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The determinants of the voluntary disclosure of Free Cash Flows (FCF) by JSE listed companies

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2021
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The determinants of the voluntary disclosure of Free Cash Flows (FCF) by JSE listed companies.

A Research Report submitted by

Charles Matumba

Student Number: 876921

Cell: 082 473 1864

Email: charlesmatumba@gmail.com

Date Submitted: 26 February 2021

Supervisor: Mr. Yogesh Brahmbhatt

In partial fulfilment (50%) of the requirements for the degree of

Master of Commerce in Accounting

University of the Witwatersrand, Johannesburg

Ethics Clearance Number: CACCN/1215



FACULTY OF COMMERCE AND MANAGEMENT: SCHOOL OF ACCOUNTANCY

ABSTRACT

There has been growing interest in Free Cash Flow (FCF) in the areas of finance and accounting as the debate for value relevance continues. FCF in South Africa falls under the category of Alternative Performance Measures (APMs) according to the Johannesburg Stock Exchange(JSE) classifications. FCF disclosure is voluntary in the financial statements/annual reports and this study aims to examine the determinants of that voluntary disclosure over the 5 years 2014-2018 for JSE-listed companies.

A quantitative approach using secondary data was followed and 157 JSE listed companies were selected over the 5 years 2014 to 2018. The study investigated nine independent variables and hypotheses. The independent variables were FCF margin, change in Earnings per Share (EPS), Dividends per share(DPS), Capital Intensity (CAPI), Leverage (LEV), Foreign Listing (FORLIST), Sales Growth (SG), Size (SIZE) and age since incorporation (AGE). The categorical dependent variable was Free Cash Flow Voluntary Disclosure (FCFVD), which was coded/categorised as 0, 1 and 2 according to the level of FCF disclosure. The variables of FCF Margin, CAPI, SIZE and FORLIST were found to be significant as the determinants of FCF voluntary disclosure by the South African JSE listed companies.

The main findings of the research relating to the wide FCF nomenclature by JSE companies lead to challenges in comparison of FCF information by users of financial statements. The recommendation is for the JSE and the South African Institute of Chartered Accountants (SAICA), in collaboration with industry bodies and other key stakeholders, to develop a framework for the definition and calculation of the top five FCF names/measures. Other proposed areas of further research are FCF managerial manipulation of compensation schemes/metrics and share price performance, further sectorial FCF disclosure trends/analysis, extending the study for a longer period and to include the financial and real estate sectors.

This study contributes to the FCF voluntary disclosure body of international literature and initiates this area of research in South Africa. The study is of significance as bridging the gap and broadening the understanding of FCF disclosure in South Africa. The aim of this research is to assist companies in their FCF voluntary disclosure practices and at the same time, to assist regulators in considering the need to regulate the reporting practices of the FCF, in particular, when the JSE finalises its regulatory criteria for the reporting of APMs to listed companies.

Keywords: Free Cash Flow; Voluntary disclosure; South Africa; JSE

DECLARATION

This research paper, I hereby declare, is my unassisted work. It is sent to the University of the Witwatersrand, Johannesburg, in partial fulfillment of the degree of Master of Commerce (Accounting) by Coursework and Research Report. It has not been applied for another degree or review purposes at any other University anywhere.

Signature:

_____

Charles Matumba

26 February 2021

ACKNOWLEDGEMENTS

I would like to give gratitude to our Lord Jehovah for affording me the opportunity and enabling me to carry out this research. All the glory, honour and wisdom belong to the Father in heaven, alongside our Saviour Jesus Christ and the Holy Spirit.

I would like to thank my father, Mr. Isaac Matumba, for laying the foundation for my educational background as well as my mother, Mrs. Esther Matumba for the perseverance in supporting my father in this noble contribution.

To my supervisor, Mr. Yogesh Brahmbhatt, your guidance, perseverance and untiring support is greatly appreciated. To my wife, Fungai Matumba and children Tintswalo, Makaitaishe and Mikaela, your unending support and encouragement have made a huge difference.

To my friends, Mr. Paul Mukoki and Mr. Everisto Mugocha, your unselfish and unwavering support strengthened me throughout the journey. I thank the contribution of the rest of my colleagues and friends.

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List of acronyms

Acronym	Expansion
FCF	Free cash flow
EPS	Earnings per share
AFS	Annual Financial Statements
IIR	Investor Internet Reporting
IR	Integrated Reporting
FRSC	Financial Reporting Standards Council
SA	South Africa or South African
CFO	Cash Flow from Operations
SCF	Statement of Cash Flows
IS	Income Statement
NPV	Net Present Value
FCFF	Free cash flow to the firm
SAICA	South African Institute of Chartered Accountants
FCF-S	Free cash flow to sales
SG	Sales growth
FCFG	Free cash flow growth
FCFVD	Free Cash Flow Voluntary Disclosure
JSE	Johannesburg Stock Exchange
IFRS	International Financial Reporting Standards
IAS	International Accounting Standards
IASB	International Accounting Standards Board
FASB	Financial Accounting Standards Board
US GAAP	United States Generally Accepted Accounting Practice
SA GAAP	South African Generally Accepted Accounting Practice
SEC	Securities Exchange Commission of the United States of America
MSCI	Morgan Stanley Capital International
APC	Accounting Practices Committee
S&P	Standard and Poor
MRA	Multiple Regression Analysis
CRR	Corporate Responsibility Reporting
SRI	Socially Responsible Index
SPSS	Statistical Package for Social Sciences
CAPI	Capital Intensity ratio
ANOVA	Analysis of variance
GICS	Global Industry Classification Standard
APMs	Alternative Performance Measures
CAPEX	Capital expenditure
NIM	Non IFRS Measures or also called Non-GAAP Measures.
CG	Corporate governance
BEE	Black Economic Empowerment

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1 Introduction

1.1 Purpose and context of this study

Financial reporting disclosures are broadly segregated into mandatory and voluntary. Mokoaleli-Mokoteli and Ojah (2010) citing Myburgh (2001) identify mandatory disclosure as those elements and items mandated by laws, stock exchanges or accounting standards prescribers. In addition to mandatory reporting, particularly in Anglo-Saxon countries, managers often voluntarily report other cash-flow related details such as the so-called "Free Cash Flow or FCF", a widely discussed concept (Laura, Dumitru, & Razvan, 2011). Voluntary disclosure is an option on the part of the management of the company to include accounting and other information that is considered important to the decision needs of users of their annual reports (Mokoaleli-Mokoteli & Ojah, 2010). In recent years, more companies have started voluntarily disclosing FCF to supplement earnings figures in their annual reports, integrated reports and earnings announcements (Adame, Koski, & McVay, 2002). Globally, there has been growing interest in this metric of FCF as the search for value relevance continues. South African listed companies are believed to follow this international trend and this study aims to investigate FCF disclosure and contribute to body of local and international literature.

Laura et al. (2011) citing Adhikari & Duru (2006) noted that there are various reasons why companies choose to disclose FCF information, for example, enhancing the image of results to their stakeholders. Other reasons given by researchers are signalling future dividend payments and a general interest in FCF reporting. Since FCF is a direct input in the financial valuation models, it is worthwhile for shareholders and managers to understand the factors influencing its disclosure.

The share price is widely accepted as the best measure of external value creation and the one to measure corporate performance (Abed, Roberts, & Hussainey, 2014; Hejazi & Malek, 2007); Jensen and Meckling (1976). Jensen and Meckling (1976) clarify, as quoted by Mukoki (2016), that the company's mission is to optimise long-term shareholder value, making it possible for a company to produce cash over time and be sustainable. Hence, the share price is viewed as an input in the determination of the market capitalisation/value of the company. If FCF and its disclosure are value relevant, with possible impact on the share process/valuations, it is worthwhile for managers, shareholders, bondholders and regulators to understand the determinants of its disclosure.

Traditionally, the "bottom-line" profit of a company has become the subject of analysts, investors and scholars, while other items of financial statements have usually been ignored or given less emphasis (Foerster, Tsagarelis, & Wang, 2017). Foerster et al. (2017) indicated that research has found evidence that a broader range of financial statement details might have rich predictive power for stock returns, one of which is possibly FCF. Modern finance research has been influenced to emphasise FCF, given the results of multiple studies that were done on earnings manipulation. However, the innovative accounting strategies must be taken into account and some researchers equate FCF reporting/disclosure with managers' deceptive intentions (Laura et al., 2011).

According to Adhikari and Duru (2006), modern financial texts have long supported an emphasis on FCF instead of earnings to measure company results. The United States Generally Accepted Accounting Practice (US GAAP) and International Financial Reporting Standards (IFRS) do not require companies to disclose FCF information but some companies voluntarily report and emphasise FCF in their financial statements. The results of this study may encourage accounting standards setters/regulators (e.g., JSE and SAICA) to require companies to disclose a clear definition of FCF in the body of the Statement of cash flows (SCF) or additional disclosures at the bottom of the SCF.

Mack (2018) noted that researchers have found that FCF is the most important metric and other financial assessments merely help as a guide in assisting the determination of FCF. His model in Figure 1 below shows that each of these valuations builds on information from the ones before, starting with book value and ultimately providing arguably the most important and useful metric, FCF. Sales are identified as a company's ability to convert capital (book value) and earnings factoring in expenses when looking at sales. Earnings are identified as hypothetical and using accounting assumptions, cash flow is identified as cash in hand, left after paying the bills. FCF is identified as cash remaining after the company reinvests in the business (Mack, 2018).

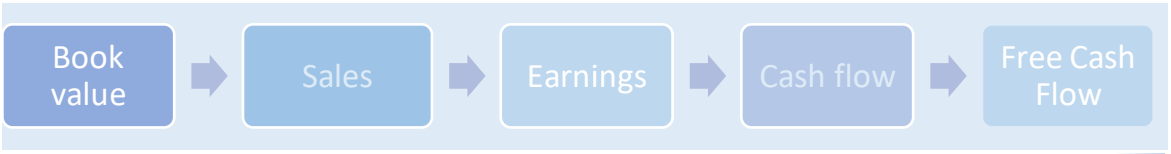


Figure 1: Free Cash Flow Generation Model

This study draws inspiration from the prior related research carried out in other markets and is expected to add value to investors, analysts, managers, regulators and academics. If the results of the study are strong in the South African context, then, this study will pave way for

further studies in FCF. According to Hoque and Rakow (2015), pressures on equal disclosure regulation have contributed to growth in management's voluntary disclosure policies in the form of increased cash flow disclosures over the past decade. Citing Wasley and Wu (2006), Hoque and Rakow (2015) found that management issues cash flow forecasts to satisfy investor demand for cash flow information, minimise the negative impact of bad news on earnings, signal economic strength for young companies and decrease the ability to manipulate earnings through accruals. Hoque and Rakow (2016) concluded that FCF disclosures and forecasts matter and can either be value-adding or value-decreasing depending on the optimality of FCF forecasts.

1.2 Statement of problem

Following numerous corporate scandals in a turbulent global economy, a call for greater accountability has put immense pressure on South African companies to reform, not just their actions but also their reporting (Mmako & van Rensburg, 2017). Brahmbhatt (2017) noted that the information reported online differ greatly from company to company concerning voluntary disclosure. This is true for this study, why do companies disclose FCF differently and what are there determinants or trends in these disclosures? The researcher assumes that these disclosures or non-disclosures are not random and are influenced by company-specific financial and non-financial factors. The purpose of this study is to recognise some of these variables and evaluate their importance and in turn, enlighten financial information users.

Generally, if FCF or its disclosure is important to company value, then, managers would be encouraged to report or resist disclosures. Omondi and Muturi (2013) pointed out that with the increasing trend of corporate failures, shareholders and other stakeholders are increasingly becoming more concerned with the financial performance of their companies. Hence, relevant and robust criteria for evaluating their company's financial performance has become increasingly important than before. Value-based measures (e.g. FCF) are expected to be more relevant than the traditional accounting-based measures.

While earnings were the cornerstone of share valuation, earnings manipulation in accounting literature has been a negative trend subject, which is considered a tool for managers to satisfy their interest. In this scenario, managers modify and exploit profit to deceive and mislead the reader's view of financial statements about the true situation of the companies to deceive and mislead them (Bukit & Nasution, 2015).

Mainly, the increasing interest in cash flow reporting was due to infamous financial scandals and earnings management, hence the need for a less manipulated measure of financial

results. All these aspects elevate cash flow reporting to the various stakeholders and led to an increased appetite for FCF disclosure (Laura et al., 2011). Bhandari and Adams (2017) noted the Securities Exchange Commission in the United States of America (SEC) in its accounting monitoring report highlighted that companies should be aware that there is no uniform definition of the FCF calculation and its title does not specify how it is measured. Therefore, as well as the requisite reconciliation, a simple explanation of how FCF is measured should accompany the measure when it is used. The JSE (2019) identifies FCF as APMs which when disclosed, should be properly defined, clearly presented and reconciled to IFRS numbers.

1.2 Objective of the study

Primary objective

This study aims to establish the determinants of the voluntary disclosure of FCF by JSE listed companies for the 5 years from 2014 to 2018. The study will answer the following question: What are the determinants of the voluntary disclosure of Free Cash Flows (FCF) by JSE listed companies? The study aims to look at the voluntary disclosure in other markets and in South Africa and link those factors to FCFVD in South Africa. The study aims to investigate nine independent variables and hypotheses and one categorical dependent variable, FCFVD.

Secondary objective

At the end, depending on the findings, the researcher aims to recommend to the South African accounting regulatory authorities (SAICA and JSE) on an improved framework on FCFVD.

1.3 Significance and contribution of the study

The researcher has not found specific literature in the South African context, which has specifically investigated voluntary FCF disclosures. The closest research was done by Trehaeven (2016), an investigator of South African Banks' importance of cash flow disclosures. He identified that there is a gap since there seems to be very little attention placed on disclosures of cash flow. This research is expected to bridge this gap and to broaden the understanding of the area in the South African context and add to the body of literature.

This study is of significance for being one of the pioneering studies in South Africa in examining the determinants of FCF disclosures in such an integrated/holistic fashion and this distinguishes it from other studies. To the researcher's knowledge, in the South African context, no such prior research in this area exists. Some recent studies on voluntary disclosure focussed on Corporate Responsibility Reporting (CRR), Human Immune Deficiency Virus (HIV), /Acquired Immune Deficiency Syndrome (AIDS) reporting and investor relations

disclosure. de Klerk (2012) argued that CRR consists largely of voluntary disclosure but a compelling business argument for reporting is apparent as companies will not support the CRR definition unless they benefit from it. The results of the study indicate that data on the environmental and social performance of a company is important for investment decision-making because it is related to the company's share price.

Nel and Brummer (2017) found a range of statistically important independent variables explaining the variation in the dependent variable investor relations disclosure. Prior research has been done in the international arena on voluntary FCF disclosures in the United States of America (USA), Australia, Croatia, Romania and Germany (Adame et al. (2002); Adhikari and Duru (2006); Aljinović Barać (2012); Hassan (1994); Laura et al. (2011); Leuz (2000) respectively. This study will examine the validity of some of the factors in the South African context and add to the body of literature by giving new insights.

The study will assist the regulators (e.g., SAICA and JSE) in accounting standards setting and determining if there is a strong case for JSE listed companies to standardise and disclose FCF in their annual reports. Currently, the FCF is an internal performance metric and is voluntarily disclosed by some of the JSE companies. Also, FCF disclosures will serve as an important addition to their standard reporting practices.

Further studies can then be carried out leading to the development and possible implementation of an agreed guideline /framework for the calculation and disclosure of FCF performance measures in South Africa. The researcher's proposed FCF disclosure-scoring sheet is expected to contribute to further insights into the FCF disclosure by JSE companies. Bhandari and Adams (2017) argued that FCF would be more appropriate for intra-company research, dialogue and decision-making rather than inter-company comparison unless academics and practitioners agree on a standardised metric.

The resultant sector-specific results will aid in future sector-focused research. Since companies in a particular sector/industry can spend more cash than companies in another sector on capital expenditure (CAPEX) or other investment activities, the need for sectoral insights is, therefore, important (Maksy & Chen, 2014).

1.4 Research question

The research will answer the following question:

What are the determinants of the voluntary disclosure of Free Cash Flows (FCF) by JSE listed companies?

1.5 Assumptions, limitations, delimitations

Assumptions

These assumptions are categorised into general assumptions for the research and regression method-specific assumptions. The first general assumption is that the readers of the financial statements/reports are assumed to know to comprehend the basics of FCF computation and interpretation. The second assumption is that the samples to be chosen are representative of all the JSE listed companies. The third premise is that financial statements and the principles on which they are based are meant to provide information to investors that is useful for decision-making (Trehaeven, 2016).

The regression method assumptions discussed below relate to the logistic/probit regression model used by the researcher for multivariate analysis. According to Park (2013), logistic regression requires a discrete and often dichotomous dependent variable. The researcher assumed the dependent variable in this study, FCFVD, to be discrete with values of 0, 1 and 2 for no disclosure, qualitative disclosure only and quantitative disclosure respectively. Secondly, because logistic regression calculates the likelihood of the event occurring (P (FCFVD=1 or 2)), the dependent variable must be coded accordingly. The researcher has coded the desired outcomes accordingly. Third, the model should be properly configured with relevant meaningful variables. Fourth, logistic regression needs to be independent of each observation and the model should have little or no multi-collinearity meaning that independent variables are not linear functions of each other. Fifth, while logistic regression does not involve a linear relationship between the dependent and independent variables, independent variables need to be connected linearly to an event's log-odds (Park, 2013). Finally, logistic/probit regression requires broad sample sizes because estimates of maximum probability are less efficient than ordinary least squares used in a linear regression model to estimate unknown parameters.

Limitations of the study

To bring sectorial insights, the study will be done for sampled companies across all sectors, except financial services and real estate companies. However, only those sectors containing three or more companies would be selected to enable the identification of patterns across and

within market sectors. A key limitation is the scoring of the dependent variable using a checklist which the researcher adopted and adjusted from prior researchers' checklists. Although the researcher believes the checklist is robust and draws concepts from previous literature and SEC and JSE regulatory guidance, there is an inherent limitation due to the subjectivity of the scoring process. However, as only the researcher worked on the scoring, this gave consistency and mitigates the risk of subjectivity in the scoring process. Quarterly financial reports or earnings announcements will not be evaluated to bring standardisation into the study. Unlike dividends, Free Cash Flow to the Firm (FCFF) and Free Cash Flow to Equity (FCFE) are not readily available data. These metrics need to be calculated by analysts from the financial information available, which requires a good understanding of FCFs and the ability to accurately interpret and use the information.

Delimitations

Financial institutions will be excluded, given the structural differences between financial and non-financial institutions (for example leverage). In their study, Mokoaleli-Mokoteli and Ojah (2010) excluded financial companiess from the population of JSE listed companiess because they do not have the characteristics (e.g., annual sales and meaningful and tangible assets) that make them comparable with other companiess. Aljinović Barać (2012), in their study of FCF voluntary disclosure in Croatia, excluded financial institutions from the sample due to asset structural differences. Also, Iatridis (2008) did not include financial institutions in his United Kingdom (UK) disclosure report, noting that their accounting metrics are not always comparable with those of industrial companiess.

1.6 Definition of terms and variables

The metrics, which were analysed, are defined below:

Table1: Definition of metrics

Metric	Definition
Cash Flow from operating activities (CFO)	Net income + non-cash charges-change in net working capital (Drake, 2008).
Free Cash Flow to the Firm (FCFF) in this study referred to as FCF	Amount of cash available for distribution to all security holders (debt holders, preference shareholders, & ordinary shareholders. FCFF=cash from operating activities-capital expenditure (Drake, 2008; Yaari, Nikiforov, Kahya, & Shachmurove, 2016).
Free Cash Flow to Equity (FCFE)	Gross cash flows available to all stakeholders that provide capital, calculated as FCFE=cash from operating activities-CAPEX+ borrowings received-borrowings repaid (SAICA (2013).
Capital expenditure (Capex)	Purchases of property, plant and equipment. Capex is inclusive of both replacement or stays in business assets and growth/expansionary capex (Richardson, 2006).

Table 1(a): Dependent and independent variables

Dependent variable			
Number	**Variable**	**Label**	**Definition/description**
1	Free Cash Flow Voluntary Disclosure	FCFVD	The assigned score of the level of Free Cash Flow voluntary disclosure, with scores of 0, 1 or 2 and calculated according to the scoring sheet in Table 5.
Independent variables			
Number	**Variable**	**Label**	**Definition/description**
1	Free Cash Flow	FCF	Cash that the company generates and is defined as cash flow from operations less capital expenditure. In this study, the FCF variable will be represented by the Free Cash Flow Margin, which indicates the capacity of the company to turn/convert sales into FCF and this is related to the quality of its earnings.
2	Earnings Per Share	EPS	Earnings attributable to ordinary shareholders as a proportion of the weighted average number of shares during the period (Menaje, 2012).
3	Capital Intensity	CAPI	Long-term non-financial assets as a proportion of total assets. (Leuz, 2000).
4	Dividends Per Share	DPS	Common shareholders' dividend for the year defined as the sum of interim and final dividend divided by the number of shares (Maksy & Chen, 2014).
5	Leverage	LEV	Long-term debt as a proportion of total assets (Nel & Brummer, 2017).
6	Sales Growth	SG	The rate of change of revenue for the year.
7	Size	SZ	The logarithm of total assets at the end of the year.
8	Age	AGE	The number of years since incorporation.
9	Foreign listing	FORLIST	Foreign listing takes the value of 1 if the company is listed on a stock exchange other than the JSE and 0 if only listed on the JSE.

1.7 Structure of the research report

There are five chapters in the study report. The introduction in Chapter 1 focuses on the meaning, purpose and significance of the research, assumptions, constraints and limitations. Chapter 2 covers a review of existing literature on FCF voluntary disclosure as well as the theoretical foundations. The research approach based on sampling, data sources, statistical analysis methods, validity and reliability is illustrated in Chapter 3. Chapter 4 presents the results of descriptive statistical analysis and regression models and analysis and a review of the study findings and suggestions for future studies/research are in Chapter 5.

2 Literature review

The literature review will briefly cover the definitions of FCF and introduction to FCF studies. Thereafter, the theoretical foundations of FCF and general agency theory will be explored, together with the voluntary disclosure theories of agency, legitimacy, signalling and capital market theories. The literature on general voluntary disclosure in other countries as well as South Africa will be explored followed by specific FCF voluntary disclosure in the international arena. According to the best of the researcher's know-how, there is no unique FCF voluntary disclosure literature in a South African setting.

The concepts from the general voluntary disclosure and the FCF voluntary disclosure from other countries will be applied to the South African context. This research seeks to bridge this gap in the South African literature concerning the determinants of FCF voluntary disclosure. The dependent and independent variables will be explained as well as the literature from prior studies. Finally, a conclusion is done on the literature review.

2.1 Introduction on FCF studies

According to Bhandari and Adams (2017), the concept of FCF was first proposed by Jensen (1986) in the context of the agency problem but he did not propose a precise computation. Since then, FCF has become a popular metric for academic researchers and financial statement users but there is much variation on how to define and calculate it. There are many definitions of FCF and according to Bhandari and Adams (2017), the useful measure should be simple, based on information derived from the SCF, should start with Cash Flow from Operations (CFO) and should be supported by the Financial Accounting Standards Board (FASB) and US GAAP/IFRS. This simplified version of FCF is described as cash created by a company to fund operations and capital assets. FCF is a profitability metric that separates the income statement from non-cash costs and covers equipment spending as well as adjustments in working capital. This study will assume this simple definition and explore other definitions in the South African context.

SAICA (2013) in its Accountancy SA article reported that FCFs are not colourless since they appear to be described based on the type of FCF evaluation being done. After taking into account all operating costs, including tax, CAPEX and working capital needs, FCFF is the cash flow available to the company's capital suppliers. The cash flow available to ordinary shareholders is Free Cash Flow to Equity (FCFE) only after all operating expenses including tax, interest, net borrowing, CAPEX and working capital needs. Notably, the meanings of the FCF referred to above are distinct. The striking distinction is that FCFF deals with gross cash flows that provide capital to all stakeholders while FCFE deals with the net cash flow that equity participants have available and is measured after net borrowings. Indeed, FCFE shows the residual cash flows attributable to the equity participants (SAICA, 2013). In this study, the simple definition of FCF to be adopted is in line with the concepts of FCFF.

While US GAAP and IFRS do not require companies to disclose FCF data, some companies voluntarily report and highlight FCF in their annual reports/annual financial statements (AFS) (Adhikari & Duru, 2006). There is very little evidence as to the degree of FCF reporting, the existence, comparability and accuracy of the FCF measures disclosed and the reasons for FCF disclosure in the South African context. Adhikari and Duru (2006) give some examples of the varied nomenclature to describe FCF and examples being Free Cash Flow, Available Cash, Attributable Cash Flow, Distributable Cash Flow, Excess Cash Flow, Discretionary Cash Flow and Deployable Cash Flow and these will be explored in the local South African context.

The JSE (2019) in its Practice Note 4/2019 on Performance Measures (PMs) defines APMs or Non-IFRS Measures (NIMs) as created after adjusting the underlying IFRS data by excluding or adding particular amounts in the results of the IFRS or extracting or combining such selective data. Chittenden (2018) argued that to obtain a metric that management frequently perceives as a more accurate reflection of company performance, NIM earnings are measured by changing the recorded IFRS profit for different items. Specifically, FCF is given as an example of APMs. The JSE gives guidelines on how any APM should be defined, calculations reconciled to IFRS measures and that proper explanation should be provided. Although the choice of the disclosure of APMs like FCF is voluntary, on the choice of the disclosure, the South African listed companies would be required to comply with these JSE proposed changes to the listing requirements. This Practice Note has not been approved as Legislation, which would in a way provide a hybrid model for voluntary disclosure of some financial measures for JSE Listed Companies.

2.2 Theoretical foundation: Agency theory

Jensen and Meckling (1976), in their seminal work, define the agency problem as follow: *"The basic agency problem resulting from the separation of management and financing is that the managers will have incentives to take actions to increase their utility but not to maximise the returns on capital invested by the investors".*

Jensen (1976) linked the agency problem with FCF in a way that when investment opportunities are not readily available to the company, managers can misuse FCF to their advantage. This would cause a loss to the company. They argued that company managers could have personal objectives that directly conflict with the owner's objective of the maximisation of shareholder wealth.

The increase in recent cases of corruption, corporate accounting scandals and company bankruptcies in South Africa have brought the agency theory back in full swing. South Africa has witnessed an extensive list of recent outbreaks of corporate frauds and accounting scandals. Recent well-known names are the local unit of accounting firm KPMG, medium sized accounting firm Nkonki Incorporated (Inc.), management consultant Mckinsey, software giant SAP SE, South African number one retailer Steinhoff International Holdings N.V, Tongaat Hulletts, Venda Building Society (VBS) Mutual Bank, Linkway Trading (Pty) Ltd and LeisureNet. The revelations of serious accounting problems in these companies, especially KPMG, have been a breaking point event and following these malpractices, a number of other big four accounting firms (Oben, 2021).

Ndlovu, Yasseen, and Brahmbhatt (2020) citing Accounting Weekly (2017) and World Economic Forum (2018) argued that for seven years, the South African accountancy profession was ranked by the World Economic Forum (WEF) as the number one country for auditing, corporate governance and reporting standards. Within a year, South Africa's ranking decreased by thirty positions with media reports published during late 2017 citing corporate accounting scandals as a major influence. Both professional accountants and Trainee Accountants (TAs) failed to protect the South African economy from corruption and poor corporate governance and this has created a loss of confidence and trust in the profession. Ndlovu et al. (2020), citing Corruption Watch (2018) further argued that this loss of trust, mainly resulting from the inappropriate issuing of unqualified audit opinions, has had far-reaching implications in the accountancy profession and capital markets.

2.3 Theoretical foundation: FCF theory

Hoque and Rakow (2016) noted that two stylised facts emerge on FCF. One examines the relation between FCF and company value and concludes that FCF increases the company value (investment hypothesis theorem). The other one argues that FCF may lead to value decreasing as companies tend to overinvest when FCF levels are high -FCF hypothesis (Jensen 1986). While these two camps have conflicting viewpoints, together, they uphold that FCF is important.

Al Zararee and Al-Azzawi (2014) define FCF as residual cash flows after taking into account the requirements of positive Net Present Value (NPV) projects. According to the FCF Hypothesis, management tends to waste resources when companies have excessive FCF at their disposal and do not utilise these FCFs in value-adding investment opportunities (G. Y. Wang, 2010). This wastage would result in agency costs thereby burdening the shareholders' wealth.

There have been mixed results; some studies have invalidated the FCF hypothesis meaning that those companies with FCF high levels would perform better than those with FCF lower levels. However, Jensen (1986) argued that projects should not be funded through the FCF but by debt by either borrowing below the cost of capital or by operational efficiencies. Cai (2013) elaborated that the FCF hypothesis suggested by Jensen (1986) states that when there exist rich internal cash flows in excess of that required to fund all projects that have positive NPVs, managers' empire building incentives will create the potential to misuse those funds rather than pay them out to shareholders. This issue of abuse of FCF referred to as overinvestment and was investigated in some studies captured below. Jiang (2016) commented that due to opportunist motives, managers are likely to invest the company's FCF into unprofitable projects to increase private interests. Richardson (2006) defines over-investment as investment expenditure beyond that required to maintain assets in place and to finance expected new investments in positive NPV projects. Richardson (2006), using an accounting-based framework to measure over-investment and FCF, found evidence that, consistent with agency cost explanations, over-investment is concentrated in companies with the highest levels of FCF.

F. Wang, Zhu, and Hoffmire (2015) found that financial reporting quality is more strongly associated with overinvestment for companies with large FCF, which suggests that financial reporting quality can reduce information asymmetry arising from agency conflicts between the managers and investors. Moreover, companies with higher financial reporting quality reduce inefficiency investment by enhancing the ability of shareholders to monitor managers and

improving project selection (F. Wang et al., 2015). Jiang (2016) using a sample period 2008-2014, found that companies with rich FCF tend to over-invest, and the over-investment of FCF is larger in the early years than in the later years of the Chief Executive Officer (CEO) service.

The over-investment of FCF is less in the later years of CEOs' service than in the early years of CEOs' service. As CEOs' tenure extends, they gain profound understanding of the business and thus can better evaluate the new investment project (Jiang, 2016). Cai (2013) explored the governance role of firm's board of directors and debt financing in controlling overinvestment of FCF and found that state-owned companies with a large board of directors are more likely to engage in overinvestment of FCF. Cai (2013) further found that both short-term debt (debt maturity structure) and total leverage can significantly reduce the likelihood of overinvestment for companies with high FCF and low growth opportunities. This research would like to empirically test the determinants of FCF disclosure because the findings of empirical studies on the FCF hypothesis have been inconsistent in various jurisdictions.

2.4 Theoretical foundation: voluntary disclosure

Disclosure of information is twofold, covering required disclosure and optional or voluntary disclosure. Mandatory disclosure is the case in which rules and regulations are formed requiring companies to routinely disclose their information to the public. Voluntary disclosure means the discretionary disclosure of financial and non-financial information which is not mandated by accounting standard-setting bodies or other regulatory bodies. (Scaltrito, 2016). According to Scaltrito (2016) citing Meek (1995), voluntary disclosure is described as a free option on the part of the management of the company to provide accounting and other information considered important to the decision-making needs of the users of their annual reports. In addition to that mandated by regulators, voluntary disclosure applies to the practices of voluntarily disclosing details and the motivation includes the management of corporate reputation, the protection of investor relations and the reduction of litigation risk (Hieu & Lan, 2015). Based on the company's history, present or anticipated results, voluntary disclosure items can be divided into historical, current and predictive items (Rouf, 2011).

In the past two decades, the South African corporate disclosure climate has changed significantly as South African Generally Accepted Accounting Practice (SA GAAP) was harmonised with IFRS and the new Companies Act replaced the old Companies Act in 2008 (Chittenden, 2018). This, coupled with the JSE listing requirements developments, is expected to yield an improved trend in voluntary disclosure as mandatory disclosures improve (Ngorima, 2019).

Before looking at voluntary disclosure, mandatory reporting and disclosure in the South African context will be explored. For financial reporting and disclosure, all JSE listed companies are expected to comply with the provisions of the Companies Act, 2008 (Act No. 71 of 2008), as amended. Each issuer shall distribute to all securities holders and send to the JSE an audited AFS for the applicable financial year within four months after the end of each financial year and at least fifteen business days before the date of the annual general meeting.

The JSE stipulates that the audited AFS comply with IFRS, the SAICA Financial Reporting Guides (FRSC) provided by the Accounting Practices Committee (APC) and Financial Pronouncements as issued by the Financial Reporting Standards Committee. The evolution of Integrated Reporting (IR) began much earlier in South Africa and the preparation of an IR has been mandatory since 2009 for companies listed on the JSE (Dilling & Caykoylu, 2019).

Like other companies in other countries, South African companies choose to disclose more voluntary information *in lieu* of the mandatory disclosures (Dilling & Caykoylu, 2019). The decision of a company to participate in voluntary disclosure has been suggested to be a reaction to competition, globalisation or changes in the business and capital market environments (Leventis & Weetman, 2004). A significant strategic decision for every company is the extent and scope of voluntary information disclosure (Dilling & Caykoylu, 2019). According to Leventis and Weetman (2004), three categories of voluntary disclosure (in particular, business climate and governance, social responsibility and disclosures related to finance) are created and each category is arguably influenced by company-specific factors. This research will investigate FCFVD as part of financial related disclosures. However, on the South African front, a lot of research has primarily focussed on Corporate Social Responsibility (CSR) and corporate governance and some of the determinants of these disclosures will be examined and applied to the research on FCFVD.

2.4.1 Legitimacy theory of voluntary disclosure

Also, the principle of legitimacy is used to refer to the disclosure in companies of both social and environmental reports. It reflects the external views of stakeholders and society in finding, preserving and maintaining legitimacy to improve its proper functioning. According to Mohammed Sarea (2016) citing“O’Donovan” (2002), the lower the company’s perceived credibility, the less likely it is to bother to include social and environmental transparency. Mohammed Sarea (2016) citing “Ogden” and “Clarke” (2005) claimed that companies use annual reporting for credibility. This contributes to the belief that information disclosure is a mechanism by which companies can acquire credibility, thus, illustrates the value of voluntary financial disclosure. According to Dilling and Caykoylu (2019), the theory of legitimacy

assumes a social contract between the company and community, and if information disclosure is unsatisfactory, voluntary disclosure of the information is considered necessary.

2.4.2 Agency theory of voluntary disclosure

The agency theory explains why companies voluntarily report data exclusively to stakeholders and the general public. Companies agree that contact with agents is a successful way of tracking behaviour and that contact can be best accomplished by appropriate information disclosure. In larger companies, these tensions are more likely to occur. This means that the value of disclosure is correspondingly greater. By minimising agency expenses, managers (insiders) typically need to be trustworthy to shareholders (outsiders) by sharing more organisational knowledge. According to Mohammed Sarea (2016) citing Zimbwa (2005), companies with higher leverage ratios are more likely to be more transparent in their disclosures. The need to regulate managers' actions by monitoring processes such as corporate governance and voluntary disclosure is an important feature of agency theory. The introduction of these governance structures helps shareholders to reduce agency issues while minimising agency costs associated with any decline in company valuation and monitoring and bonding costs (Hieu & Lan, 2015). According to Laura, Dumitru, and Razvan (2011), interest in FCF reporting is primarily related to liquidity assessment, company valuation and the option of investors. However, in the sense of agency theory, results show that managers appear to make investment choices in the presence of high FCF that fulfil their interests and lead to low productivity and profitability for the company.

2.4.3 Signalling theory of voluntary disclosure

Signalling theory assumes that the company sends a signal to the consumer through information disclosure to eliminate information asymmetry, decrease funding costs and increase company value (Dilling & Caykoylu, 2019). The theory of signalling suggests that more successful companies would willingly disclose information to differentiate themselves from less profitable companies. Various research studies investigating the relationship between profitability and voluntary disclosure have shown that higher quality information is revealed by more profitable businesses (Dilling & Caykoylu, 2019). According to Scaltrito (2016), the signalling theory describes the reason why businesses have an opportunity to voluntarily publish information to distinguish themselves from other rivals in the capital markets. By reporting a high degree of voluntary information that enhances the reputation perceived by investors, the valuation of the business can be improved. In essence, this

decreases the anxiety of potential investors, (Scaltrito, 2016) infers, by that logic, that lower-performance businesses would be more prone to silence even though the optimal solution may not be this alternative. The signalling hypothesis is most likely to apply to this research's profitability and FCF-independent variables.

2.4.4 Capital market theory of voluntary disclosure

Generally, the securities market is regarded as a market that is highly sensitive to details. Successful investment decisions would be made by those who have more data. As a consequence, it can be said that disclosure of the information is essential for stock market investors and market participants. If the information is released in a timely, appropriate and accurate manner, active effects on the growth of the market or vice versa may occur (Hieu & Lan, 2015).

When considering external funding needs, the theory of capital needs implies that companies in need of funds will report more details than legislation or laws require (Dilling & Caykoylu, 2019). According to the agency theory, corporate creditors will ask for more details as they strive to reduce the asymmetry of data with growing debt. Prior literature indicates that voluntary disclosure is valuable to investors because it helps bridge the gap between the criteria for required financial reporting and market valuation (Cormier, Dufour, Luu, Teller, & Teller, 2019).

Finally, financial data refers to quantitative issues that facilitate the overall perception of the variables that play a role in the company's success and potential growth and can be of special significance to decision-making. For current and prospective investors, this type of information may be of specific interest (Leventis & Weetman, 2004) and applies to all the financial variables under investigation in this study.

2.4.5 Literature in other countries on voluntary disclosure

A variety of studies have been conducted to assess voluntary corporate transparency on financial and non-financial companies in developed and developing countries to date, for example, Meek, Roberts, and Gray (1995); Lan, Wang, and Zhang (2013); Leventis and Weetman (2004); Rouf (2011); Lan et al. (2013); Monday and Nancy (2016); Charumathi and Ramesh (2015) and Barako, Hancock, and Izan (2006). Some of their studies will be selected to better explain the nature, methods and outcomes of this research.

Factors affecting the voluntary disclosure of three forms of information (strategic, non-financial and financial) found in the annual reports of US, UK and Continental European multinational

corporations (MNCs) have been investigated by Meek et al. (1995). Although the company size, country/regional listing status and to a lesser extent, industry are the most important factors that overall explain voluntary disclosures, the information type influences the significance of these factors.

Hieu and Lan (2015), in reviewing the annual reports of 205 industrial and manufacturing companies listed on the Ho Chi Minh Stock Exchange (HSX) and Hanoi Stock Exchange (HNX) for the 2012 year, examined the factors influencing the degree of voluntary disclosure. They found that in Vietnamese companies' annual reports, high foreign ownership and company size are associated with increased levels of voluntary disclosure.

Leventis and Weetman (2004) examined factors related to voluntary disclosure in the annual reports of listed companies on the Athens Stock Exchange (ASE) at the beginning of a time of rapid change in the developing national capital market. Their multivariate analysis results showed that company size and listing status were especially high determinant factors.

Using a transparency index, Rouf (2011) calculated voluntary disclosure for a sample of 120 Bangladeshi non-financial companies listed. His findings indicated that the level of voluntary disclosure is not positively linked to the company's profitability.

Lan et al. (2013) reviewed the annual reports of 1066 Chinese companies listed on the Shanghai and Shenzhen Stock Exchanges and thoroughly analysed the determinants and features of voluntary disclosure. Their results indicated that voluntary disclosure in China is positively related to the size of the company, leverage, assets values and return on equity and is negatively related to the form of auditor and the degree of maturity or complexity of the intermediary and legal environments.

Monday and Nancy (2016) investigated the determinants of the quality of voluntary disclosure among listed companies in Nigeria, an emerging economy. The findings showed, using regression analysis models, that company size had an important and positive relationship with the quality of voluntary disclosure. On the other hand, profitability and gearing were found to be relevant but detrimental to the standard of voluntary disclosure. Also, highly profitable corporations in Nigeria appear to report fewer details in the form of pressure for the exercise of Corporate Social Responsibility (CSR) and higher regulations such as price control and higher corporate taxes to escape political attention.

Charumathi and Ramesh (2015) explored the factors that influence the options for voluntary disclosure of non-financial companies that are listed in India on the National Stock Exchange

(NSE). Leverage, scale and institutional ownership emerged as the determinants of voluntary disclosures using the content analysis approach.

Barako et al. (2006), incorporating previous research on corporate disclosure, examined factors associated with voluntary disclosure of four types of information: general and strategic, financial, forward-looking and social and board information in the 1992 to 2001 annual reports of Kenyan companies. The findings indicated that the size and industry of the agricultural sector were significantly related to the voluntary disclosure of all four forms of disclosure of information mentioned above.

2.4.6 South African literature on voluntary disclosure

As seen in the literature above, the factors affecting the voluntary disclosure of listed companies have been examined by a large number of scholars around the world. However, in South Africa, there have been few studies focusing on this matter. In advanced countries, the role of voluntary disclosure has been extensively studied but little attention has been paid to investigating this matter in a small-open economy. To bridge this gap, this research will examine the factors in South Africa, a developing economy. We will look at some of the South African context literature on voluntary disclosure in general.

Mey and Lamprecht (2020), through quantitative content analysis, investigated voluntary Earnings Before Interest, Tax, Depreciation and Amortisation (EBITDA) disclosure of 220 Stock Exchange News Service (SENS). Reports containing the annual results of JSE-listed companies for the financial years 2014–2016 were analysed to determine whether companies labelled, defined and calculated EBITDA in a consistent manner. Descriptive evidence showed that JSE-listed companies were inconsistent in how they labelled, defined and calculated EBITDA. The results identified wide diversity in how companies defined EBITDA, indicating a lack of comparability. Besides, the results showed that EBITDA disclosure was not being faithfully represented in the SENS reports of JSE-listed companies.

The degree to which non-IFRS earnings measures (defined as a voluntary earnings measure, the measurement of which is not apparent from its title) are presented in the integrated reports of the top 40 companies listed on the JSE in the financial year 2015 has been investigated by Chittenden (2018). Also, the different definitions of non-IFRS earnings measures and the changes made in the estimation of those measures have been established and accurately analysed. This study finds that 21 (53 percent) of the JSE Top 40 companies have non-IFRS earnings metrics; the most common titles of which are adjusted earnings, normalised headline earnings and underlying earnings. The findings indicate that the majority of South African

companies present non-IFRS earnings measures with substantial title uncertainty, most of which include revenue-increasing changes that are different from those made for headline earnings purposes.

In the context of South Africa, Lemma, Feedman, Mlilo, and Park (2019) explored the interplay between corporate carbon risk, voluntary disclosure and capital costs. Their results indicate that companies may use the virtues of voluntary carbon disclosure to reduce their total capital costs (and equity costs). Also, their findings suggest that regulators and policymakers could point to the cost of capital reducing role of voluntary disclosure in attracting companies to voluntarily provide superior carbon disclosures of quality.

By exploring aspects of the utility of the value-added statement (VAS), Van Staden (2004) examined the motivation for the voluntary disclosure of financial information by companies in their AFS. The VAS is issued voluntarily together with the AFS and it is commonly believed that the disclosure of the VAS is specifically directed at the workers. However, a survey of trade unions in South Africa found that even though the trade unions make use of other financial information, there is almost no use of the VAS. In this specific case, this suggests that voluntary disclosures do not generally fulfill the information needs of their intended audience.

In their research, the impact of voluntary and timely disclosure on the cost of debt for the South African environment was discussed by Guidara, Khlif, and Jarboui (2014). Guidara et al. (2014) sampled 20 listed non-financial companies from South Africa for the 2008-2011 period. To gauge the level of voluntary disclosure, a content review was used. Overall, Guidara et al. (2014)'s studies have shown that the increased degree of voluntary disclosure in annual reports is correlated with lower debt costs. Their results support the agency and signalling theories in South Africa concerning the relationship between manager and debt holder.

Jallow, Ntim, Opong, Danbolt, and Thomas (2012) investigated whether South African listed post-Apartheid companies voluntarily comply with and disclose recommended good corporate governance (CG) practices and if so, the key factors affecting such voluntary conduct of CG disclosure. Besides, they found that block ownership is adversely linked to voluntary disclosure of CG while board size, audit firm size, cross-listing, CG committee participation, government ownership and institutional ownership are positively linked to voluntary disclosure of CG.

In the annual reports of the wholesale and retail JSE listed companies in South Africa, the degree, subject types, position and determinants of voluntary employee disclosures were analysed by Loliwe (2016) using stakeholder theory. They discovered that over the sampled period, the rate of voluntary employee disclosures has improved. Furthermore, they found that

the degree of disclosure of different types of subjects does not remain constant over time and that most of these disclosures are addressed in the portion of the annual report of sustainability report. Further results suggest that sampled companies with significant shareholding by executive directors engage in less voluntary disclosure of employee information than companies with lower shareholding by executive directors. Finally, a high Black Economic Empowerment (BEE) rating score for companies was significantly correlated with high voluntary disclosure of employee information.

Mokoaleli-Mokoteli and Ojah (2010) investigated the relationship between voluntary HIV/AIDS disclosure and seven company attributes and only company industry, company listing and company size was significant in explaining the extent to which companies voluntarily report HIV/AIDS in their annual reports. Primarily, their findings support the notion that companies with reputational capital typically have economically valuable data. Le Roux-Kemp (2013) argues that on the other hand, voluntary disclosure is additional to the standards of the Stock Exchange and provides such details in the annual reports on the effect of HIV/AIDS on its activities and there is no accounting standard/pronouncement to guide companies in this regard. Le Roux-Kemp (2013) argues that both the King Report IV and the Global Reporting Initiative (GRI) encourage companies to recognise the social and economic effect of HIV/AIDS on their company activities, to implement an appropriate strategy to counter it and to develop strategies and policies to address and manage the impact of HIV/AIDS on their company activities. Besides, it is proposed that businesses should track their performance on a regular basis with respect to HIV/AIDS and report back to all stakeholders.

Le Roux-Kemp (2013) argues that only 11% of JSE companies report financial details on the effects of HIV/AIDS on their activities. Generally, this result indicates that companies in South Africa are not very likely to report on the effect of HIV/AIDS on their financial activities voluntarily. There may be several reasons for this lack of disclosure but the following three are emphasised by Mokoaleli-Mokoteli and Ojah as the key reasons for non-disclosure: companies are not expected to report HIV/AIDS-related information, thus, tend not to disclose additional information; there is no standard or guidelines on how to report HIV/AIDS for financial reporting purposes and that certain companies do not want to reveal this confidential information to everyone (including their competitors) to read.

In South Africa, perhaps, because of the IR requirement at the JSE, it has been found that companies are more likely than in other countries to prepare an IR. After the implementation of IR, the disclosure of social and relationship, financial, natural and intellectual resources have increased significantly for listed companies in South African companies (Dilling & Caykoylu, 2019). Also, this is believed to influence the South African companies to increase voluntary

disclosure. Against this backdrop, the rise in transparency may be due to the increased periodic review by the JSE of its members and the aftermath of the global recession that began in 2007.

Besides, prior research has noted that voluntary disclosures are impacted by the membership in the industry. It has been established that industries with a sensitive environment have more detail on non-financial aspects. In general, voluntary disclosures in some sectors are more frequent and detailed than in others (Dilling & Caykoylu, 2019). Nel and Brummer (2017) examined what determines Internet Investor Relations (IIR) largely classified as a voluntary disclosure. For a sample of 85 JSE-listed companies, IIR output was measured using a measurement instrument consisting of 346 attributes. Company size, leverage, auditing by a broad four-audit firm, membership of the JSE industry and dual listing status were found to be statistically important independent variables, explaining approximately 70% of the variance in the dependent variable, IIRR.

The effect on share prices was first analysed on the voluntary reporting of financial targets by companies, specifically target return rate, target debt-equity ratio and target dividend pay-out ratio by Maguire (1997). The findings suggest a favourable average effect on the share price. This result may have consequences for policy for corporate financial reporting. Besides, the study's financial goals were argued as central to estimating investors' FCF and cash flow and should therefore be of interest to investors.

Some recent studies on voluntary disclosure focussed on CRR, HIV/AIDS reporting and investor relations disclosure. De Klerk (2012) argued that CRR consists mostly of voluntary disclosure but a strong business argument for reporting is apparent as corporations unless they profit from it, will not support the CRR concept. The results of the study indicate that data on the environmental and social performance of a company is important for investment decision-making because it is related to the company's share price. Mokoaleli-Mokoteli and Ojah (2010) investigated the association between voluntary HIV/AIDS disclosure and seven company attributes and only company industry, company listing and company size were significant in explaining the extent to which company report HIV/AIDS in their annual reports.

We have finalised the literature review on general voluntary disclosure in international markets and in South Africa and now we will be looking at this in relation to FCF voluntary disclosure in the South African context. Bringing together the introduction to FCF studies, the theoretical foundations of agency theory, FCF theory, legitimacy theory,signalling theory and capital market theory, we now formulate the nine hypotheses below.

2.5 Hypotheses and theoretical background of variables under investigation

To illustrate differences in FCFVD, this section addresses variables in the literature as independent variables. FCFVD will be the dependant variable while FCFs, change in profitability, dividends, capital intensity, foreign listing, leverage, sales growth, age and size were identified as independent variables. The literature is founded around the FCF and agency theories as well as voluntary disclosure theories of legitimacy, signalling and capital market theories. Using these theories, the nine hypotheses were formulated.

2.5.1 Free cash flows magnitude and changes

The available literature in various markets has centred on either proving whether the FCF theory holds. The results have been varied, with some results showing that FCFs have a positive impact on the share price performance despite viewing it as an agency cost. Hong, Shuting, and Meng (2012) found negative effects of high FCFs; Al Zararee and Al-Azzawi (2014) (Jordan) found a positive relation between FCFE and share prices; Chepkwony (2014) reported a significant positive relationship between FCF and stock returns at the NSE. Kadioglu and Yilmaz (2017) tested the validity of the FCF hypothesis in the sense of trading companies on Borsa Istanbul and the results revealed a significant, negative correlation between FCF and the share prices. Foerster et al. (2017) found that FCF measures had a stronger relationship with share prices as compared to profitability measures. Assuming the investment theorem on FCF, the expectation is a positive relationship suggesting that companies that produce more cash flow from operating operations are likely to voluntarily disclose it to distinguish themselves from less liquid ones (Aljinović Barać, 2012).

2.5.2 Free Cash Flow Voluntary Disclosure

The researcher has developed the FCFVD scoring sheet (shown in Table 5) as an extension of the traditional binary scores of either 1 (disclosure) or zero (no disclosure). The scoring sheet is expected to give more realistic results than the binary scores. For this study, FCFVD will be scored using a scoring sheet if the company discloses any form of voluntary FCF information in the annual/integrated report or notes to the AFS. The checklist was developed by the researcher based on the previous work of other researchers, for example, the FCF disclosure decision tree for companies providing FCF values (Adame et al., 2002), the work of Adhikari and Duru (2006) on FCF voluntary disclosure, the work of Hoque and Rakow (2016) on cash flow voluntary disclosures and the JSE guidelines on reporting of APMs.

Prior research has been done on the international arena on voluntary FCF disclosures in the USA, Croatia, Australia, Croatia, Romania and Germany (Adame et al., 2002); Adhikari & Duru, 2006; Aljinović Barać, 2012; Hassan, 1994; Laura et al., 2011; Leuz, 2000). This study will examine the validity of some of the factors in the South African context and add to the body of literature by giving new insights.

Aljinović Barać (2012) investigated voluntary disclosure of details on the cash flow of major Croatian companies whose shares are listed on the Zagreb Stock Exchange (ZSE). All mentioned variables (cash flow performance, profitability, dividends, size, market segment) except age were reported as positively related to the probability of FCFVD.

Adhikari and Duru (2006) examined a set of companies that voluntarily disclose FCF information in their statutory reports filed between 1994 to 2004 in the USA. They found that FCF meanings differ widely, restricting the comparability of companies' FCF disclosures. Their findings have shown that FCF companies in their sectors are less profitable and more leveraged than other companies. In comparison, FCF companies have lower credit scores and pay higher dividends. These findings indicate that FCF companies have FCF disclosures to improve published information on revenue and cash flow. As such, their findings indicated that FCF companies regard FCF disclosures as a major addition to their conventional reporting practices.

In the USA, Adame, Koski and McVay (2002) found evidence that initial FCF disclosures are strongly associated with industry trends but are also strategic in that companies are more likely to initiate disclosure when FCFs are positive and increasing. The disclosure decision may be designed to provide incremental information to the market or it may be driven by opportunism. Also, FCF may be more informative when earnings are less informative such as for companies with transitory, one-time events. In contrast, the disclosure of FCF is more likely to be opportunistic when FCF is improving and/or earnings are deteriorating. Their results showed that companies with one-time events and companies with less volatile historical FCFs are more likely to disclose FCF, consistent with an information signalling motive. Besides, companies with positive FCF are more likely to voluntarily disclose FCF, which we interpret as evidence of opportunism (Adame et al., 2002).

Hassan (1994) analysed the economic incentives driving listed companies in Australia to voluntarily reveal cash flow details. The relationship between these potential determinants and the policy of transparency of 172 companies were examined. Based on univariate statistical

tests conducted, it was found that the incidence of voluntary disclosure of cash flow information was related to (1) the size of the company, (2) the listing of foreign exchange and (3) the proportion of assets in position and (4) the financial leverage of the company.

For a sample of 103 large German companies at three separate points in time, the determinants of voluntary and foreign cash flow statements were analysed by Leuz (2000). Important positive correlations with voluntary cash flow statements were shown by international listing and capital intensity. These findings are in line with the assumption that capital market pressures drive voluntary cash flow statement disclosures and that companies with the greatest capital market pressures (or benefits) first implement these disclosures. In particular, companies with global listings act first possibly because they face the greatest pressures emerging from foreign capital markets.

Kousenidis, Negakis, and Floropoulos (2006) examined cash flow disclosure requirements and voluntary cash flow disclosure in Greece. They found that SCFs for regulatory authorities have been prepared by listed companies since 2000 but these statements are not made publicly accessible. The study showed that voluntary disclosure of cash flows in Greece is not popular because cash flows expose financial issues that other performance metrics do not.

According to the researcher's knowledge, there have been no studies in South Africa that have directly examined voluntary FCF disclosure. Brahmbhatt (2017) investigated the determinants of internet voluntary disclosure for JSE listed companies. He found that the ranking of the company size, dual-listing and Social Responsibility Index (SRI) correlated with the probability of a company publishing its financial information voluntarily on their corporate website.

Myburgh (2001) found that the level and quality of voluntary information depends on corporate policy and that corporations need to make decisions for or against the disclosure of such information. To analyse the views of compilers and users of annual reports on the price-informative importance of voluntary disclosures in annual and interim reports, a survey of JSE companies was carried out. Important gaps were established and suggestions were made to strengthen the voluntary disclosure strategies of companies.

In his study, Esterhuyse (2017) reported that by eliminating information asymmetry for investors by disclosing more voluntary forward-looking information on potential cash flows, opportunities and threats, the share price can be directly increased or capital costs can be reduced.

2.5.3 Free Cash Flow Margin (FCFM)

Profita and Ratnaningsih (2014) argued that the company value is impacted by the understanding of the investor of the degree of performance of a company and FCF is one of the factors affecting the company value. Adame, Koski, and McVay (2019) investigated why investors are paying more attention to FCFs and reported that the information content and value relevance of FCFs increase for all companies. With deterioration in the earnings quality over time and FCF becoming relatively more important, we would expect FCF voluntary disclosure to be directly related to the level of FCFs. Further, Adame et al. (2019) commented that there is information in FCF itself, in the decision to disclose FCF and the choice of the definition of FCF. This shows the information content of both the FCFs and the disclosure thereof (Adame et al., 2019). This is in line with the signalling theory, in the sense that the the higher the FCF margin, the higher the likelihood to disclose FCF to signal to the markets that the company is better.

H1: The more positive the FCF as measured by the FCF Margin, the greater the motivation to voluntarily disclose FCF in the financial statements.

2.5.4 Change in profitability (∆EPS)

The change in the EPS ratio is used as an indicator of profitability and is measured as current year EPS less previous year EPS. Leventis and Weetman (2004) citing Akerlof (1970) argue that following a signalling scenario, profitable companies could disclose more information to differentiate themselves from less profitable companies. Aljinović Barać (2012) argued that in stable companies with increasing net profits and growing cash flow from operating operations, the likelihood of voluntary disclosure of cash flow increases. They claim that these companies are likely to voluntarily report cash flow data to differentiate themselves from non-profitable and illiquid companies. There is another school of thought that companies would like to compensate for the negative effects of bad news in lower earnings by additional FCF disclosure. So, the literature demonstrates that the relationship between voluntary disclosure and profitability is dynamic and depends, for example, on the type of competition (Leuz, 2000). With the rise in earnings management and corporate scandals, the researcher ascribes to the second version and hence, it is hypothesised that:

H2: The lower the profitability, the higher the motivation to voluntarily disclose FCF in the financial statements.

2.5.5 Dividends (DPS)

According to the agency theory, given the additional limitations on management's capacity to engage in self-interested behaviour, dividend payments are, thus, seen in a positive light. Factors that affected JSE-listed industrial companies' dividend payout decisions over the period 1999-2014 have been investigated by Nyere and Wesson (2019). The size of the company (+), profitability (+), revenue growth (-) and free cash flow (-) have been established as significant factors affecting JSE-listed industrial companies' dividend distributions. It is expected that companies with high liquidity would afford to pay dividends and they would voluntarily want to showcase their positive liquidity. Hence, the hypothesis formulated as:

H3: The greater the dividend payout ratio, the higher the motivation to voluntarily disclose FCF in the financial statements.

2.5.6 Capital intensity (CAPI)

According to Leuz (2000), the capital intensity of a corporation is a proxy for its funding needs. Previous research shows that voluntary disclosures and financing offers are closely linked. Leuz (2000) analysed the voluntary cash flow statements in Germany and found that capital intensity was correlated favorably with disclosures. Adhikari and Duru (2006) found that cash flow is becoming more critical for ongoing maintenance and replacement of existing assets for companies with significant quantities of assets in place. They noticed that on average, FCF companies invest more in CAPEX than other companies in their sectors. Adame et al. (2002) found that the likelihood of initiation of FCF disclosure is higher for capital-intensive companies consistent with CAPEX adjustment in FCF being more important for capital-intensive companies. Lan et al. (2013) proposed that companies with high entry barriers in their markets are likely to report more data than companies that are not. As they are an easily observable predictor of barriers to entry, fixed assets are commonly used to measure proprietary costs. Thus, a favorable association between larger fixed assets and voluntary disclosure seems likely to occur. In their investigation in China, Lan et al. (2013) found that CAPI as measured by fixed assets as a proportion of total assets, is significantly associated with voluntary disclosure. Hence it is hypothesised that:

H4: The more capital intensive the company is, the higher the motivation to voluntarily disclose FCF in the financial statements.

2.5.7 Leverage (LEV)

The inter-relationships between capital structure, FCF, diversification and company performance were jointly examined by Park and Jang (2013). Also, their research showed that debt leveraging is an effective way of reducing FCF and improving corporate efficiency. Debt financing is believed to be a solution to these agency problems by reducing the FCF under the manager's control and this suggests a positive correlation between debt funding and financial performance. Therefore, it is assumed that the issue of the FCF agency could be mitigated or regulated by a decision on the capital structure. Many studies conclude that voluntary disclosures are positively linked to leverage because issues with debt-related agencies are likely to increase with leverage (Leuz, 2000). Nel and Brummer (2017) citing Larrán and Giner (2002: 66) argued that a company could minimise agency costs and the potential disputes between shareholders and creditors by increasing transparency levels. Hence, it is hypothesised that:

H5: The higher the leverage, the higher the motivation to voluntarily disclose FCF in the financial statements.

2.5.8 Foreign listing (FORLIST)

According to Leuz (2000), foreign exchange listings are likely to increase the shareholdings of foreign investors and, hence, the demand for information. MNCs face different transparency demands than local companies. Mokoaleli-Mokoteli and Ojah (2010) citing Meek et al., report that MNCs reveal considerably more voluntary accounting information than domestic/local listed companies. Also, the former are more likely to voluntarily include FCF disclosures. The value of a foreign listing is 1 if the company is listed on both the JSE and another exchange and 0 if it is listed on the JSE only. Hence the expectation is:

H6: When a company has a Foreign listing status, there is higher motivation to voluntarily disclose FCF in the financial statements.

2.5.9 Sales growth (SG)

SG is defined as the rate of change in net sales ((sales(t) –sales(t-1))/ sales(t-1) for the year (Yeo, 2018). As cited by Chepkwony (2014), Brush et al., (2000) found that SG does not always lead to increased returns to stockholders in the presence of FCF and weak governance as managers try to maximise their wealth and SG contributes to managerial wealth. Thiruvadi, Huang, Wheatley, and Thiruvadi (2016) argued that by expanding capital under managerial control, growth enhances the power of managers. Therefore, managers of high-FCF, low-

growth companies prefer to over-invest to promote the sales of these companies, which are likely to directly influence the salaries of managers (Murphy 1985). Hence the expectation is:

H7: The higher the sales growth, the lower the motivation to voluntarily disclose FCF in the financial statements.

2.5.10 Size (SZ)

According to Leventis and Weetman (2004), the most frequently found variable in disclosure studies is size because it has repeatedly been established as a major explanatory factor. The size of the company will be calculated as the total asset logarithm, measured at the end of December of the year. Usually, the size of the company will affect its financial performance and efficiency, primarily because large-scale companies would create dimensions that are, then, represented by the benefits in the operating results (Hong et al., 2012). Hoque and Rakow (2015) reported an important positive association between cash flow disclosures and company size, suggesting that larger companies are more likely to report cash flow in their earnings announcements. Aljinović Barać (2012) argues that the likelihood of voluntary disclosure of cash flow increases in larger companies since larger companies have more complex operations, thus, have a larger number of stakeholders who pay attention to information on the activities of the company, especially those on liquidity. The presumption is that the greater the company's size, the greater the motivation in the financial statements to voluntarily report FCF.

H8: The greater the company's size, the greater the motivation in the financial statements to voluntarily report FCF.

2.5.11 Age

Aljinović Barać (2012) argues that there is greater uncertainty about the earnings and product activity of young companies so their management would reveal more cash flow details to signal economic viability. As a consequence, this variable's anticipated correlation with cash flow reporting practice is negative suggesting that the likelihood of voluntary disclosure of cash flow declines as the number of years, increases. Age is calculated as the number of years since the company was incorporated. The younger the company as measured by age of incorporation, the greater the motivation to voluntarily disclose FCF in the financial statements.

H9: The younger the company as measured by age of incorporation, the greater the motivation to voluntarily disclose FCF in the financial statements.

The researcher will test the above hypotheses to understand whether a correlation exists between the dependent variable and the independent variable. This will be done by univariate and multivariate analysis using statistical approaches such as regression analysis.

2.6 Synthesis/summary of literature review

Many researchers drew contradictory conclusions from the above literature review, which found that FCF has a positive association with corporate financial performance or is not significant (Hong et al., 2012). The authors assume that the results depend on the context of the sector, business climate, viewpoint of the researcher, determination of samples, selection of variables and other factors. Also, studies have shown that the FCF calculation formula is not uniform, which may lead to various conclusions. From these results of various literature reviews, the search for FCF value relevance continues. Fuad Rahman and Mohd-Saleh (2008) argued that if it has an expected association with stock market valuation, an accounting measure has value relevance/significance.

Interestingly, there is no clear literature on FCFVD in South Africa to the best of the researcher's knowledge and this study seeks to fill that gap in the literature. Besides, the study is being done at a time when the JSE is looking at regulating and enforcing how companies define, measure and disclose APMs of which FCF has been specifically mentioned as an example. The practice note by the JSE is still in discussion and has not been passed as Law. This in a way, when legislated is expected, to bring into play a hybrid model between mandatory and voluntary disclosures for JSE Listed companies. The choice for disclosing the APMs like FCF would remain voluntary but on making that choice, the disclosures would be required to be in line with the Practice Note proposing to amend the JSE Listing Requirements.

This study aims to contextualise these findings from other countries on FCFVD to the local South African setting for JSE companies and build a base for further research on FCF disclosures and value relevance for investors, managers, regulators and interested stakeholders.

3. Methodology

3.1 Introduction

This chapter gives the details of the methodology used to address the research question and hypothesis. The chapter outlines the target research population, sample size determination, sources of data and collection and analysis of data. The univariate analysis and multivariate analysis (logistic regression model) used for the statistical/empirical analysis is explored. The chapter ends by addressing the validity and reliability of the results.

3.2 Overview of method

A quantitative research approach was followed.

a) The relevant data to test each of the independent variables was collected by the researcher using the sources detailed in 3.3.
b) The dependent variable, being the FCFVD, was computed using the scoring sheet in 3.3. The researcher has developed the FCFVD scoring sheet as an extension of the traditional binary scores of either 1 (disclosure) or zero (no disclosure). The scoring sheet is expected to give more realistic results than the pure binary scores. To identify the disclosure and consistency of the annual/integrated reports of the sampled companies, manual analysis was carried out. If there is no FCF disclosure at all, a score of zero would be allocated.
c) Both the dependent and independent variables data were summarised in a manner compatible with upload into the SPSS package.
d) To calculate and illustrate whether changes in each independent variable could explain the variation in the dependent variable, statistical instruments such as correlation and regression analysis were used.
e) A further analysis was carried out of FCF disclosing companies compared to non-FCF disclosing companies.

The researcher collected some qualitative information on review of the annual reports to enable answering some of the below questions using a descriptive statistics approach:

(a) What are the varied definitions and calculation methods of FCF by JSE companies?
(b) How widespread is free cash flow reporting in South Africa and what are the trends over 5 years?
(c) What are the reasons given for FCF disclosure by JSE companies?
(d) Are there significant sectorial trends on the JSE for voluntary FCF disclosure?

3.3 Sample size and selection of sample

Etikan, Musa, and Alkassim (2016) defined a sample as a portion of a population or universe. The population consists of all companies or individuals interested in the current hypothesis (Etikan et al., 2016). For this analysis, the population for the period from 1 January 2014 to 31 December 2018 consisted of JSE-listed companies. This 5 year period was selected in anticipation that at the commencement of this study, the audited financial statements for the financial year ended 31 December 2018 would be finalised. In certain cases, because studying the entire population is impractical, the researcher drew a sample or subset of the population instead (Gordon & Porter, 2009). Then, the researcher conducted the sample tests and used inferential statistical methods to extrapolate those findings to the population as a whole.

The researcher proposed JSE Listed companies because audited financial statements/information can be obtained with ease on these companies. The study applied the following sampling criteria: Firstly, only companies that were continuously listed on the JSE during the full 5 years were sampled and investigated. Secondly, companies that had missing data were also excluded and finally, companies established after the year 2014 were not included. To bring sectorial insights, the study was done for sampled companies across all sectors excluding financial services and real estate companies. However, only those sectors containing three or more companies were selected to enable the identification of patterns across and within market sectors.

Etikan et al. (2016) described the purposive sampling technique also referred to as decision sampling since the participant's intentional choice is due to the attributes that the participant has. It is a non-random approach that does not require basic theories or a certain number of participants. A purposive sample is a non-probability sample that is selected based on the characteristics of a population and the objective of the study. Although the best are known to be random samples, non-random samples are also used (Gordon & Porter, 2009) as applied in this study. Gordon and Porter (2009) noted that the last conclusion in constructing a sample is determining how many observations need to be included. Gordon and Porter (2009) citing Cohen (1990) mentioned that a simple rule is that at least ten observations with an absolute minimum of 100 observations are required for each different independent variable. In the sample collection, the researcher applied these ideas.

The researcher identified the population as 295 companies listed on the main board of the JSE. With adjustments explained below, the sample size was determined as a final number of 157 companies. This corresponds to 85% of the universe of the JSE listed companies on the Main Board (excluding financial services and real estate companies).

Table 2: Reconciliation of population and sample

Details	Number of companies
Total companies listed on the Main Board of the JSE	295
Adjustments:	
• Financial services companies scoped out	(53)
• Real estate companies scoped out	(45)
• Companies with no sector/industry codes	(12)
Subtotal of companies initially targeted	185
Companies with the age of less than 5 years	(7)
Companies with missing data or incomplete data	(16)
Companies with less than 3 in the sector	(5)
Sample size (final)	**157**

The researcher identified 8 JSE sectors (excluding financial services and real estate) listed below in Table 3 in line with the Global Industry Classification Standard (GICS). The system is similar to Industry Classification Benchmark (ICB), a classification structure maintained by Financial Times Stock Exchange (FTSE) Group in the United Kingdom. GICS is used as the basis for the financial market indexes of Standard and Poor's (S&P) and Morgan Stanley Capital International (MSCI), in which each company is allocated by its key business operation to a sub-industry and an industry, industry segment, and sector. The researcher identified the JSE sectors excluding financial services and real estate companies as communication services, consumer discretionary, consumer staples, energy, healthcare, industrials and information technology.

Table 3: JSE Sector classification of the sample

Sector	Number of companies	Percentage of sample
Communication Services	10	6,4%
Consumer discretionary	24	15,3%
Consumer Staples	18	11,5%
Energy	3	1,9%
Healthcare	6	3,8%
Industrials	43	27,4%
Information Technology	12	7,6%
Materials	41	26,1%
Total number of companies (sample)	**157**	**100,0%**

3.4 Sources of data

In this study, the data used was derived from financial databases on the JSE Listed companies over the 5 years 2014 to 2018. The study used secondary data from the listed companies published audited financial statements or annual reports as well as other JSE financial information data. The data sources for the variables and their sub-components were as follows:

Table 4: Data sources

Metric	Data sources
Free Cash Flow Voluntary Disclosure	➢ Scores were calculated per the Scoring sheet below.
Earnings Per Share • EPS	➢ Osiris
Free Cash Flow • Cash flow from operations • Capital expenditure	➢ Osiris-Cash flow statement ➢ Osiris-Cash flow statement
Capita Intensity • ***Long term assets (PPE+ Intangibles)*** • ***Total assets***	➢ Osiris ➢ Osiris
Dividends • Dividends Per Share	➢ Osiris
Leverage • Long term debt • Total assets	➢ Osiris ➢ Osiris
Foreign listing	➢ Osiris will be set at 1 if foreign listed and 0 if only local listed
Sales growth	➢ Computation of data from Osiris
Size and Age	➢ Computation of data from Osiris

Table 5: FCF voluntary disclosure scoring checklist

Free Cash Flow Voluntary DisclosureScoring Checklist (FCFVDSC)	
Details	**Score**
There is no mention of FCF in the annual/integrated report.	0
There is mention of FCF, with a definition sometimes provided in the text but with no value provided (Qualitative description).	1
There is mention of FCF, value is provided, definition sometimes provided in the text or tabular reconciliation with IFRS disclosed numbers is provided (quantitative analysis).	2

The checklist was developed by the researcher based on the previous work of other researchers, for example, the FCF disclosure decision tree for companies providing FCF values (Adame et al., 2002), the work of Adhikari and Duru (2006) on FCF voluntary disclosure, the work of Hoque and Rakow (2016) on cash flow voluntary disclosures and the JSE guidelines on reporting of APMs.

3.5 Collection of data

The data collected using Osiris was exported into Microsoft Excel 2016, cleaned, organised into variables and then loaded into the statistical package of SPSS. Our study period was 5 years from 2014 to 2018.

3.6 Management of data

The EPS, DPS, sales and CAPEX measurements were derived directly from the AFS of the companies using Osiris. The measures of FCF, CAPI, LEV, SG, SIZE and AGE were computed from the financial statement information. FCFVD was obtained through the scoring sheet referred above in Table 5. The computation of these variables was per Tables1(a) explaining their definitions. The data collected from Osiris was exported into Microsoft Excel 2016 cleaned, then, organised into variables and loaded into SPSS. The services of a statistician were utilised to analyse the data using the SPSS software package. The statistical data analysis techniques utilised are descriptive statistics, logistic and probit regression analysis and correlation analysis.

3.7 Data analysis

The researcher collected secondary data on the sampled JSE listed companies for this analysis. The dependent variable (Y) was modelled as the FCFVD. The independent variables were FCF margin, EPS, CAPI, LEV, FORLIST, AGE, SG, SIZE and DPS. The statistical methods used are shown in Table 6.

According to Leedy and Ormrod (2014), the selection of the statistical procedures depends to a greater extent on the quality of the data and the extent to which it represents the normal distribution. Parametric statistical analysis is based on assumptions that the data is an interval or a ratio scale and that the data is normally distributed. In this study, the FCFVD (independent variable) is discrete (non-continuous) and categorical and suitable for non-parametric statistics, which is not based on assumptions for parametric statistical analysis.

Table 6: Statistical methods

Statistical method	Details
Descriptive statistics	The main descriptive statistical measures computed were the frequency, mean, standard deviation, minimum values and maximum values. Graphs such as bar graphs, pie charts and line graphs were presented where applicable to describe the central tendencies, dispersion and trends of the data.
Correlation analysis	The correlation coefficient (r) was calculated to show the direction and associations in the variables. The pseudo- coefficient of determination (R^2) was calculated to assess the model. A correlation matrix was tabulated for assessing associations and multicollinearity.
Logistic/Probit Regression analysis (LRA)	How accurately one or more variables enable predictions per the regression model.
Inferential statistics-Wald Test	The Wald Test Statistic (F-test) assessed the contribution of the individual predictors or the importance of the individual coefficients in a given model according to Park (2013) and is tested as a chi-squared.
Inferential statistics-Likelihood Ratio (LR) Test	To evaluate the overall model fit and the contribution of individual predictors to the given model, the LR test was used. It is comparable to a chi-squared distribution of 1 degree of freedom (Park, 2013).

3.8 Univariate Analysis

A correlation for each of the continuous independent variables was determined to find out if there are any correlations between the variables or not. After the initial univariate analysis was conducted, the results of the former analysis were checked by additional multivariate analysis.

3.9 Multivariate Analysis

The next process was to investigate whether the independent variables had several associations with the dependent variable. Further, Park (2013) explains that logistic regression analyses, the relationship between several independent variables and a categorical dependent variable measure the likelihood of an occurrence occurring by fitting data to a logistic curve. It is called a binomial when there are two categories but when the independent variable has three categories like in this research/analysis, then, it is called a multinomial logistic/probit regression model.

The researcher has chosen the logit/probit regression analysis instead of multiple linear regression due to the nature of the dependent variable. The dependent variable, FCFVD is categorical with a score of either 0, 1 or 2 and is not continuous to enable full parametric normal distribution assumptions. Analysis of logistic regression is a form of regression to make predictions for categorical dependent variables. In our study, if the company does not disclose FCF, 0 is assigned as a score for FCFVD; if the company discloses FCF qualitatively, a score of 1 is assigned and if there is quantitative data to the disclosure, a score of 2 is assigned. Consequently, arising from the arguments above, we cannot use "classic" regression but adapted regression analysis called multinomial models of Logit and Probit analysis.

Both logit and probit models categorise the dependent variable into probability, P (FCFVD=0; FCFVD=1 or FCFVD=2). Both these models are generalised linear models and in this research, both were utilised to handle the multinomial and categorical data and outcomes. The real difference in the logit and probit models is theoretical; they use different link functions. Both are interested in how the predictors (independent variables) relate to being the probability that FCFVD=1 or FCVD=2. The probability itself cannot be used as a function since probability can have values between 0 and 1, whereas the right side of the equation with independent variables may vary from $-\infty$ to $+\infty$. The logit and probit models transform the probability into a value that also runs $-\infty$ to $+\infty$ and lead to a linear relationship with the independent variables.

This transformation is a way to express, in a linear way, a non-linear relationship. This theory is based on logistic/probit regression: the multiple linear regression equation is expressed in

logarithmic terms and probability units (called logit/probit), thus, overcomes the issue of breaching the linearity assumption (Field, 2013). Usually, the difference in the overall results in the model are silent to non-existent so on a practical level, either of the models can be employed with the choice in the interpretation and communication. In this study, both the logit and probit models are used to enhance the reliability of the findings.

The researcher expects to answer all the research questions by the use of regression and correlation analysis. The logit/probit regression model was modelled as follows:

$$\boldsymbol{LOGIT/PROBIT(FCFVD_t)=\beta_0+\beta_1 FCF+\beta_2 \Delta EPS+\beta_3 Capi+\beta_4 DPS+\beta_5 LEV+\beta_6 SG+\beta_7 Size+\beta_8 Age++\beta_9 ForList+€}$$

FCF= Free cash Flow Margin for the period t;
FCFVD=Free Cash Flow Voluntary Disclosure;
ΔEPS=change in Earnings per Share
CAPI=capital intensity for period t;
DPS= Dividend per Share;
LEV= Long term debt/total assets;
SG= Sales growth;
SIZE= Total assets logarithm;
AGE=Age of incorporation;
€ = Error term; and
β_0=constant, while $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8,$ and β_9 the coefficients of independent variables.

3.10 Validity and reliability

Validity

As cited by Mukoki (2016), validity is a way of assessing whether the researcher discovers, detects or tests knowledge that fits what he or she should do (Bryman, et al., 2007). Validity is important because it defines the credibility of the research results.

According to Leedy and Ormrod (2014), a significant question is whether the findings of the regression analysis can be extrapolated to the population from which the sample was selected and this is known as external validity. The sample used is diverse across all sectors and industries (85% of the population excluding financial institutions and real estate companies) and this enables external validity and generalisation. The sample size of 157 companies and 785 observations listed on the JSE is sizeable enough to enable interpretation and generalisability to the entire population. The study could be extended to the remaining JSE sectors of financials and real estate companies with an evaluation of how some of the variables are computed in line with those sectors.

Naturally, the results have been internally validated since both logit and probit models were utilised and they yielded similar results in terms of interpretation. Furthermore, the regression results were presented according to the dependent variable categories of FCFVD=1 and FCFVD=2. From these categories, consistent results were obtained indicating high internal validity. This is the method of data splitting of internal validation as described by Park (2013) citing Harell et. Al., (1996).

The internal validity was addressed by assessing whether each variable can show an association with the FCFVD. To check the internal validity of the regression model, the following diagnostic tests were conducted: The Probability Ratio, Wald-test and the Pseudo R^2. The researcher conducted a correlation analysis to examine the relationship between the various variables. Lastly, the services of an experienced and reputable statistician were sought for running the data in SPSS and assisting with the analysis of complex statistical concepts.

Reliability

The logistic regression method is reliable since it has been proven and successfully used by prior quantitative researchers. Low, Nor, and Yatim (2001) used logistic regression to provide a model that predicts financial distress for companies based on the operating, investing and funding components of their cash flow statement. Using logistic regression, Fawzi, Kamaluddin, and Sanusi (2015) analysed data for Malaysian companies and concluded that cash flow ratios in the Malaysian environment are reliable instruments for forecasting financial distress. Aljinović Barać (2012) argued that to provide detailed disclosures, logistic regression was used to analyse the voluntary disclosure of cash flow information for major Croatian companies. Using logistic regression, Chetty (2017) investigated corporate real estate by classifying and providing proof on the significance of the non-financial determinants of the lease versus buy decision for office real estate in Johannesburg.

Abed et al. (2014) examined the issuance of management cash flow estimates for a sample of UK non-financial listed companies and reported the recent reform in a voluntary disclosure. Their study found that cash flow from operations, market dynamics, foreign listing and company size are positively and significantly linked to cash flow forecast disclosure, whereas efficiency and competition rate are negatively and significantly linked to cash flow forecast disclosure. Hamrouni, Miloudi, and Benkraiem (2015) investigated using logistic regression the

association between corporate voluntary disclosure and company results for companies listed on the Euronext Paris Stock Exchange. The extent of voluntary information reported in the annual reports has been found to play an important role in signalling financial results. Roberts, AbuGhazaleh, and Qasim (2012) found the scope of web-based disclosure of investor relations to be substantially positive in terms of scale, government ownership, institutional ownership, number of shareholders, the form of industry and negative about the size of the company.

The research utilised interrater reliability (Leedy & Ormrod, 2014), which is the extent to which two or more individuals evaluating the same product or performance give identical judgements. The researcher made use of an independent person to score 1 company from each sector using the scoring checklist as a test of the robustness of the FCFVD scoring checklist.

The researcher used audited financial statement data from reputable databases for JSE listed companies to ensure reliability. High quality and credible data sources were used.

4. Results and discussion

4.1 Introduction

Chapter 4 analyses the data gathered using descriptive statistics and presents the regression analysis results. Section 4.2 outlines the descriptive statistics and the FCF nomenclature and FCF disclosure details by JSE listed companies. The correlation matrix is presented in section 4.3, while the regression analysis results are presented in 4.4. The researcher has identified two additional FCF models and these results are presented in section 4.4 of this chapter. Then, the regression results are discussed in section 4.5 in light of the hypotheses. Section 4.6, the chapter summary concludes the results and discussion.

The researcher has so far been assuming the simple definition of FCF as FCFF. This simplified version of FCF is described as cash created by a company to fund operations and cater for capital assets after cash outflows.

FCF_1= Cash Flow From Operations (CFO) − Capex (Adame et al., 2002)

The researcher used alternative FCF models to verify the robustness of our main model. The definition of FCF was extended to include the following alternative models. FCFE is the cash flow available to common stockholders -the remaining cash flow, after all, operating expenses (including taxes) have been paid, capital investments have been made and other transactions

have been carried out with other capital suppliers. The company's other suppliers of capital include creditors and preferred stockholders such as bondholders.

The sum that the company can afford to pay out as dividends is FCFE. Often companies pay out considerably more or substantially less than FCFE for different reasons so FCFE often varies from the dividends paid. One explanation for this disparity is that the decision on a dividend is a discretionary decision of a company's board of directors. Many companies manage their dividends; they tend to raise them over time gradually, partially because they do not want dividends to be cut. Even when their profits are growing steadily, many companies increase dividends slowly and businesses also hold their current dividends even when their profitability has deteriorated

FCF_2= **CFO − Capex + New debt borrowing-debt repayment**

Bhandari and Adams (2017) citing Kieso et.al., describe FCF as surplus cash flow; FCF is characterised as cash available for a company to invest in additional assets, pay its debt, buy treasure stock or simply increasing its liquidity. FCF is determined as cash flow from operations minus capital expenses and dividends as shown in the equation below:

FCF_3= **CFO – Capex-Dividends**

The researcher reran the models using these two alternative definitions of FCF. The results were compared with the simple/assumed definition of FCF to evaluate if they are still valid. The same information for independent variables was utilised and then the only iteration was the FCF Margin variable, which was remodelled.

4.2 Descriptive statistics

As described in depth in 3.3, the researcher selected 157 companies listed on the JSE mainboard. These companies were classified in line with the GICS methodology into sectors, industry groups and industries. Figure 2 and Figure 3 show the distribution of these companies per sector and industries respectively. These figures illustrate that the sample has adequate coverage on sectors and industries for these JSE listed companies.

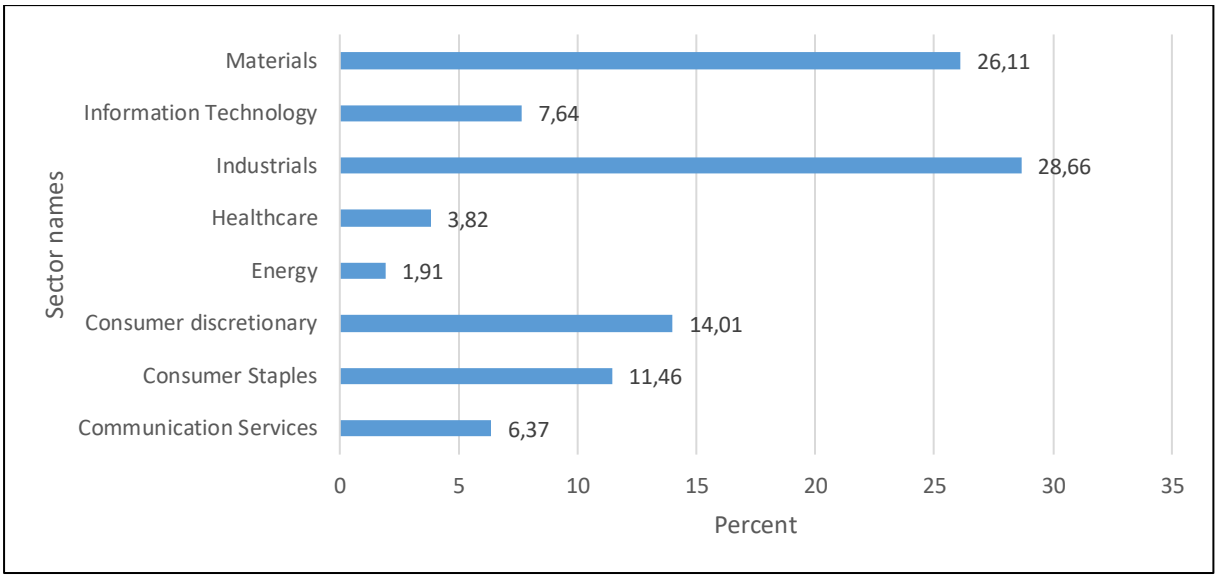


Figure 2: Breakdown of the sectors

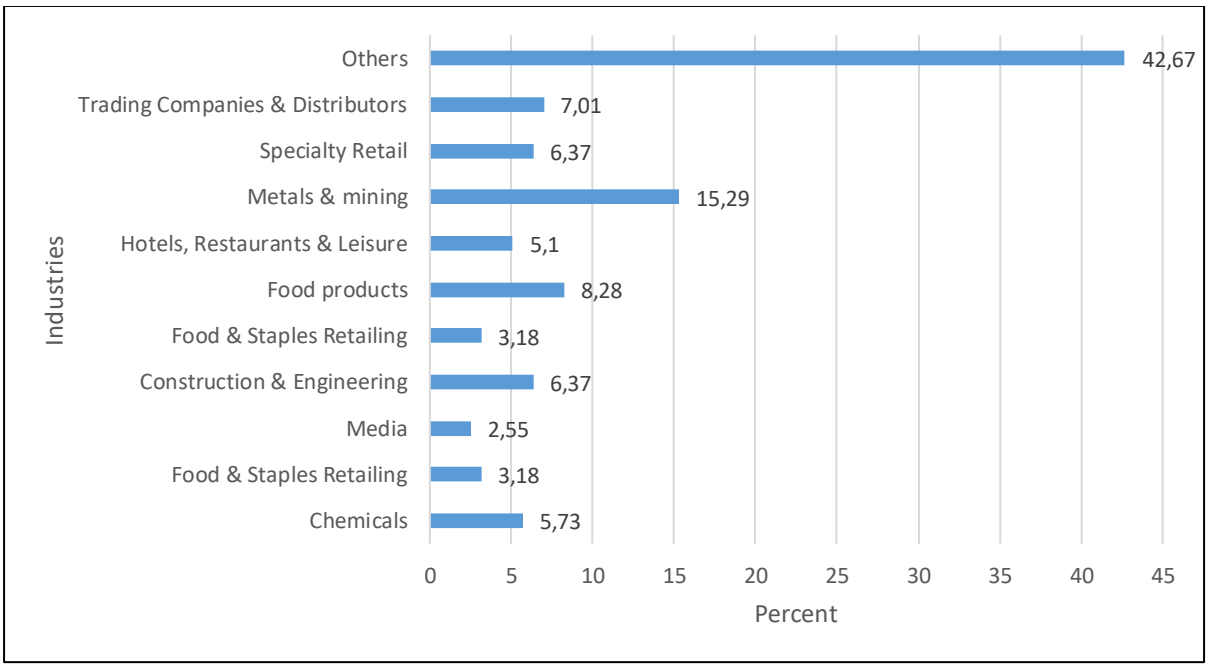


Figure 3: Percentage share of the top ten industries

4.2.1 Free Cash Flow Nomenclature by JSE listed companies

The researcher categorised the naming of FCF into two categories: FCF naming 1 and FCF naming 2 to enable recording of the naming for more than one instance in the same financial year. Some companies have more than one name for FCF in the same annual report/AFS. Figure 4 below shows that of the 157 companies sampled over the 5 years, 33% of the instances had FCF disclosure implying that 67% of the instances had no FCF disclosures.

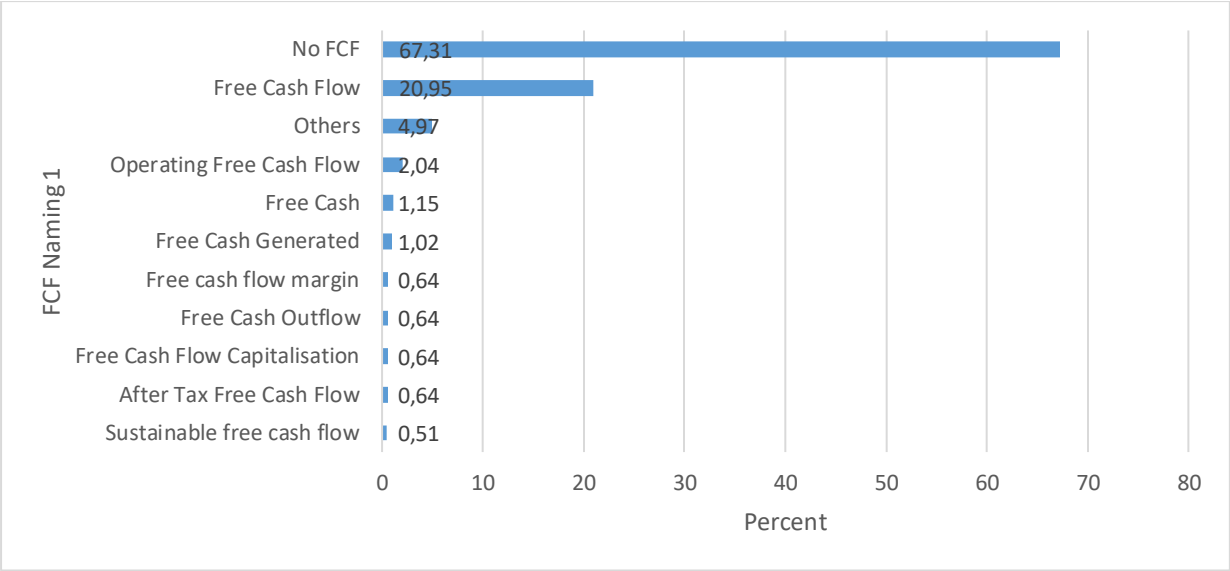


Figure 4: Free Cash Flow Naming 1-top ten nomenclature

Figure 4 above indicates the top ten nomenclature used by JSE listed companies. This top ten list was carved out from Appendix 1 indicating that for FCF naming 1 category, the JSE listed companies had 32 different names for FCF. The top 10 list in Figure 4 shows that the generic name of "Free Cash Flow or FCF" is the most popular (21%), followed by Operating FCF at 2.0% of the instances of FCF naming. Other popular names are Free Cash generated, Free Cash, After Tax-Free Cash Flow and Free Cash Flow Capitalisation. Accordingly, some of the popular names for FCF disclosure 2 in Figure 6 were FCF per Share, Adjusted FCF, Operating FCF and Free Cash. This long list in the FCF nomenclature shows that in the South African context, the comparison of FCF names across companies can be a challenge. Companies seem to be naming FCF in line with what they want to achieve with the FCF.

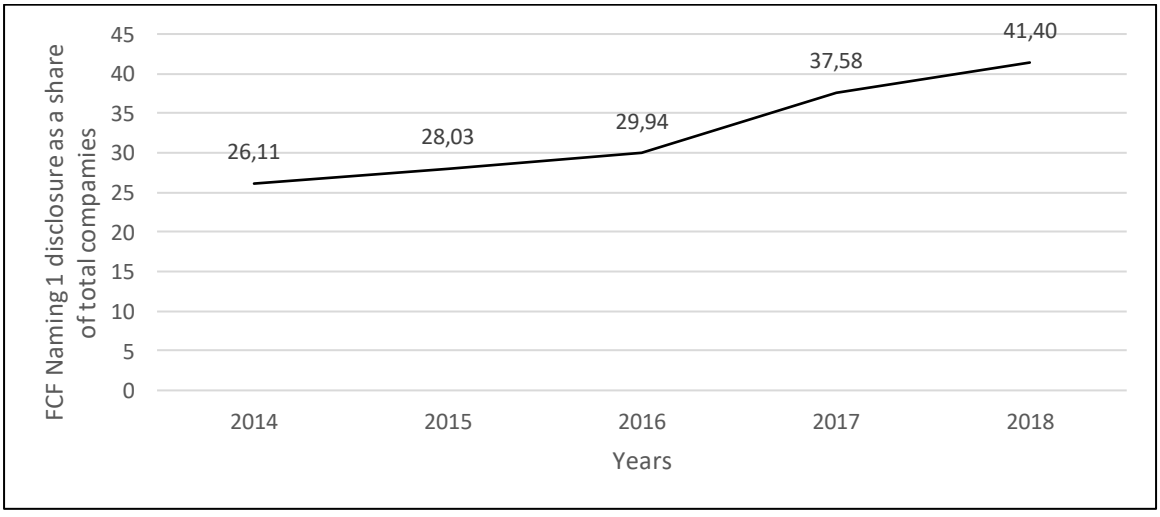


Figure 5:FCF Naming 1 disclosure as a share of total companies

Figure 5 together with Figure 7 shows the improvement in the disclosure trend for FCF reporting. The same improvement trend was observed on the NYSE by Adhikari and Duru (2006) and Adame et al. (2002)

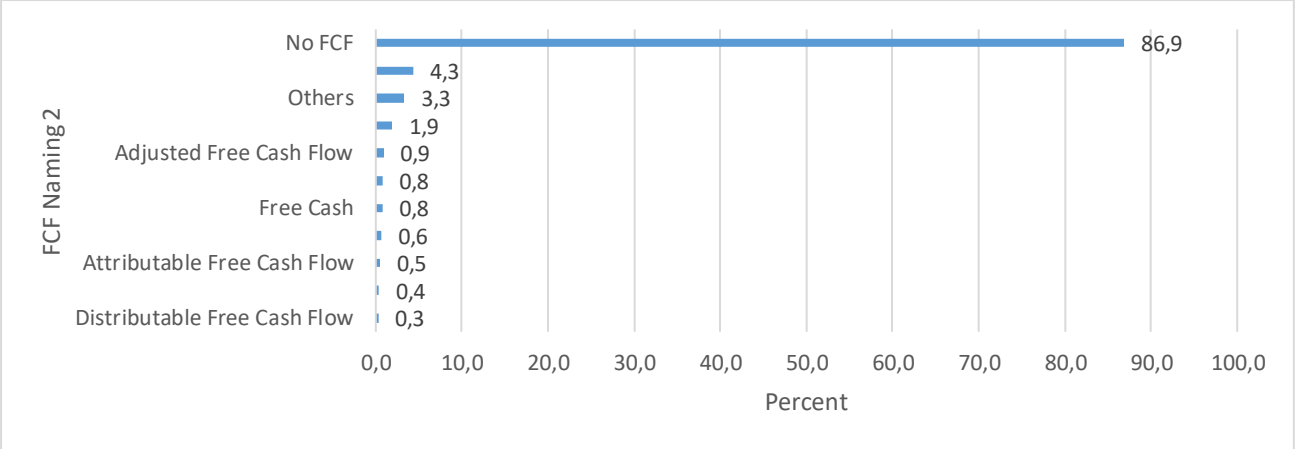


Figure 6: Free Cash Flow Naming 2-top ten nomenclature

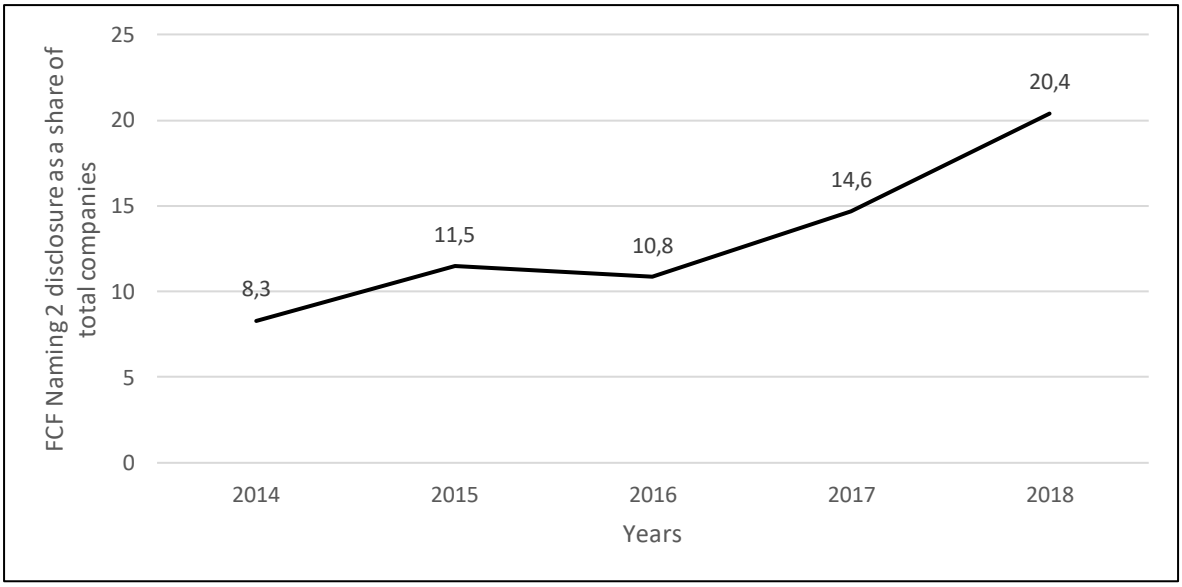


Figure 7: FCF Naming 2 disclosures as a share of total companies

4.2.2 FCF Disclosure details by JSE Listed companies

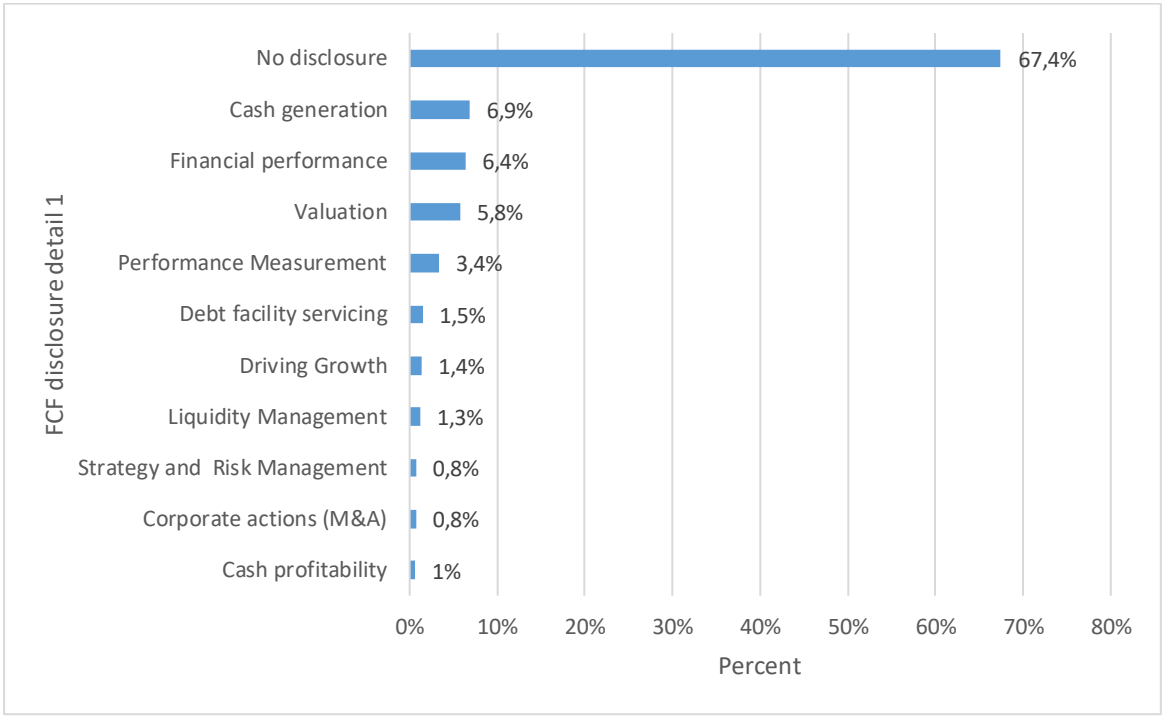


Figure 8: Top ten FCF disclosure detail 1

Figure 8 above indicates the top ten FCF disclosure details 1 going in line with FCF naming category 1. In line with the FCF naming category 1, sixty-seven percent (67%) of the observations of JSE listed companies do not disclose FCF. Of the 33% of companies disclosing FCF, the top five reasons for disclosure are cash generation, financial performance, valuation, performance measurement and debt facility servicing.

Figure 9 below is a graphical representation of FCF disclosure 2. FCF disclosure 2 is for those companies who use more than one FCF name in the same AFS or annual report. As expected, FCF disclosure 2 was approximately 13%, lower than FCF disclosure 1 of around 33%. In this FCF disclosure 2, the key reasons for the disclosure are performance management, cash generation and financial performance. Performance measurement contracting using FCF as a Key Performance Indicator (KPI) is gaining popularity globally as corporates prefer value-based measures due to the ease of manipulation of earnings KPIs for senior management compensation (Akono, 2016). FCF not only captures the liquidity and credit management activities of managers but also represents a significant internal financing mechanism for companies and hence a relevant performance measure (Akono, 2016).

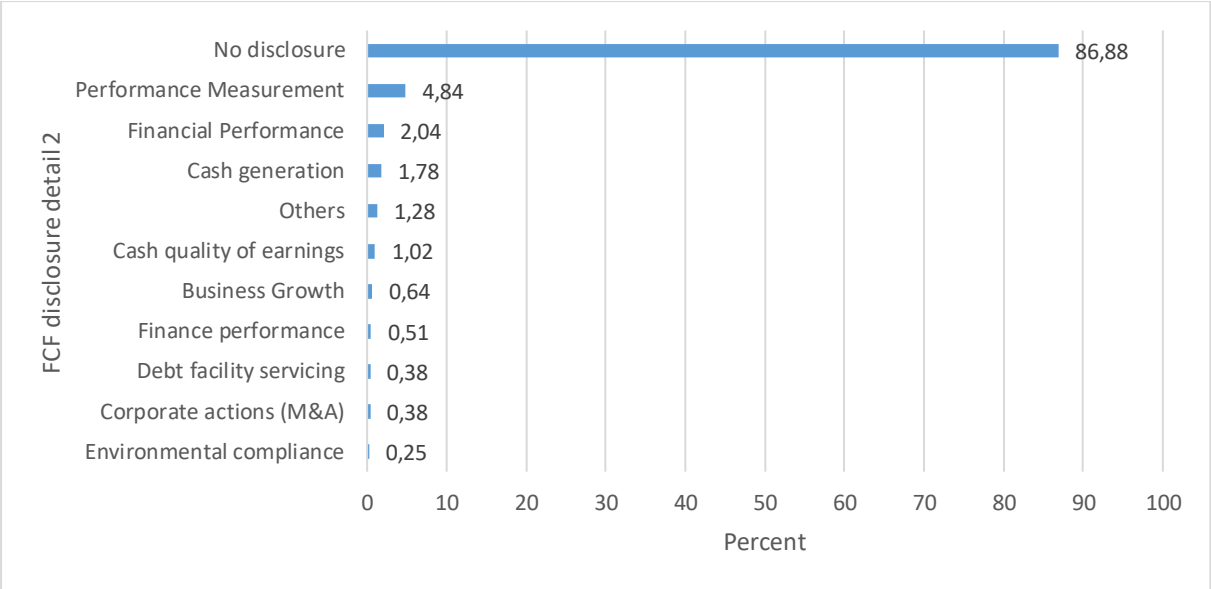


Figure 9: Top ten FCF disclosure detail 2

4.2.3 Sectorial insights on FCF Disclosure

Table 7 below shows the sectorial categorisation of the 259 observations of FCF disclosure 1. The study found that the materials sector has the highest disclosure percentage of 41.5% with 81 disclosures out of 195 observations. The materials sector comprises companies in chemicals, metals and mining, construction materials, containers and packaging and paper and forest products.

The main reasons given for the disclosures by these companies are cash generation, financial performance, performance measurement and valuations. The other sectors with high disclosure percentages are the communication services (36%), consumer discretionary (35.8%) and industrials sector at 34.7%. As a comparison, Appendix 6 shows the sectorial categorisation of the 105 observations of FCF disclosure 2.

Table 7: FCF disclosure detail 1-sectorial details

FCF Disclosure details 1	Communication Services	Consumer discretionary	Consumer Staples	Energy	Healthcare	Industrials	Information Technology	Materials	Grand Total
Capital allocation				2				1	3
Cash flow sustainability								3	3
Cash generation		6	6		3	17		23	55
Cash profitability								5	5
Cash quality of earnings		2							2
Corporate actions (M&A)	2			2			2		6
Corporate Social Investment						1			1
Debt facility servicing		2				2	2	6	12
Dividend Declaration		2							2
Dividend distribution								2	2
Driving Growth	1	4	1			1	2	2	11
Financial Capital	2							2	4
Financial performance	8	13	5			14		11	51
Financial Risk Management						1			1
Investors and Shareholders Engagement		1							1
Liquidity Management					1	9			10
Operational sustainability				1				4	5
Performance Measurement	5	5				7		10	27
Strategy and Risk Management		1				5			6
Treasury Management			5						5
Turnaround Strategy								1	1
Valuation		7			5	21	2	11	46
Number of FCF disclosure details 1	18	43	17	5	9	78	8	81	259
Total number of observations	50	120	90	15	30	225	60	195	785
Sector disclosure proportion	**36,0%**	**35,8%**	**18,9%**	**33,3%**	**30,0%**	**34,7%**	**13,3%**	**41,5%**	**33,0%**

The study found in Appendix 6 the reasons for FCF disclosure 2 which are done in the same year in addition to FCF disclosure 1. A similar trend was observed with the materials (18.5%), communication services (18.0%), consumer discretionary (15.8%) and industrials (13.8%) having a higher disclosure percentage as compared to other sectors.

4.2.4 Variables for the study-descriptive statistics

Table 8: Summary statistics for variables-descriptive

Variable		Mean	Standard Deviation	Minimum	Maximum	Observations
FCFVD	overall	0.50	0.78	0	2	N = 785
	between		0.67	0	2	n = 157
	within		0.400	0	2	T = 5
FCF_Margin_model1	overall	-0.04	0.594	-13.43	0.85	N = 785
	between		0.395	-3.56	0.23	n = 157
	within		0.445	-9.91	3.61	T = 5
FCF_Margin_model2	overall	-0.01	0.552	-13.43	1.70	N = 785
	between		0.304	-3.56	0.27	n = 157
	within		0.462	-9.88	3.64	T = 5
FCF_Margin_model3	overall	-0.06	0.593	-13.429	0.47	N = 785
	between		0.39	-3.56	0.17	n = 157
	within		0.45	-9.92	3.600	T = 5
ChangeinEPS	overall	-0.61	18.90	-446.69	139.13	N = 785
	between		6.69	-66.32	27.64	n = 157
	within		17.69	-380.98	182.47	T = 5
CAPI	overall	1.33	9.71	0	161.58	N = 785
	between		8.73	0	108.86	n = 157
	within		4.30	-92.60	54.05	T = 5
DPS	overall	1.89	24.17	0	669.99	N = 785
	between		10.86	0	134.47	n = 157
	within		21.61	-132.08	537.41	T = 5
LEV	overall	0.19	0.19	0	1.36	N = 785
	between		0.16	0	0.76	n = 157
	within		0.10	-0.57	1.06	T = 5
SG	overall	3.14	60.21	-1	1215.27	N = 785
	between		26.84	-0.35	243.50	n = 157
	within		53.93	-241.29	974.92	T = 5
SIZE	overall	6.46	1.21	0	8.64	N = 785
	between		1.00	2.36	8.56	n = 157
	within		0.69	0.25	10.64	T = 5
AGE	overall	45.92	32.94	1	140.00	N = 785
	between		33.00	3	138.00	n = 157
	within		1.42	43.92	47.92	T = 5
FORLIST	overall	0.22	0.41	0	1	N = 785
	between		0.41	0	1	n = 157
	within		0.00	0.22	0.22	T = 5

In this study, nine hypotheses were examined. There is a corresponding independent variable for each of the hypotheses. Descriptive statistics of independent variables are tabulated in Table 8 above. We will have a brief look at the FCFVD, the dependent variable, before looking at the descriptive characteristics of the independent variables.

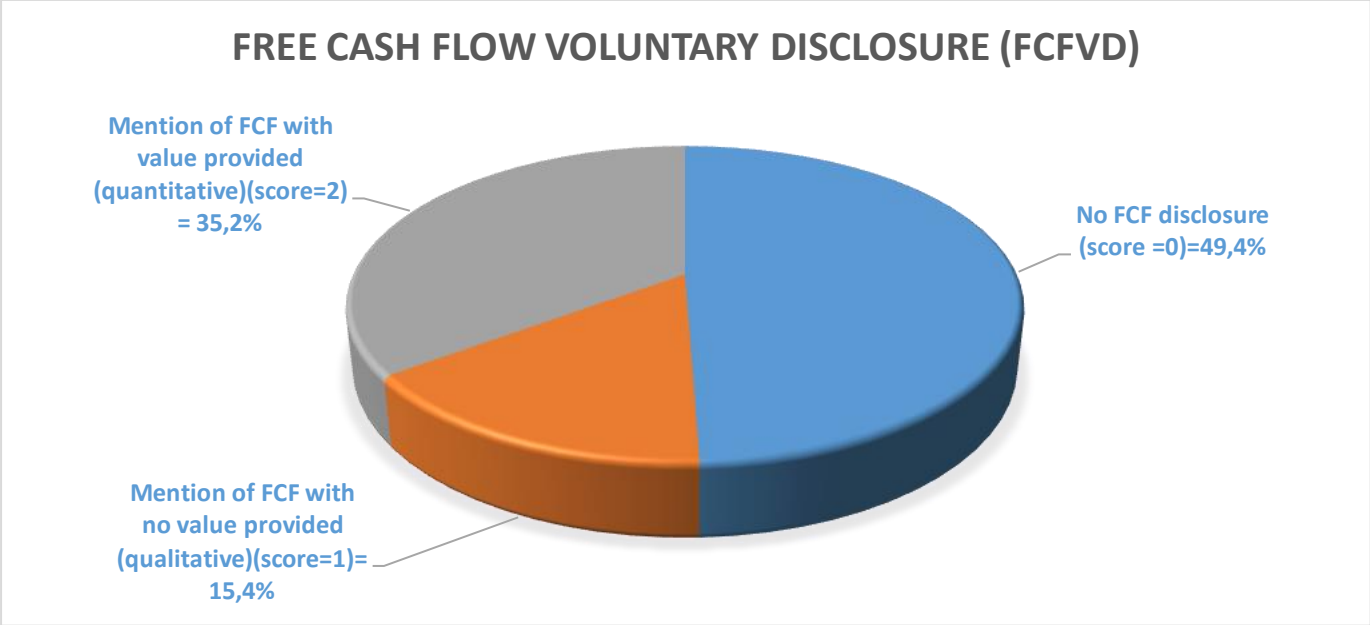


Figure 10: Free Cash Flow Voluntary Disclosure

The study found that FCFVD as a dependent variable has a mean of 0.50 indicating that out of the 785 observations made, around 50% disclosed FCF. This indicates a good degree of disclosure and as seen in Figures 5 and Figure 7, it has improved over the years 2014-2018. Figure 10 shows that the degree of disclosure maturity is high for those JSE companies that report FCF, with 35% of the observations having a full disclosure score of 2 (FCF disclosure with quantitative details).

The standard deviation between the 157 companies is 0.67 indicating a wide disparity between those companies with no disclosure (score=0) and those with full disclosure (score=2). The standard deviation lessens to 0.4 within the same company, indicating that there is still no consistency within the same company from year to year on the disclosure of FCF.

The three models for FCF margin all indicate an average negative FCF margin, showing that on average, JSE listed companies under FCF profitability strain. This is in line with the importance attached to FCF disclosure reasons of cash generation, financial performance and cash profitability. The FCF margin model 1 has an average margin of -4.1%, FCF margin model 3 has an FCF margin of -5.6% while the FCF margin model 2 has a better margin of -1.3%. From the definition, the FCF margin model 2 is affected by net borrowings indicating that JSE

listed companies had higher borrowings raised than borrowings repaid, which led to the improved FCF margin.

The respective standard deviations are related for the 3 FCF margin models indicating the closeness in the definition of these models (all of them are largely dependent on cash flow from operations as the base input).

The change in EPS has an average of -61% over the observations, indicating a strain on the profitability of the companies listed on the JSE over the 5 years. CAPI of 1.3 indicates a bias towards high fixed asset values given the nature of the companies selected excluding financials and real estate companies that have a higher proportion of financial assets.

DPS at an average of R1.88 indicates lower dividends in line with the FCF and profitability strain. Average leverage of 18.9% across the observations indicates the JSE listed companies' heavy reliance on shareholder funds and reserves instead of borrowings.

Sales growth at an average of 3% across observations is reasonable as this is affected by both volume and price considerations. The SIZE and AGE of the companies vary considerably also with wide standard deviations, showing that some companies are very large and older while some are younger and smaller.

FORLIST is a binomial variable with either zero for local listing only and one for being listed on an additional Stock Exchange. Of the total observations, an average of 22% of the companies is foreign listed (Figures 11 and 12 illustrate the AGE and FORLIST status of the observations respectively).

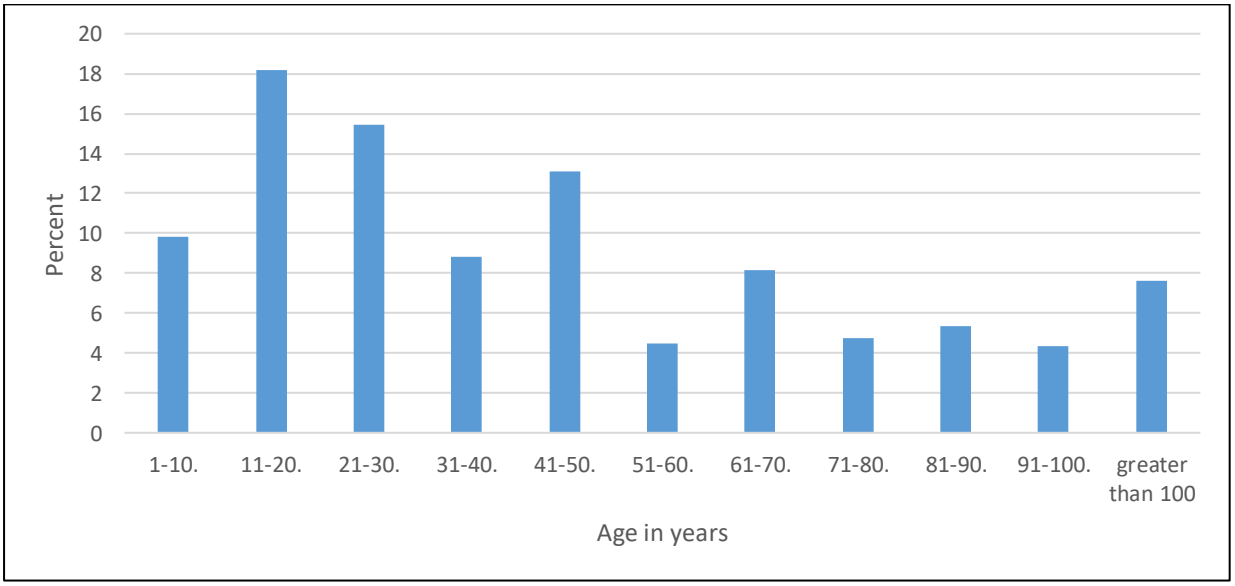


Figure 11: Age distribution of companies

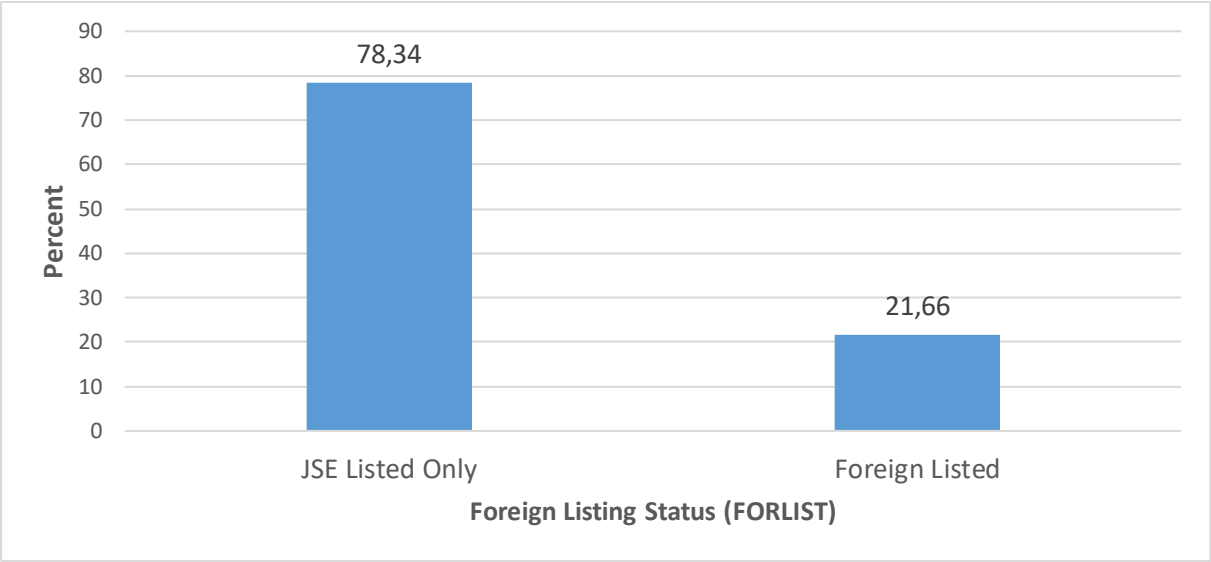


Figure 12: Foreign Listing Status-FORLIST

4.3 Correlation matrix

Table 9: Correlation matrix

VARIABLES	FCFVD	FCF_Margin_model1	FCF_Margin_model2	FCF_Margin_model3	Change in EPS	CAPI	DPS	LEV	SG	SIZE	AGE	FORLIST
FCFVD	**1.0000**											
FCF_Margin_model1	0.0256	**1.0000**										
FCF_Margin_model2	0.0432	**0.8609**	**1.0000**									
FCF_Margin_model3	0.0222	**0.9927**	**0.8530**	**1.0000**								
ChangeinEPS	-0.0045	0.0142	0.0230	0.0091	**1.0000**							
CAPI	0.0284	-0.0045	0.0026	-0.0024	0.0136	**1.0000**						
DPS	-0.0150	0.0070	0.0051	0.0073	0.0044	-0.0019	**1.0000**					
LEV	0.0699	-0.0344	0.0662	-0.0272	0.0503	0.1620	-0.0168	**1.0000**				
SG	-0.0328	-0.0042	-0.0064	-0.0030	0.0003	-0.0020	-0.0040	-0.0048	**1.0000**			
SIZE	0.2744	0.0373	0.0632	0.0371	-0.0015	0.0783	0.0189	0.2885	-0.0448	**1.0000**		
AGE	0.1492	0.0846	0.0515	0.0857	0.0199	0.0209	0.0584	0.1087	-0.0391	0.2129	**1.0000**	
FORLIST	0.2938	0.0490	0.0324	0.0421	-0.0560	-0.0390	0.0046	0.0424	-0.0263	0.2635	0.1333	**1.0000**

The researcher conducted a correlation test and Table 9 above displays the correlation matrix of the variables used in this analysis to establish the univariate relationship between the independent variables and the dependent variable, FCFVD. FCFVD-Free Cash Flow Voluntary Disclosure, FCF_Margin 1, FCF_Margin 2, FCF_Margin 3, Change in EPS-change in Earnings per Share, CAPI- Capital Intensity, DPS-Dividends per Share, LEV-Leverage, SG-Sales Growth, SIZE-company size, AGE-company age, FORLIST-Foreign Listing. The correlation coefficients among variables are shown by a correlation matrix table. The association between two variables is presented by each cell in the table.

Apart from summarising the data, the correlation matrix is used for diagnostic checking of multicollinearity. The inclusion into the same linear regression of two highly correlated independent variables creates a multicollinearity problem. Multicollinearity is when one independent variable with a significant degree of precision can be estimated linearly from the others in a multiple regression model. This issue would result in the dependent variable's unpredictable response to minor changes in the independent variables.

In correlated data, a change in one variable's magnitude is associated with a change in another variable's magnitude, either in the same positive direction or in the opposite negative direction. The coefficient of correlation varies between -1, +1 and 0. A correlation of 1 indicates a strong correlation while 0 means there is no correlation at all between the variables. The rule of thumb is that a correlation coefficient of at least 0.7 shows a high correlation (Schober, Boer, & Schwarte, 2018). Except for the high correlation coefficients between FCF Margin 1, FCF Margin 2s and 3, Table 9 indicates low correlation coefficients of all independent variables. However, these variables would not be used in the same regression model, circumventing the issue of multicollinearity.

While we should not rely much on the correlation matrix, the predicted signs of regression coefficients are also seen. From the equation/model in section 3.10, our dependent variable is FCFVD, correlation matrix column 1 shows that we should expect positive regression coefficients between FCFVD and several variables namely FCF_Margin1, FCF_Margin 2 and FCF Margin 3, CAPI, LEV, SIZE, AGE and FORLIST. Some negative regression coefficients between our dependent variable FCFVD and many independent variables are expected in the same column namely EPS, DPS and SG.

The study found that FORLIST has the highest univariate relationship with FCFVD with a correlation of 0.29 followed by SIZE with a correlation of 0.27 without incorporating other factors. This indicates that foreign listed bigger companies have a higher likelihood to disclose FCF voluntarily as compared to smaller local listed companies. The other independent

variables with a second-tier relationship are AGE (r=0.15) and LEV (r=0.07). CAPI and FCF margin also exhibited positive relationships with FCFVD (r>0).

Change in EPS (r=-0.0045), DPS (r=-0.015) and SG (r=-0.0328) exhibited negative almost non-significant relationships with FCFVD. The three FCF margin models are highly correlated due to them depending on cash flow from operations as a common base input. These have been presented as separate regression models.

The independent variables themselves do not exhibit high correlations among themselves and this indicates that multi-collinearity is not a concern. The correlations between independent variables are as follows: SIZE and LEV(r=0.29), CAPI and LEV (r=0.16), AGE and LEV(r=0.11), AGE and SIZE (r=0.21), SIZE and FORLIST (r=0.26) and AGE and FORLIST (r=0.13).

Table 10: Variance Inflation Factors -VIF

Variable	FCF Model 1 VIF	FCF Model 2 VIF	FCF Model 3 VIF
FCF_Margin_1	1.01	1.01	1.01
ChangeinEPS	1.01	1.01	1.01
CAPI	1.05	1.05	1.05
DPS	1.01	1.01	1.01
LEV	2.16	2.17	2.16
SG	1.00	1.00	1.00
SIZE	4.33	4.33	2.48
AGE	3.13	3.12	3.12
FORLIST	1.35	1.35	1.35
Mean VIF	1.78	1.78	1.78

The Variance Inflation Factor (VIF) was calculated as shown in Table 10 above to collaborate on the lack of potential multicollinearity among independent variables. According to Salmerón Gómez, García Pérez, López Martín, and García (2016), VIF values greater than 10 are widely agreed to imply extreme multicollinearity. As obtained, VIF values were far below 10; this further strengthens that there is no multicollinearity.

4.4 Regression results

While the descriptive statistics and correlation analysis provided us with insights on FCFVD and variables at a univariate level, we are more interested in their joint effects which the regression results below cater for.

However, the regression estimates will give more information about the nature of the relationship including the significance of the relationship and fitness of the regression model among other additional information about the nature of the relationships. Thus, we move on to regression estimations that are specified using the multinomial probit and the multinomial logit models as described in section 3.10.

The multinomial logit and probit models are suitable since we have more than two categories, so, this is no longer a binary model but a multinomial model. The multinomial model will have two logits/probit functions as the category FCFVD=0 will be treated as a comparison category. The two logit/probit functions are the logit/probit of FCFVD=1 versus FCFVD=0 and logit/probit of FCFVD=2 versus FCFVD=0.

Figure 21 below shows the multinomial logit and multinomial probit regression coefficients following the models specified in section 3.10. As highlighted in section 3.10, our dependent variable has three categories. FCFVD=0 means there is no mention of FCF in the annual/integrated report; FCFVD=1 means there is mention of FCF with no value provided and a definition provided in the text (Qualitative description); FCFVD=2 means there is mention of FCF; value is provided and definition in the text or tabular reconciliation with IFRS disclosed numbers is provided (quantitative analysis).

The multinomial logit and multinomial probit drop one category which is then used as a comparison to the other remaining categories which are FCFVD=1 and FCFVD=2. This is the reason why Table 11 has no regression coefficients for FCFVD=0. The Table presents the regression coefficient of each independent variable together with the standard error (which is the numbers in brackets). The standard errors in parentheses show the significant level of the regression coefficient at 1 percent *** $p<0.01$, 5 percent, ** $p<0.05$ and 10 percent * $p<0.1$. A regression coefficient without a parenthesis means it is not significant, thus, no interpretation will be done for such variable.

Table11: FCF_Margin 1 Logit and Probit Results

Variables	Multinomial logit	Multinomial logit	Multinomial probit	Multinomial probit
	FCFVD=1	**FCFVD=2**	**FCFVD=1**	**FCFVD=2**
FCF_Margin 1	-0.174	**5.506*** **	-0.147	**3.741*** **
	(0.131)	(1.351)	(0.104)	(0.945)
ChangeinEPS	-0.00688	0.00293	-0.00568	0.00241
	(0.00592)	(0.00791)	(0.00486)	(0.00630)
CAPI	**0.0153***	-0.000736	**0.0119***	0.00403
	(0.00842)	(0.0129)	(0.00706)	(0.00889)
DPS	**-0.196** **	**-0.118** **	**-0.127** **	-0.0650
	(0.0961)	(0.0565)	(0.0619)	(0.0443)
LEV	0.490	-0.813	0.305	-0.276
	(0.545)	(0.619)	(0.425)	(0.456)
SG	-0.00536	-0.490	-0.00380	-0.276
	(0.0301)	(0.338)	(0.0414)	(0.197)
SIZE	**0.184***	**1.195*** **	**0.156** **	**0.543*** **
	(0.110)	(0.194)	(0.0725)	(0.0962)
AGE	**-0.00886** **	**0.0108*** **	**-0.00582** **	**0.00732*** **
	(0.00381)	(0.00311)	(0.00273)	(0.00238)
FORLIST	**0.470**	**0.913*** **	**0.444** **	**0.967*** **
	(0.286)	(0.257)	(0.209)	(0.192)
Constant	**-2.407*** **	**-10.12*** **	**-2.054*** **	**-5.317*** **
	(0.669)	(1.312)	(0.444)	(0.625)
Pseudo R-squared		0.1414		
LR		190.11 (0.000)		
Wald Test				136.56 (0.000)
Observations	785	785	785	785

*Standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1, FCFVD=0 means there is no mention of FCF in the annual/integrated report. FCFVD=1 means there is mention of FCF with no value provided and a definition is provided in the text (Qualitative description). FCFVD=2 means there is mention of FCF; value is provided as well as the definition is provided in the text or tabular reconciliation while IFRS disclosed numbers are provided (quantitative analysis).*

Column 2 as part of Table 11 displays the regression coefficients of a model that uses FCF_Margin1 and the column has the coefficients for FCFVD=1 compared to FCFVD=0. Similar to the correlation matrix, column 2 of Table 11 shows positive and significant statistical associations between FCFVD and CAPI and SIZE. The meaning of these positive and statistically significant coefficients is that companies that mention FCF disclosure but do not provide the value (FCFDV=1) have relatively higher Capital Intensity (CAPI) and have a bigger size (SIZE) compared to companies that do not mention FCF disclosure (FCFVD=0). Also, column 2 of Table 11 shows a negative and significant statistical association between FCFVD, DPS and AGE. This implies companies that mention FCF but do not provide the value (FCFDV=1) have relatively lower dividends per share and they are younger as compared to companies in category FCFDV=0.

Column 3 contains the regression coefficients of companies in category FCFDV=2 compared to those in category FCFDV=0. A positive and statically relevant relationship between FCFVD and FCF Margin1, SIZE, AGE and FORLIST is demonstrated in column 3. Such companies have high FCF_Margin1; also, they are relatively bigger in size, age and most of them are foreign listed compared to companies in category FCFVD=0. However, such companies have lower dividends per share compared to companies in category FCFVD=0. This is because DPS has a negative and significant coefficient as shown in column 3.

Columns 2 and 3 in Table 11 use the multinomial logit while columns 4 and 5 use the multinomial probit. As expected, the signs and significance levels for coefficients in columns two and three are similar to the ones in columns 4 and 5 respectively. The only difference is the magnitudes of the coefficients, which are expected given the different distribution specifications of multinomial logit and multinomial probit. The magnitudes of the coefficient given by the multinomial logit and multinomial probit are of less importance. To factor in the magnitudes of this regression model, we require an estimation of the marginal effects of the regression coefficients displayed in Table 11 above. Hence, Table 12 below provides the marginal effects of the regression coefficients displayed in Table 11. Further, the marginal effects are used to explain the logit and probit models. The marginal effects aid in investigating the factors that explain the likelihood of companies disclosing FCF information. The marginal

effects give more insights on the characteristics of non-FCF disclosing companies (FCFVD=0, category) as compared to FCF disclosing companies (FCFVD=1 and FCFVD=2 categories). In summary, these non-FCF disclosing companies have lower FCF margins, have higher DPS, smaller size and are mostly not foreign listed. These insights are consistent for all three models and add to the understanding of the significant findings of FCF disclosing companies.

The Pseudo R-squared measures the fitness of the regression model. Unlike in the ordinary least square, in multinomial logit, a good Pseudo R-squared should be in the region 0.2-0.4 (McFadden, 1974). In the above model, we have a Pseudo R-squared of 0.14 implying a relatively weaker model as compared to the recommended range of 0.2-0.4. However, the likelihood ratio (LR) of 190.11 which is greater than 2 (the rule of thumb for a p-value of 0.000 which is less than 0.05) indicates that the model is jointly statistically significant. Besides, the Wald test shows the joint significance of the model (Bewick, Cheek, & Ball, 2005). The Wald test is a way to figure out if explanatory variables are important in a model, implying that they contribute some value to the model. Table 11 above shows a healthy Wald test score of 136.56, which is significant given a p-value of 0.000 (Bewick et al., 2005).

In line with Table 11, Table 12 below shows the marginal effects of the logit model. Here both the signs and magnitudes of the coefficients are important. For each regression coefficient, Table 12 presents the regression coefficient for all the three categories of FCFVD, which is the dependent variable. The coefficients in Table 12 are interpreted similarly as the ones generated using the least square regression models. Table 12 displays the marginal effect coefficient (dy/dx), the standard error, Z score and the p-values that are used to determine the significant values of the marginal effects. For the coefficient to be meaningful and significant, the modulus of the Z score should be at least bigger than 2 and the p-value should be less than 0.05

Table 12: Marginal effects Model 1- (FCF_Margin 1)[1]

	dy/dx	Standard error	z-score	P-value
FCF_Margin_model1_predict				
FCFVD=0	**-0.493**	0.123	**-4.00**	**0.000**
FCFVD=1	**-0.134**	0.033	**-4.06**	**0.000**
FCFVD=2	**0.627**	0.148	**4.23**	**0.000**
ChangeinEPS_predict				
FCFVD=0	0.004	0.001	0.39	0.695
FCFVD=1	-0.002	0.007	-1.31	0.189
FCFVD=2	0.004	0.008	0.55	0.584
CAPI_predict				
FCFVD=0	-0.001	0.002	-0.87	0.384
FCFVD=1	0.002	0.009	1.97	0.049
FCFVD=2	-0.003	0.001	-0.28	0.778
DPS_predict				
FCFVD=0	**0.031**	0.011	**2.62**	**0.009**
FCFVD=1	-0.021	0.011	-1.85	0.064
FCFVD=2	-0.009	0.006	-1.48	0.139
LEV_predict				
FCFVD=0	0.026	0.085	0.30	0.765
FCFVD=1	0.076	0.065	1.17	0.243
FCFVD=2	-0.102	0.068	-1.49	0.138
SG_predict				
FCFVD=0	0.046	0.031	1.46	0.144
FCFVD=1	0.009	0.007	1.20	0.230
FCFVD=2	-0.055	0.038	-1.45	0.146
SIZE_predict				
FCFVD=0	**-0.129**	0.020	**-6.23**	**0.000**
FCFVD=1	-0.002	0.012	-0.16	0.871
FCFVD=2	**0.131**	0.020	**6.37**	**0.000**
AGE_predict				
FCFVD=1	-0.001	0.0001	-0.20	0.845
FCFVD=2	**-0.001**	0.0004	**-2.87**	**0.004**
FCFVD=3	**0.004**	0.0003	**4.18**	**0.000**
FORLIST_predict				
FCFVD=0	**-0.145**	0.046	**-3.10**	**0.002**
FCFVD=1	0.039	0.038	1.01	0.312
FCFVD=2	**0.106**	0.035	**2.99**	**0.003**

[1] Only significant coefficients will be interpreted as they show statistically significant relationships with the dependent variable

Starting with the FCF_Margin1, being in FCFVD=0 category and FCFVD= 1 category is associated with 0.493 and 0.134 less probability of having a high FCF_Margin1 respectively. Being in the FCFVD=2 category is associated with a 0.627 probability of having a higher FCF_Margin1. This means companies in FCFVD=0 and FCFVD=1category have less FCF_Margin and those in category 2 have higher FCF_Margin. The coefficients for all the estimations of FCF_Margin1 are all statistically significant given the modulus of Z score that is greater than 2 and the p-values which are also less than 0.05. Regression coefficients for change in EPS, CAPI, LEV and SG are all not significant for all the FCFVD categories. Under DPS, only the coefficient for FCFVD category 0 is significant and positive given a z score of 2.62 and a p-value of 0.009. This implies companies that are in FCFVD category 0 have a 0.031 probability of having a higher dividend per share.

For SIZE, we can observe that being in the FCFVD=0 category is associated with a 0.129 probability of having a smaller size while being in the FCFVD=2 category is associated with a 0.131 probability of having a greater size. The coefficient of SIZE for the FCFVD=1 category is not statistically significant. Companies in FCFVD=1category have a 0.001 probability of having smaller age with those in the FCFVD=2 category having a 0.004 probability of having a higher age. Also, similar findings are shown for FORLIST where companies in the FCFVD=0 category have a 0.145 less probability of being listed in foreign stock markets while companies in the FCFVD=2 category have a 0.106 probability of having a foreign listing. Tables 11 and 12 were all using FCF_Margin1. We now move to the case for FCF_Margin2 subject to the same model illustrated in section 3. 10.

Similar to Table 11, Table 13 shows the multinomial logit and multinomial probit models for FCFVD=1 and FCFVD=2 categories. The only difference between Tables 11 and 13 is that Table 13 has FCF_Margin2 and not FCF_Margin1. FCFVD=0 category is used as the base comparison category just like in Table 11. Starting with the FCFVD=0 category, we observe identical results with the ones in Table 11 as CAPI and SIZE are positive and statistically significant while AGE and DPS are negative and statistically significant.

This means for the FCFVD=1 category, there is no statistical difference between FCF_Margin1 and FCF_Margin2. A similar picture is shown for the FCFVD=2 category where FCF_Margin2, SIZE, AGE and FORLIST have positive and statistically significant coefficients just like what we observed in Table 11. The results for the multinomial logit and multinomial probit are similar though the magnitudes of the coefficients are different. To get meaningful regression coefficient magnitude, we also undertake the marginal effects of the regression coefficient in Table 13 below. Then, we proceed in the same fashion as what we did for the analysis in Table 11 and Table 12. In the model below, we have a Pseudo R-squared of 0.1285, which shows a

weaker model as compared to the standard of 0.2-0.4. However, the LR of 172.74 and the Wald test score of 131.80 including a p-value of 0.000 indicate the model has joint statistical significance.

Table 13: Regression Results Model 2- FCF_Margin 2

VARIABLES	Multinomial logit	Multinomial logit	Multinomial probit	Multinomial probit
	FCFVD=1	FCFVD=2	FCFVD=1	FCFVD=2
FCF_Margin2	-0.0248	**1.709****	-0.0105	**1.289****
	(0.153)	(0.727)	(0.135)	(0.536)
Change in EPS	-0.00730	0.00262	-0.00589	0.00201
	(0.00616)	(0.00760)	(0.00494)	(0.00596)
CAPI	**0.0152***	-0.000114	**0.0121***	0.00370
	(0.00845)	(0.0123)	(0.00708)	(0.00873)
DPS	**-0.197****	-0.0884	**-0.130****	-0.0475
	(0.0959)	(0.0539)	(0.0617)	(0.0425)
LEV	0.543	-1.022	0.364	-0.442
	(0.545)	(0.633)	(0.421)	(0.460)
SG	-0.00626	-0.255	-0.0158	-0.160
	(0.0504)	(0.371)	(0.186)	(0.206)
SIZE	**0.181***	**1.145*****	**0.156****	**0.523*****
	(0.110)	(0.193)	(0.0725)	(0.0953)
AGE	**-0.00935****	**0.0105*****	**-0.00632****	**0.00712*****
	(0.00382)	(0.00306)	(0.00275)	(0.00236)
FORLIST	0.458	**0.988*****	**0.437****	**1.020*****
	(0.286)	(0.254)	(0.209)	(0.189)
Constant	**-2.365*****	**-9.721*****	**-2.023*****	**-5.136*****
	(0.664)	(1.300)	(0.442)	(0.617)
LR	172.74			
Pseudo R-squared	0.1285			
Wald Test			131.80	
			(0.000)	
Observations	785	785	785	785

*Standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1, FCFVD=1 means there is no mention of FCF in the annual/integrated report; FCFVD=2 means there is mention of FCF with no value provided and a definition is provided in the text (Qualitative description), FCFVD=3 means there is mention of FCF, value is provided, the definition provided in the text or tabular reconciliation with IFRS disclosed numbers is provided (quantitative analysis).*

Table14 displays the marginal effects coefficient (dy/dx), the standard error, z-score and the p-values. The standard error, z-score and the p-values are used to determine the significant values of the marginal effects coefficient; the decision criteria are identical to Table 12 description. Beginning with the FCF_Margin2, being in the FCFVD=0 category is associated with 0.159 less probability of having a high FCF_Margin2 while, being in the FCFVD=2 category is associated with a 0.199 probability of having a higher FCF_Margin2.

Table 14: Marginal effect Model 2- FCF_Margin2-2

	dy/dx	Standard error	z-score	P-value
FCF_Margin_model2				
FCFVD=0	**-0.159**	0.071	**-2.25**	**0.024**
FCFVD=1	-0.039	0.024	-1.66	0.097
FCFVD=2	**0.199**	0.083	**2.39**	**0.017**
ChangeinEPS				
FCFVD=0	0.0005	0.001	0.44	0.661
FCFVD=1	-0.001	0.0007	-1.35	0.177
FCFVD=2	0.0005	0.0008	0.55	0.583
CAPI				
FCFVD=0	-0.002	0.002	-0.90	0.366
FCFVD=1	0.002	0.001	1.95	0.051
FCFVD=2	-0.0003	0.001	-0.25	0.805
DPS				
FCFVD=0	**0.028**	0.011	**2.43**	**0.015**
FCFVD=1	-0.022	0.012	-1.92	0.055
FCFVD=2	-0.006	0.006	-0.98	0.328
LEV				
FCFVD=0	0.042	0.088	0.48	0.633
FCFVD=1	0.088	0.066	1.34	0.180
FCFVD=2	-0.130	0.072	-1.81	0.070
SG				
FCFVD=0	0.025	0.036	0.70	0.486
FCFVD=1	0.005	0.009	0.47	0.637
FCFVD=2	-0.030	0.043	-0.69	0.493
SIZE				
FCFVD=0	**-0.127**	0.021	**-6.02**	**0.000**
FCFVD=1	-0.002	0.013	-0.17	0.863
FCFVD=2	**0.129**	0.021	**6.09**	**0.000**
AGE				
FCFVD=0	-0.00004	0.0005	-0.09	0.932
FCFVD=1	**-0.0014**	0.0005	**-3.00**	**0.003**
FCFVD=2	**0.001**	0.0003	**4.18**	**0.000**
FORLIST				
FCFVD=0	**-0.155**	0.047	**-3.30**	**0.001**
FCFVD=1	0.034	0.038	0.90	0.369
FCFVD=2	**0.120**	0.037	**3.28**	**0.001**

[2]Only significant coefficients will be interpreted as they show statistically significant relationships with the dependent variable

This means companies in the FCFVD=0 category have a lower FCF Margin while those in the FCFVD=2 category have a higher FCF Margin. The coefficients for the FCFVD=1 category are not statistically significant given the modulus of z-score, which is less than 2 and the p-values which are also greater than 0.05. Regression coefficients for change in EPS, CAPI, LEV and SG are all not significant for all the FCFVD categories. Under DPS, only the coefficient for the FCFVD=0 category is significant and positive given a z-score of 2.43 and a p-value of 0.015. This implies companies in the FCFVD=0 category have a 0.028 probability of having a higher dividend per share.

For SIZE, we observe that being in the FCFVD=0 category is associated with a 0.127 probability of having a smaller size while being in the FCFVD=2 category is associated with a 0.129 probability of having a greater size. The coefficient of SIZE for the FCFVD=1 category is not statistically significant. Companies in the FCFVD=1 category have a 0.0014 probability of having smaller age with those in the FCFVD=2 category having a 0.001 probability of having a higher age. Similar findings are shown for FORLIST where companies in FCFVD=0 category 0 have a 0.155 less probability of being listed in foreign stock markets while companies in the FCFVD=2 category have a 0.120 probability of having a foreign listing. We can deduce that from the above findings that there is a minor difference between FCF_Margin 1 and FCF_Margin 2 results.

Lastly, we repeat the analysis above but using FCF_Margin3. Similar to Tables 11 and 13, Table 15 shows the multinomial logit and multinomial probit models for FCFVD=1 and FCFVD=2 categories. The only difference between Tables 11, 13 and 15 is that Table 15 has FCF_Margin3 instead of FCF_Margin1 or FCF_Margin2. Again, the FCFVD=0 category is used as the base comparison category just like in Table 13. Beginning with the FCFVD=1 category, we observe identical results with the ones in Table 13 as CAPI and SIZE are positive and statistically significant while AGE and DPS are negative and also statistically significant.

This means for FCFVD category 1 there is no statistical difference between FCF_Margin1, FCF_Margin2 and FCF_Margin3. A similar portrait is shown for the FCFVD category 2, where FCF_Margin3, SIZE, AGE and FORLIST have positive and statistically significant coefficients just like what we observed in Table 11. The results for the multinomial logit and multinomial probit are similar but the magnitude of the coefficients is different. Table 15 also displays a weak Pseudo R-squared of 0.1335 but a strong LR of 179.47 and a Wald test score of 132.47 indicating a jointly statistically significant model.

Table 15: Regression Results - Model 3- FCF_Margin 3

Variables	Multinomial logit	Multinomial logit	Multinomial probit	Multinomial probit
	FCFVD=1	**FCFVD=2**	**FCFVD=1**	**FCFVD=2**
FCF_Margin 3	-0.163	**3.883*** **	-0.136	**3.005*** **
	(0.129)	(1.385)	(0.104)	(1.010)
ChangeinEPS	-0.00696	0.00329	-0.00567	0.00275
	(0.00598)	(0.00791)	(0.00486)	(0.00633)
CAPI	**0.0153***	-0.000683	**0.0120***	0.00307
	(0.00842)	(0.0126)	(0.00705)	(0.00903)
DPS	**-0.196****	-0.0844	**-0.128****	-0.0437
	(0.0957)	(0.0548)	(0.0613)	(0.0422)
LEV	0.490	-0.799	0.301	-0.327
	(0.544)	(0.617)	(0.424)	(0.456)
SG	-0.00548	-0.208	-0.00348	-0.127
	(0.0322)	(0.394)	(0.0252)	(0.212)
SIZE	**0.182***	**1.144*** **	**0.155****	**0.529*** **
	(0.110)	(0.192)	(0.0725)	(0.0957)
AGE	**-0.00885****	**0.00982*** **	**-0.00585****	**0.00681*** **
	(0.00380)	(0.00307)	(0.00272)	(0.00236)
1.FORLIST	0.468	0.955***	0.445**	0.995***
	(0.286)	(0.254)	(0.209)	(0.190)
Constant	**-2.400*** **	**-9.689*** **	**-2.046*** **	**-5.164*** **
	(0.667)	(1.290)	(0.443)	(0.619)
LR		179.47		
Pseudo R-squared		0.1335		
Wald Test				132.47
Observations	785	785	785	785

*Standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1, FCFVD=1 means there is no mention of FCF in the annual/integrated report, FCFVD=2 means there is mention of FCF with no value provided and a definition is provided in the text (Qualitative description), FCFVD=3 means there is mention of FCF; value is provided, the definition provided in the text or tabular reconciliation with IFRS disclosed numbers is provided (quantitative analysis)*

Table 16 displays the marginal effects coefficients of the regression results in Table 15, the standard error, z-score and the p-values. Starting with the FCF_Margin3, being in FCFVD=0 and FCFVD=1 category is associated with 0.349 and 0.101 respectively, less probability of having a high FCF_Margin3 while being in FCFVD=2 category 2 is associated with a 0.451 probability of having a higher FCF_Margin3.

Table 16: Marginal effects Model 3- FCF_Margin3[3]

	dy/dx	Standard error	z-score	P-value
FCF_Margin_model3				
FCFVD=0	**-0.349**	0.129	**-2.69**	**0.007**
FCFVD=1	**-0.101**	0.034	**-3.03**	**0.002**
FCFVD=2	**0.451**	0.157	**2.87**	**0.004**
ChangeinEPS				
FCFVD=0	0.0004	0.001	0.36	0.720
FCFVD=1	-0.0009	0.0007	-1.33	0.183
FCFVD=2	0.0005	0.0009	0.60	0.549
CAPI				
FCFVD=0	-0.001	0.002	-0.87	0.384
FCFVD=1	0.002	0.001	1.97	0.048
FCFVD=2	-0.0004	0.001	-0.29	0.774
DPS				
FCFVD=0	**0.028**	0.011	**2.38**	**0.017**
FCFVD=1	-0.022	0.012	-1.92	0.055
FCFVD=2	-0.006	0.006	-0.90	0.369
LEV				
FCFVD=0	0.026	0.086	0.30	0.766
FCFVD=1	0.077	0.065	1.17	0.241
FCFVD=2	-0.102	0.069	-1.47	0.142
SG				
FCFVD=0	0.020	0.037	0.54	0.589
FCFVD=1	0.004	0.009	0.41	0.684
FCFVD=2	-0.023	0.045	-0.53	0.599
SIZE				
FCFVD=0	**-0.126**	0.021	**-6.05**	**0.000**
FCFVD=1	-0.002	0.013	-0.14	0.891
FCFVD=2	**0.128**	0.020	**6.14**	**0.000**
AGE				
FCFVD=0	-0.00003	0.0005	-0.06	0.954
FCFVD=1	**-0.001**	0.0005	**-2.84**	**0.004**
FCFVD=2	**0.001**	0.0003	**3.89**	**0.000**
FORLIST				
FCFVD=0	**-0.151**	0.047	**-3.23**	**0.001**
FCFVD=1	0.037	0.038	0.96	0.338
FCFVD=2	**0.114**	0.0362	**3.16**	**0.002**

[3]Only significant coefficients will be interpreted as they show statistically significant relationships with the dependent variable

This implies companies in FCFVD= 0 and FCFVD= 1 categories have lower FCF_Margin3 and those in FCFVD=2 category have higher FCF_Margin3. Regression coefficients for change in EPS, CAPI, LEV and SG are all insignificant for all the FCFVD categories.

Under DPS, only the coefficient for the FCFVD=0 category is significant and positive given a z-score of 2.38 and a p-value of 0.017. This implies companies falling in the FCFVD=0 category have a 0.028 probability of getting a higher dividend per share.

For SIZE, we can notice that being in the FCFVD=0 category is associated with a 0.126 probability of having a smaller SIZE while being in the FCFVD= category 2 is associated with a 0.128 probability of having a greater size. The coefficient of size for the FCFVD=1 category is not statistically significant. Companies in the FCFVD=1 category have a 0.001 probability of having smaller age while those in the FCFVD= 2 category have a 0.001 probability of having a higher age. Comparable findings are shown for FORLIST where companies in the FCFVD= 0 category have a 0.151 less probability of being listed in foreign stock markets while companies in FCFVD=2 category 2 have a 0.114 probability of having a foreign listing. Again, what can be realised from the above findings is that there is a minor difference between FCF_Margin 1, FCF_Margin 2 and FCF_Margin 3 models.

4.5 Hypothesis testing

Table 17: Correlation & regression Coefficients and Hypothesis testing

Variable in relation to FCFVD	Hypothesis expected sign	Correlation (Positive=+, Negative= -)	FCF Margin 1 Model		FCF Margin 2 Model		FCF Margin 3 Model	
FCFVD			1	2	1	2	1	2
FCFM_1	+	+		+				
FCFM_2	+	+				+		
FCFM_3	+	+						+
Change in EPS	-	-						
CAPI	+	+	+		+		+	
DPS	+	-	-	-	-		-	
LEV	+	+						
SG	-	-						
SIZE	+	+	+	+	+	+	+	+
AGE	-	+	-	+	-	+	-	+
FORLIST	+	+		+		+		+

. Now we will examine how the effects of the study of correlation and regression apply to the formulated hypothesis. Nine hypotheses are evaluated below:

H1: The more positive the FCF, the greater the motivation to voluntarily disclose FCF in the financial statements.

The correlation and regression analysis have shown that the hypothesis holds for companies listed on the JSE South Africa. The correlation coefficient indicates a positive relationship between the FCF level (determined as a margin) and FCFVD. The regression results incorporating other factors found out that the category of FCFVD=2 had significant results. Hence it is concluded that those companies with high FCF margins opt for the highest levels of FCF disclosure (FCFVD=2). This is in line with Section 2.4.3's signalling theory where most cash-profitable companies would willingly disclose information to differentiate themselves from less profitable companies. This agrees with Shehata (2014) citing Verrecchia (1983), who argued that companies signal such information to prove that they are better than other companies in the market to attract investments or improve favourable credibility as a result of the information asymmetry problem.

H2: The lower the profitability, the higher the motivation to disclose voluntarily FCF in the financial statements.

The direction of the correlation coefficient is in line with the hypothesis being a negative relationship with FCFVD. However, the multiple logit/probit regression models have found the impact of the change in EPS not to be significant. Hence, from this study, we conclude that the hypothesis does not hold and that change in EPS has no impact on FCFVD. The change in EPS had no significant regression results despite the expectation of a higher probability of FCF disclosure when earnings are not rosy, negative or decreasing (Adame et al., 2002). Despite the average EPS of observations decreasing by 61%, there has been no impact of FCF disclosure.

According to Adhikari and Duru (2006), managers can be encouraged to reveal APMs to portray the success of their company more often than conventional GAAP/IFRS measures indicate. Further, Adhikari and Duru (2006) citing Bhattacharya et al., (2004) and Lougee and Marquardt (2004), report that when companies experience poor results, inclinations to non-GAAP/IFRS steps are more likely to be revealed.

Adhikari and Duru (2006) found FCF disclosing companies in the USA to be companies with lower net income and lower return on assets and they concluded that the FCF disclosing companies to be on average less healthy financially.

Other profitability measures for example EBITDA and related EBITDA measures like adjusted EBITDA are less transitory and more core and might be of interest for further studies on how they impact the FCFVD.

H3: The higher the dividend payout ratio, the greater the motivation to voluntarily disclose FCF in the financial statements.

Both the correlation coefficient and the regression coefficients have proven that the hypothesis does not hold for the JSE listed companies. The hypothesis expected DPS to have a positive relationship with FCFVD, following the rationale of FCF reporting by companies to signal potential dividend payments (Laura et al., 2011). Unexpectedly, the correlation and regression coefficients are all negative, signalling a negative relationship. It is interesting to note that for the FCF Margin 1 model, both categories of FCFVD have a negative relationship with FCFVD while FCF Margin models 2 and 3 showed only significant results for the FCFVD=1 category and no significant relationship for the FCFVD=2 category. The study has found that companies in the FCFVD=1 category have lower DPS and are relatively younger than other companies and have lower FCF margins and a detrimental relationship with FCFVD has been found to exhibit. The findings are not definitive and it is, therefore, suggested that more studies on the relationship between DPS and FCFVD should be carried out.

H4: The more capital intensive the company is, the higher the motivation to voluntarily disclose FCF in the financial statements.

Both the correlation and regression analysis have proven the hypothesis holds in the South African context for JSE Listed companies. However, the regression coefficients show that only the FCFVD=1 category has a significant relationship between CAPI and FCFVD. The FCFVD=2 category has no significant results. It has been found that FCFVD=2 category companies have relatively higher FCF margins (which might imply lower spending on CAPEX), and intuitively that FCFVD=0 and FCFVD=1category have higher CAPEX spending. The higher Capex spending would naturally lead to high levels of fixed assets in the asset structure and hence the high CAPI. Adame et al. (2019) found that the probability of FCF disclosure was higher in capital-intensive companies because the FCF Capex adjustment was more relevant for these capital-intensive companies. A ranking of the sectors by CAPI reflects the following five sectors as having the highest CAPI: industrials, materials, consumer discretionary, consumer staples and communication services. These sectors were found in Table 7 to have the highest FCF disclosure percentages (companies disclosing FCF as a comparison to the total companies) than the other sectors. They spend more on CAPEX as compared to the other

companies, hence cash flow is integral to the routine maintenance and replacement of existing assets and expansionary/growth purposes.

H5: The higher the leverage, the higher the motivation to disclose voluntarily FCF in the financial statements.

LEV was found to have a positive correlation with FCFVD as expected in the hypothesis. However, the regression results were insignificant for all the models. FCF Margin 2, with its definition including net borrowings, was expected to have significant results but the regression results were still insignificant. From Table 8, the average leverage for the observations was 18.9% indicating JSE listed companies' heavy reliance on shareholder funds and reserves and lesser reliance on borrowings. This is contrary to capital structure theories according to Cheng and Tzeng (2011) citing Miller and Modigliani (1958) advocating for higher debt in the capital structure for the maximisation of the company value. We infer from the results of the analysis that the hypothesis is invalid for JSE listed companies in the South African context. Also, the study did not validate the agency theory, directly related to leverage, which states that companies with higher leverage ratios are likely to have higher disclosure levels and share more information voluntarily. In contrast, Adhikari and Duru (2006) found leverage to be a significant factor in FCF disclosure in the USA. They found that there were more FCF disclosures for companies with lower liquidity, high debt levels and poor credit scores. They noted that companies can voluntarily disclose FCF information to alleviate creditors' concerns and provide assurance that they protect the interests of the creditors because of higher leverage and lower credit ratings, therefore, FCF disclosures may help to mitigate financial distress concerns by signalling the company's ability to generate cash to repay debt

H6: When a company has a Foreign listing status, there is higher motivation to disclose voluntarily FCF in the financial statements.

The hypothesis expectation is for foreign listed companies to have higher motivation for voluntarily disclosing FCF. According to Leuz (2000), it is assumed that a listing on a foreign exchange increases the shareholdings of foreign investors and hence the demand for information/disclosure. This is supported by both the correlation and regression results validating the hypothesis for JSE listed companies in the South African environment.

The regression results are only significant for the FCFVD=2 category. Presumably, this suggests that because of their impact on voluntary disclosure from other stock exchanges, international listed companies are more likely to go for the highest amount of FCF disclosure. These companies are expected to be bigger and mature with higher FCF margins than other companies. Of the 157 companies sampled, approximately 22% or 35 companies are foreign listed. Of these foreign listed companies, 50% are in the materials sector, 15% in the consumer staples sector and 12% in the consumer discretionary sector. These sectors also have high CAPI ratios indicating that capital-intensive foreign listed mature companies have a higher chance of voluntarily disclosing FCF in their financial reports. These foreign listed companies participate in raising funds in foreign markets and accordingly, their information disclosure is of importance basing on the capital market theory of voluntary disclosure. According to Shehata (2014), companies seek to raise their capital either by debt or equity and their international listing status enhances this. She argued that the capital needs theory suggests that voluntary disclosure helps in achieving a company's need to raise capital at a low cost. The strong results from the FORLIST variable are probably due to its influence on the capital needs and the capital market demands of the foreign markets/stakeholders.

H7: The higher the sales growth, the lower the motivation to voluntarily FCF in the financial statements.

The direction of the correlation coefficient is in line with the hypothesis, being a negative relationship with FCFVD. However, the multinomial logit/probit regression models have found the impact of sales growth to be insignificant. Hence, from this study, we conclude that the hypothesis does not hold in the South African context and that sales growth has no significant impact on FCFVD. Other growth measures, for example, FCF growth, operating cash flow growth or EBITDA growth might be of interest for further studies on how they affect FCFVD.

H8: The bigger the size of the company, the higher the motivation to disclose voluntarily FCF in the financial statements.

The SIZE factor/variable has shown consistency for both the correlation and regression analysis. For all the FCFVD categories and across all three models, the regression coefficients are significant. This implies a positive relationship between the FCFVD and SIZE. In this study, SIZE is the most consistent of all the variables. Therefore, we conclude that the hypothesis holds for JSE listed companies and that the bigger the company, the higher the motivation to voluntarily disclose FCF in the financial statements. The study alludes to Barako (2007) in Kenya, who stated that SIZE has been a significant determinant of disclosure levels in most voluntary disclosure studies

H9: The younger the company as measured by age of incorporation, the greater the motivation to voluntarily disclose FCF in the financial statements.

The age variable has yielded mixed results. Firstly, the hypothesis expected younger companies to have a higher motivation to disclose voluntarily FCF in their financial statements/reports. The correlation coefficient exhibits a positive relationship between AGE and FCFVD, contrary to the hypothesis expectation. The regression results are mixed, with consistency across categories throughout the three models. For the category FCFVD=1, there is a significant negative regression coefficient between FCFVD and AGE indicating that the younger the company, the higher the motivation to disclose FCF voluntarily. Companies in the FCFVD=2 category exhibited positive significant regression coefficients indicating that the older the companies, the higher the motivation to voluntarily disclose FCF. These companies have higher FCF margins, mature and stable and are expected to have better disclosure behaviours. Though the results are mixed, they show that AGE is a significant variable for FCFVD both in younger and mature companies. Therefore, the hypothesis does not hold in the South African context.

4.6 Chapter summary

Both descriptive statistics and logistic/probit regression analysis were discussed in the chapter. The detailed statistics addressed the attributes of both the dependent and independent variables, the specifics of the FCF naming, details of the FCF disclosure and some noteworthy patterns.

The logistic/probit regression analysed the relationship of various FCF categories with several companies' characteristics. The results indicate that companies that disclose their FCFs in the FCFVD=2 category have relatively high FCF margins; they are bigger in size and age and most of them are foreign listed. However, such companies have lower dividends per share. Companies in the FCFVD=1 category have high dividends per share and are smaller in terms of age and size. The findings are consistent across all three models and in the correlation matrix. The analysis found a non-marginal difference between the FCF_Margin 1, FCF_Margin 2 and FCF_Margin 3. Though the Pseudo R-squared was consistently low in all the models, the LR and the Wald test all showed consistent joint statistical significance for the whole model in each of the three model scenarios.

The last part of the chapter looked at the results in light of the hypotheses and the voluntary disclosure theories. Out of the nine-hypotheses investigated, 4 hypotheses were confirmed,

supporting that FCF margin, CAPI, SIZE and FORLIST as significant determinants of FCFVD in South African JSE listed companies.

Four theories of voluntary disclosure were discussed namely agency theory, the legitimacy theory, the signalling theory and capital markets theory. The agency theory was tested through leverage (LEV) and found to be negligible. The theory of legitimacy is focused on the view of society, which influences management to reveal details that would alter the opinion of external users about a company (Shehata, 2014). The improved FCFVD over the years validates the legitimacy theory. The significant results of the FCF margin validate the signalling theory and the strong results on CAPI and FORLIST validate the capital needs/market theories in the South African context.

5. Conclusions and recommendations

5.1 Conclusion/summary

In the South African setting, the study explored the determinants of FCFVD and to the knowledge of the researcher, this is one of the leading studies in South Africa's FCF voluntary disclosure. A quantitative approach was followed and 157 companies were selected over 5 years from 2014 to 2018. The data collected was analysed using SPSS and Microsoft Excel using both descriptive statistics and multinomial logit/probit regression models.

The following company-specific characteristics were described from the literature reviews as factors that may explain voluntary disclosure in FCFs: age, capital intensity, the volatility of the FCF, market dynamics, surprises in earnings, size and leverage. Since no particular FCF disclosure literature was found in the South African context, the following factors were found to explain voluntary disclosure in general: size, leverage, auditing by a large audit firm, membership of the JSE industry, free float percentage and international listing. The study explored nine factors as explained below.

The study investigated nine independent variables and hypotheses. The independent variables were FCF margin, change in EPS, DPS, CAPI, LEV, FORLIST, SG, SIZE and AGE. The categorical independent variable was FCFVD, which was coded/categorised as 0, 1 and 2 according to the level of FCF disclosure. The descriptive statistics gave interesting insights on FCFVD. Firstly, the study found out that JSE listed companies have a wide variety of FCF nomenclature, reaching up to 30 names. This clearly shows that there is no consistency and uniformity within the same company from year to year and across different sectors, industries and companies. Furthermore, the wide nomenclature means there is no generally accepted way of defining and calculating FCF by JSE listed companies. Some of the common names

used by JSE companies besides the generic FCF name are Operating FCF, Free Cash, Free Cash generated, FCF Margin, Free Cash Outflow, FCF Capitalisation, After-Tax FCF, Sustainable FCF, FCFper Share, Adjusted FCF and Distributable FCF. These compare well with nomenclature by companies listed on the NYSE as identified by Adhikari and Duru (2006). They identified some of the following as the common names on the NYSE: FCF, Operating Cash Flow, Accessible Cash, Distributable Cash Flow, Surplus Cash Flow, Discretionary Cash Flow, Deployable Cash Flow and Cash Before Share Buybacks.

Secondly, our study found that there are different reasons why JSE listed companies report FCF with the multiple reasons given indicating that companies that choose to emphasise FCF are more likely targeting to direct the attention of stakeholders to relevant considerations. Accordingly, these reasons are varied within the same company on a year-to-year basis and across companies and sectors. These reasons are closely related to the different FCF nomenclature. Some of the common reasons given during FCF disclosure are cash generation, financial performance, valuation, performance measurement and debt facility servicing.

Thirdly, our study showed in Figures 5 and 7 that the proportion of companies disclosing FCF as a percentage of total companies has been improving from 2014 to 2018. In the South African setting, this is good news as the enhanced culture of transparency supposedly adds value to the capital markets. According to Leuz (2000), in her study which examined the voluntary disclosure of cash flow in Germany, voluntary disclosure is believed to follow a classic adoption trend over time. There are only a few trendsetters in the beginning and then the number of disclosing companies grows. This has been truly the trend in the South African context as shown in Figure 5 and Figure 7.

Fourthly, our study found out that the materials sector had the highest disclosure percentage of 41.5%. The other sectors with high disclosure levels were industrials, communication services and consumer discretionary. Adame et al. (2002) in the USA found the telecommunications and industrials sectors had the highest levels of FCF disclosures due to their large amounts of capital investments and is more likely to disclose FCF. They highlighted the importance of industry-specific factors, thus, expect companies to likely disclose FCFs if others in their sector/industry do so the so-called herding behaviour. Adhikari and Duru (2006) in the USA found that the results of FCF disclosures had the manufacturing, food and transportation companies with the highest FCF disclosure levels.

Now we move on to the variables and the significant findings on them. The FCFVD as the dependent variable was regressed versus nine independent variables. In the level of FCF

disclosure, we find a huge dispersion, some companies provide very comprehensive disclosures (including definitions, quantitative FCF details, IFRS number reconciliations and explanatory discussions), when other companies only mention FCF in passing or qualitatively.

Three FCF models were analysed and all of them were found to have almost consistent results. Though the pseudo R squared for all the three models were consistently low, the LR and the Wald Tests all showed the consistent joint statistical significance of the whole model in all the three model scenarios.

The three models yielded very consistent regression results with FCF margin. CAPI, SIZE and FORLIST found to exhibit a significant positive relationship FCFVD. The researcher found that DPS had a substantial negative relationship with FCFVD. AGE was found to have mixed outcomes, with a significant negative relationship within the category FCFVD= 1 and a significant positive relationship within the category FCFVD= 2. Of the nine-hypotheses formulated, 4 were found to be significant with the data investigated, while 5 were found to be insignificant in the South African context.

Overall, the study discovered that those companies with high CAPI, high FCF Margins are more likely to disclose voluntarily FCF as well as mature, bigger and stable foreign listed companies. These results validate the capital market theory of voluntary disclosure. The theory is consistent with the assumption that capital market pressures drive voluntary disclosures of FCF information and that such voluntary disclosures are first embraced by companies with the greatest capital market pressures (benefits). Companies with international listings move first, presumably because they face the greatest pressure/influence from foreign capital markets; then, companies with significant CAPI follow to introduce these disclosures and these are widely adopted by locally listed companies. As the determinants of FCF, voluntary disclosure by the South African JSE listed companies, the variables of FCF Margin, CAPI, SIZE and FORLIST were identified as relevant and significant.

5.2 Recommendations and further areas of research

The key findings of the study relating to the broad FCF nomenclature of JSE companies lead to challenges for users of financial statements in comparing FCF information. The research has identified up to 30 different names of FCF. Even though it is understood that there will be no universally agreed FCF definition and calculation methodology; the recommendation is for the JSE and SAICA to establish a structure for the definition and calculation of the top five FCF names/measures in collaboration with industry bodies and other interested parties. The standardisation, although not a way of regulating FCF voluntary disclosures, would enable consistency and uniformity and enable users of financial information to better understand and compare FCF measures. This would elevate FCF as a measure, currently being diverse and useful for intra-company analysis and the framework would aid in inter-company FCF comparisons.

All the three FCF models investigated had a pseudo-R-squared in the region of 0.14, indicating there is other information, which potentially influences the FCF voluntary disclosure by JSE Listed companies. The pseudo-R-squared for other comparable FCF disclosure studies were Hassan (1994) in Australia-0.48, Adame et al. (2002) in the USA-0.15 and Adhikari and Duru (2006) also in USA-0.14. However, there is potential for the investigation of other factors, which can influence FCF voluntary disclosure, with the following, being potential areas: corporate governance attributes/ culture for example Board composition (between local and foreign board members), mandatory disclosure practices/ policies and the nature of the ownership structure, auditors type, growth prospects/potential and analyst coverage. Barako (2007) argues that institutional investors have strong incentives to track corporate governance activities due to high ownership stakes, so, managers should willingly reveal more disclosures to keep up with the demands of these large shareholders.

Probably, the three FCF models investigated yielded almost similar and consistent results because of the heavy influence of cash flow from operations as an input in the calculations. There is potential to explore other FCF proxy measures and how they affect FCFVD. Examples of such measures are EBITDA, Adjusted EBITDA and Headline Earnings. These measures are more core and less transitory earnings as compared to EPS, which was one of the independent variables investigated. Transitory items include once-off gains or losses from asset sales, restructuring charges, asset impairments, mergers and acquisition integration charges and discontinued operations (Adame et al., 2002).

Recommended areas of further research are:

- Analyse the definitions and calculation methodologies of FCF in detail for JSE listed companies. This will further assist in the development of an agreed consensus framework on the FCF definitions, calculations, disclosures of JSE listed companies. Some of the examples of FCF measures are methods based on operational cash flow and methods based on earnings (e.g. derived from EBITDA or Net Income).
- FCF managerial manipulation for compensation schemes/metrics and share price performance, since there is no uniformity in the definition/calculation/disclosure of FCF, there is room for managers to manipulate FCF measures to improve performance bonuses/executive share schemes or the share prices. Laura et al. (2011), citing Ketz (2003), draws attention to the fact that several reporting alternatives for FCF might encourage managers to choose the FCF definition and measurement methodology that favours the figures of the company. Managers prefer to publish their performance information to positively impact the stock returns of the company and eventually their share-related compensation plans (Iatridis, 2008).
- The study was carried out from secondary data from databases on JSE listed companies. It is recommended that a study involving interviews of relevant stakeholders e.g., chief finance officers/ financial directors, financial analysts, regulators (e.g. SAICA and JSE) and auditors would yield further insights on FCF voluntary disclosures.
- The results of the LEV factor impact on FCFVD were found to be insignificant in SA. We recommend the impact of leverage/cost of capital and credit ratings and capital structure on FCF and its disclosure is given significant results from other comparable studies. Shehata (2014) found the relationship between voluntary disclosure and capital costs to be positive, suggesting that the higher the voluntary disclosure, the lower the cost of capital. It will be interesting to investigate this in the South African context.
- Sectorial regression models per each JSE sector to give more insights into the sectorial FCFVD contributors. Barako (2007) citing Wallace et. Al., (1994) indicated that companies in a particular sector could face conditions that could impact their disclosure practices such as CAPEX and regulatory factors. Besides, Roberts et al. (2012) citing Watts and Zimmerman (1986) argue that the sensitivity of the industry in which a company operates may influence its disclosure practices.
- The research was limited to 5 years from 2014 to 2018 and expanding the study to other periods and seeing if the findings are impacted might yield further insights.

- The study excluded the financial and real estate sectors; the study could be extended to these sectors with a refinement on how some of the variables are defined. With these two sectors included, a complete picture of FCF disclosure for JSE companies listed on the mainboard would be investigated.

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Appendices

(Appendix 1: Free Cash Flow Naming 1)

FCF Naming 1	Frequency	Percentage
Free Cash Flow	166	64,09%
Operating Free Cash Flow	16	6,18%
Free Cash Generated	10	3,86%
Free Cash	9	3,47%
After Tax Free Cash Flow	5	1,93%
Free Cash Flow Capitalisation	5	1,93%
Free cash flow margin	5	1,93%
Free Cash Outflow	5	1,93%
Sustainable free cash flow	5	1,93%
Generated Free Cash Flow	4	1,54%
Adjusted Free Cash Flow	2	0,77%
Excess Free Cash Flow	2	0,77%
Free Cash Flow Before Growth Capital	2	0,77%
Free Cash Flow Generated By Operations	2	0,77%
Free Cash Flow Per Share	2	0,77%
Free Cash from Operations	2	0,77%
Operating Free Cash Flow From Own Operations	2	0,77%
Adjusted Free Cash Flow	1	0,39%
Average Free Cash Flow Return On Equity	1	0,39%
Cumulative Free Cash Flow Generated to Net Interest and Capital Serviced	1	0,39%
Free Cash Flow Analysis	1	0,39%
Free Cash Flow as a Percentage of Profit After Tax	1	0,39%
Free Cash Flow Before Expansion Activities	1	0,39%
Free Cash Flow From Operations	1	0,39%
Free Cash Flow Generated For Investment	1	0,39%
Free Cash Flow Yield	1	0,39%
Freee Cash Flow	1	0,39%
Future Free Cash Flow	1	0,39%
Operatinal Free Cash Flow	1	0,39%
Operating Free Cash Flow Per Share	1	0,39%
Opertional Free Cash Flow Margin	1	0,39%
Ungeared Free Cash Flow	1	0,39%
Grand Total	259	100,0%

(Appendix 2: Free Cash Flow Naming 2)

FCF Naming 2	Frequency	Percentage
Free Cash Flow	37	35,24%
Free Cash Flow Per Share	15	14,29%
Adjusted Free Cash Flow	7	6,67%
Free Cash	6	5,71%
Operating Free Cash Flow	6	5,71%
Operating Free Cash Flow Before Expansion Capital Expenditure	5	4,76%
Attributable Free Cash Flow	4	3,81%
Free Cash To Core Headline Earnings	3	2,86%
Distributable Free Cash Flow	2	1,90%
Free Cash Flow Conversion Ratio	2	1,90%
Free Cash Flow to Net Profit	2	1,90%
Free Cash Flows to operating profit after working capital adjustment and capex	2	1,90%
Free Cash Generated	2	1,90%
Annul Free Cash Flow	1	0,95%
Attributable Economic Free Cash Flow	1	0,95%
Available Free Cash Flow	1	0,95%
Free Cash Flow As a % of Net Profit	1	0,95%
Free Cash Flow Before Capital Expenditure	1	0,95%
Free Cash Flow Before Transaction Costs And Recurring Interest	1	0,95%
Free Cash Flow Before Working Capital Movements	1	0,95%
Free Cash Flow Generated	1	0,95%
Free Cash Flow To The Firm After Interest	1	0,95%
Net Free Cash Flow	1	0,95%
Profit After Tax To Free Cash Flow Conversion Ratio	1	0,95%
Sustainable Free Cash Flow	1	0,95%
	105	**100,00%**

(Appendix 3: FCF disclosure detail 1)

FCF Disclosure details 1	Frequency	Percentage
Cash generation	55	21,2%
Financial performance	48	18,5%
Valuation	46	17,8%
Performance Measurement	27	10,4%
Debt facility servicing	12	4,6%
Driving Growth	11	4,2%
Liquidity Management	10	3,9%
Corporate actions (M&A)	6	2,3%
Strategy and Risk Management	6	2,3%
Cash profitability	5	1,9%
Operational sustainability	5	1,9%
Treasury Management	5	1,9%
Financial Capital	4	1,5%
Capital allocation	3	1,2%
Cash flow sustainability	3	1,2%
Finance performance	3	1,2%
Cash quality of earnings	2	0,8%
Dividend Declaration	2	0,8%
Dividend distribution	2	0,8%
Corporate Social Investment	1	0,4%
Financial Risk Management	1	0,4%
Investors and Shareholders Engagement	1	0,4%
Turnaround Strategy	1	0,4%
	259	**100,0%**

(Appendix 4: FCF disclosure detail 2)

FCF Disclosure Details 2	Frequency	Percentage
Performance Measurement	38	36,2%
Financial Performance	20	19,0%
Cash generation	14	13,3%
Cash quality of earnings	8	7,6%
Business Growth	5	4,8%
Corporate actions (M&A)	3	2,9%
Debt facility servicing	3	2,9%
Operational sustainability	3	2,9%
Driving growth	2	1,9%
Environmental compliance	2	1,9%
Strategy and Risk Management	2	1,9%
Capex Funding	1	1,0%
Cash preservation	1	1,0%
Cash profitability	1	1,0%
Dividend distribution	1	1,0%
Valuation	1	1,0%
Totals	**105**	**100,0%**

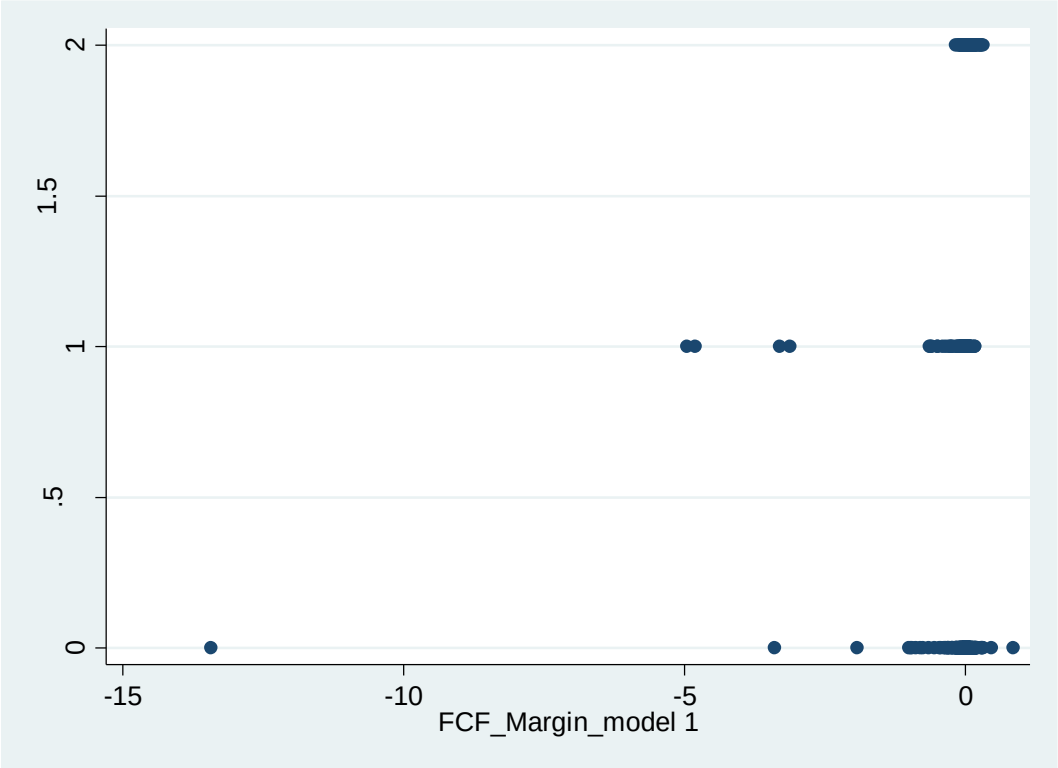
(Appendix 5: FCF Naming 1 Per Sector)

FCF Naming 1-Per Sector	Communication Services	Consumer discretionary	Consumer Staples	Energy	Healthcare	Industrials	Information Technology	Materials	Totals
Adjusted Free Cash Flow	2								**2**
Adjusted Free Cash Flow								1	**1**
After Tax Free Cash Flow								5	**5**
Average Free Cash Flow Return On Equity								1	**1**
Cumulative Free Cash Flow Generated to Net Interest and Capital Serviced						1			**1**
Excess Free Cash Flow							2		**2**
Free Cash	2					6	1		**9**
Free Cash Flow	9	33	16	5	9	49	5	40	**166**
Free Cash Flow Analysis						1			**1**
Free Cash Flow as a Percentage of Profit After Tax						1			**1**
Free Cash Flow Before Expansion Activities		1							**1**
Free Cash Flow Before Growth Capital								2	**2**
Free Cash Flow Capitalisation								5	**5**
Free Cash Flow From Operations								1	**1**
Free Cash Flow Generated By Operations								2	**2**
Free Cash Flow Generated For Investment			1						**1**
Free cash flow margin								5	**5**
Free Cash Flow Per Share		1				1			**2**
Free Cash Flow Yield								1	**1**
Free Cash from Operations						1		1	**2**
Free Cash Generated		3				7			**10**
Free Cash Outflow		5							**5**
Freee Cash Flow								1	**1**
Future Free Cash Flow								1	**1**
Generated Free Cash Flow						4			**4**
Operatinal Free Cash Flow								1	**1**
Operating Free Cash Flow	5					4		7	**16**
Operating Free Cash Flow From Own Operations								2	**2**
Operating Free Cash Flow Per Share						1			**1**
Opertional Free Cash Flow Margin								1	**1**
Sustainable free cash flow						1		4	**5**
Ungeared Free Cash Flow						1			**1**
Grand Total	**18**	**43**	**17**	**5**	**9**	**78**	**8**	**81**	**259**

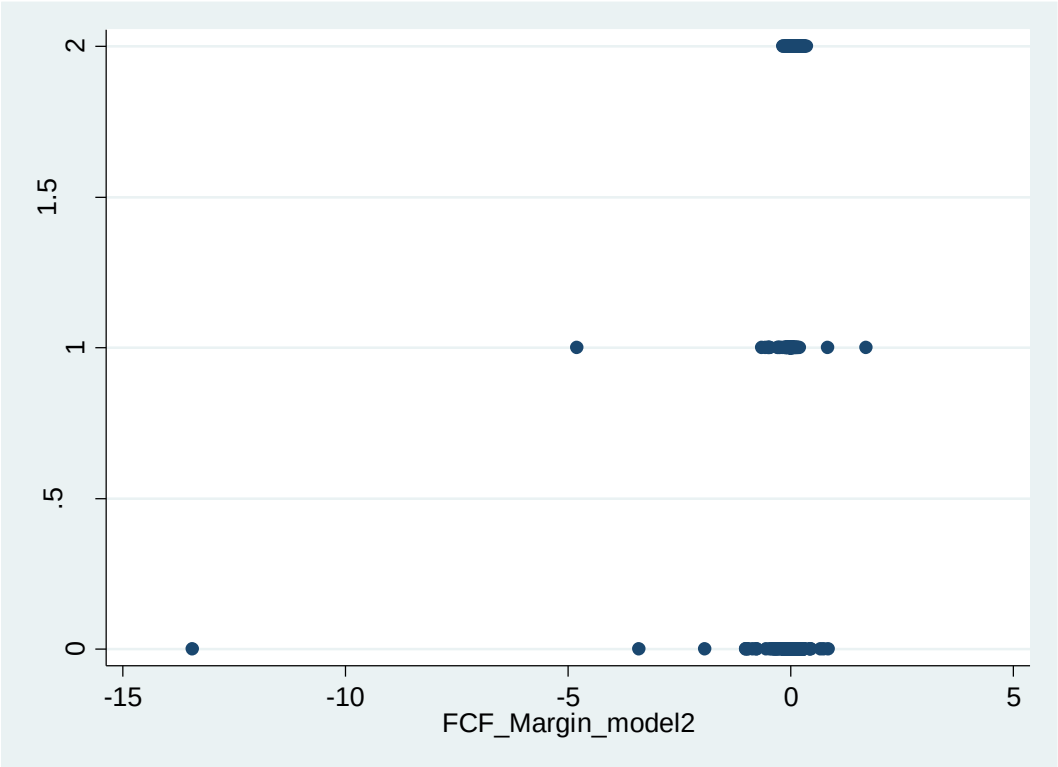
(Appendix 6: FCF disclosure detail 2-Per Sector)

FCF Disclosure 2	Communication Services	Consumer discretionary	Consumer Staples	Energy	Healthcare	Industrials	Information Technology	Materials	Grand Total
Business Growth		5							**5**
Capex Funding						1			**1**
Cash generation		1						13	**14**
Cash preservation								1	**1**
Cash profitability								1	**1**
Cash quality of earnings		1				7			**8**
Corporate actions (M&A)	1							2	**3**
Debt facility servicing		1				1		1	**3**
Dividend distribution								1	**1**
Driving growth					1			1	**2**
Environmental compliance								2	**2**
Finance performance								4	**4**
Financial Performance	2	5	5			4			**16**
Operational sustainability		2						1	**3**
Performance Measurement	6	2			3	18		9	**38**
Strategy and Risk Management		2							**2**
Valuation							1		**1**
Number of FCF disclosure details 2	**9**	**19**	**5**	**0**	**4**	**31**	**1**	**36**	**105**
Total number of observations	50	120	90	15	30	225	60	195	785
Sector disclosure proportion	**18,0%**	**15,8%**	**5,6%**	**0,0%**	**13,3%**	**13,8%**	**1,7%**	**18,5%**	**13,4%**

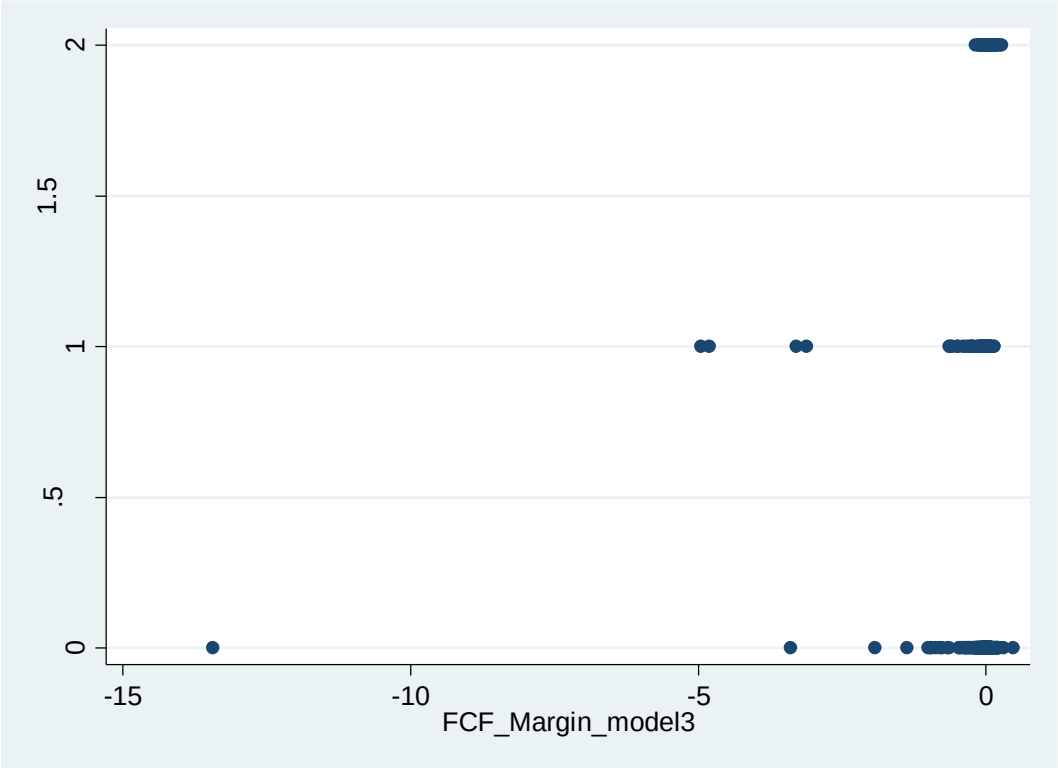
(Appendix 7: Scatter plot-FCFVD and FCF_Margin_model 1)



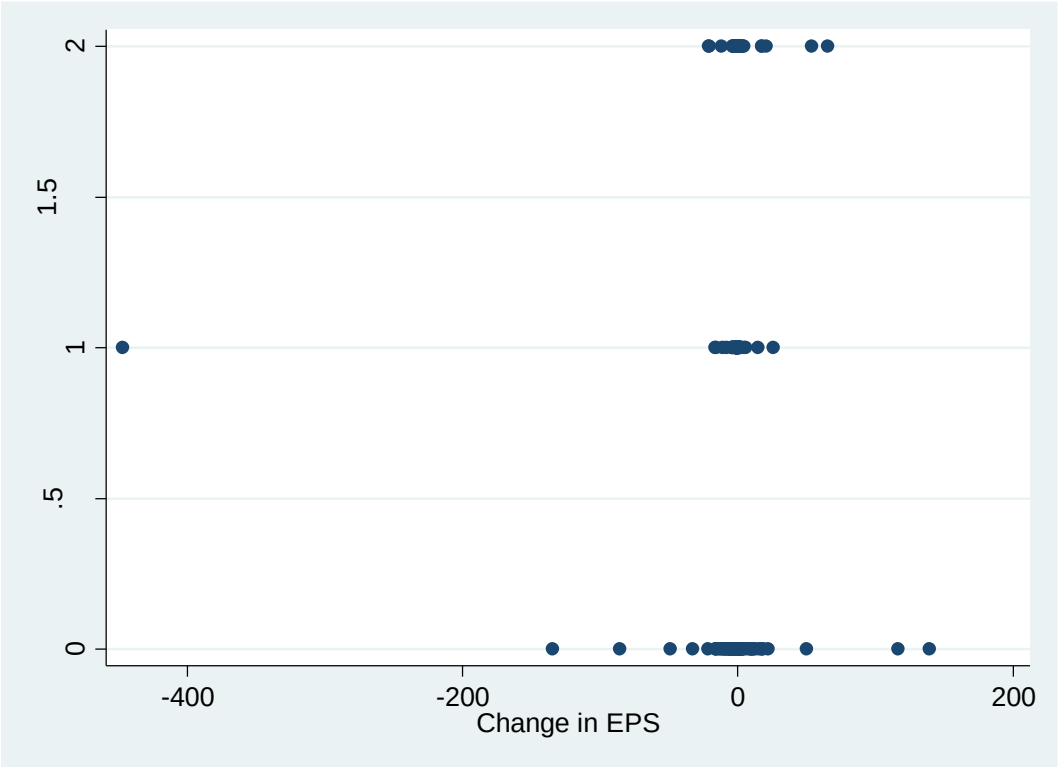
(Appendix 8: Scatter plots-FCFVD and FCF_Margin_model 2)



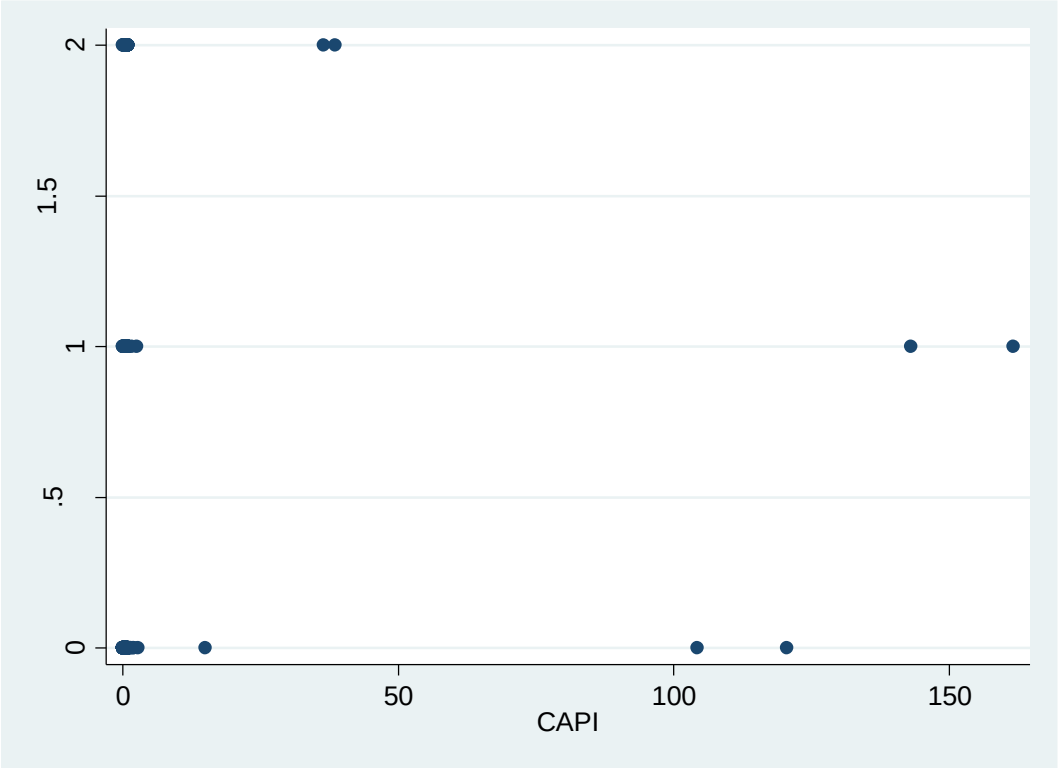
(Appendix 9: Scatter plots-FCFVD and FCF_Margin_model 3)



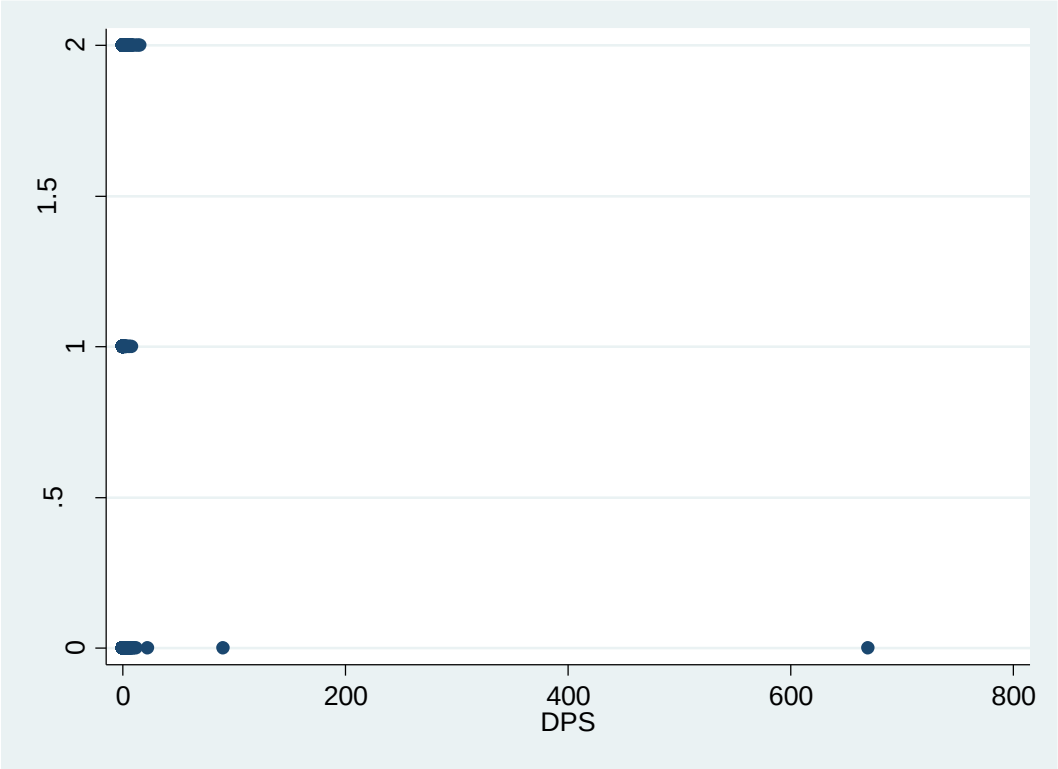
(Appendix 10: Scatter plots-FCFVD and Change in EPS)



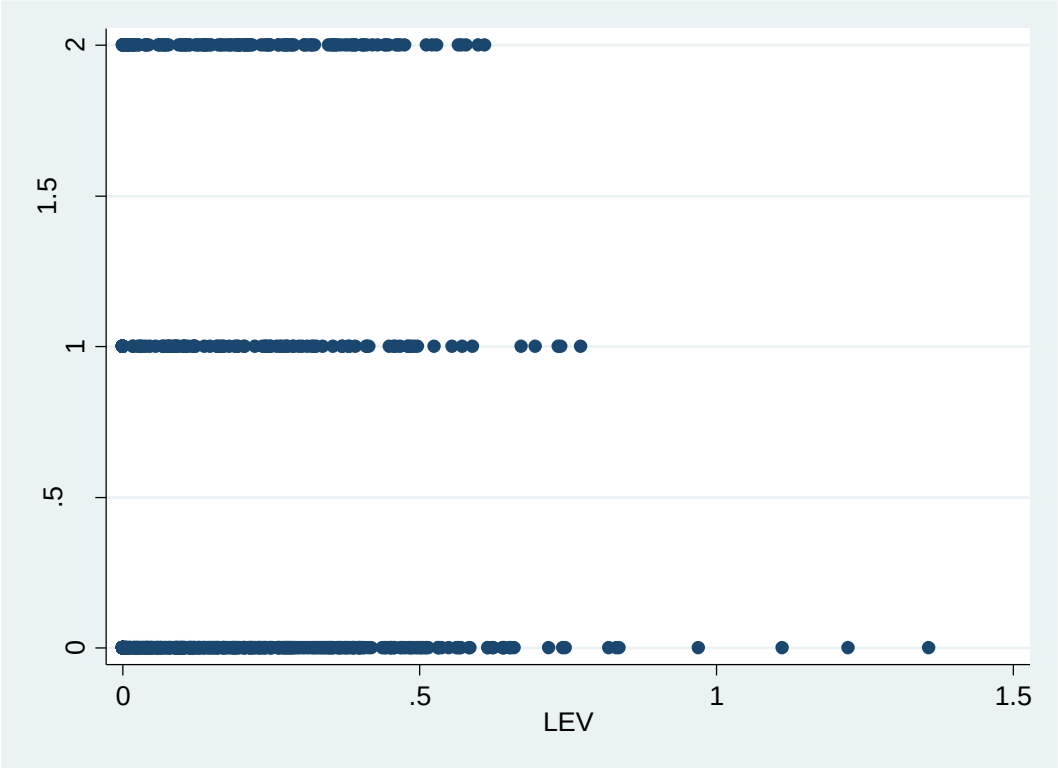
(Appendix 11: Scatter plots-FCFVD and CAPI)



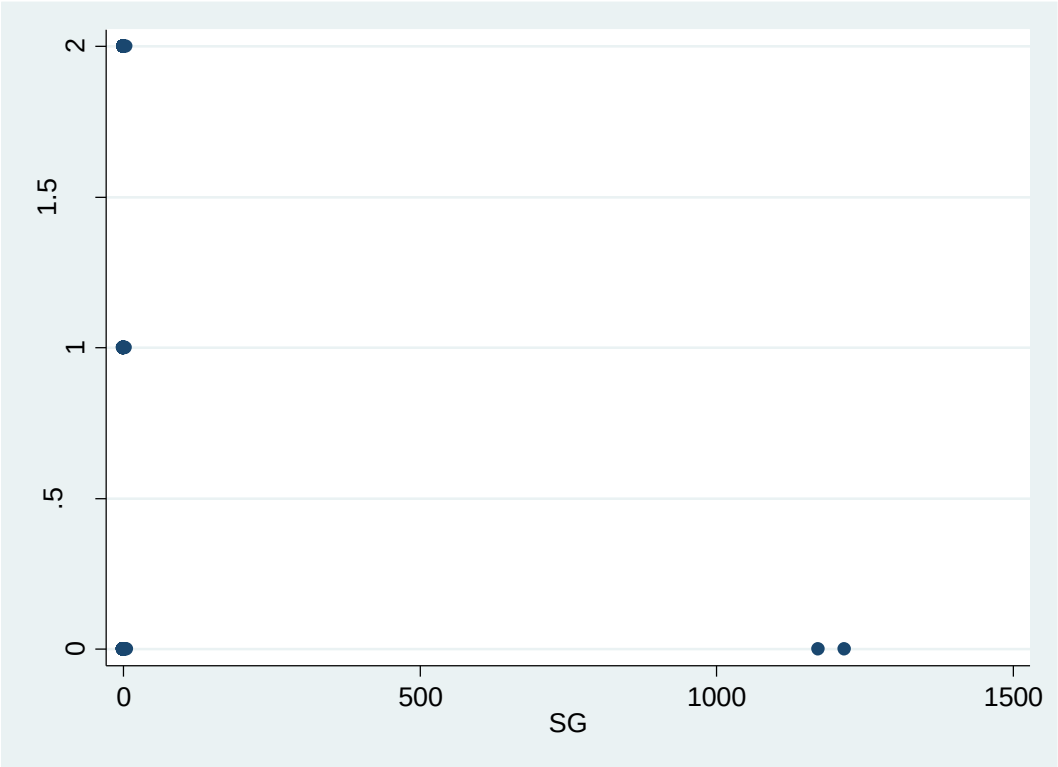
(Appendix 12: Scatter plots-FCFVD and DPS)



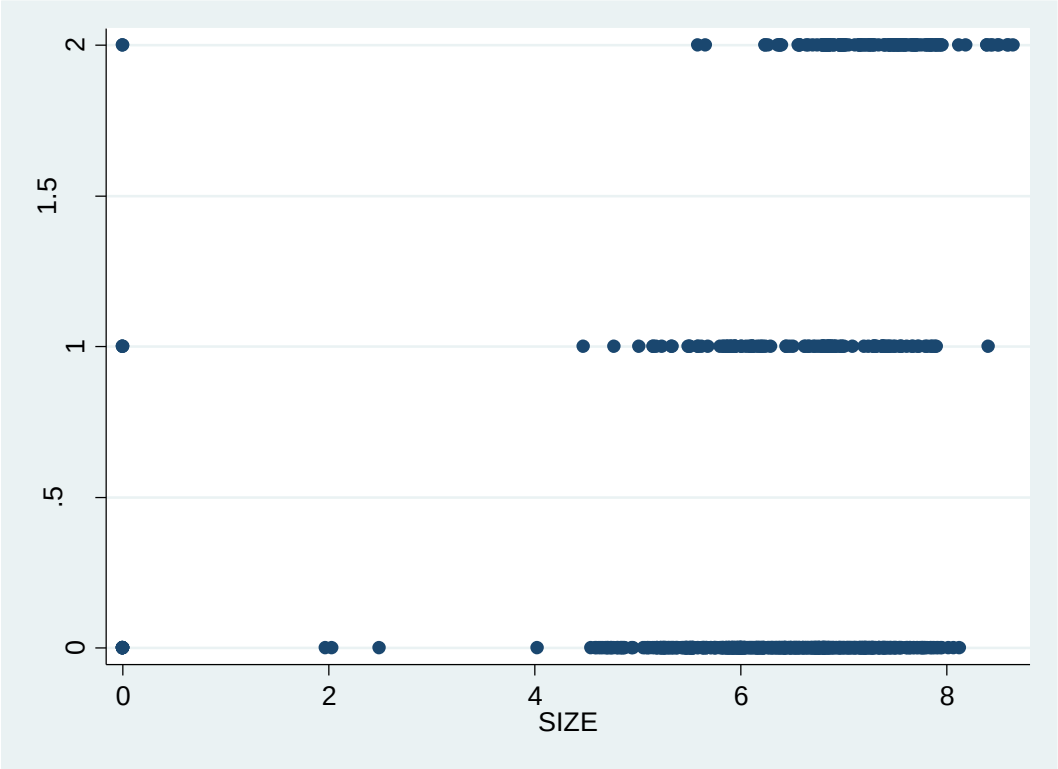
(Appendix 13: Scatter plots-FCFVD and LEV)



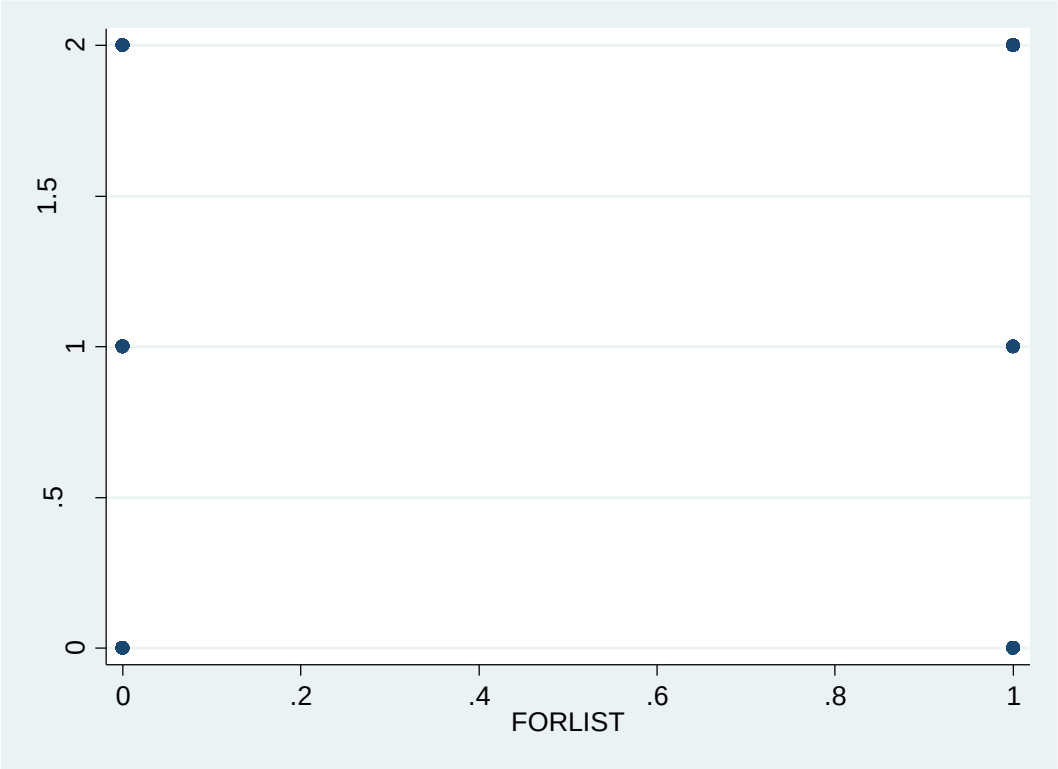
(Appendix 14: Scatter plot-FCFVD and SG)



(Appendix 15: Scatter plot-FCFVD and SIZE)



(Appendix 16: Scatter plot-FCFVD and FORLIST)

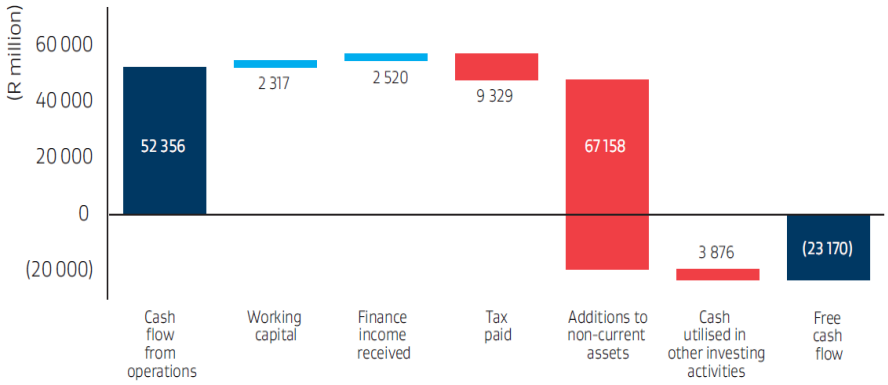


(Appendix 17: FCF Disclosure Example-Material Sector- Company)

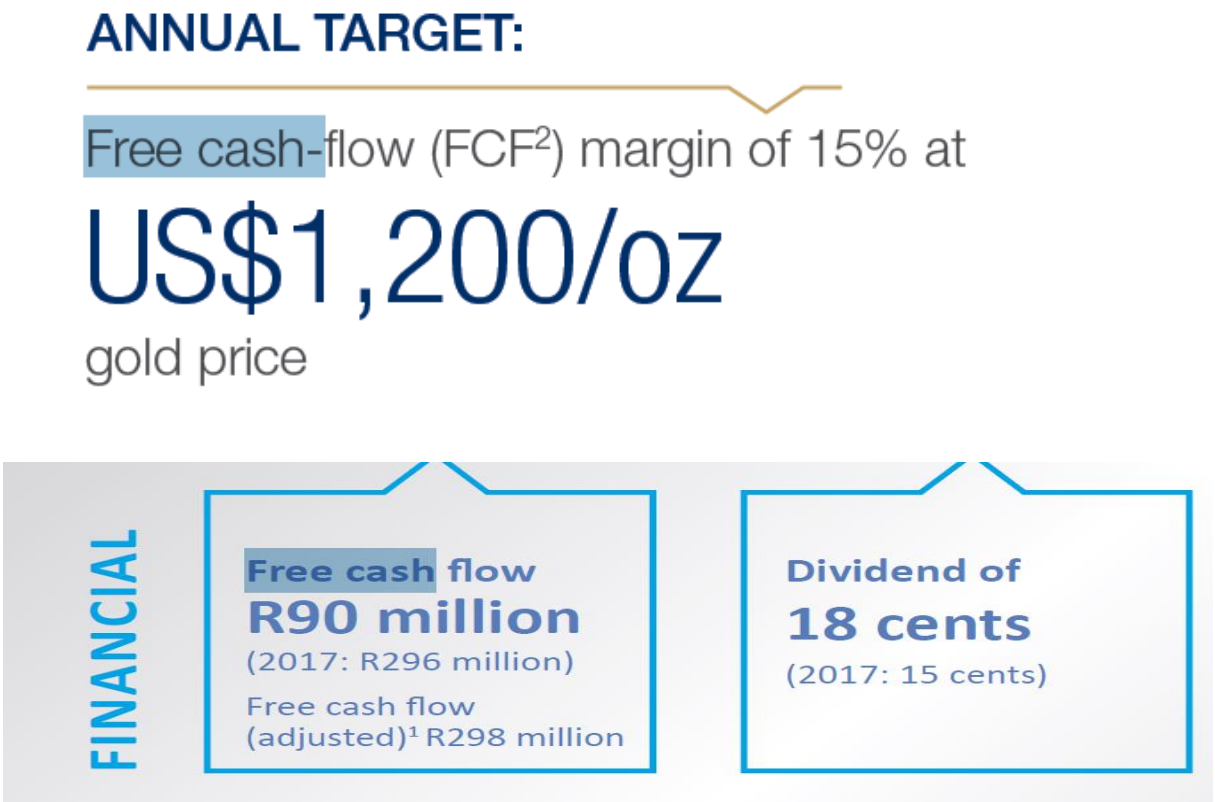
Our cash flow generation and utilisation

Cash generated by operating activities decreased by 12% to R54,7 billion compared with R61,8 billion in the prior year despite to an average 25% decrease in Rand oil prices. Our net cash position remained favourable and decreased marginally by 2%, from R53 billion in June 2015 to R52 billion as at 30 June 2016, driven largely by our cash conservation initiatives and the impact of the favourable rand/US dollar translation effect.

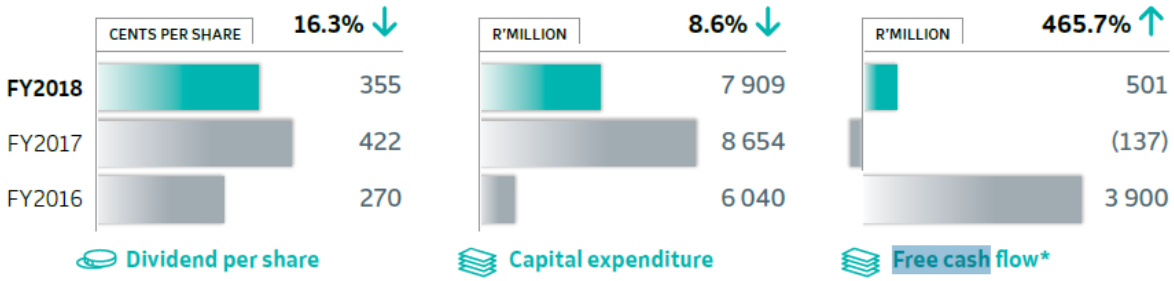
Free cash flow waterfall analysis



We had negative free cash flow of R23,2 billion in the year (2015: R13,7 billion positive free cash flow) mainly due to significant capital expenditure in the year of R70,4 billion. Free cash flow generation is one of the most important drivers of sustaining and increasing shareholder value.



(Appendix 18: FCF Disclosure Example –Communications Sector)



Free cash flow focus

The cost of access to financial capital has increased in line with macro-economic conditions and credit rating concerns. Our focus was therefore to maximise our internally generated free cash flow through the efficient allocation of capital, targeting our growth areas with a clear focus on working capital optimisation.

Company performance objective	Actual % achievement	Bonus multiplier %	Weighting %	Bonus multiplier %
Revenue	99	91	20	18
EBITDA	98	83	20	17
Net operating free cash flow	133	200	20	40
Group attributable earnings	109	187	20	37
Competitive performance~	110	200	20	40

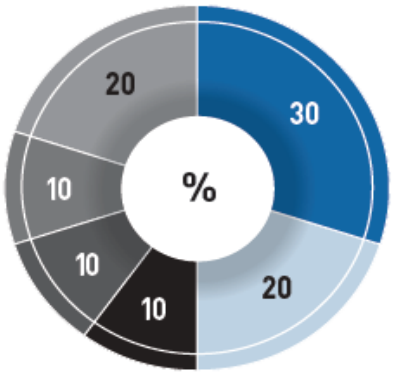
All objectives, financial and non-financial, were achieved. For the element to be considered for a bonus, the achievement against target needs to be greater or equal to 90% of target.

Adjusted free cash flow (AFCF)	Measured on a three-year CAGR calculated as the growth in the average AFCF in the three years preceding the measurement period (01/01/2014 to 31/12/2016) to the average AFCF during the three-year measurement period (01/01/2017 to 31/12/2019), using the following parameters: 100% vesting at 10% growth; 20% vesting at 6% growth; 0% vesting below 6% growth With a sliding scale between each point.	37,5% 50%	
Cumulative operating free cash flow (COFCF)²	Targeted at the sum of the budgeted OFCF established each year for the three-year measurement period: 25% vesting at 90% of the target; stretch of 100% vesting at 110% of the target; sliding scale between each point. Operating Free Cash Flow will be measured on constant currency.		25% 25%

(Appendix 19: FCF Disclosure Example –Industrials Sector)

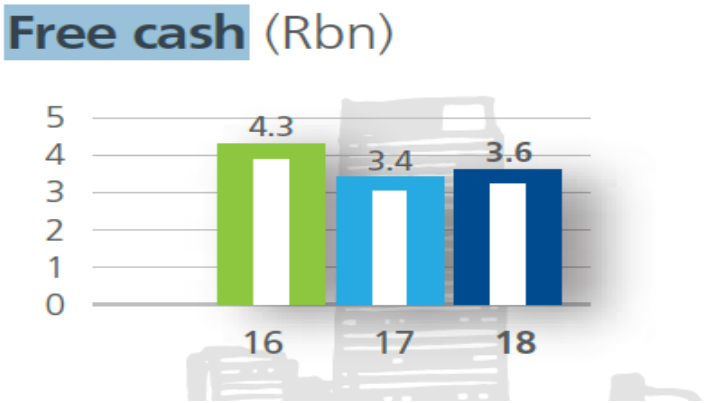
STI KEY PERFORMANCE AREA WEIGHTINGS

STI is calculated based on a number of performance criteria with certain weightings.



KEY PERFORMANCE AREAS WEIGHTING (%)

Profit before taxation	30
Free cash generated	20
Employment equity	10
Enterprise and supplier development	10
Safety	10
Individual performance	20



(Appendix 20: FCF Disclosure Example –Consumer discretionary Sector)

KEY PERFORMANCE INDICATORS

	2018	2017
Organic income (reduction)/growth	**(1%)**	2%
Organic Ebitdar (reduction)/growth	**(3%)**	1%
Free cash flow	**R1.9 billion**	R2.2 billion
Maintenance capital expenditure	**R675 million**	R925 million
Adjusted HEPS (reduction)/growth	**(5%)**	6%

Free cash flow — Cash generated from operations adjusted for net finance costs, taxation paid, operating equipment purchased and maintenance capital expenditure

GROWTH

The value of a business is the present value of the future cash flows that can be generated by the assets and other capitals utilised by that business. The only true measure of growth for our business therefore is its growth in free cash flow over time.

CE STI outcomes

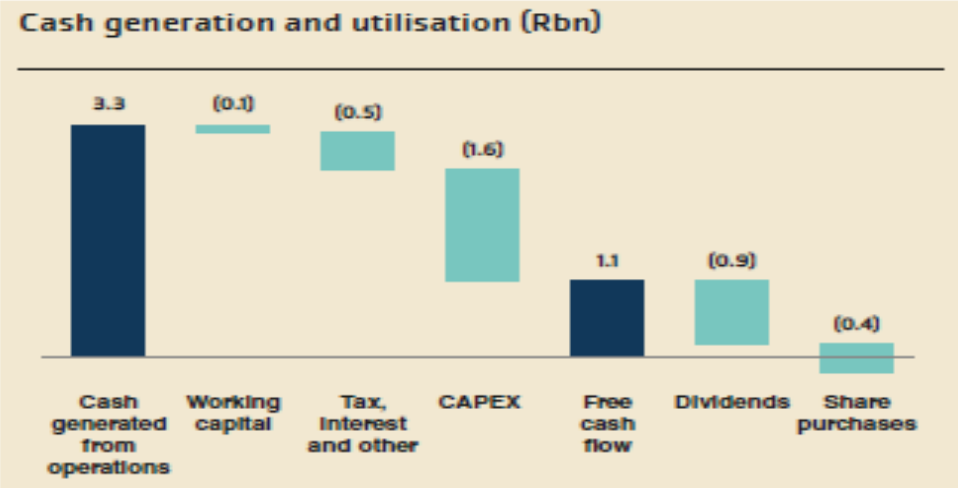
	Weighting	Achievement
Financial performance	70%	**Adjusted HEPS growth – threshold was not met,** resulting in a 0% score for this component of 35%, translating to a weighted score of 0% **Operating free cash flow – target was almost met,** resulting in a 98.1% score for this component of 35%, translating to a weighted score of 34.3%

(Appendix 20: FCF Disclosure Example –Consumer Staples Sector)

Liquidity					
Free cash flow (R'm)	1 539,2	1 091,9	782,9	709,3	970,1
Free cash flow per ordinary share (cents)	471,2	336,8	243,5	222,4	309,1
Net debt/capital employed (%)	19,8	22,9	24,1	23,4	7,6
Interest cover ratio	23,4	18,3	19,4	38,3	41,3

- **Free cash flow:**
  Cash available from operating activities and investments, less net capital expenditure.
- **Free cash flow per ordinary share:**
  Free cash flow for the year in cents divided by the weighted average number of ordinary shares in issue.

Cash generation and utilisation





(Appendix 20: FCF Disclosure Example –Energy Sector)

Our strategy is based on the following strategic themes:

- **Balancing our portfolio:** actively participating across the exploration and production value chain and diversifying the business into midstream and downstream activities.
- **Delivering a sustainable business:** optimising our operating assets and capital structure, and advancing our development and exploration assets while maintaining strong free cash flows.
- **Growing our portfolio:** expanding into more geographical locations and increasing operating positions.

CAPITAL MANAGEMENT

A new capital allocation framework was adopted in June 2018. In terms of the new framework, free cash flow generated will be prioritised per the diagram below.



(Appendix 21: FCF Disclosure Example –Healthcare Sector)

The valuations were performed using the free cash flow method (FCF). The FCF method values an entity based on the sum of the present values of the future cash flows from year one to five, with the exception of those investments with a limited project life, plus a discounted value in perpetuity where there is no term contract in place. The book value of net debt is deducted from this value to arrive at the the equity value of the investment. The future cash flows are discounted at the entity's blended weighted average cost of capital (WACC).

Indicator	Year-on-year trend	2018 R'm	2017 R'm
Growth			
Net debt:normalised EBITDA (ratio), debt covenant is <3.5	↑	2.73	2.55
Interest cover (ratio), debt covenant is >4.0	↑	5.71	4.22
Capital expenditure as percentage of revenue (%)	↑	9.6	8.0
Maintenance capital expenditure as percentage of revenue (%)	↓	3.7	4.0
Growth capital expenditure as percentage of revenue (%)	↑	5.8	4.0
Normalised EPS (cps)	↑	110.2	93.9
Normalised EPS excluding amortisation (cps)	↑	139.3	120.6
Dividend (cps)	↑	88.0	80.0
EBITA	↑	4 402	4 030
Free cash flow before transaction costs and non-recurring interest[1]	↑	2 373	1 928
Efficiency			
Cash generated from operations as percentage of EBITDA, target is >95%	↑	99.4	93.2
Normalised EBITDA margin (%)	↓	23.6	24.0

*** The Group Chief Executive Officer financial and personal measures comprise the following key performance areas:*

Financial	*Group*	*Group normalised earnings per share against budget*
		Group return on equity
	Southern Africa	*EBITDA delivered against budget*
		Free cash flow against budget
	Poland	*EBITDA delivered against budget*
		Improvement of EBITDA margin
Personal	*Group*	*Total growth in current and new business including complementary services*
		A number of strategic objectives aimed at improving growth, efficiency, quality and sustainability

(Appendix 22: FCF Disclosure Example –Information Technology Sector)

The recoverable amount of the investment is determined based on a free cash flow over a three year approved forecast period and a terminal value that has been discounted.

Growth rate

- Growth rate used to extrapolate cash flows during the three year forecast period is 10% – 25%.

The key assumptions used for the projection of cash flows are:

Assumption	Approach used in determining values
Compound annual growth rate (CAG%) of subscriber base	This is the average annual compound growth rate in the subscriber base that is derived from the forecast acquisition of new subscribers less cancellations ("churn") from year 1 (the budget period) through to year 5. Thereafter a terminal value has been calculated assuming a 3% per annum growth rate in net cash flow after year 5. The growth rate applied for the acquisition of new subscribers is considered to be the main driver of revenue, profitability and hence free cash flow. CGUs are at different maturity levels in their business cycles and hence will reflect considerably different growth rates; the various geographical markets the CGUs operate within also have differences in their economics which have been taken into consideration. The growth rate determined by management is based on historical data from both external and internal sources and is consistent with reported global Telematics growth forecasts for the medium to long term and with the assumptions that a market participant would make.

- a percentage of the excess free cash flow of the Megatron infrastructure division will be offered to Standard Bank as prepayment of the facility as follows:
  - if the capital balance outstanding is between R100 million and R50 million, 60% of the excess free cash flow will be offered to Standard Bank as prepayment of the facility; and
  - if the capital balance outstanding is less than R50 million, 50% of the excess free cash flow will be offered to Standard Bank as prepayment of the facility.

THE END