter 5 among other the limitations to the study will be identified, as well as the recommendations for further studies.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1. INTRODUCTION

In the previous chapter, data collection of the sample under evaluation for the purpose of analysing and interpreting the data was discussed. A summary of the interpreted results is the purpose of the final chapter. Raw data have been extracted from financial statements to investigate whether, applying accounting standards, economic principles or the Tax Act can predict if listed companies specifically use a profit figure that best reflects the company's financial performance.

The aim of the study is to compare the different profit figures namely, accounting profit, economic profit and taxable income, to establish the benefit for the various stakeholders for decision-making purposes, as per Chapter 1, Section 3, by applying a mixed research methodology approach. Previous findings stated that South African companies continue to thrive regardless of severe economic conditions and that measures have been implemented to satisfy the expectations of shareholders.

In Chapter 2 a literature review is compiled in order to address the research problem and conclude on each research objective. An empirical study and the research design and methodology are discussed in Chapter 3, while Chapter 4 covered the data collection and analysis thereof. McGregor (INET BFA) was used for the collection of data, whereas the data analysis applied in the study included descriptive statistics obtained by SPSS® (2013).

In Figure 5.1, the overview of Chapter five is illustrated.

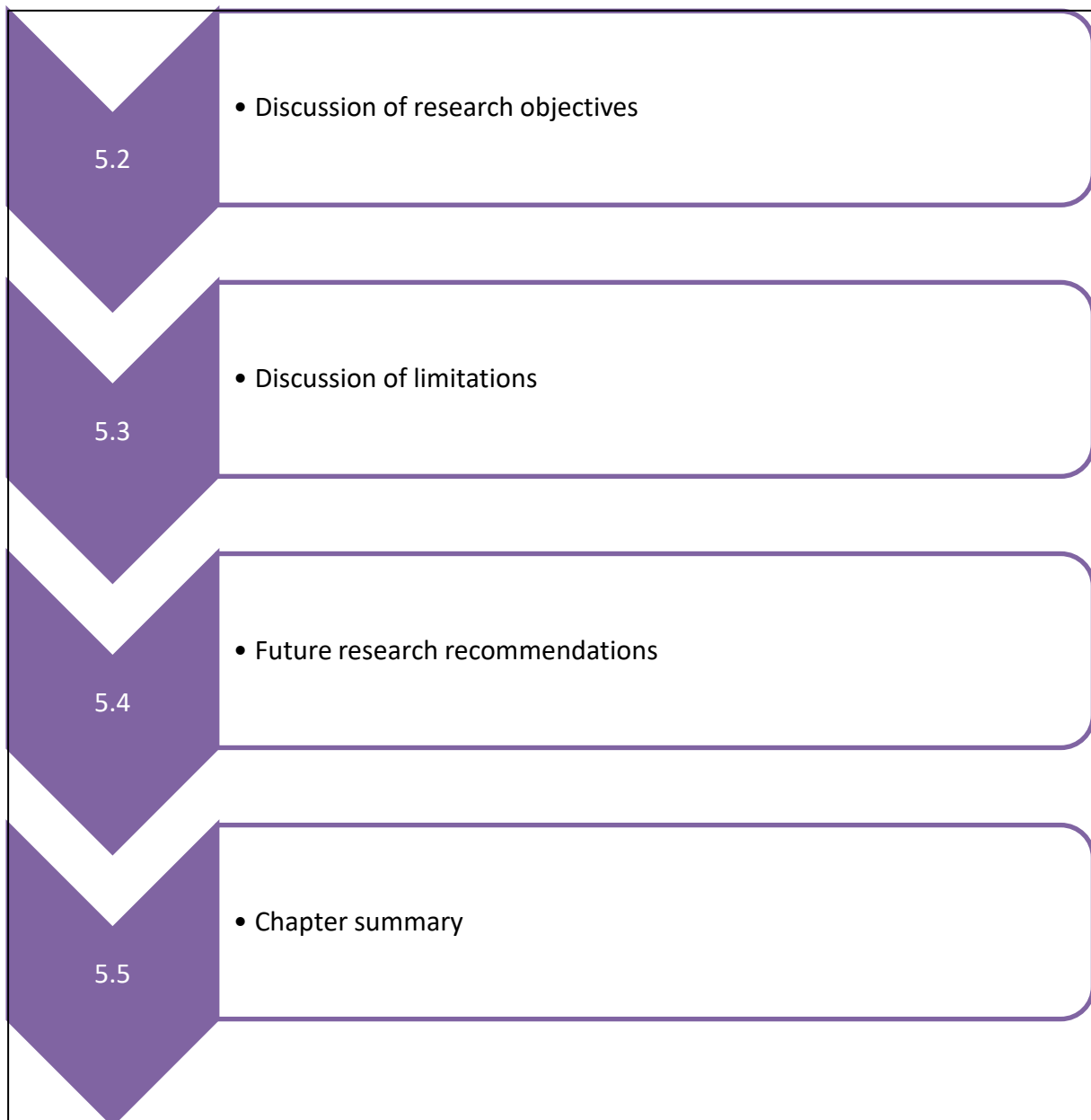


Figure 5-1: Overview of Chapter 5

Source: Own research

Figure 5.1 graphically illustrates the overview of Chapter 5 and the elements that are discussed in each section. In Section 5.2 the main objective of the study is stated followed by the theoretical and empirical objectives designed to address the main objective, Section 5.3 expresses the study's problem statement followed by the limitations, further recommendations and a chapter summary.

5.2. RESEARCH OBJECTIVES

This paragraph expresses with the main objective in mind, how the theoretical and empirical objectives were developed in support of the main objective. The objectives of Chapter 1 are re-examined in order to determine whether the theoretical and empirical objectives have been met.

As provided in Chapter 1, Section 3.1 the theoretical objectives were as follows:

- i. Investigate the profit disclosure requirements of the various stakeholders.
- ii. Identify the different framework and calculation methods to determine economic profit, accounting profit and taxable income that are used among different stakeholders.
- iii. Establish the use, advantages and disadvantages of each profit method

In order to address the main objective of the study, the following empirical objective is formulated in Section 1.3.2:

- Determine the most effective profit figure used for decision-making purposes among stakeholders.

The theoretical and empirical objectives were formulated in order to address the problem statement. Thus, to complete the research phases, as stated in, Section 3.2, the problem statement, as stated in Section 1.2, should be addressed by the research findings. As illustrated by Figure 5.1, the research objectives are discussed that were addressed accordingly by the research methodology set out in Chapter 3.

Theoretical objectives

This section demonstrates how each of these theoretical objectives were attained in support of the main objective.

Theoretical objective 1 – Investigate the disclosure requirements of financial information used by different stakeholders

Firstly, the literature addressed the disclosure requirements of internal and external stakeholders. In Section 2.3, the findings suggested that both internal and external stakeholders require different financial information when examining financial statements. In order to provide stakeholders with useful financial information, financial statements

should be reliable and faithfully disclosed. Relevant, reliable, comparable and consistent financial information increases the usefulness of financial statements and is a good foundation for stakeholders' decision making. Internal stakeholders, as stated in Section 2.3.1, requires financial information for internal-business decisions. Whereas, external stakeholders use financial information in order to make sound business decisions either in the form of financing, investments or asset management. As stakeholders are greatly dependent on financial statements, Table 2.2 identified that overall accounting profit is considered when making decisions based on profitability as internal stakeholders consider accounting profit for company management and external stakeholders require accounting profit for the viability in investments, providing working capital or determining accuracy of tax liabilities.

In summary, financial statements are a source for stakeholders to obtain comparable, complete and verifiable financial information on the company's financial performance and profitability. According to Section 2.4, listed companies are required to comply with the minimal statutory and legislative reporting requirements to be listed on the JSE. Section 2.4, the statutory and legislative reporting requirements were identified as being:

- Statements of Generally Accepted Accounting Practise (GAAP)
- International Financial Reporting Requirements (IFRS)
- IFRS for Small and Medium-size entities (IFRS for SMEs)
- The Companies Act 71 of 2008
- JSE Security Exchange Listing Requirements
- King Report of Corporate Governance

For the purpose of the study GAAP and IFRS for SMEs were not considered as it does not fall within the scope of the study. Each of these reporting requirements were addressed to understand the importance of complying with the requirement (Section 2.4). Interestingly, Section 29 of the Companies Act requires companies to comply with IFRS, IFRS is applied to financial statements ensuring the accurate disclosure to stakeholders in accordance with Section 8.62 of the JSE-listing requirements. Whereas, King IV addresses good corporate governance ensuring the accountability to shareholders. Companies not only have to comply with statutory reporting requirements but can also voluntarily apply non-statutory reporting requirements that include sustainability- and integrated reporting.

Theoretical objective 2 – Identify the different framework and calculation methods to determine economic profit, accounting profit and taxable income that are used among different stakeholders

Secondly, the different frameworks and calculation methods to determine accounting profit, taxable income and economic profit that are used among different stakeholders were analysed. Creative accounting techniques can be applied in a lawful manner by reporting profits to meet stakeholders' expectations. Accounting and economics differ as economic indicators have an adverse effect on accounting profit, whereas tax separately complies with tax regulations. In Section 2.6, the findings suggest that between accounting profit and taxable income there is a direct link as accounting principles and tax laws are applied. Economic profit, unlike accounting profit and taxable income, takes into account opportunity costs of capital and inventory, which can influence the overall indication influencing stakeholders' final decision making. Stakeholders can apply a reconciliation to the accounting profit obtained from financial statements to derive back at taxable income. In a similar manner, economic profit is determined, on the user's discretion, by the reconciliation of accounting profit adjusted for opportunity costs.

Theoretical objective 3 – Establish the use, advantages and disadvantages of each profit method

Thirdly, the use, advantages and disadvantages of each profit method were established. In summary, Section 2.7 expresses accounting profit and taxable income as the most beneficial profit reporting method used as accounting standards and the Tax Act is internationally recognised and also one of the JSE-listing requirements. Furthermore, Chapter 4 clearly illustrates that in most instances accounting profit and taxable income is consistently applied, whereas, with economic profit there is a strong fluctuation between each year. Chapter 4 further identifies that the fluctuation in economic profit can be associated with external economic factors such as strikes, decreases in the GDP that came to light, first due to the recession in 2008 and secondly during 2012. In 2007 the country's GDP was 5,1% and at the end of the 2008 – 2009 global economic crisis reduced to 3,1%

Empirical objective

The empirical objective was addressed in order to determine the most effective profit figure used for decision-making among stakeholders. Table 4.36 identifies the effect each

profit method has on stakeholders' decision making. Furthermore, in Table 2.2 the usefulness of financial information of different stakeholders was discussed, identifying that commonly a majority of the stakeholders consider the accounting profit, with the exception being the tax authorities that also considers the taxable income and employees that accounts for additional non-financial information. Profitability can be determined by applying ratio analysis (Du Pont analysis) as profitability plays an important role in company sustainability. In Chapter 4, descriptive statistics included the mean expressing the reasonableness of the data, the minimum, maximum and range stating that if the mean falls within the minimum and maximum values the data is free from error, the skewness indicated that 42 of the 54 observations were clustered to the left. With the frequency 540 observations were collected (three sets of profit figures and the Du Pont analysis). The findings illustrate that by applying accounting principles or the Tax Act, an even medium is found between accounting profit and taxable income as there is a strong correlation between the two sets of profit figures. It is noteworthy to acknowledge the weak correlation of economic profit compared to that of accounting profit and taxable income, thus questioning if companies window dress financial statements only to appear profitable despite the current economic conditions in the market.

5.3. PROBLEM STATEMENT

With the theoretical and empirical research objectives being achieved, the problem statement has also been addressed. The problem statement as expressed in Section 1.2 was formulated to fill the gaps within the literature pertaining to the application of accounting profit, taxable income and economic profit to the financial statements of listed companies in South Africa and the adverse effect it may have on the South African economy. It was founded through focusing on the research objectives that disclosing the incorrect profit it will most definitely have an influence decision making of stakeholders.

Section 5.4 provides the limitations and shortcomings of the study.

5.4. LIMITATIONS AND SHORTCOMINGS OF THE STUDY

The limitations and shortcomings of the study can be expressed as follows:

- Not all companies had financial information available on the McGregor BFA database for 15 years. The limitation was addressed by obtaining individual AFS for each missing year and scrutinised manually to obtain the missing information.

- No information was available on the McGregor BFA database for Government companies that provides utility services, namely Eskom. In Chapter 3, the utilities sector was excluded from the sample size.
- It is difficult to correctly determine economic profit, as opportunity costs can be incorrectly calculated by not including all costs that can fall under opportunity costs. The limitation was addressed by consistently applying the economic profit framework as stated in Chapter 2, Section 2.6.3.
- The study relied on the accurate measurement of accounting profit, economic profit and taxable income. The three different sets of profit figures can be manipulated to support the study and can distort the final findings.
- The extent to which the findings can be applied to other companies and countries are limited as it is based on the JSE companies and not internationally. In order to reach more generalizable findings other stock exchanges could be selected in future.

The last limitation identified in the study links with the future research areas, which is discussed in the following section.

5.5. SUGGESTIONS FOR FURTHER RESEARCH

The limitations of the study were also acknowledged before application thereof. The recommendation for further studies will enhance the contributions to improve the usefulness of financial statements and disclosures made in terms of different profit figures.

The following areas have been identified for further research:

- Perform an identical study on the JSE companies within another time frame to determine if the findings are significantly different within a different period.
- Perform a duplicate study that includes the JSE-listed companies with a smaller market capitalisation and average market capitalisation to determine if the findings between the results of financial information is significantly different from the current study.
- This study can also be conducted on companies listed on other stock exchanges.

5.6. CHAPTER SUMMARY AND FINAL REMARKS

The purpose of this chapter was to provide an overview of the study and discuss how the conclusions based on each of the research objectives of this study was achieved. The study found that economic profit does not form part of the statutory reporting requirements, in spite of this, the study further suggests that determining economic profit will provide stakeholders with a good indicator for company sustainability within an economic perspective. This can be substantiated from the findings in Chapter 4 that illustrates the strong deviation between accounting profit and economic profit.

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APPENDIX A

Descriptive Statistics

C1					
AP		TI		EP	
Mean	13254,27	Mean	14031,67	Mean	7133,20
Standard error	2337,301308	Standard error	2335,901909	Standard error	2023,226422
Median	11618	Median	14183	Median	4504
Mode	#N/A	Mode	#N/A	Mode	#N/A
Standard deviation	9052,329041	Standard deviation	9046,909193	Standard deviation	7835,922238
Sample variance	81944661,07	Sample variance	81846565,95	Sample variance	61401677,31
Kurtosis	-0,828401351	Kurtosis	-0,983518336	Kurtosis	-0,195972603
Skewness	0,423115584	Skewness	0,202879305	Skewness	0,822752559
Range	28826	Range	29112	Range	25495

Minimum	2429	Minimum	2143	Minimum	-1136
Maximum	31255	Maximum	31255	Maximum	24359
Sum	198814	Sum	210475	Sum	106998
Count	15	Count	15	Count	15

C1					
APROE		TIROE		EPROE	
Mean	4,4184	Mean	4,8224	Mean	1,919667
Standard error	0,581115	Standard error	0,681573	Standard error	0,552964
Median	4,187	Median	4,187	Median	1,639
Mode	2,723	Mode	#N/A	Mode	#N/A
Standard deviation	2,250649	Standard deviation	2,639721	Standard deviation	2,14162
Sample variance	5,065422	Sample variance	6,968129	Sample variance	4,586536
Kurtosis	-1,18749	Kurtosis	-1,51633	Kurtosis	0,081486
Skewness	0,254989	Skewness	0,297085	Skewness	0,670123
Range	7,212	Range	7,671	Range	7,269
Minimum	0,938	Minimum	1,006	Minimum	-0,917
Maximum	8,15	Maximum	8,677	Maximum	6,352

Sum	66,276	Sum	72,336	Sum	28,795
Count	15	Count	15	Count	15

C2					
AP		TI		EP	
Mean	2207,91	Mean	2205,487	Mean	-1434,37
Standard error	546,1213	Standard error	546,8571	Standard error	647,3777
Median	1246,9	Median	1245,7	Median	-442,9
Mode	#N/A	Mode	#N/A	Mode	#N/A
Standard deviation	2115,119	Standard deviation	2117,969	Standard deviation	2507,283
Sample variance	4473727	Sample variance	4485791	Sample variance	6286468
Kurtosis	0,247676	Kurtosis	0,242035	Kurtosis	2,639525
Skewness	1,172258	Skewness	1,166537	Skewness	-1,91875
Range	6283,60	Range	6289,60	Range	8167,40
Minimum	254,4	Minimum	248,4	Minimum	-7978,3
Maximum	6538	Maximum	6538	Maximum	189,1

Sum	33118,7	Sum	33082,3	Sum	-21515,5
Count	15	Count	15	Count	15

C2					
APROE		TIROE		EPROE	
Mean	41,16507	Mean	40,53847	Mean	-9,07953
Standard error	4,987895	Standard error	4,89051	Standard error	5,262256
Median	43,44	Median	43,358	Median	-6,911
Mode	#N/A	Mode	#N/A	Mode	#N/A
Standard deviation	19,31803	Standard deviation	18,94087	Standard deviation	20,38063
Sample variance	373,1865	Sample variance	358,7564	Sample variance	415,3701
Kurtosis	-1,52075	Kurtosis	-1,25111	Kurtosis	-0,16105
Skewness	0,145325	Skewness	0,247234	Skewness	0,268976
Range	53,534	Range	52,855	Range	74,141
Minimum	19,152	Minimum	19,152	Minimum	-43,343
Maximum	72,686	Maximum	72,007	Maximum	30,798

Sum	617,476	Sum	608,077	Sum	-136,193
Count	15	Count	15	Count	15

C3					
AP		TI		EP	
Mean	2409,20	Mean	2919,60	Mean	-3606,87
Standard error	298,538	Standard error	412,4274	Standard error	1001,476
Median	2442	Median	2929	Median	-847
Mode	#N/A	Mode	#N/A	Mode	#N/A
Standard deviation	1156,233	Standard deviation	1597,324	Standard deviation	3878,698
Sample variance	1336874	Sample variance	2551445	Sample variance	15044301
Kurtosis	-0,59101	Kurtosis	-1,01322	Kurtosis	-2,0735
Skewness	-0,11827	Skewness	0,079982	Skewness	-0,21148
Range	3880	Range	4957	Range	9515
Minimum	571	Minimum	646	Minimum	-8961
Maximum	4451	Maximum	5603	Maximum	554

Sum	36138	Sum	43794	Sum	-54103
Count	15	Count	15	Count	15

C3					
APROE		TIROE		EPROE	
Mean	2,337933	Mean	2,630333	Mean	-2,2064
Standard error	0,285444	Standard error	0,243593	Standard error	0,521903
Median	2,145	Median	2,385	Median	-2,695
Mode	#N/A	Mode	#N/A	Mode	#N/A
Standard deviation	1,105518	Standard deviation	0,94343	Standard deviation	2,021323
Sample variance	1,222171	Sample variance	0,89006	Sample variance	4,085747
Kurtosis	1,549918	Kurtosis	0,990272	Kurtosis	-1,29892
Skewness	1,368803	Skewness	1,089381	Skewness	0,375159
Range	3,855	Range	3,337	Range	6,183
Minimum	1,268	Minimum	1,576	Minimum	-4,943
Maximum	5,123	Maximum	4,913	Maximum	1,24

Sum	35,069	Sum	39,455	Sum	-33,096
Count	15	Count	15	Count	15

C4					
AP		TI		EP	
Mean	2655,93	Mean	2682,427	Mean	-3305,95
Standard error	514,361	Standard error	506,3606	Standard error	505,4227
Median	2461,4	Median	2461,4	Median	-2284
Mode	#N/A	Mode	#N/A	Mode	#N/A
Standard deviation	1992,112	Standard deviation	1961,126	Standard deviation	1957,494
Sample variance	3968509	Sample variance	3846016	Sample variance	3831782
Kurtosis	-1,35346	Kurtosis	-1,34252	Kurtosis	1,245322
Skewness	0,352697	Skewness	0,3806	Skewness	-1,50661
Range	5704,30	Range	5637,20	Range	6077,40
Minimum	279,7	Minimum	344,8	Minimum	-7883
Maximum	5984	Maximum	5982	Maximum	-1805,6

Sum	39838,9	Sum	40236,4	Sum	-49589,2
Count	15	Count	15	Count	15

C4					
APROE		TIROE		EPROE	
Mean	36,91693	Mean	38,47187	Mean	-34,6362
Standard error	3,691135	Standard error	3,463915	Standard error	6,733604
Median	34,174	Median	37,574	Median	-40,785
Mode	#N/A	Mode	#N/A	Mode	#N/A
Standard deviation	14,2957	Standard deviation	13,41569	Standard deviation	26,07914
Sample variance	204,3671	Sample variance	179,9806	Sample variance	680,1213
Kurtosis	0,305596	Kurtosis	1,508011	Kurtosis	6,442518
Skewness	-0,34018	Skewness	-0,66553	Skewness	2,318494
Range	55,118	Range	55,118	Range	107,399
Minimum	5,757	Minimum	5,757	Minimum	-61,907
Maximum	60,875	Maximum	60,875	Maximum	45,492

Sum	553,754	Sum	577,078	Sum	-519,543
Count	15	Count	15	Count	15

C5					
AP		TI		EP	
Mean	18225,33	Mean	20251,33	Mean	-531229
Standard error	2127,566	Standard error	2238,651	Standard error	62555,17
Median	18353	Median	19481	Median	-542381
Mode	#N/A	Mode	#N/A	Mode	#N/A
Standard deviation	8240,027	Standard deviation	8670,26	Standard deviation	242275,1
Sample variance	67898039	Sample variance	75173407	Sample variance	5,87E+10
Kurtosis	0,059005	Kurtosis	-0,51286	Kurtosis	-1,19297
Skewness	0,531484	Skewness	0,412812	Skewness	-0,04117
Range	29377	Range	28538	Range	722481
Minimum	6657	Minimum	8175	Minimum	-897082
Maximum	36034	Maximum	36713	Maximum	-174601

Sum	273380	Sum	303770	Sum	-7968434
Count	15	Count	15	Count	15

C5					
APROE		TIROE		EPROE	
Mean	27,3406	Mean	31,0292	Mean	-65,5349
Standard error	1,797971	Standard error	2,402991	Standard error	2,540976
Median	26,86	Median	27,865	Median	-64,265
Mode	#N/A	Mode	#N/A	Mode	#N/A
Standard deviation	6,963512	Standard deviation	9,306745	Standard deviation	9,841158
Sample variance	48,4905	Sample variance	86,61551	Sample variance	96,84838
Kurtosis	-1,1153	Kurtosis	-1,56321	Kurtosis	-0,77155
Skewness	0,246467	Skewness	0,450259	Skewness	-0,22708
Range	21,081	Range	23,638	Range	32,383
Minimum	18,11	Minimum	21,058	Minimum	-83,441
Maximum	39,191	Maximum	44,696	Maximum	-51,058

Sum	410,109	Sum	465,438	Sum	-983,024
Count	15	Count	15	Count	15

C6					
AP		TI		EP	
Mean	2162,867	Mean	2237,533	Mean	-6076,73
Standard error	229,9504	Standard error	236,6139	Standard error	789,3853
Median	2324	Median	2392	Median	-5384
Mode	#N/A	Mode	#N/A	Mode	#N/A
Standard deviation	890,594	Standard deviation	916,4018	Standard deviation	3057,276
Sample variance	793157,7	Sample variance	839792,3	Sample variance	9346937
Kurtosis	1,002128	Kurtosis	0,690039	Kurtosis	-0,1005
Skewness	0,266651	Skewness	0,105455	Skewness	-0,84856
Range	3641	Range	3684	Range	10294
Minimum	528	Minimum	544	Minimum	-12721
Maximum	4169	Maximum	4228	Maximum	-2427

Sum	32443	Sum	33563	Sum	-91151
Count	15	Count	15	Count	15

C6					
APROE		TIROE		EPROE	
Mean	17,1818	Mean	17,66707	Mean	-46,5141
Standard error	1,756759	Standard error	1,74001	Standard error	4,008088
Median	15,732	Median	16,935	Median	-49,015
Mode	#N/A	Mode	#N/A	Mode	#N/A
Standard deviation	6,8039	Standard deviation	6,739029	Standard deviation	15,52326
Sample variance	46,29305	Sample variance	45,41452	Sample variance	240,9716
Kurtosis	-0,16615	Kurtosis	0,013899	Kurtosis	-0,48589
Skewness	0,222141	Skewness	0,122698	Skewness	0,40151
Range	25,517	Range	25,798	Range	51,375
Minimum	4,985	Minimum	5,136	Minimum	-69,615
Maximum	30,502	Maximum	30,934	Maximum	-18,24

Sum	257,727	Sum	265,006	Sum	-697,712
Count	15	Count	15	Count	15

C7					
AP		TI		EP	
Mean	25124,53	Mean	25681,93	Mean	6559
Standard error	3078,254	Standard error	3285,976	Standard error	1091,279
Median	23925	Median	24195	Median	6877
Mode	#N/A	Mode	#N/A	Mode	#N/A
Standard deviation	11922,03	Standard deviation	12726,53	Standard deviation	4226,504
Sample variance	1,42E+08	Sample variance	1,62E+08	Sample variance	17863336
Kurtosis	-1,27216	Kurtosis	-1,10189	Kurtosis	-1,57234
Skewness	0,224648	Skewness	0,316373	Skewness	0,107422
Range	35340	Range	37445	Range	12347
Minimum	9230	Minimum	9182	Minimum	184
Maximum	44570	Maximum	46627	Maximum	12531

Sum	376868	Sum	385229	Sum	98385
Count	15	Count	15	Count	15

C7					
APROE		TIROE		EPROE	
Mean	32,9364	Mean	33,18446667	Mean	8,909933333
Standard error	2,190219	Standard error	2,047054916	Standard error	1,520550967
Median	28,538	Median	28,86	Median	8,296
Mode	#N/A	Mode	#N/A	Mode	#N/A
Standard deviation	8,482681	Standard deviation	7,928209597	Standard deviation	5,889068571
Sample variance	71,95588	Sample variance	62,85650741	Sample variance	34,68112864
Kurtosis	-1,23726	Kurtosis	-1,285163639	Kurtosis	0,2308938
Skewness	0,594116	Skewness	0,567530446	Skewness	0,723451861
Range	23,877	Range	23,198	Range	21,556
Minimum	23,261	Minimum	24,334	Minimum	0,525
Maximum	47,138	Maximum	47,532	Maximum	22,081

Sum	494,046	Sum	497,767	Sum	133,649
Count	15	Count	15	Count	15

C8					
AP		TI		EP	
Mean	216,8733	Mean	217,2	Mean	158,5133
Standard error	71,44718	Standard error	72,06592	Standard error	43,25519
Median	91,4	Median	91	Median	83
Mode	#N/A	Mode	#N/A	Mode	#N/A
Standard deviation	276,7138	Standard deviation	279,1101	Standard deviation	167,5266
Sample variance	76570,5	Sample variance	77902,46	Sample variance	28065,17
Kurtosis	2,396663	Kurtosis	2,473844	Kurtosis	-0,02528
Skewness	1,715508	Skewness	1,728709	Skewness	1,103462
Range	927,80	Range	939	Range	512,30
Minimum	12,8	Minimum	12	Minimum	12,2
Maximum	940,6	Maximum	951	Maximum	524,5

Sum	3253,1	Sum	3258	Sum	2377,7
Count	15	Count	15	Count	15

C8					
APROE		TIROE		EPROE	
Mean	29,702	Mean	25,5178	Mean	25,6306
Standard error	6,009475	Standard error	5,357563	Standard error	5,495248548
Median	26,326	Median	17,091	Median	22,164
Mode	#N/A	Mode	#N/A	Mode	#N/A
Standard deviation	23,2746	Standard deviation	20,74975	Standard deviation	21,28300611
Sample variance	541,7068	Sample variance	430,5522	Sample variance	452,9663491
Kurtosis	1,826112	Kurtosis	5,410069	Kurtosis	2,783943341
Skewness	1,48486	Skewness	2,108009	Skewness	1,619337456
Range	81,339	Range	81,745	Range	80,341
Minimum	5,805	Minimum	5,869	Minimum	2,423
Maximum	87,144	Maximum	87,614	Maximum	82,764

Sum	445,53	Sum	382,767	Sum	384,459
Count	15	Count	15	Count	15

C9					
AP		TI		EP	
Mean	22763,05	Mean	23200,34	Mean	14380,31
Standard error	3844,761	Standard error	4114,225	Standard error	3549,386
Median	25778	Median	25773	Median	15843
Mode	#N/A	Mode	#N/A	Mode	#N/A
Standard deviation	14890,7	Standard deviation	15934,32	Standard deviation	13746,71
Sample variance	2,22E+08	Sample variance	2,54E+08	Sample variance	1,89E+08
Kurtosis	-1,26345	Kurtosis	-1,08259	Kurtosis	0,363699
Skewness	-0,10845	Skewness	0,018774	Skewness	-0,69743
Range	45083,30	Range	49703,10	Range	50031
Minimum	1771,7	Minimum	1359,9	Minimum	-17228
Maximum	46855	Maximum	51063	Maximum	32803

Sum	341445,8	Sum	348005,1	Sum	215704,6
Count	15	Count	15	Count	15

C9					
APROE		TIROE		EPROE	
Mean	21,0436	Mean	20,25633	Mean	17,22007
Standard error	3,97489	Standard error	4,017461	Standard error	4,357781
Median	17,457	Median	17,032	Median	15,436
Mode	#N/A	Mode	#N/A	Mode	#N/A
Standard deviation	15,39468	Standard deviation	15,55956	Standard deviation	16,87761
Sample variance	236,9962	Sample variance	242,0998	Sample variance	284,8538
Kurtosis	0,804038	Kurtosis	0,947742	Kurtosis	0,854206
Skewness	1,023138	Skewness	1,133438	Skewness	0,419519
Range	55,116	Range	55,104	Range	69,696
Minimum	2,941	Minimum	3,049	Minimum	-15,054
Maximum	58,057	Maximum	58,153	Maximum	54,642

Sum	315,654	Sum	303,845	Sum	258,301
Count	15	Count	15	Count	15

APPENDIX B

Currency conversion table for companies with foreign presentation currencies

JSE ticker	Financial year-end date	Presentation currency
BIL	30 June	United States Dollar (USD)

Currency converted to South African Rand (ZAR) on year-end date		
Year	Spot rate	Average rate
Y1	8,10385	8,1118
Y2	10,0220	10,0520
Y3	7,9270	7,9770
Y4	6,4920	6,5359
Y5	6,7076	6,7576

Currency converted to South African Rand (ZAR) on year-end date		
Year	Spot rate	Average rate
Y6	6,74956	6,77804
Y7	7,22937	7,25842
Y8	7,96942	7,98353
Y9	8,02336	8,04763
Y10	7,69704	7,71605
Y11	6,75626	6,85626
Y12	8,34807	8,36514
Y13	10,1770	10,1877
Y14	10,7342	10,7437
Y15	12,3596	12,3709

JSE ticker	Financial year-end date	Presentation currency
SAB	31 March	United States Dollar (USD)

Currency converted to South African Rand (ZAR) on year-end date		
Year	Spot rate	Average rate
Y1	7,73750	7,7480
Y2	11,4920	11,5930
Y3	7,8810	7,9310
Y4	6,6282	6,6513
Y5	5,8266	5,8766
Y6	6,20295	6,29973
Y7	7,30450	7,4045

Currency converted to South African Rand (ZAR) on year-end date		
Year	Spot rate	Average rate
Y8	7,95164	7,96172
Y9	10,2302	10,2711
Y10	7,42335	7,44879
Y11	6,90884	6,92491
Y12	7,51924	7,61924
Y13	9,13476	9,14472
Y14	10,7766	10,7886
Y15	12,3191	12,3314

JSE ticker	Financial year-end date	Presentation currency
SBK	31 December	United States Dollar (USD)

Currency converted to South African Rand (ZAR) on year-end date	
Year	Average rate
Y6	7,09588
Y7	6,68735
Y8	10,2355
Y9	7,5320
Y10	6,91611
Y11	8,14766
Y12	8,67757

Currency converted to South African Rand (ZAR) on year-end date	
Year	Average rate
Y13	10,3735