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Predictive Ability of Current Earnings and Cash flows

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ABSTRACT

This research investigated the ability of current earnings and cash flows to predict future cash flows and future share prices. The investigation was conducted used financial information of JSE listed companies over a period between 2001 and 2011. The objectives of the research were to establish the predictive ability of current earnings and cash flows on future cash flows and share prices. This study was motivated by the findings of Kim and Kross (2005) where they consolidated the earlier findings by Collins *et al.* (1997) and Dechow *et al*. (1998).

It was predetermined that the study would add to the body of knowledge in financial statements analysis and the application of earnings and cash flows as the predictive financial variables, Earnings are regarded as an essential measure of company of company's performance and cash flows from operations as a measure of the company's ability to generate cash flows from their operations. It was noted that investors do study and analyse these financial elements when investment decisions are made (Higgins, 2009; De Fond and Hung, 2003).

It was found that earnings did not have the predictive ability on future cash flows but proved to possess high predictive power over future share prices. The results were not in agreement with the previous studied on the same subject. The average of *R*-square on current earnings ability to predict future cash flows were R^2=0.27 and 0.38 in the long run and short run, respectively. The predictive ability on future share prices were R^2=0.44 and 0.54 in the long and short run, respectively. Current cash flows on the hand indicated low predictive ability on future share price where the average R^2=0.24 and 0.33 in the long and short run respectively. The predictive ability on current cash flows over future cash flows proved to be higher, which was not consistent with the previous researchers. The average R^2 were 0.44 and 0.46 in the long and short run. It was noted that these financial elements proved to possess higher predictive abilities in the short run.

Keywords: Earning, Cash flows; JSE Predictive, Regression analysis

DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

The name and the original signature of the student and the date should follow the declaration.

_____ _____

Percy Gumbi Date

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ABBREVIATIONS

CFO	Cash from operations
DM	Direct Method
EPS	Earnings per share
IFRS	International Financial Reporting Standards
IM	Indirect Method
JSE	Johannesburg Securities Exchange
P	Share Price

Chapter 1

Background and Research Problem

This chapter provides the background to the research project and presents the research problem, research objectives and scope for this study.

1. BACKGROUND AND RESEARCH PROBLEM

1.1 INTRODUCTION

This explanatory study investigates the ability of earnings and cash flows to predict future cash flows and future share prices of the Johannesburg Securities Exchange ('JSE') listed companies. The research project follows the study previously conducted by Kim and Kross (2005). Kim and Kross (2005) adapted two previous studies which were previously performed by Dechow, Kothari and Watts (1998); Collins, Maydew and Weiss (1997) and to certain extent incorporated the work performed by Barth, Carm and Nelson (2001). Dechow *et al.* (1998) studied the relationship between the earnings and future cash flows. Collins *et al.* (1997) performed a study on the relationship of earnings and book value and its predictability towards future share price of listed companies. Barth *et al.* (2001) disaggregated company earnings components into accruals and studied their ability to predict future cash flows. This study was a critique analysis of the work that had been previously performed by (Dechow *et al.,* 1998).

Kim and Kross (2005) concluded that current earnings are a better predictor of the future cash flows than the cash flows. The study went further to conclude that the relationship between the earnings and share prices increases in the short run and decline in the long term. On the other hand, Dechow *et al.* (1998) concluded that current earnings are better predictors of future cash flows; whereas cash flow from operations indicated a poor relationship.

1.2 RESEARCH PROBLEM

"Creditors and investors look to company **earnings** for help in answering two fundamental questions: how did the company **do last period** and how might **do in the future**?" (Higgins, 2009, p.15). Higgins (2009) questions the core reason for financial statements analysis as it is required by potential investors and future funders or creditors of the company. Banker, Huang and Natarajan (2009) concluded that accounting performance measures like earnings and cash flows are important and critical for both company valuation and for performance.

Earnings are the measurement of the company's performance during the period. They form a critical part in financial analysis of the financial statements and are used in computing cash flows from the operations of the company. Collins *et al.* (1997) points out that earnings and book values could be interchangeably applied in explaining the share prices.

Cash flows are derived from the Statement of Cash flows as required by the International Financial Reporting Standards (IFRS, 2010). Broome (2004) points out that it is important to evaluate net income (earnings) to assess the extent to which the company is able to generate its cash flows from its operating activities. He further argues that cash flows from operations are also applied in the financial analysis with a view of assessing company's short-term liquidity position.

The research problem resides within the financial analysis theory. The investors and creditors analyse the annual financial statements in order for them to invest or fund businesses. Allen and Cote (2005) argue that investors and creditors will analyse financial statements differently from one another as their objectives are different. Allen and Cote (2005) further point out that investors are the residual owners of the entity's equity and operating cash flows are the secondary concerns, whereas earnings are the their primary. On the other hand they point out that creditors view solvency (ability to pay short-term obligations) as primary and profitability (earnings measurement) being the secondary.

The assertions above clearly provide the dichotomy of the importance of earnings and cash flow in the financial analysis of the company financial information. The research will provide the basis whether earnings and/or cash flows have the ability to predict future cash flows within the South African context. As previously alluded to above, Kim and Kross (2005) performed the study that was done by Dechow *et al.* (1998) over a longer period and with more entities. The same study was further reviewed and analysed by Barth *et al.* (2001). Collins *et al.* (1997) study was also incorporated by Kim and Kross (2005) in studying the earnings relationship with the book value and future share price. Al-Attar and Husain (2004) conducted a similar study in the UK, where they adapted Dechow *et al.* (1998) and Barth *et al*. (2001) studies.

This study will add to the new knowledge in terms of understanding the behaviour of South African listed companies when it comes to their ability of their earnings and cash flow to predict future cash flows and share prices.

1.3 EARNINGS AND CASH FLOW

Higgins (2009) describes profit realised from day-to-day operations excluding taxes, interest income and expenses and what are known as extraordinary items. These earnings are normally referred to as earnings before, interest, tax, depreciation and amortization ('EBITDA'). For purposes of our study, we are going to apply EBITDA in our review and analysis.

Broome (2004) describes operating cash flows as those cash flows that are related to the corporation's operating activities (i.e. those activities reflected in the corporation's **income statement**). The cash flows from operating activities are derived from a section in the **statement of cash flows** in IFRS statement IAS 7. Below is a depiction of the income statement where EBITDA is derived from and applied in the derivation of cash from operations.

TABLE 1: EARNINGS-CASH FLOW RELATIONSHIP

Income statement	R	**Statement of cash flow**	**R**
Sales	**1000**	Profit before tax	**350**
Cost of sales	650	**Adjust for:**	
Gross profit	350	Depreciation and amortisation	150
Other income	100	Finance costs	50
Operating expenses	150	Dividends	(75)
Profit from operations	**300**	Tax paid	(50)
Finance costs	50		
Profit before profit	**350**	**Changes in Working Capital:**	20
Income tax expense	120	Changes in inventory	(25)
Profit for the period	**230**	Changes in trade and receivables	30
		Changes in trade and payables	15
		Cash flow from operations	**445**

IFRS further elaborates that cash flows from operating activities are primarily derived from the principal revenue-producing activities of the entity and generally result from the activities that generate entity's profit and/or losses (IFRS-IAS 7, para. 14). The point is clearly explained by the caption above.

The amount of R350 represents the performance results in terms of profits derived by the operations. The same amount is applied in the Statement of cash flows in determining the cash flows from the operating activities.

IFRS has two methods to compute cash from operations; they are direct and indirect methods. Graham and Whitfield (2010) alluded to the fact that IFRS recommends the use of the direct method as it is easy and simpler to apply and understand.

Cash flows from operations (CFO) are arrived at by taking the EBITDA and adjust for taxes, dividends and movements or changes in the working capital. As Finger (1994) correctly pointed out that there is a relationship between earnings and cash flows. This relationship is formalised by the accounting principles adopted through IFRS.

1.4 OBJECTIVES

The objectives of this research project are:

1.4.1 To investigate whether current year earnings can predict future cash flows;

1.4.2 To investigate whether current year cash flows can predict future cash flows;

1.4.3 To investigate which of the two variables; earnings or cash flows have a better predictability of future share price;

The population of this research will therefore be drawn from the JSE listed companies as their financial reports and annual financial statements are publicly available.

1.5 SCOPE OF THE RESEARCH PROBLEM

The scope of this research project is to assess which of the two variables, that is, earnings and cash flows, will better predict the future cash flows. These two financial variables are derived from the financial reports and annual financial statements which are prepared under the guidance of certain accounting principles.

The scope includes the period before the adoption of the IFRS and the period after. The data is drawn for the duration of eleven years, form 2001 to 2011, which includes the years prior and post formal adoption post of IFRS.

In conclusion, the analysis and valuation of the research problem and providing the basis of the research leads in further exploration what the previous authors and academics had written on this topic before. The theoretical basis are analysed and discussed in line with that of academic research standards.

Chapter 2

Literature Review

This chapter demonstrates research work that had been previously performed in other countries in understanding the relationship between earnings and cash flows, the review of the random walk models, further understanding the predictive capabilities of the two elements in relation to future cash flows and future market price.

2. LITERATURE REVIEW

2.1 INTRODUCTION

The previous chapter introduced the background and the purpose of this research project. The research project primarily focuses on the work performed by Kim and Ross (2005). This particular study incorporated findings by Dechow *et al.* (1998) and Collins *et al.* (1997). This research investigated the ability of earnings and cash flow to predict the future cash flow and future share prices of the JSE listed companies.

The literature review demonstrated the previous work conducted by other researchers on this topic. It revealed the historical reports that have informed the research by Kim and Kross (2005). The theory developed was aimed at assessing earnings ability to predict future cash flows and to review cash flows ability to predict future cash flows. Following Collins *et al.* (1997) study, as re-performed by Kim and Kross (2005) the study assessed the correlation between the earnings and book values in predicting future prices. The models were reviewed included the commonly known model, the random walk as it was further developed by Dechow *et al.* (1998) in assessing earnings ability to predict future cash flows.

2.2 EARNINGS ABILITY TO PREDICT FUTURE CASH FLOWS

This section began by reviewing the studies that were conducted by different researchers and scholars on this topic of earnings ability to predict future cash flows which led to Kim and Kross (2005) research report. Bowen, Burgstahler and Daley (1986) concluded that traditional measures of cash flows, being net income (earnings) plus depreciation and amortization and working capital from operations (as depicted on Table 1 above), are highly correlated with earnings. These findings were in response to their research question three of their research study: whether earnings or cash flow best predict future cash flow. A sample of 324 companies was selected where CFO (cash from operations) being a dependent variable and an independent variable, NIBEI (net income before extraordinary items and discontinued operations) indicated that they strongly correlated at r = 0.587 for a one period ahead forecasts and 0.600 for a two period ahead forecasts.

It was noted that WCFO (being Net Income before Depreciation and adjustments for 'other' elements of NIBEI) predicts future CFOs in both in the one-period ahead forecast and two-period ahead forecast at 0.434 and 0.425, respectively (Bowen *et al.*, 1986). These test results indicated that earnings had strong predictive abilities over future cash flows despite the decline.

The earlier findings by Bowen *et al*. (1986) were later confirmed by Charitou and Ketz (1990), where they conceded that operating earnings (denoted as "OPNI") and earnings before depreciation (denoted as "OPNIPD") and working capital from operations ("WCFO") correlated strongly with each other. The results were based on a sample of 70 companies in the retail industry and the regression tests were conducted from 1980 to 1983.

A further study analysing the longevity of the predictive nature of the earnings over cash flows was further performed by Finger (1994) where it was found that over a sample of 50 firms that earnings were better predictors of future cash flows over a longer period of time. The random walk model applied cash flow as a dependent variable and earnings being the predictor of future cash flows. The model was applied over a period of 8 years. The model applied both earnings and cash; in this case cash flow was dependent variable as noted here below:

$$CASH\ FLOW_t = \alpha + \sum_{i=1}^{N} \beta_i EARNINGS_{t-i} + \varphi_t$$

The overall findings confirmed yet again that earnings were better predictors of future cash flows with 93% of the sampled firms over all three lagged periods.

In line with the findings above, Dechow *et al.* (1998) concluded that earnings were better predictors of future cash flow than operating cash flows. The study took a random walk process which was very much aligned with the formal accounting process. The process applied reflected the depiction of an income statement almost similar to the one presented as an example in Table 1, above. The model assumed that earnings start with the generation of income – sales and deduction of all operating expenses. It also took into account the fact that some of the transactions were not on cash basis, that is, accrual accounting system. The generic model applied is as follows:

$$CF_t = \pi S_t - [\alpha + (1 - \pi)\gamma_1 - \beta(1 - \pi)]\varepsilon_t + \gamma_1(1 - \pi)[\beta + \gamma_2(1 - \beta)]\Delta\varepsilon_t + \beta\gamma_1\gamma_2(1 - \pi)\Delta\varepsilon_{t-1}.$$

However, this random walk model was sharply criticised for not including or taking into cognisance of the impact the long-term accruals had in predicting future cash flows as Dechow *et al.* (1998) focused only on the working capital accruals, Al-Attar and Husain (2004) and Barth *et al.* (2001) concluded that adequate evidence proved that there was a stronger explanatory power of future cash flows by earnings components which include, cash flows and accruals. Both Al-Attar and Husain (2004) and Barth *et al.* (2001) concluded that accruals when disintegrated had a better predictive power of future cash flows than earnings alone.

Earnings were found to be the best measure of the companies' performance, Higgins (2009) and Dechow *et al.* (1998). De Fond and Hung (2003) added that cash flows assist the market participants to assess the solvency and liquidity of a firm. They pointed out the fact that net income (earnings) was critical for any company to derive its cash flows from. Such elements are critical to market users for assessing the companies' current performance and its future ability to maintain or improve its performance. The observation complemented Higgins (2009) view that investors or shareholders were concerned about past performance and future operational capacity of the business.

Broome (2004) emphasised the importance of evaluating operating cash flows with net income in order to assess the current cash flows from net income. The observation suggested that net income was the primary source of companies' operating cash flows, of which invariably were earnings.

An integrated study by Kim and Kross (2005) observed more than 3 000 firms from 1973 to 2000 where it was found that earnings had a stronger explanatory power to predict future cash flows. This was evidenced by observing a relation between current earnings and future cash flows over a period of 28 years. The same observations were in line with Finger (1994), where she found that earnings were better and a significant predictor of future cash flows when observed over a long period of time.

The contemporaneous relationship between cash flow from Operations ("CFO") and Earnings provided that their correlation results to be r =0.76. This indicated a strong positive relationship. It was noted from the same study that the predictive ability of earnings over cash flows increased gradually over a period of time from 0.32 in the 1973 – 1982 periods to 0.54 in the 1992 – 2000 periods.

This further strengthened the earlier conclusion presented by Finger (1994) that earnings had a higher predictive ability on future cash flows over a period of time. The argument by Al-Attar and Hussain (2004) and Barth *et al.* (2001) against Dechow *et al.* (1998) random walk model was stronger after the consideration of two findings by Finger (1994) and Kim and Kross (2005). The random walk model was short term focused and did not take a long term impact of accruals for the determination of future cash flows. To emphasise the point, Kim and Kross (2005) records that Barth *et al.* (2001) in their study of the relationship between earnings components and future cash flow predictive capabilities, they disintegrated earnings into cash flows and six other major accrual components and run cross-sectional regressions of future operating cash flows on the current values of the seven earnings components over the 1987-1996 period. Barth *et al.* (2001) pointed out that the predictive ability of earnings over future cash flows was enhanced when elements of earnings were disaggregated into cash flow and accruals.

A warning was raised by Allen and Cote (2005) that earnings alone were not enough to predict future operational capacity of the firm. They further advanced the argument by pointing out that behind earnings; there could be high levels of obsolete inventory and unpaid accounts payable, which form part of the accruals. Although they did not discount the fact that earnings possessed high levels of future cash flows, but they were only cautioning that at times the earnings did not tell the full story about the companies' cash flow generating ability in the future.

The evidence presented above indicated that earnings had a strong predictive ability to predict future cash flows. However, Gruca and Rego (2005) disagreed with the findings of Dechow *et al.* (1998) that earnings had significant impact of the future cash flows of the company. The study focused on the impact that customer satisfaction would have on future cash flows and shareholder value of the companies selected as a sample where they adopted Dechow *et al.* (1998) random walk model and incorporated the customer satisfaction. The following the Variability Model as denoted below was applied:

$$\text{CF variability}_{(t+1)ij} = \pi_{0ij} + \pi_{1ij} \times \text{CF variability}_{(t)ij} + \pi_{2ij} \times \text{Earnings}_{(t)ij} + \pi_{3ij} \times \text{Satisfaction}_{(t)ij} + e_{tij}.$$

The *r*-results showed that for one period ahead, CF_{t+1} and current period, CF_t provided that regression results deteriorated with *r*=.114 and *r*=.143, respectively. These findings contradicted the earlier findings by Bowen *et al.* (1986); Dechow *et al.* (1998); Finger (1994), and Kim and Kross (2005) that earnings had a stronger predictive ability over future cash flow over a longer period of time. However, Gruca and Rego (2005) confirmed a stronger association between customer satisfaction and future cash flows. It was noted that Gruca and Rego (2005) research included smaller size public companies than that Dechow et al. (1998) sampled in their study.

A study over a period of 48 years by Givoly and Hayn (2000) found amongst that profit had become conservative and declining. They found the reasons for such decline was not the result of a change in the distribution of the underlying cash flows but the changes in the relationship between cash flows and earnings, which was a result of change in accounting accruals. The possible causes were, amongst other, the fact that manipulation of earnings by management had been declining and therefore a decline in the application of accruals to project positive profitability (Givoly & Hayn, 2000; Roychowdhury, 2003)

The earlier findings by Allen and Cote (2005) about the fact that earnings alone are not enough to predict future performance is complemented by Givoly and Hayn (2000) as they further pointed that operating cash flows presented complementary element in prediction of a company's future performance. They stated that some earnings include transitory accruals that did not persist in the future, like obsolete stock and irrecoverable debtors and mounting accounts payables. W.T. Grant was cited as a company that had continuously reported steady growth in earnings but filed for bankruptcy due to cash flow problems.

The accuracy of earnings was pointed out by Murdoch and Krause (2012) by arguing that matching of expenses and income improved earnings ability to predict future cash flows. In their argument, they further assessed the impact of inclusion of extraordinary items in the companies' earnings which was a warning about the principle of matching and the elimination of special items/extraordinary items, made a significant aspect of the study.

In their summation they concluded that "poor matching damages earnings' ability to forecast operating cash flows, it is also likely that removing the impact special items have on earnings will improve cash flow predictions" (Murdoch & Krause, 2012,p. 706)

The evidence presented above concluded that there was adequate support for earnings' ability to predict future cash flows. There were some exceptions that were noted, Allen and Cote (2005) and Gruca and Rego (2005), which were afforded as not significant adverse to the general findings.

It should be noted that cash flows from operations did not include extraordinary items and the cash flow prediction could be adversely skewed. The matching of expenditure and income impacts the recognition and reversal of future accruals; as noted from Barth *et al.* (2001), accruals were also significant predictors of future cash flows. Therefore the hypothesis tested is as follows:

H1: Current earnings have the ability to predict future cash flows

2.3 CASH FLOW ABILITY TO PREDICT FUTURE CASH FLOWS

"Cash flows help market participants assess firm viability by providing information about solvency and liquidity. Such information is potentially useful because even firms with strong earnings ultimately rely on cash to repay debt and purchase assets" De Fond and Hung (2002, p.75). The statement suggested that despite the strong earnings growth that the company reports on, it still requires cash for its growth and for going concern purposes. It was therefore important for financial information users and analysts to predict future cash flows by analysing the financial information

Bowen *et al.* (1986) and Finger (1994) concluded that cash flow strongly predicts future cash flows in shorter periods. Bowen *et al* (1986) performed a correlation of cash flows to future cash flows over one period ahead forecasts and two period ahead forecasts the regression results showed the r=.547 and r=.607, respectively. The results indicated a strong predictive ability of future cash flows by cash flows in a short run. Bowen *et al* (1986) also concluded that cash flow indicated very low correlations with other measures of cash flows.

Finger (1994) reiterated the earlier findings by Bowen *et al* (1986) that cash flow was slightly superior in the short run when compared to earnings (i.e. lags 1 -2). The observation was supported by the fact that cash flow was significant for 62% of the firms and while earnings were 54%.

Dechow *et al.* (1998) noted that earnings were actually current cash flows adjusted by accruals and this observation led to the conclusion that the accruals represented all the temporary cash flows. Table 1 above depicted the observations by Dechow *et al.* (1998). Broome (2004) and Roychowdhury (2003) cautioned that at times managers do manipulate earnings through accruals and the abuse of the accrual systems. Murdoch and Krause (2012) warned about the importance of matching income and expenses for the accuracy of the earnings as they were capable of predicting future cash flows. Al-Attar and Husain (2004) elaborated on matching principle as they confirmed that expenses that generated revenue should be recognised in the financial records in the same period.

The same principle follows the accrual system of accounting which allows the recognition of transactions as they occurred not when cash is exchanged (IFRS, 2010). The form of accounting principle gave rise to the accruals. Allen and Cote (2005) also warned that not all accruals reverse into future cash flows.

Kim and Kross' (2005) conclusion was in line with both Bowen *et al* (1986) and Finger (1994) that cash flows' ability to explain future cash flows was stronger in the first 2 and 3 sub-periods in a sample of 28 year period.

De Fond and Hung (2003) argued that analysts resort to cash flow forecasts when circumstances indicate that earnings alone are not sufficient during the periods of high earnings volatility. Allen and Cote (2005) made a reference to Barth *et al*., (2001) that of the two components between earnings, cash flow and accruals, cash flow is still stronger in predicting future performance.

Orpurt and Zang (2007) provided that the format of the Statement of cash flows provided different predictive capabilities of future cash flows. Graham and Whitfield (2010) alluded to the two formats of cash flow statements, being Direct and Indirect methods. Statements of Cash Flows adapted from Broome (2004), Table 2 – Direct Method and Table 3-Indirect Method.

FIGURE 1: DIRECT METHOD OF STATEMENT OF CASH FLOWS (ADAPTED FROM BROOME, 2004)

Statement of Cash flows **Direct Method**	
Cash flows - operating activties	
Receiveables from customers	1,158,500
Less:	
Inventory acquired	(614,900)
Selling and administrative expenses	(318,100)
Interest	(67,200)
Income taxes	(18,000)
Net cash received operating activities	**140,300**
Cash flows - investing activities	
Increase in investment securities	(50,000)
Increase in equipment	(30,000)
Net cash used by investing activities	**(80,000)**
Cash flows - financing activities	
Decrease in note payable	(41,000)
Proceeds from bank loan	50,000
Net cash received from financing activities	**9,000**
Net increase in cash	69,300
cash at beginning of year	179,600
Cash at end of the year	**248,900**

The direct method (DM), illustrated in Table 2 above, presented separate categories of cash inflows and cash out-flows (e.g. cash collected from customers and cash paid to suppliers), with the difference reported as net cash flow from operations. It also noted that investors and analysts prefer a direct method as it presented major categories of cash inflows and out-flows, whereas the indirect method only reconciled net income to operating cash flow (Broome, 2004).

FIGURE 2: INDIRECT METHOD OF STATEMENT OF CASH FLOWS (ADAPTED FROM BROOME, 2004)

Statement of Cash flows **Indirect Method**	
Net Income	54,000
Adjustments to reconcile net income to cash flow:	
Bad debts expense	8,000
Depreciation expense	72,000
Amortisation expense	25,000
Unearned revenue	12,100
Change in accounts payable	(35,600)
Change in inventories	(5,000)
Change in accounts payable	2,000
Change in taxes payable	4,900
Change in interest payable	(14,700)
Change in accrued pension liability	17,600
Net cash received from operating activities	**140,300**
Cash flows - investing activities	
Increase in investment securities	(50,000)
Increase in equipment	(30,000)
Net cash used by investing activities	**(80,000)**
Cash flows - financing activities	
Decrease in note payable	(41,000)
Proceeds from bank loan	50,000
Net cash received from financing activities	**9,000**
Net increase in cash	69,300
cash at beginning of year	179,600
Cash at end of the year	**248,900**

The indirect method, shown above, is essentially a reconciliation of the net income reported in the income statement with the cash flow from operations. The adjustments should include the non-cash items reflected in the income statement (e.g. depreciation expense and accrued salaries expense) plus operating cash inflows and outflows for the period that were not included in the income statement (e.g. collections of amounts owed by customers from sales of prior periods and payments of expenses in advance of their recognition in the income statement). Broome (2004) articulated that 90 percent of the corporations presented indirect method when preparing for the statement of cash flow.

The reasons for the choice is simplicity as previously stated by Graham and Whitfield (2010), however reconciliation of net income and accruals provided cash flow from operations (Broome, 2004). An example of such reconciliation is presented in Figure 1 above.

Applying Orpurt and Zang's (2007) model on Direct Method, which started as simple regression model where CFO_t which is cash flow from operations in the current year and CFO_{t-1} being future or following year's cash flow from operations. The model is presented here below:

$$CFO_t = a_t + b_1 CFO_{t-1} + \varepsilon_t$$

The model was later amplified to incorporate other elements that impacted cash flow from operating activities. The model incorporated the elements of the Statement of Cash flow applying the Direct Method, being cash collected from customers, cash paid out to suppliers and employees and incorporated tax, interest and other to be payable items. The model was developed and presented here below in following format:

$$CFO_t = a_t + b_1 C\_sales_{t-1} + b_2 C\_supem_{t-1} + b_3 D\_tax_{t-1} + b_4 D\_int_{t-1} + b_5 C\_other_{t-1} + \varepsilon_t$$

Where:

C_sales $_{t-1}$ – estimated cash from customers

C_*supem* $_{t-1}$ - estimated cash paid to suppliers and employees

D_*tax* $_{t-1}$ – tax payments

D_*int* $_{t-1}$ – interest payment

The findings concluded that decomposing Cash Flow from Operations (CFO) into estimated Direct Method (DM) components improved the explanatory power to predict future cash flows, which improved from r = .4254 to r = .4453. The findings appeared to be in line with the ones by Al-Attar and Husain (2004) and Barth *et al*. (2001) in stating that accruals had a better predictive ability over future cash flows. Orpurt and Zang (2007) further articulated that "the inclusion of articulation errors from estimates of DM components in CFO prediction models, predictions of future CFO improve.

The improvement occurs whether income statement and either IM statement of cash flows data or balance sheet data are used to estimate DM components" (p. 30). It was evident that future cash flow predictions would not be possible without taking into account the accruals.

In conclusion, cash flows possessed stronger predictive ability over future cash flows in the short run. In order to achieve accurate future cash flows, accurate computation and measurement of earnings and accruals are imperative.

H2: Current year's cash flows from operations have the ability to predict future cash flows

2.4 EARNINGS AND CASH FLOWS AS PREDICTORS OF FUTURE SHARE PRICE

Charitou and Ketz (1990) argued that there was some consensus that share prices were related to the future cash flows of the firms and reiterated that there remains some controversy and confusion to the ex post earnings and cash flow measures in signalling share prices. The argument presented required a further exploration as to the significance of earnings and cash flow in the prediction of future share price.

2.4.1 EARNINGS AS THE PREDICTOR OF FUTURE SHARE PRICE

Bandyopadhyay, Chen, Huang and Jha (2010) reiterated the findings by Collins *et al*, (1997) where earnings were found to be no longer useful in explaining contemporaneous relationship with share prices due to the declining relationship over time.

The conclusion by Collins *et al*. (1997) was a result of the incremental regression relation of earnings for explaining share prices over book values declined from 30 percent during 1953 – 1962 whereas the findings of Kim and Kross (2005) showed a further deterioration to 5.7 percent for the period from 1983 to 1993.

Earnings on the other hand indicated high predictive power on the future cash flows (Kim & Kross, 2005). Bandyopadhyay *et al*. (2010) argued that share price represented the present value of future cash flows and a logical thing that could have occurred was for earnings to indicate contemporaneous relationship with the share prices. Bandyopadhyay *et al* (2010) investigated further the possible causes of the decline of the contemporaneous relationship between earnings and share price over time where they concluded that the conservative accounting principles that

had been implemented over a period of time had resulted in earnings being conservative as a result; they became irrelevant in predicting future share prices. The findings raised more questions when referred to Collins *et al*. (1997) findings where over a research over a period of 41 years was conducted ranging from 1953 to 1993 and the model included the price which was expressed as a function of both earnings and book value of equity. The explanatory power was further decomposed into three components being: (1) the incremental power of earnings; (2) the incremental power of book values, and (3) the explanatory power common to both earnings and book values. The following models were applied and regressed separately as follows:

$$\boldsymbol{P_{it} = \alpha_{0t} + \alpha_{1t} E_{it} + \alpha_{2t} BV_{it} + \varepsilon_{it}} \quad [7]$$

$$\boldsymbol{P_{it} = \beta_{0t} + \beta_{1t} E_{it} + \varepsilon_{it}} \quad [8]$$

And

$$\boldsymbol{P_{it} = \chi_{0t} + \chi_{1t} BV_{it} + \varepsilon_{it}} \quad [9]$$

The *BV* was the book value per share of firm *I* at year-end *t*. *P* was the price of a share of firm *I* three months after year-end *t*. *E* was the earnings per share of firm *I* for year *t*.

Earnings and book values positively correlated with each other. However, the cross-sectional regression of price to earnings deteriorated from $r = 0.299$ in the years from 1953 to 1962; in the period from 1983 to 1993 the results indicated $r = 0.070$. The regressions correlation between the price and book value increased over the period of time. The results indicated $r = 0.004$ (1953 to 1962) to $r = 0.186$ (1983 to 1993).

Bandyopadhyay's *et al*. (2010) conclusion could be further explored given the era when their data was drawn is different from Collins *et al*. (1997) and Kim and Kross (2005) but the results were the same. The latter (2005) conducted similar study in a different era but arrived at the same conclusion to that of Collins *et al* (1997), given the fact that the new accounting principles had been introduced gradually over a period of time (Reidl, 2010). Conservatism in accounting principles had produced high quality earnings (Penman & Zhang, 2002). Their findings further concluded that conservatism produced lower earnings but higher quality. High quality of earnings defined as: "reported earnings, before extraordinary items that are readily identified on

the income statement, is of good quality if it is a good indicator of future earnings" (Penman & Zhang, 2002, p.237).

Hecht and Vuolteenaho (2006) concluded that there was a low correlation between stock returns and earnings. These findings suggested that earnings had little impact on the future share price. Bali, Demirtas and Tehranian (2008) argued that aggregated earnings yield provide little or no forecasting power for aggregate share returns. They also found that earnings positively correlated with business conditions and negatively correlated with expected returns.

Billings and Morton (2001) found that their investigation of the book-to-market's ability to predict future earnings was low. The tests conducted included short term which was one year ahead forecast (*t+1*), two-year forecast (*t+2*) and long term (*lgt*). The correlation results indicated r = 0.271 (short-term), r = 0.270 (two year ahead forecast) and r=0.255 in the long term. The results indicated a very low correlation between the book-to-market and future earnings. The reverse had proven to be the case given the findings that had been cited above that the relationship between share price and earnings is low.

In contrary to what had been established above, Penman and Zhang (2002) concluded that quality of earnings scored incrementally in predicting future stock returns, before transaction costs, over the 1976 to 1995 of 38 450 sample of NYSE listed firms. However, this was concluded after controlling measures commonly estimated as risk proxies, and after controlling for growth in net operating assets (investments) and for accruals. A similar observation was conveyed by Ryan and Zarowin (2003) that earnings had a weaker association with current price changes and a stronger association with lagged price changes over a period of time.

These two contrasting views presented a motivation for further investigations as to whether earnings had the ability to predict future share prices. Therefore, the hypothesis test is concluded to be:

H3: Current earnings have the ability to predict future share price

2.4.2 CASH FLOW AS THE PREDICTOR OF FUTURE SHARE PRICE

Dontoh, Radhakrishnan and Ronen (2007) in their comparison of share price and accounting data found that the association had been declining. Accounting data in this case was represented by cash flow from operations (CFO). The poor association was attributed to the possible "noises" in the market which had landed to such a low relations. DeFond and Huang (2003) took a view that cash flow forecasts depended on the accounting, operating and financing characteristics that determine the extent of the usefulness of cash flow and earnings and firm future operating capabilities. Therefore, it was concluded that accounting data, cash flow from operations in particular, are important in determining the future viability of the firm which impact the future share price.

Platt, Demirkan and Platt (2010) questioned whether the discounted future cash flows resulted into company value. It was noted that to predict future value of the company, future estimated cash flows should have been sorted. Kaplan and Rubeck (1994) argued that there was no evidence that discounted cash flows provide a reliable estimate of market value or share prices. There were other factors that contributed to the company value. Gruca and Rego (2005) inferred that customer satisfaction resulted in shareholder value being increased and consequently improved cash flows. It could be argued whether shareholder value and firm value were the same. Charitou and Ketz (1990) noted that the share price was determined by the cash flows of the firm discounted by a discounting factor which considers the time value of money and adjusted for riskiness in the market. And this could be achieved where estimated future cash flows were used in estimating company value by discounting estimated future cash flows. This computation is performed by estimating free cash flow (FCF) which is normally EBITDA adjusted by accruals (Platt *et al*., 2010).

Hecht and Vuolteenaho (2006) found that correlations between cash flow proxies with one period expected returns, cash-flow news and expected returns news explained expected returns well. Cohen, Gompers and Vuolteenaho (2002) found that cash-flow news were a single measure of the change in the permanent component of the share price.

From the evidence presented by the scholars above, it could be concluded that investors acquire shares with a view of future returns and future cash flows anticipation, therefore any news that indicated future cash flows could result in shares being acquired. But this did not provide conclusive evidence that cash flow had the ability to predict future share prices.

Choy and Sais (2012) argued that strong financial information had some predictive ability over future share price. They argued that investors would acquire shares of companies with strong financial condition as they were perceived as undervalued. A strong financial condition would naturally incorporate publicly available data which include the statement of cash flow. Cohen and Kudryadstev (2012) found that investment in shares was influenced by expectations, past experience in the capital market, and knowledge about the past performance of selected market indices. Again, it could be argued that past cash flow generation propensity could positively impact investors' decision to acquire the shares. It was also considered that from a generally known economics phenomenon that share prices are also influenced amongst other things, by the demand and supply.

Kim and Kross (2005) found that the contemporaneous relationship between price and cash flows showed a declining trend. The explanatory power of cash flow over price for the period, 1973 to 1982 recorded at 10.8%, period 1983 – 1991 indicated 9.6% and the period between 1992 and 2000 showed a further decline to 7.9%. A similar decline was noted between price and accruals where the correlation declined from 9.1% to 6.0 to the lowest of 5.6% within the same period as above.

The findings above strongly indicated that cash flow had no direct ability to predict future share prices. Cash flow was embedded in the corporate earnings and therefore investors and analysts relied heavily on reported performance (Banker *et al.*, 2009).

The arguments advanced by Orpurt and Zang (2007) the DM type of Statement of Cash Flow had a more predictive power of future cash flows and earnings; it also provided that accruals on the face of it did not provide same predictive ability for future share prices.

The company valuation techniques like the Free Cash Flow method, which relied on estimated future cash flows could not provide evidence that they were able to predict future share prices due to the so called noises and riskiness in the market, changes in growth and changes in persistence of earnings (Charitou & Ketz, 1990; Kaplan & Rubeck 1994; Kim & Kross, 2005 and Platt *et al*. 2010)

H4: Current year's cash flows have the ability to predict future share prices

2.5 THE MODELS

2.5.1 BACKGROUND

In chapter 1 the key objectives of the research project were presented to be:

- The assessment of the predictive ability of current year earnings over future cash flows of JSE listed companies in the short and long term;
- The assessment of the predictive ability of current year cash flows over future cash flows of the JSE listed companies in the short and long term; and
- The assessment which of the two variables, earnings or cash flows are better predictor of future market share price both in short and long term

Previous researchers, scholars and writers on this similar research projects had applied models to assess the predictive abilities of one variable over the other. This section of this chapter discussed and assessed different types of models that assisted in evaluating the information and presented the appropriate outcomes.

The following matrix was below clarified which model was used and how it linked to the research objectives.

TABLE 2: MODEL-OBJECTIVE MATRIX

#	Researchers	Purpose of the Model	Research Objective
1.	Bowen *et al*. (1986); Finger (1994), Dechow *et al*. (1998) and Kim and Kross (2005); Murdoch and Krause (2012)	To investigate the ability of current earnings to predict future cash flows	**Objective 1**: Predictive ability of prior earnings to predict future cash flows
2.	Bowen *et al*. (1986); Finger (1994), Dechow *et al*. (1998) and Kim and Kross (2005); Orpurt and Zang (2007).	To investigate the ability of current cash flow to predict future cash flow	**Objective 2**: Predictive ability of prior cash flows to predict future cash flows.
3.	Collins *et al*. (1997) and Kim and Kross (2005)	To assess the ability of current earnings to predict future share price(s)	**Objective 3**: Predictive power of earnings over future cash price.

4.	Kim and Kross (2005)	To assess the ability of current cash flow to predict future share price(s)	**Objective 4**: Predictive power of cash flows over future share price(s)

2.5.2 CURRENT YEAR EARNINGS ABILITY TO PREDICT FUTURE CASH FLOW MODELS

The matrix above presented that quite a number of researchers on this area of study. For purposes of this study, Dechow *et al* (1998) and Kim and Kross (2005) appeared to be appropriate and as such were further discussed. It was noted that Kim and Kross (2005) adopted the random walk process which had been previously applied by Dechow *et al* (1998). For purposes of this research study Kim and Kross' (2005) watered-down model was applied.

A simple accounting equation was adopted as the foundational start for the development of the model. As previously alluded, the model was adopted from Dechow *et al* (1998).

CFO = income before depreciation – interest expense

+ Interest revenue – taxes ΔWC [1]

Where;

ΔWC = the changes in receivables (AR), inventory, taxes payable, other (INV), and other current assets (OCA) minus the changes in accounts payable (AP), taxes payable (TP), other current liabilities (OCL), and deferred taxes (DEFTAX)

The computation of CFO above represents the depiction of an Indirect Method of the Statement of Cash Flows (Broome, 2004). The formula was developed further to allow a cross-sectional regression

$$CFO_{it+1} = a_0 + a_1 CFO_{it} + a_2 E_{it} + f_{it} \quad [2]$$

This model used firm-specific time-series data, where it was used to analyse data cross-sectionally for each year. In the context of this model, $a_2 = 0$ if earnings added nothing to the relationship between future and contemporaneous cash flows (which was equivalent to saying that the accrual component of earnings had no incremental explanatory power).

An $a_2 > 0$ indicated that earnings were incrementally useful, beyond CFO_{it}, in explaining future cash flows. With CFO_{it} already included in the model, the incremental explanatory power was derived through the use of accounting accruals. If $a_1 = 0$, then contemporaneous cash flows added no explanatory power beyond their contribution to earnings. An $a_1 > 0$ indicated that cash flow had incremental explanatory power beyond earnings. The change was evaluated in the relationship between current earnings and future cash flows by examining the trend in the a_2 coefficient over time. If earnings had a decreasing or increasing relationship with future cash flows over time, then the a_2 coefficient should have been decreasing or increasing over time.

Equation 2 was further decomposed and conducted regression analyses applying CFO_{it} and E_{it} separately. Thus,

$$\boldsymbol{CFO_{it+1} = b_0 + b_1 CFO_{it} + g_{it}} \qquad [3]$$

which stripped the earnings equation [2], and

$$\boldsymbol{CFO_{it+1} = c_0 + c_1 E_{it} + h_{it}} \qquad [4]$$

which stripped the cash flows from equation [2].

The incremental power of current earnings to explain CFO_{it+1} was $\boldsymbol{R^2_2 - R^2_3 = R^2_E}$. The incremental explanatory power of operating cash flows (CFO_{it}) to explain CFO_{it+1} was $R^2_2 - R^2_4 = R^2_{CFO}$ at 1% confidence. The average coefficient estimates and *t*-statistics when one-year-ahead CFO was regressed on contemporaneous CFO and earnings (equation [2]). For all time periods, the coefficients were positive for both contemporaneous cash flows (CFO_{it}), and earnings. This meant that each variable had significant incremental explanatory power for future cash flows. The average coefficient on earnings over the entire sample period was 0.43, which was highly significant ($t = 20.39$). The average coefficient on contemporaneous CFO is 0.23 over the entire sample period, was also highly significant ($t = 13.33$). The findings further indicated that the coefficient magnitudes lie between those reported by (Barth *et al.*, 2001) (0.38 on CFO and 0.22 on E) and (Dechow *et al.*, 1998) (0.07 on CFO and 0.45 on E). it was noted that the coefficient on earnings was increasing in magnitude steadily over time, going from 0.32 in the 1973-1982 period to 0.54 in the 1992- 2000 period. In contrast, the coefficient on contemporaneous CFO changes little over time, going from 0.22 in the 1973-1982 period, to 0.26 over the 1992-2000 period.

The fact that the coefficient on earnings increased over time suggested that the relationship between earnings and one-year-ahead cash flows was increasing. Kim and Kross (2005) further reported that average annual R^2 of the models relating CFO in period *t+1* with current period earnings and/or cash flows. The evidence revealed that earnings (E) in the model, for the full sample indicated a gradual increase in the power of earnings to explain future cash flows. Earnings explained 12.8% of the cross-sectional variation of one-period-ahead cash flows during the 1973-1982 period. This explanatory power increased to 34.1% over the 1983-1991 period and 52.8% during 1992-2000. The *t*-statistic on the ***YEAR*** trend coefficient of explanatory power over time is 30.55, indicated a significant increase over time. The statistical evidence further showed the incremental explanatory power of contemporaneous cash flows (CFO) and earnings (E).

Kim and Kross (2005) further explained that although both CFO and E contributed significant incremental explanatory power across all time periods, the incremental explanatory power of CFO had not been increasing over time. The incremental explanatory power of CFO went from 4.5% in the 1973-1982 period to 2.5% in the 1992-2000 period. The *t*-statistic on the ***YEAR*** trend coefficient is -2.45. The incremental explanatory power of E, however, had approximately doubled over the sample period, going from 4.4% in the 1973-1982 period to 8.5% in the 1992-2000 period. The *t*-statistic on the ***YEAR*** trend coefficient is 5.62, which was a significant increase in the incremental explanatory power of E over time.

2.5.3 CURRENT YEAR CASH FLOWS' ABILITY TO PREDICT FUTURE CASH FLOW MODEL

The literature above revealed Finger (1994), Bowen *et al* (1986), Dechow *et al* (1998) and Kim and Kross (2005) that current year cash flow predictive ability to predict future cash flow was limited to a short period of time. The studies indicated current years' cash flows showed a contemporaneous relationship with its one year ahead cash flow and deteriorated in later years (Finger, 1994 and Kim & Kross, 2005). Orpurt and Zang (2007) argued that the format of the Statement of Cash flows reported by companies as part of their annual financial statements had an impact of the predictive ability of future cash flows. The results concluded that the Direct Method (DM) showed better predictive ability of prior cash flows over future cash flows than Indirect Method (IM).

A simple regression model:

$$CFO_t = a_t + b_1 CFO_{t-1} + \varepsilon_t; \quad [5]$$

Which was further amplified to include elements of the DM Statement of Cash Flow. An amplified model applied was as follows:

$$CFO_t = a_1 + b_1 C\_sales_{t-1} + b_2 C\_supem_{t-1} + b_3 D\_tax_{t-1} + b_4 D\_int_{t-1}$$

$$+ b_5 C\_other_{t-1} + \varepsilon_t \quad [6]$$

It was noted above that Orpurt and Zang (2007) study only improved the predictive relationship but did not provide that the predictive ability of current cash to predict future exceeded one period ahead. It is worth noting that Graham and Whitfield (2010) warned that IFRS recommends the Direct Method which is in line with the model above. Orpurt and Zang (2007) further emphasised that forecasting with actual DM components yielded better predictions than forecasting with estimated DM components due to extensive articulation errors. They also confirmed that this finding supported their hypothesis that DM statement of cash flows disclosures enhanced predictability of CFO. To reiterate the R^2 results, the explanatory power

from .4254 to .4453 when compared to the Indirect Method of the Statement of Cash Flow. The findings here led us to the next section of the models. It came clear that predictive ability of current cash flow over future cash was short term. It could be concluded that it did not exceed more than one year ahead.

2.5.4 CURRENT EARNINGS ABILITY TO PREDICT FUTURE SHARE PRICE MODEL

In section 2.4.1, Collins *et al* (1997) model was explained at length. Kim and Kross (2005) adapted Collins *et al* (1997) model, where the changing relationship between share prices and earnings were examined by applying the following three models:

$$P_{it} = \alpha_{0t} + \alpha_{1t} E_{it} + \alpha_{2t} BV_{it} + \varepsilon_{it} \quad [7]$$

$$P_{it} = \beta_{0t} + \beta_{1t} E_{it} + \varepsilon_{it} \quad [8]$$

And

$$P_{it} = \chi_{0t} + \chi_{1t} BV_{it} + \varepsilon_{it} \quad [9]$$

Where, P_{it} is the price of firm *i* three months after fiscal year-end *t*, E_{it} is the earnings per share of firm *i* during year *t*, and BV_{it} was the book value per share of firm *i* at the end of year *t*. The explanatory power (R^2) of equation (1) was decomposed to determine the incremental contribution of earnings and the incremental contribution of book value to explain prices each year. The incremental contribution of book value was measured as $R^2_1 - R^2_2 = R^2_{BV}$ and the incremental contribution of earnings was $R^2_1 - R^2_3 = R^2_E$. Collins *et al.* (1997) then applied regression techniques R^2_1, R^2_E, and R^2_{BV} for each year on a time trend variable. Thus, for our purposes

$$\boldsymbol{R^2_{vt} = \delta_0 + \delta_1 YEAR_t + \delta_{it}} \qquad [10]$$

where **YEAR** corresponds to the years contained in our sample (YEAR = 1,...., 28) and *v* is either earnings *(E)* or book value *(BV).* The findings of these models were explained above and there was no further need to provide again the same outcomes.

2.5.5 CURRENT CASH FLOWS ABILITY TO PREDICT FUTURE SHARE PRICE MODEL

Kim and Kross (2005) investigated the relationship between the share price and cash flow. This further investigation was influenced by the findings that share price and earnings was declining over a period of time. In this investigation, elements of earnings, this was cash flow, accruals and included book value as well. The multi-regression model below was applied:

$$\boldsymbol{P_{it} = a_0 + a_1 CFO_{it} + a_2 ACC_{it} + a_3 BV_{it} + g_{it}} \qquad [11]$$

where CFO_{it} and ACC_{it} represent contemporaneous operating cash flows and accruals (deflated by shares outstanding), respectively.

Kim and Kross (2005) further explained that given the declining relationship between stock price and earnings, it was expected that the incremental explanatory power of either or both CFO and ACC was significantly declining over time. It was also expected that the strengthening relationship between earnings and future cash flows, would expect that the explanatory power of either or both CFO and ACC was significantly increasing over time. However, it was found that the incremental explanatory power of CFO (ACC) declined from 10.8% (9.1%) in the 1973-1982 period to 7.9% (5.6%) in the 1992-2000 period. Both these declines were significant, as evidenced by a *t*-statistic on the YEAR trend coefficient of -2.59 (-3.50) for CFO (ACC).

This indicated that the reduction in the relation between prices and earnings over time is due to a declining explanatory power of both cash flows (CFO) and accruals (ACC).

The models above were applied (some were adjusted accordingly in Chapter 4.

2.6 CONCLUSION

In this chapter, literature review and previous research reports were explored. It was concluded that current earnings had a high predictive ability on future cash flows (Dechow *et al*., 1998; Finger, 1994; Kim & Kross, 2005; Murdoch & Krause, 2012). Further studies also provided information about cash flows' ability to predict future cash flow. Findings obtained from previous scholars was that cash flow was only able to predict future cash flow only in the short term (Barth *et al*., 2001; Bowen *et al.*, 1986; Dechow *et al.*, 1998; Finger, 1994; Kim & Kross, 2005; Al-Attar & Hussain 2004) provided that the disintegration of earnings components, that is, accruals and cash flows predicted future cash flows better. Orpurt and Zang (2007) concluded that the direct method of the Statement of Cash flows provided better predictive ability of cash flow. Collins *et al* (1997) and Kim and Kross (2005) provided that the relationship between earning and prices decline over a period of time whereas, the relationship between future price and book value improved. The relationship between the cash flows and future price also followed the earnings trend, showed their inability to predict future share price, (Kim & Kross, 2005).

The next chapter provided the hypotheses that were tested applying data collected from the JSE for the period between 2001 and 2011. The introduction stated that JSE listed companies formally adopted IFRS. Therefore, the abilities of earnings and cash flows to predict future cash flows and prices before and after 1 January 2005 were tested.

Chapter 3

Research Hypothesis

This chapter presents the research problem and the associated research hypotheses

3. RESEARCH QUESTIONS AND HYPOTHESIS

3.1 RESEARCH HYPOTHESIS

The following research hypothesis will be analysed as follows:

H1: Current earnings have the ability to predict future cash flows

H_0: $\mu_{CFOt+1} \geq 0.40$ Average R^2 of future cash flows is equal or greater than 0.40

H_A: $\mu_{CFOt+1} < 0.40$ Average R^2 of future cash flows is less 0.40

Current earnings have the explanatory power over future cash flows

H2: Current cash flow from operations has the ability to predict future cash flows

H_0: $\mu_{CFOt+1} \geq 0.40$ Average R^2 of future cash flows is equal or greater than 0.40

H_A: $\mu_{CFOt+1} < 0.40$ Average R^2 of future cash flows is less 0.40

Current cash flows from operations have the explanatory power over future cash flows

H3: Current earnings have the ability to predict future share price

H_0: $\mu_{Pt+1} = \geq 0.40$ Average R^2 of future share prices is equal or greater than 0.40

H_A: $\mu_{Pt+1} < 0.40$ Average R^2 of future share prices is less than 0.40

Current earnings have the explanatory power over future share price

H4: Current cash flows from operations have the ability to predict future share price

H_0: $\mu_{Pt+1} = \geq 0.40$ Average R^2 of future share prices is equal or greater than 0.40

H_A: $\mu_{Pt+1} < 0.40$ Average R^2 of future share prices is less than 0.40

Current cash flow from operations has the explanatory power over future share price

3.2 CONSISTENCY MATRIX

PROPOSITIONS/QUESTIONS/ HYPOTHESIS	LITERATURE REVIEW	DATA COLLECTION TOOL (Source)	ANALYSIS
Current earnings have the ability to predict future cash flows	Finger, (1994); Dechow *et al*., (1998); Kim and Kross (2005); Murdoch and Krause (2012)	Annual financial statements from McGregor BFA Database	EBITDA divided by number of shares in issue to arrive at earnings per share (EPS), Cash flow from operations per share (CFO) and one year cash flow from operations (); Regression analysis: Chapter 5 and 6.
Current cash flow from operations has the ability to predict future cash flows	Bowen *et al*, (1986); Finger, (1994); Dechow *et al*, (1998); Kim and Kross (2005). Barth *et al* (2001) and Al-Attar and Hussain (2004); Orpurt and Zang (2007)	Annual financial statements from McGregor BFA Database	Cash flow from operations per share (CFO) and one year cash flow from operations (CFO_{t+1}); Regression analysis: Chapters 5 and 6
Current earnings have the ability to predict future share price	Collins *et al.* (1997) and Kim and Kross (2005)	Annual financial statements from McGregor BFA Database	EBITDA per share (EPS), Cash flow from operations per share (CFO) and one year cash flow from operations (CFO_{t+1}); One year share price (P_{t+1}); Regression analysis: Chapters 5 and 6
Current cash flows from operations have the ability to predict future share price	Kim and Kross (2005), Ryan and Zarowin (2003) and Orpurt and Zang (2007)	Annual financial statements from McGregor BFA Database	Current year's cash flow per share to the one year ahead regression analysis. Analysis will be presented on Chapters 5 and 6.

Chapter 4

Research Methodology

This chapter presents the research method to be followed for this study and discusses the population, sample, data collection process, data analysis and foreseen research limitation.

4. RESEARCH METHODOLOGY

The purpose of this study was to test the ability of current earnings and current cash from operations to predict future cash flow and future share prices. The survey was conducted based on the financial data of JSE listed companies. The financial information was drawn from McGregor BFA database for the period from January 2001 to December 2011.

The study adopted quite a number of models that were applied to investigate the predictive abilities of earnings and cash flow over the future cash flows and share prices. Chapter 2 section 2.5 presented a number of models that were applied to verify the information and some were modified due limitations associated with gathering of information from the database.

4.1 RATIONALE OF THE RESEARCH METHOD

Again, the objective of this study was to find evidence that will explain the ability of current earnings and current operating cash flows would have on future cash flows and future share prices. The purpose of explanatory studies is to establish the relationship between or among different variables (Saunders, Lewis and Thornhill , 2009). Such studies assist in diagnosing the dimensions of a problem so that successive research projects can be undertaken successfully Zikmund (2003).

4.2 UNIT OF ANALYSIS

Units of analysis applied were as follows:

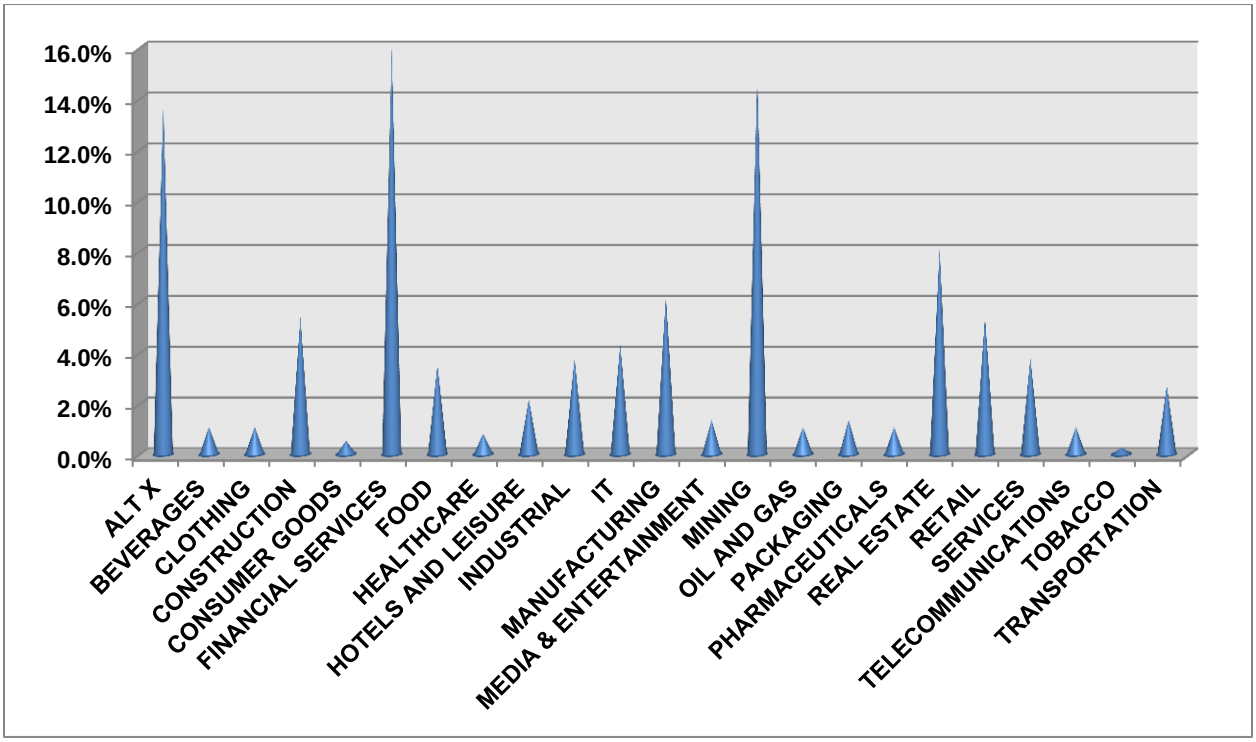
- **EPS**: which is determined by the dividing the EBITDA by the number of weighted shares issued;
- **CFO**: calculated by dividing Cash flow from operations by the number of weighted shares issued;
- **P**: share price as quoted on the JSE at the end of each financial year of each company;

4.3 POPULATION

The research project was to assess the ability of earnings and cash flows to predict future cash flows and future share prices of the JSE listed companies for the period starting from January 2001 to 2011. JSE has all the financial information that is required to perform the analysis of the relevant financial variables. The population for purposes of the study was gathered from JSE listed companies.

The download of JSE companies by McGregor through the use of their specialised program called Expert 24, downloaded the financial information of 369 JSE listed companies. The population of JSE was stratified into sectors as shown here below:

FIGURE 3: JSE SECTOR BREAKDOWN

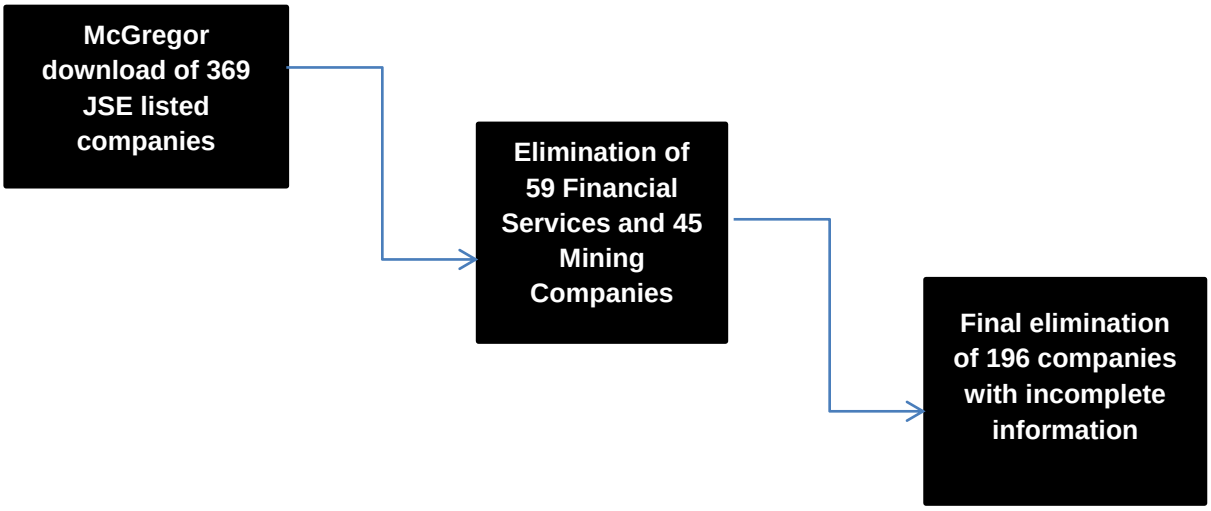


Alt X companies were not allocated into their subsectors as the ones on the main board. For the purposes of brevity, the categories above were consolidated and the raw data was provided in a form of CD disc attached.

4.4 SAMPLING METHOD AND SIZE

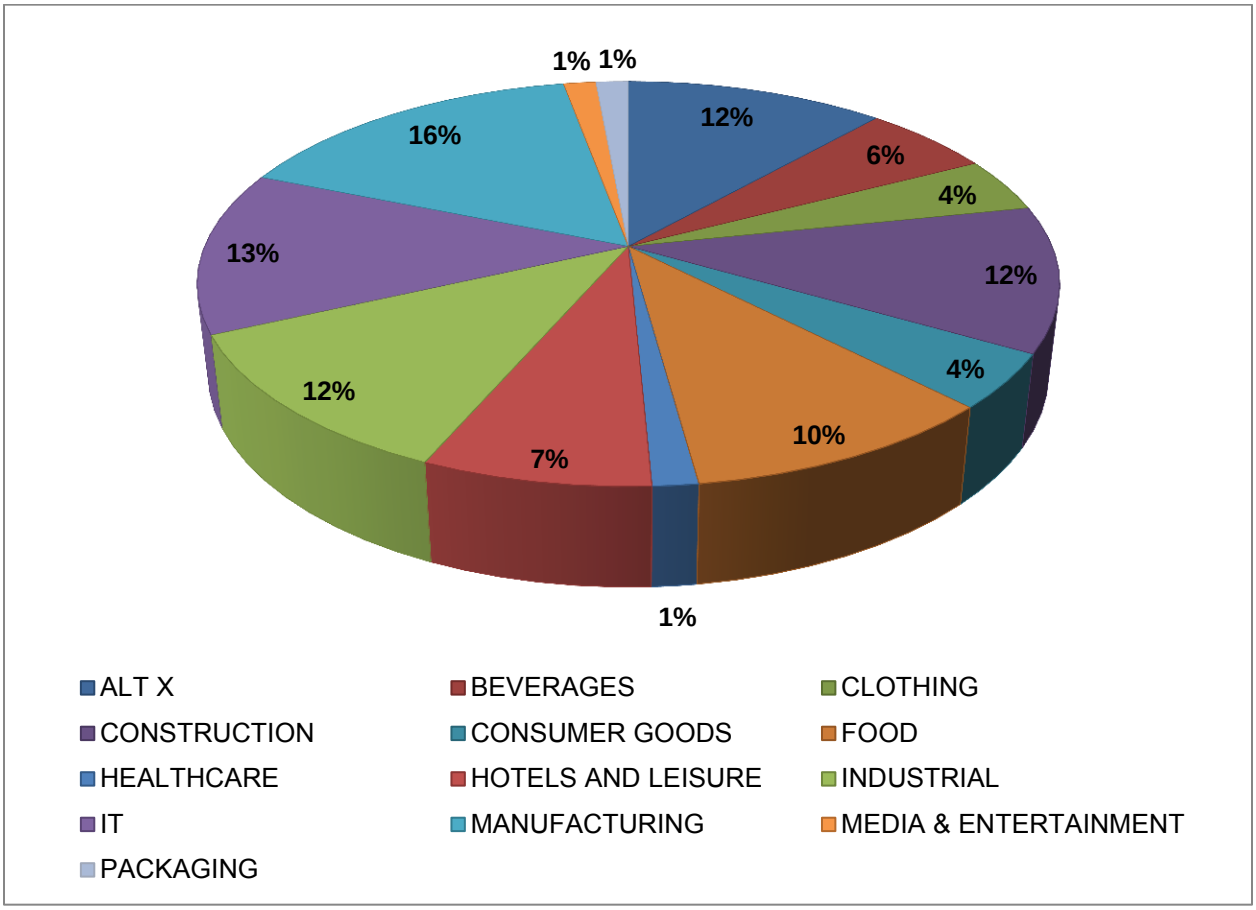
The sampling method was done through an elimination process. A schematic description of the process has been outlined here below:

FIGURE 4: SAMPLING METHOD



The sampling method started with the population of 369 companies as provided by McGregor BFA Expert 24 solution. The downloading was followed by the elimination process of 59 financial services and 45 mining companies. The financial services companies are considered highly regulated by the Financial Services Board and the Reserve Bank and high restrictions are imposed in terms of cash management. Mining companies were also eliminated as their revenue model is very much influenced by foreign currencies due to a high level of exports. The third phase of elimination was the companies that did not have all the financial information available. The financial information that was required for purposes of this study were ranging from January 2001 to December 2011. Such companies were discarded for the purposes of sampling and testing. The sample size that remained was 69 companies – A detailed breakdown of companies was electronically appended. The graph below depicted the spread of the sample among JSE sectors.

FIGURE 5: SAMPLE OF COMPANIES BY JSE CATEGORY



It should be noted that Alt X is not a sector within the main board of the JSE but a separate board. An option could have been to include these companies within the sectors in terms of their business operations. .Such option was not exercised however a preliminary analysis was conducted with a view of further study that could be ensued in the future.

4.5 DATA COLLECTION

The required data was obtained from McGregor BFA through the application Expert 24. The application was able to download information for each company that was listed on the JSE on the date of download, being 30 August 2012. A further download of share prices information was requested through an email on 7 September 2012 which was later received on 12 September 2012. The following information was obtained:

TABLE 3; DATA COLLECTION SOURCES

Information Obtained	Data Source
Standardised Financial Statements ***(description provided here below)*** • EBITDA (i.e. operating profit before tax, interest, depreciation and amortisation) (E) • Cash from operations (CFO) • No of share in issue at the end of year • Financial year end date	McGregor BFA (Expert 24) Company financial reports
Market data • Market share prices at of each financial year end	McGregor BFA (Expert 24)

The standardised line item codes (utilised to obtain data above) from McGregor were describe below. EARNINGS BEFORE INTEREST TAXATION DEPRECIATION AND AMORTISATION **(EBITDA)** LINE ITEM CODE (02020102) which is referred as CODE (102) on the face of the INCOME STATEMENT. CASH FROM OPERATIONS its extraction code is (01030733) was derived from the STATEMENT OF CASH FLOWS where it is referred as (CODE 733). CASH FLOW FROM OPERATIONS is calculated adjusting the following line items from the OPERATING PROFIT OR LOSS FOR THE YEAR (CODE 701) add back DEPRECIATION (CODE 702) to arrive at item CASH EX OPERATIONS (CODE 703) which deducts INVESTMENT INCOME AND OTHER INCOME (CODE 704 AND 705 respectively), A DECREASE OR INCREASE ON WORKING (CODE 706) is deducted or added depending on whether it decreased or increased. Changes that are made on the WORKING CAPITAL are made up DECREASE/INCREASE IN INVENTORY (CODE 707), DECREASE/INCREASE IN ACCOUNTS RECEIVABLE (CODE 708) and DECREASE/INCREASE IN ACCOUNTS PAYABLE (CODE 709). The amount arrived at is CASH EX OPERATING ACTIVITY (CODE 711). NET INTEREST PAID (CODE 712) and TAXATION PAID (CODE 713) are

deducted from CASH EX OPERATING ACTIVITY (CODE 711) to arrive at CASH AVAILABLE (CODE 714). DIVIDENDS FROM ORDINARY SHARES (CODE 715) AND DIVIDENDS FROM PREFERENCE SHARES (CODE 716) are deducted from CASH AVAILABLE (CODE 715) to obtain CASH FROM OPERATING ACTIVITY (CODE 733). The computation of cash from operating activities follows the Indirect Method of the Statement of Cash Flows (Whitfield-Broome, 2004 and Orpurt and Zhang, 2007).

TOTAL SHAREHOLDERS' INTEREST extraction code 02010013 is a balance sheet item which represents historical data mainly made up accounting value not market data. It is the amount that is attributable to the owners of the business.

The number of shares issued is known as WEIGHTED AVERAGE OF SHARES ISSUED (CODE 206) is used to calculate EARNINGS PER SHARE (CODE 304).

This data was used in the models explained above.

4.6 DATA ANALYSIS (STATISTICS)

The data analysis was based on the sample of 69 companies that were sample above. The method followed in acquiring data was as follows:

Step 1:Obtain Data

McGregor BFA provides all the financial information related to JSE listed companies. However, this required that one company is downloaded at the time. Expert 24 was applied with the assistance of Fin24 expert. The following information on all companies registered on the JSE as at 30 August 2012:

- Company name
- Financial year end
- Reporting currency
- Total shareholders' Interest (BV)
- Earnings Before Interest, Tax, Depreciation And Amortisation (EBITDA)
- Cash From Operating Activities (CFO)
- Number of shares issued at year end
- Share prices as reported at end of each financial year (P)

- Capitalisation at end of financial year
- Sector for each company

All information data was standardised by dividing each line item by the number of shares as reported as issued at each financial year end. The data was further prepared into an Excel spread-sheet indicating Earnings per share **(EPS)**, cash flows from operations per share **(CFO)** and market share prices **(P)** as at the end of each financial year starting from 2001 to 2011.

A random formula was applied to the worksheets so as to randomly select which years to use to perform the tests. The random selection assisted in identifying year 1 which was denoted as year $_{t+0}$ and further 5 more years after. The purpose of applying the random application was to eliminate any economic events during the period of the investigation and also eliminated any biasness in selecting future cash flows of future share prices.

4.6.1 ABILITY OF EARNINGS AND CASH FLOWS PRECICT FUTURE CASH FLOWS AND FUTURE SHARE PRICES IN THE LONG RUN

Step 2: Calculation of coefficients to determine earnings predictability on future cash flows

In determining the coefficients for earnings as a predictor of future cash flows in the long-term, the following process was followed:

- EPS $_{t+0}$ were regressed with each year CFO for 6 years ahead. The process regressed the future cash flows on year to year basis, for an example, CFO $_{t+1}$ to CFO $_{t+6}$;
- The interpretation and the results analysis in a form of a graph was presented on Chapter 5 of this report including explanatory summation thereof;

Step 3: Calculation of coefficients to determine cash flows predictability on future cash flows

Similar process as above was applied to determine the ability of current cash flow to predict future cash flows. CFO $_{t+0}$ were applied on 6 years ahead of future cash flows from CFO $_{t+1}$ to CFO $_{t+6}$. The analysis of the findings were presented in Chapter 5

Step 4: Calculation of coefficients to determine earnings ability to predict future share price

The regression and the coefficients for determining the ability of earnings to predict future share prices. Current earnings (EPS $_{t+0}$) was regressed 6 years ahead with future share prices denoted as P $_{t+0}$ to P $_{t+6}$. The findings were analysed as presented in Chapter 5.

Step 5: Calculation of coefficients to determine cash flows ability to predict future share price

The process above was re-performed to determine the ability of current cash flows to determine future share prices. The computation of the regression and coefficients of correlation for CFO $_{t+0}$ over the period 6 years ahead of future share prices was performed, where future share prices were denoted as P $_{t+1}$ to P $_{t+6}$. The analyses of the findings were further analysed in Chapter 5 of this report.

4.6.2 ABILITY OF EARNINGS AND CASH FLOWS PRECICT FUTURE CASH FLOWS AND FUTURE SHARE PRICES IN THE SHORT- RUN

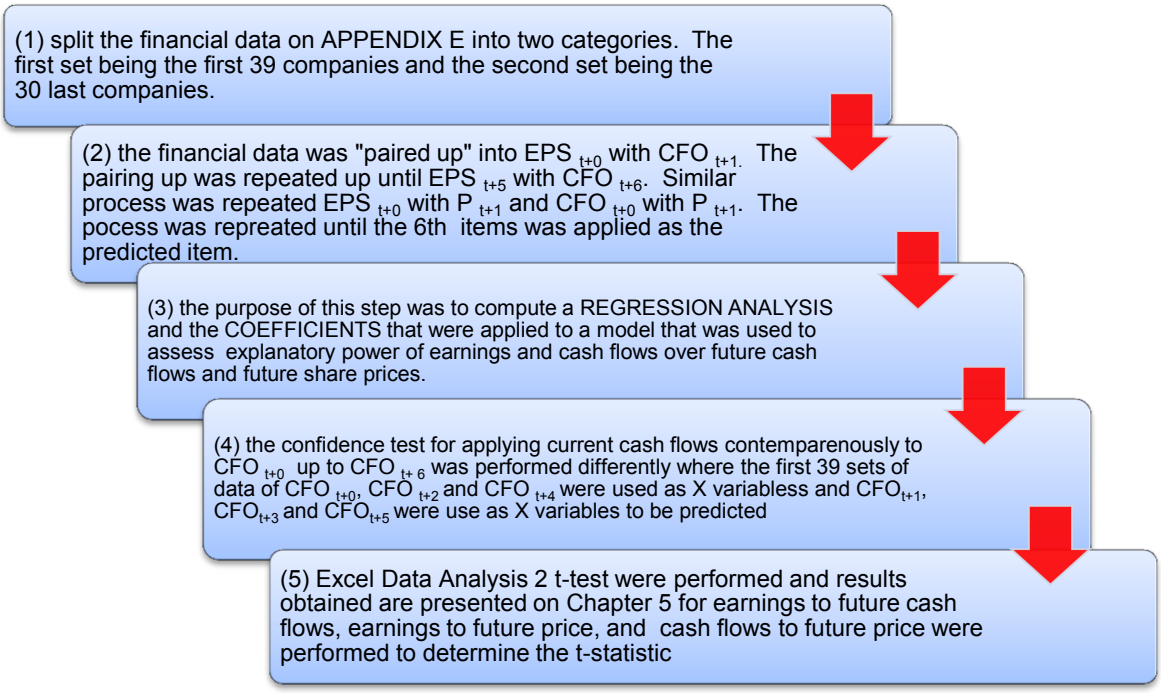
Step 6: Regression Analysis and Coefficient Calculation of Earnings and Cash flows with 1-year ahead of future cash flows and future share prices.

The purpose of this step was to determine the abilities of both current earnings and current cash flows in predicting future cash flows and future share prices in the short run. The process started with current earnings (EPS $_{t+0}$) regressed with one year ahead of future cash flows (CFO $_{t+1}$). The calculations were applied contemporaneously until EPS $_{t+5}$ was applied to predict future cash flow of CFO $_{t+6}$.The same calculations were repeated where current cash flows were applied to predict one year ahead of future cash flows. CFO $_{t+0}$ were applied to CFO $_{t+1}$ and the calculations were repeated contemporaneously to CFO $_{t+5}$ to predict CFO $_{t+6}$.

A similar process was replicated to predict future share prices applying current earnings and current cash flows to 6 years ahead of future share prices. Again EPS_{t+0} and CFO_{t+0} were contemporaneously applied to P_{t+1} to P_{t+6}. For an example, EPS_{t+3} was regressed with P_{t+4}. The objective of these predictive calculations was to assess the predictive abilities of current earnings and current cash flows over future share prices. . Further analysis and interpretation of the findings were presented in Chapter 5.

4.6.3 TESTING THE COEFICIENT OF CORRELATION

Step 7: Application of the coefficients to test the model's explanatory power of future cash flows and future share prices



The size of the APPENDICES was big and they were presented electronically.

4.7 LIMITATIONS

The following were the main key limitations encountered when the information was collected and analysed:

- McGregor BFA could not provide the financial information on a quarterly basis as per Kim and Kross (2005) methodology. The share prices which were going to be tested with the short term earnings or cash flow were only for the end financial year share prices.
- The Statements of Cash flow presented by the JSE listed companies were prepared using the Indirect Method. It should be remembered that Orpurt and Zang (2007) stated that Direct Method was better a predictor of future cash flows than the Indirect Method. For the purposes of the study, Indirect Method of the Statement of Cash Flow was used.
- 196 companies were eliminated from the population due to their financial information being incomplete. The information provided of these companies was either the first time financial information was presented after 2001 or the last information presented was before 2011. These findings limited the tests that were envisaged to be undertaken.
- The test of Coefficient of Correlation of current cash flows contemporaneousness with one year ahead future cash flows could not be performed due to the structure of the excel spread-sheet.

Chapter 5

Results

In this chapter findings of the test results based on the regression analysis and t-tests and confidence of coefficients are presented

5. RESULTS

5.1 INTRODUCTION

The research assessed the ability of current earnings and current cash flows from operations to predict future cash flows and future share prices. The data was obtained from McGregor BFA database which keeps the records of financial reports and financial information of the listed companies. McGregor BFA provided 369 listed companies including both the main board and the Alt X board. The sample selected ended up with 69 companies. This was after eliminating the financial services companies, mining companies and the companies with incomplete financial information.

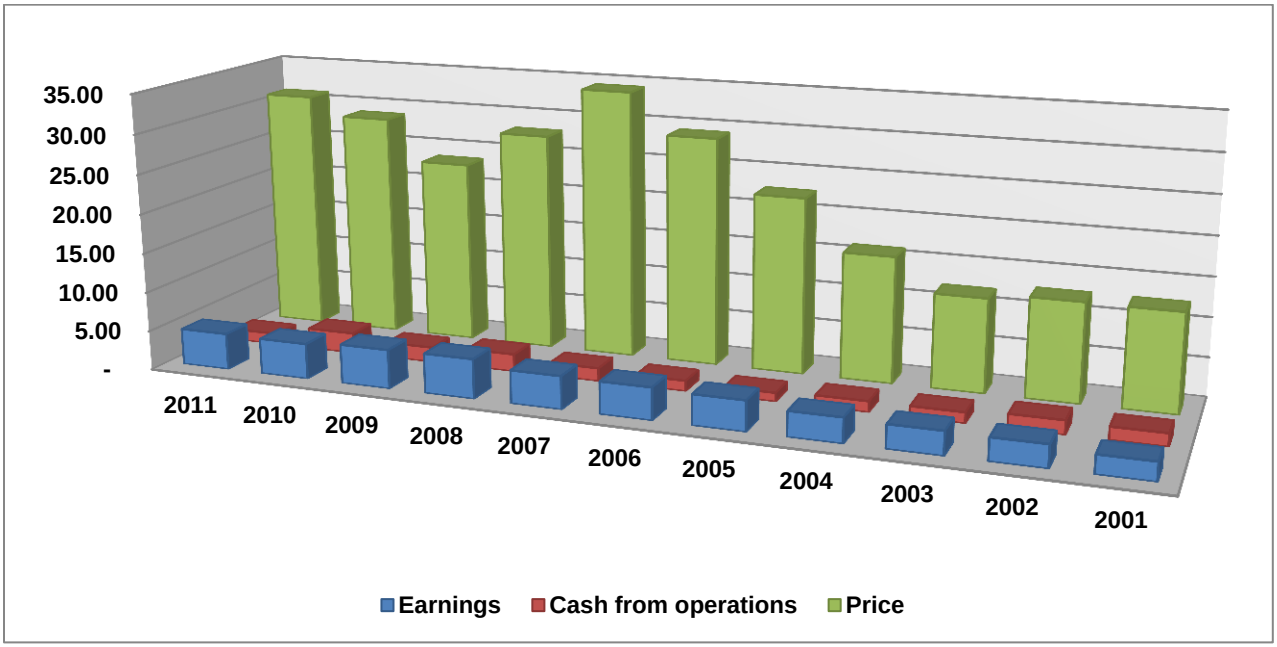
The Excel worksheet was further analysed by applying the "**DATA ANALYSIS**" tool on Excel software. The tool allowed the computation of "**REGRESSION ANALYSIS**" in order to test the relationship between the financial variables as described above.

5.2 DESCRIPTIVE STATISTICS

Three Excel worksheets were prepared to show the EBITDA per SHARE (EPS), CASH FLOW FROM OPERATIONS per SHARE (CFO) and SHARE PRICE which reflected the share price as quoted on the JSE at financial year end of each company. The mean average of each financial data for all 69 companies from 2001 to 2011 were summarised and presented here below:

This chapter of the research report provides the results of the findings and the statistical analysis that were performed based on financial data collected through McGregor BFA for the period from 2001 to 2011.

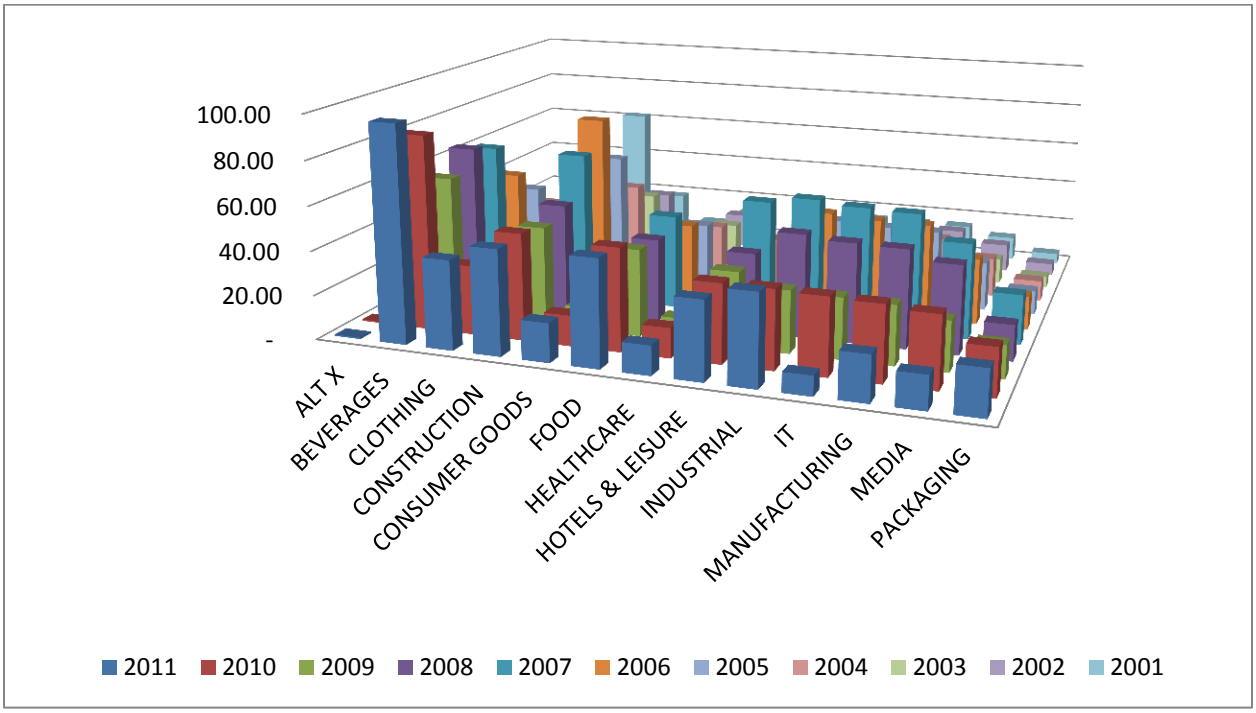
FIGURE 6: DISTRIBUTION OF MEAN AVERAGES



It is evident from above that share prices had the highest average per share as compared to other financial data presented. The data was used to examine the applicability of models as they were discussed in the previous chapters. The aim of this research project is to obtain evidence that supported the current earnings and current cash flows had the ability to predict future cash flows and future share prices.

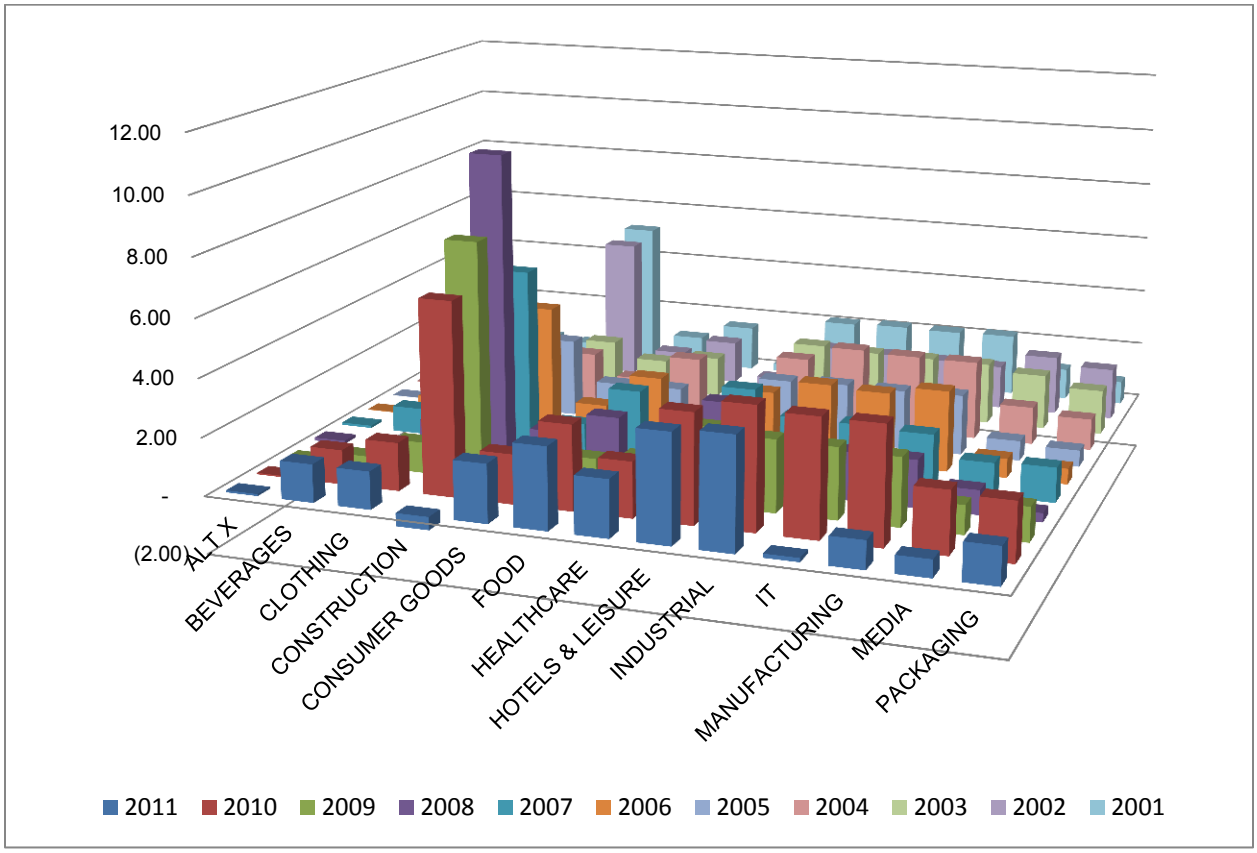
Further analysis of financial data was performed in terms of analysis the annual average performance of each sector of the JSE represented in the sample.

FIGURE 7: EARNINGS ANNUAL AVERAGE PERFORMANCE



The construction sector showed the highest average growth/performance with an average EPS over 11 years at R8.62 followed by Industrials at R6.29 and the third average performance was Hotels and Leisure at R5.64. Year 2008 showed to be the highest performing year.

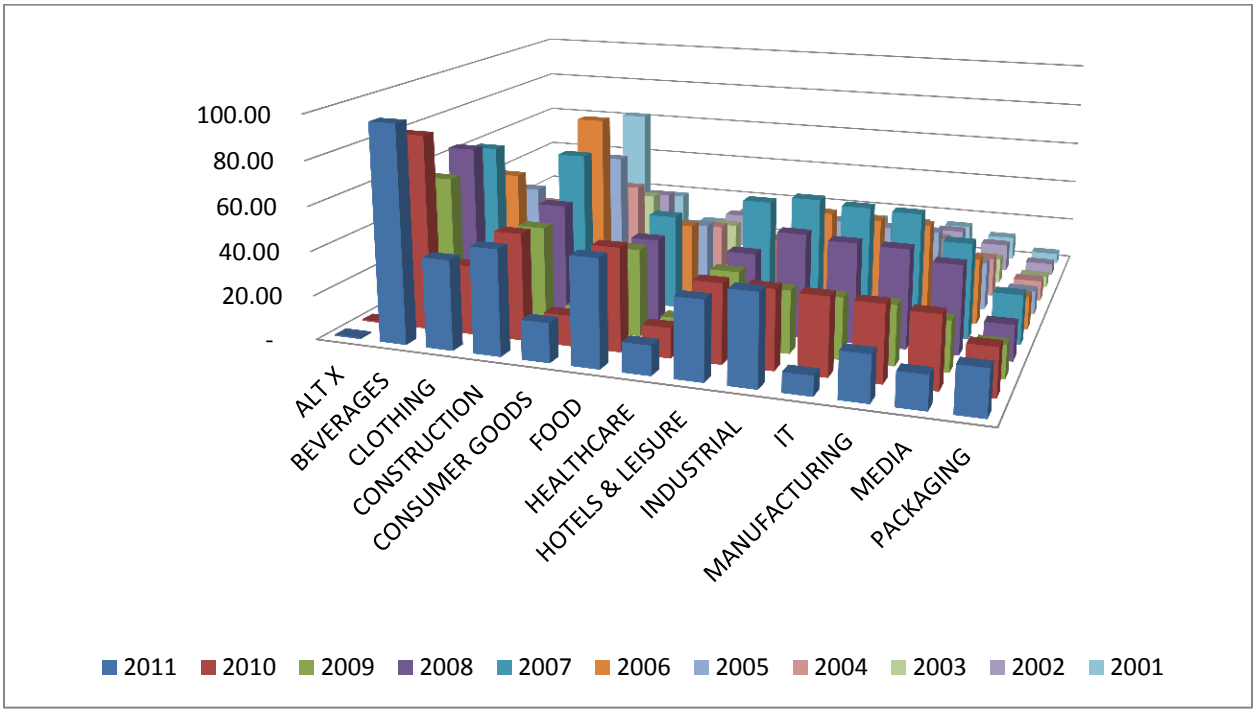
FIGURE 8: CASH FLOWS FROM OPERATIONS ANNUAL AVARAGE PERFORMANCE



Construction sector indicated to be the highest in the Cash flow from operations per share. The average is estimated at R4.69 followed by Hotels and Leisure sector at R2.57 and Industrials at R2.52.

The highest performing year on average year indicated 2008 followed by 2009..

FIGURE 9: SHARE PRICES ANNUAL AVERAGE PERFORMANCE



The best performing sector in terms of share price performance was Beverages at R51.89 being attributed mainly on SABMiller's share price. It was followed by the Construction sector with an average performance of R46.11 and third rated performance was the Food sector with R31.19.

5.3 RESEARCH HYPOTHESIS RESULTS

5.3.1 RESEARCH HYPOTHESIS 1

TABLE 4: HYPOTHESIS RESULTS

Null Hypothesis	Description	SHORT RUN Average R^2	LONG RUN Average R^2	HYPOTHESIS RESULTS Accept/Reject
H1	Current earnings predicts future cash flows	0.38	0.27	**Reject**
H2	Current cash flows predicts future cash flows	0.46	0.43	**Accept**
H3	Current earnings predicts future share price	0.54	0.44	**Accept**
H4	Current cash flows predicts future share price	0.33	0.24	**Reject**

H1: Current year's earnings have the predictive ability on future cash flows

There were two tests that were conducted as described in Chapter 4. The investigations tested the current earnings per share in a model to assess its ability to predict future cash flows, both in the short run and long run. The findings are presented here below:

Test 1: EPS_{t+0} regressed with CFO_{t+1} to CFO_{t+6}

TABLE 5: EARNINGS - CASH FLOW PREDICTION RESULTS (LONG RUN)

Sample Number	Description	R-Square	Standard Error	Intercept Coefficient	X-Variable Coefficient
Sample 1	EPS t+0 predicts CFO t+1	0.55	1.68	0.30	0.34
Sample 2	EPS t+0 predicts CFO t+2	0.20	3.05	0.25	0.28
Sample 3	EPS t+0 predicts CFO t+3	0.32	1.94	0.42	0.24
Sample 4	EPS t+0 predicts CFO t+4	0.31	1.95	0.61	0.24
Sample 5	EPS t+0 predicts CFO t+5	0.22	3.95	0.93	0.39
Sample 6	EPS t+0 predicts CFO t+6	0.02	5.86	2.04	0.16

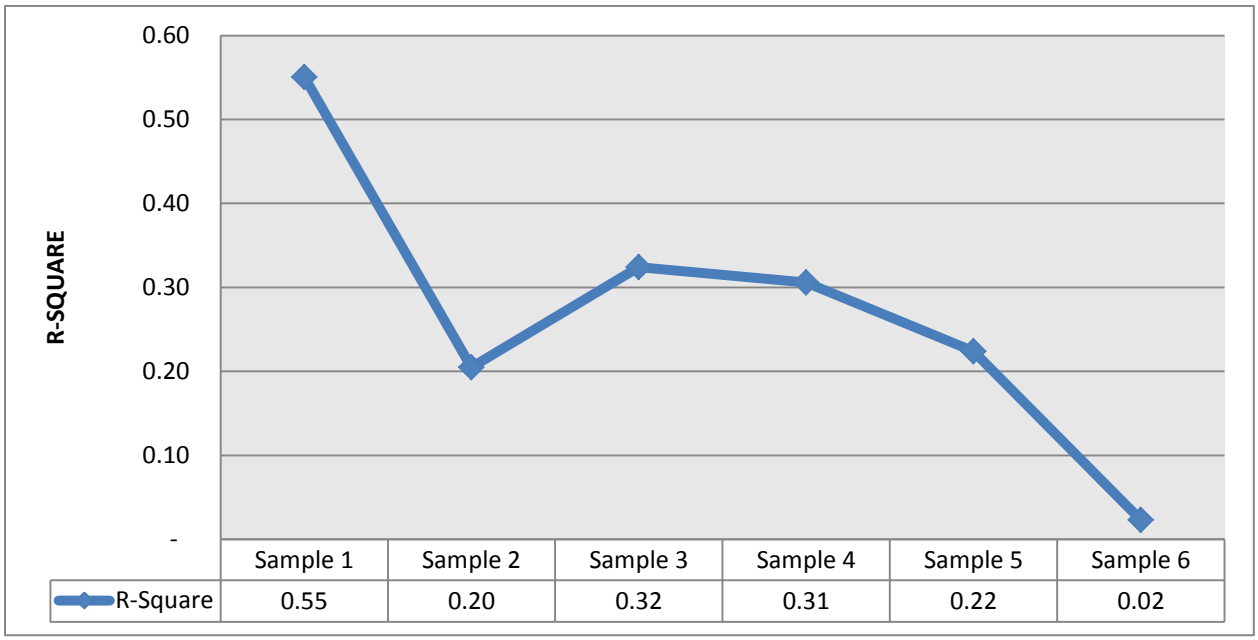
Test 2: EPS $_{t+0}$ to EPS $_{t+6}$ to predict one year ahead of future cash flows over 6 years

TABLE 6: EARNING-CASH FLOW PREDICTION RESULTS (SHORT RUN)

Sample Number	Description	R-Square	Standard Error	Intercept Coefficient	X-Variable Coefficient
Sample 1	EPS t+0 predicts CFO t+1	0.55	1.69	0.30	0.34
Sample 2	EPS t+1 predicts CFO t+2	0.03	3.36	0.73	0.09
Sample 3	EPS t+2 predicts CFO t+3	0.55	1.59	0.02	0.34
Sample 4	EPS t+3 predicts CFO t+4	0.54	1.58	0.20	0.31
Sample 5	EPS t+4 predicts CFO t+5	0.46	3.30	0.05	0.51
Sample 6	EPS t+5 predicts CFO t+6	0.12	5.57	1.14	0.30

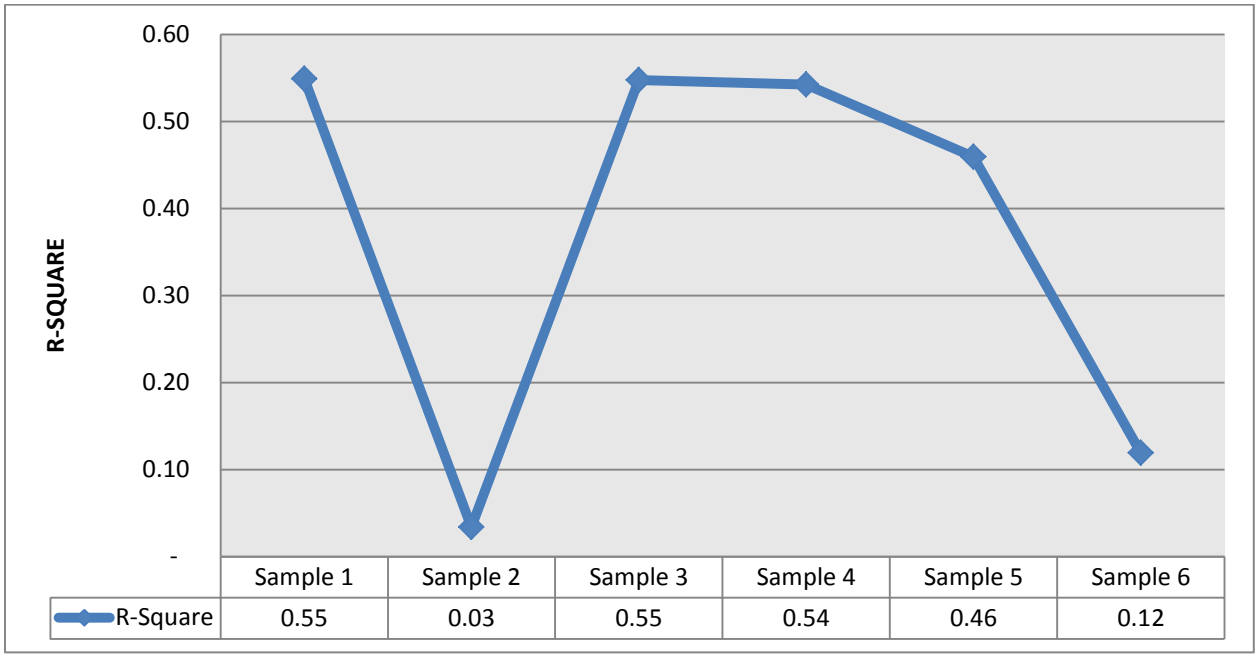
The results from Test 1 above indicated that EPS has a low ability of predicting future cash flows. The graph is figure 7 below indicated that the relationship between earnings and future cash flows in a long run increases then declines. The recorded R^2s indicated that the relationship cannot be predicted with certainty given the declining effect in a long run, from R^2 = 0.55 to R^2 = 0.02. The average R^2=0.27.

FIGURE 10: CURRENT EARNINGS AND FUTURE CASH FLOWS IN A LONG RUN



The results of Test 2 are plotted graphically here below. The graph indicates that the relationship between earnings and future cash flows started at R^2 = 0.55 and ended up with R^2 = .12. The graph also shows the erratic nature of earnings to predict future cash flows. The average R^2 for the entire period is R^2=0.38.

FIGURE 11: CURRENT EARNINGS AND FUTURE CASH FLOWS IN A SHORT RUN



The **H1 null hypothesis is rejected**. The current earnings have no ability to predict future cash flows both in short- and long run.

H2: Current cash flow from operations has the predictive ability on future cash flows

Test 1: CFO_{t+0} regressed with CFO_{t+1} to CFO_{t+6}

TABLE 7: CASH FLOWS -CASH FLOWS PREDICTION RESULTS (LONG RUN)

Sample Number	Description	R-Square	Standard Error	Intercept Coefficient	X-Variable Coefficient
Sample 1	CFO t+0 predicts CFO t+1	0.59	1.61	0.28	0.28
Sample 2	CFO t+0 predicts CFO t+2	0.47	2.50	(0.15)	0.94
Sample 3	CFO t+0 predicts CFO t+3	0.42	1.80	0.33	0.62
Sample 4	CFO t+0 predicts CFO t+4	0.46	1.72	0.46	0.64
Sample 5	CFO t+0 predicts CFO t+5	0.57	2.95	0.29	1.37
Sample 6	CFO t+0 predicts CFO t+6	0.06	5.74	1.74	0.60

Test 2: CFO $_{t+0}$ to CFO $_{t+6}$ to predict one year ahead of future cash flows over 6 years

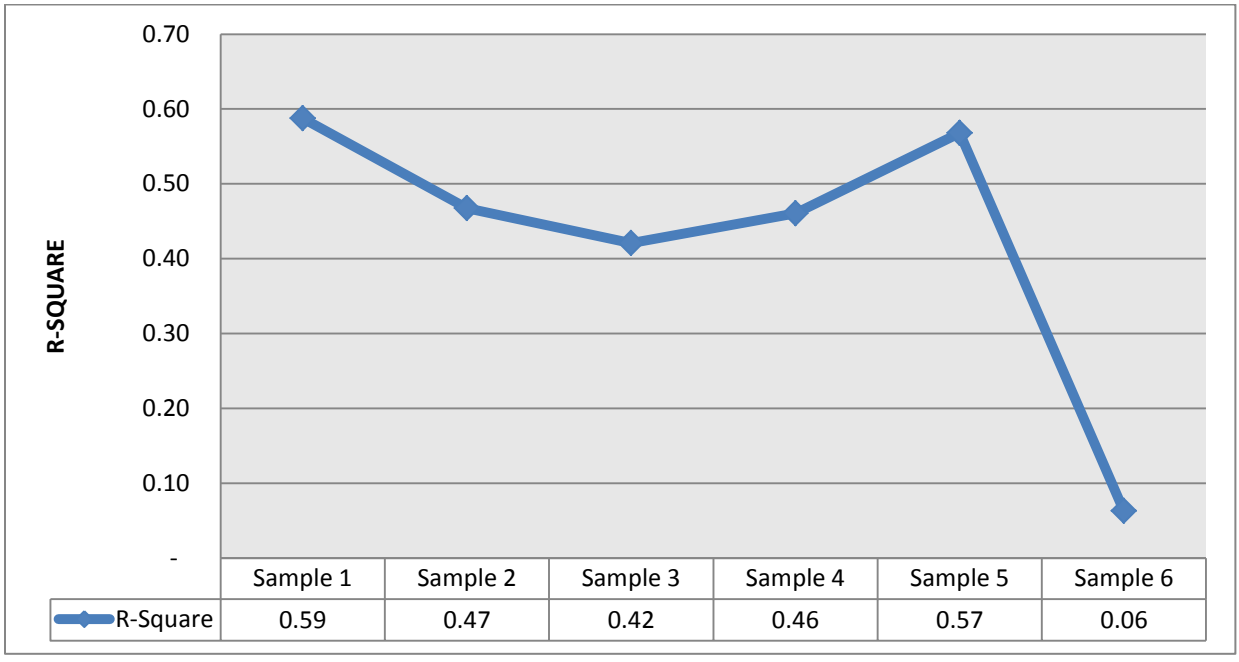
TABLE 8: CASH FLOWS-CASH FLOWS PREDICTION RESULTS (SHORT RUN)

Sample Number	Description	R-Square	Standard Error	Intercept Coefficient	X-Variable Coefficient
Sample 1	CFO t+0 predicts CFO t+1	0.59	1.61	0.28	0.77
Sample 2	CFO t+1 predicts CFO t+2	0.66	1.99	(0.36)	1.11
Sample 3	CFO t+2 predicts CFO t+3	0.29	1.99	0.73	0.37
Sample 4	CFO t+3 predicts CFO t+4	0.64	1.41	0.40	0.79
Sample 5	CFO t+4 predicts CFO t+5	0.29	3.78	0.72	1.03
Sample 6	CFO t+5 predicts CFO t+6	0.29	4.99	1.04	0.72

The findings tabulated above were plotted into graphs below to understanding the explanatory power of current cash flows over future cash flows both in the short- and long run. The results of Test 1 (representing the long run effect) above, shows an erratic effect of the predictability pattern. From the R^2 = 0.59 declining and going up again and ended with a decline at R^2=0.06. The **average R^2 = 0.43**.

The results of Test 1 are graphically plotted here below:

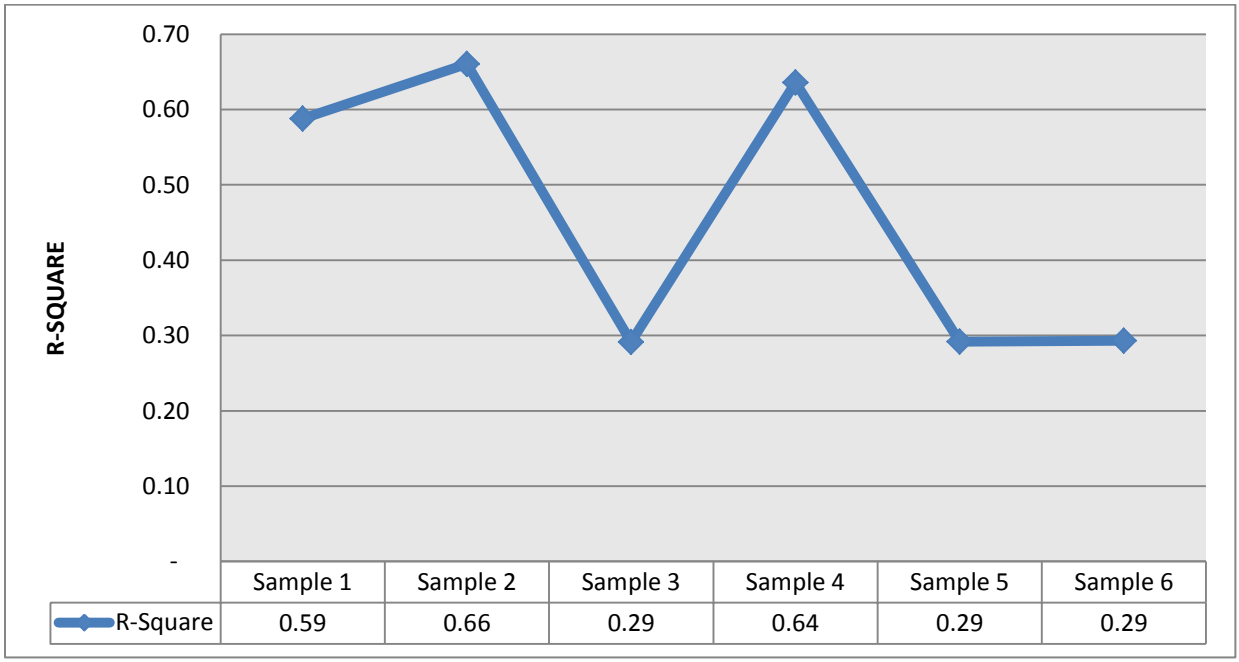
FIGURE 12: CURRENT CASH FLOWS AND FUTURE CASH FLOWS IN A LONG RUN



The graph below exhibits an erratic relationship between the current cash flows and the future cash flows in the short run. The R^2 started at lower base of R^2=0.59 increases to R^2=0.66 goes down again to R^2 = 0.29. There is a smoothing out at R^2=0.29 in the last two samples.

The average is recorded at R^2 = 0.46, which is noticeably higher than the one exhibited by the earnings and future cash flows.

FIGURE 13: CURRENT CASH FLOWS AND FUTURE CASH FLOWS IN A SHORT RUN

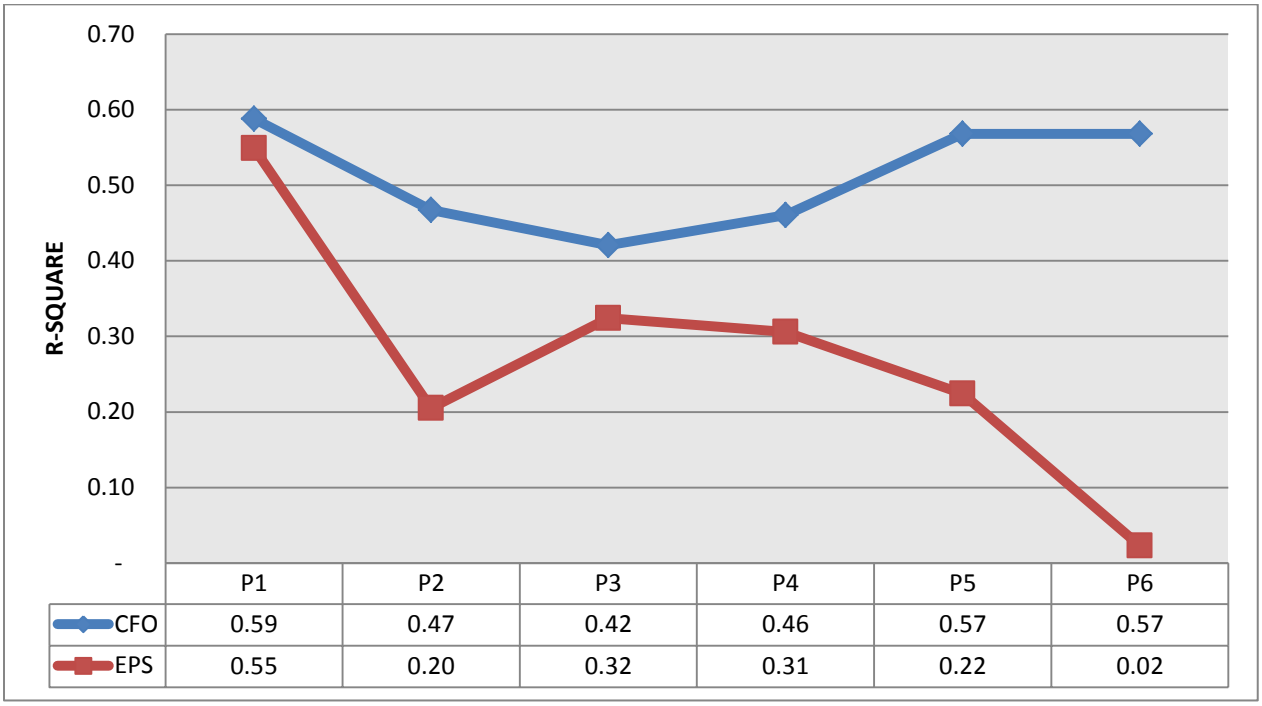


The findings above indicated that the inconsistency exhibited by current cash flows to predict future cash flows. The average R^2 = 0.46, which means that current cash flows in a short run have 46% explanatory power over future cash flows. In the long run, the average is recoded at R^2 = 0.43 which indicates that current cash flows have the 43% explanatory power of future cash flows.

Based on the *R* square results of more than R^2=0.40 in both short – and long run, **H2's null hypothesis is accepted** that current cash flows have the ability to predict future cash flows but subjected to confidence of coefficient test.

The comparisons between earnings and cash flows were performed in order to further understand which of the two financial elements better predict future cash flows. The two graphs below provided a graphical overview

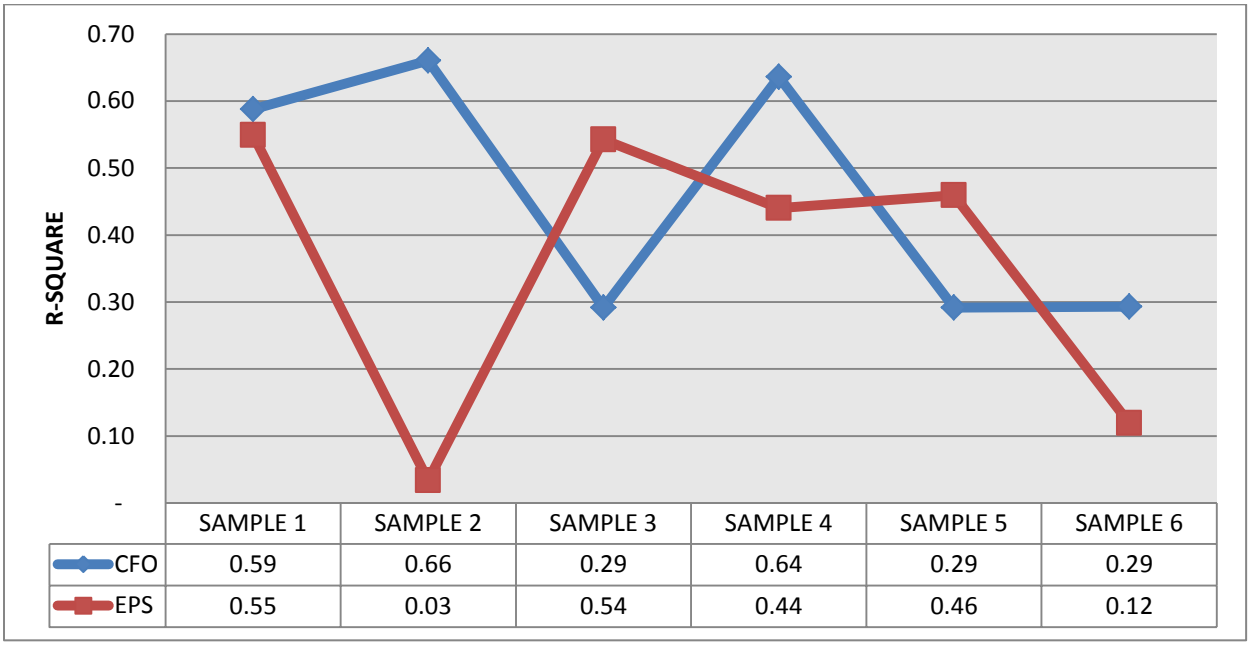
FIGURE 14: COMPARISONS OF PREDICTIVE ABILITY OF CURRENT EARNINGS AND CURRENT CASH FLOWS OVER FUTURE CASH FLOWS IN A LONG RUN



	P1	P2	P3	P4	P5	P6
CFO	0.59	0.47	0.42	0.46	0.57	0.57
EPS	0.55	0.20	0.32	0.31	0.22	0.02

The depiction above indicates that cash flows are better predictor of future cash flows than earnings in the long run. The conclusion is based on the *R* square results as demonstrated above, where cash flows *R* squared results are than the earnings.

FIGURE 15: COMPARISON OF CURRENT EARNINGS AND CURRENT CASH FLOWS TO PREDICT FUTURE CASH FLOWS IN A SHORT RUN



	SAMPLE 1	SAMPLE 2	SAMPLE 3	SAMPLE 4	SAMPLE 5	SAMPLE 6
CFO	0.59	0.66	0.29	0.64	0.29	0.29
EPS	0.55	0.03	0.54	0.44	0.46	0.12

In the short run, cash flows indicate a higher ability to predict future cash flows when compared to the future cash flows.

H3: Current earnings have the ability to predict future share price

The earnings were tracked to assess their ability to predict future share prices. The tables of results below present the finding both in the short and long run scenarios.

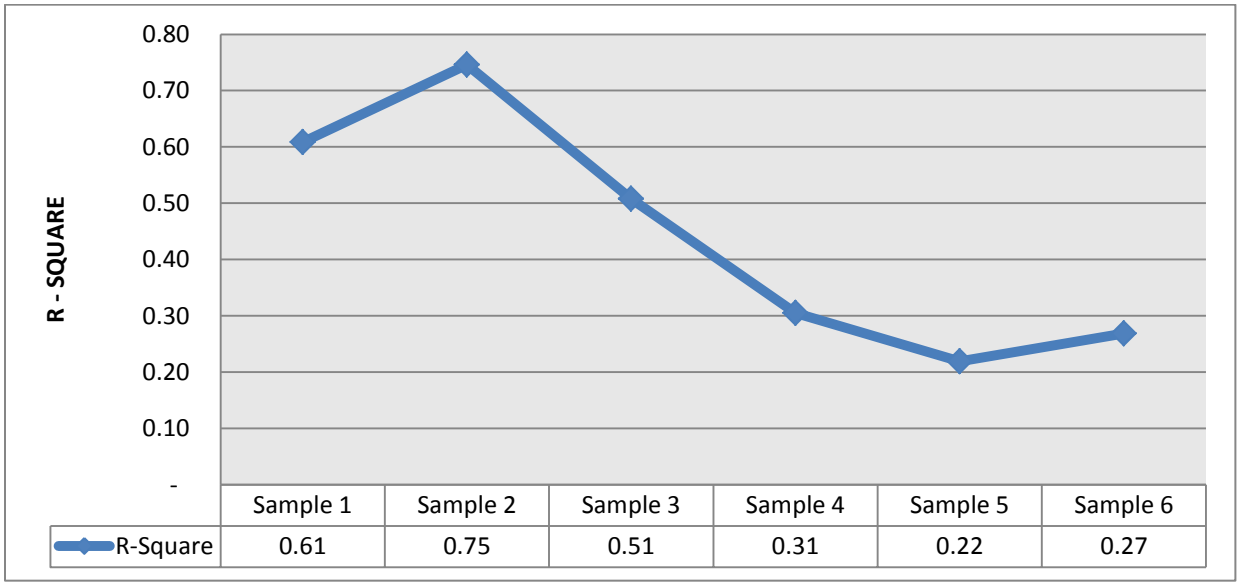
Test 1: EPS $_{t+0}$ regressed with P $_{t+1}$ to P $_{t+6}$

TABLE 9: EARNINGS-SHARE PRICE PREDICTION RESULTS (LONG-RUN)

Sample Number	Description	R-Square	Standard Error	Intercept Coefficient	X-Variable Coefficient
Sample 1	EPS t+0 predicts P t+1	0.61	26.70	0.31	6.06
Sample 2	EPS t+0 predicts P t+2	0.75	25.13	(2.37)	7.84
Sample 3	EPS t+0 predicts P t+3	0.51	23.02	5.52	4.24
Sample 4	EPS t+0 predicts P t+4	0.31	31.16	12.65	3.76
Sample 5	EPS t+0 predicts P t+5	0.22	34.20	14.93	3.30
Sample 6	EPS t+0 predicts P t+6	0.27	33.84	17.65	3.74

The results indicated that earnings are able to predict future share prices in a short run and then take a sloping effect. In the sample 6, representing EPS_{t+0} and P_{t+6}, showed another upward trend. The average R^2=0.44. This lower R^2 could be attributed to the lower results from P_{t+4} to P_{t+6}. It is conclusive that in the long run, earnings lack the ability to predict future share price. Another way of presenting these findings could be that earnings have a low explanatory power of future share prices in the long run.

FIGURE 16: PREDICTIVE POWER OF EARNINGS OVER FUTURE SHARE PRICE IN THE LONG RUN



Test 2: EPS $_{t+0}$ to EPS $_{t+6}$ to predict one year ahead of future share prices over 6 years

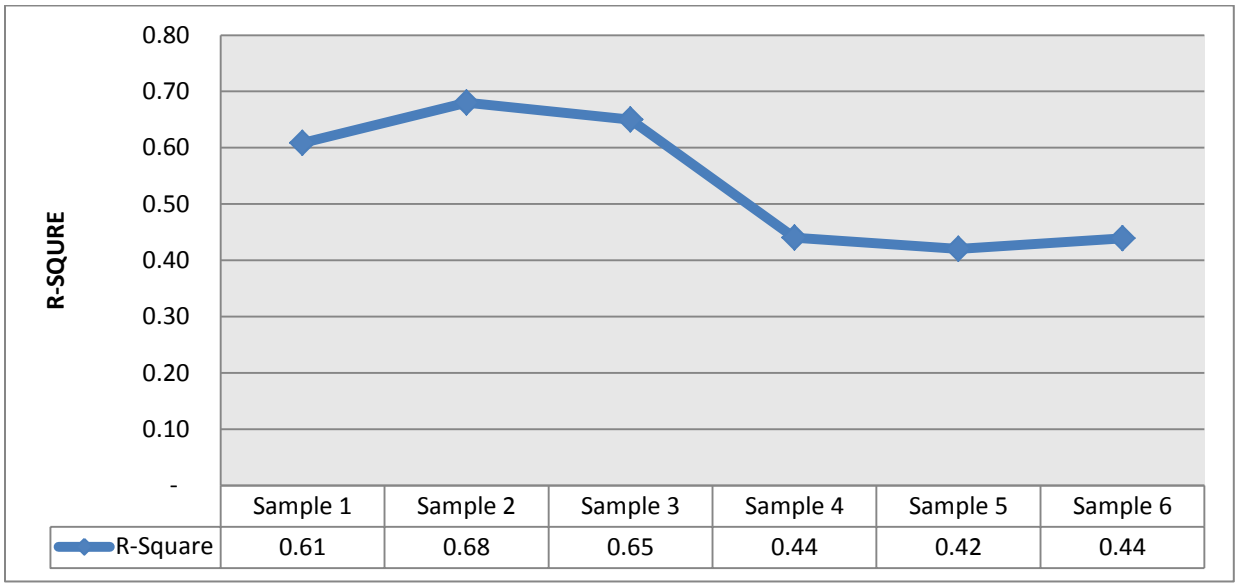
Earnings were tested to assess their ability to predict future share prices in only one year ahead.

TABLE 10: EARNINGS-SHARE PRICE PREDICTION RESULTS (SHORT RUN)

Sample Number	Description	R-Square	Standard Error	Intercept Coefficient	X-Variable Coefficient
Sample 1	EPS t+0 predicts P t+1	0.61	3.44	1.12	0.10
Sample 2	EPS t+1 predicts P t+2	0.68	28.19	(2.26)	5.94
Sample 3	EPS t+2 predicts P t+3	0.65	19.41	3.64	5.19
Sample 4	EPS t+3 predicts P t+4	0.44	27.97	7.95	4.48
Sample 5	EPS t+4 predicts P t+5	0.42	29.47	7.97	4.19
Sample 6	EPS t+5 predicts P t+6	0.44	29.63	11.01	3.79

The findings showed that earning had a stronger ability in the first 3 samples. The average R^2 was recorded at R^2=0.65. In the 2 subsequent years, the predictive ability dropped and only to show the signs of recovery between sample 5 and 6. On average of R^2=0.54, it is evident that earnings have the ability to predict future share price in the long run. However, the results have exhibited an average Standard Error of 23.02.

FIGURE 17: PREDICTIVE POWER OF EARNINGS OVER FUTURE SHARE PRICE IN THE SHORT RUN



H_0 is therefore accepted. For the purposes of certainty, the coefficients of correlation were further tested for confidence test so as reliability could be placed on the fact that earnings have the predictive ability on future share prices.

H4: Current cash flows from operations have the predictive ability on future share price

In trying to prove or disprove this null hypothesis, two testsapproach was applied to test the ability of cash flows to predict future share prices, both in the long – and short run.

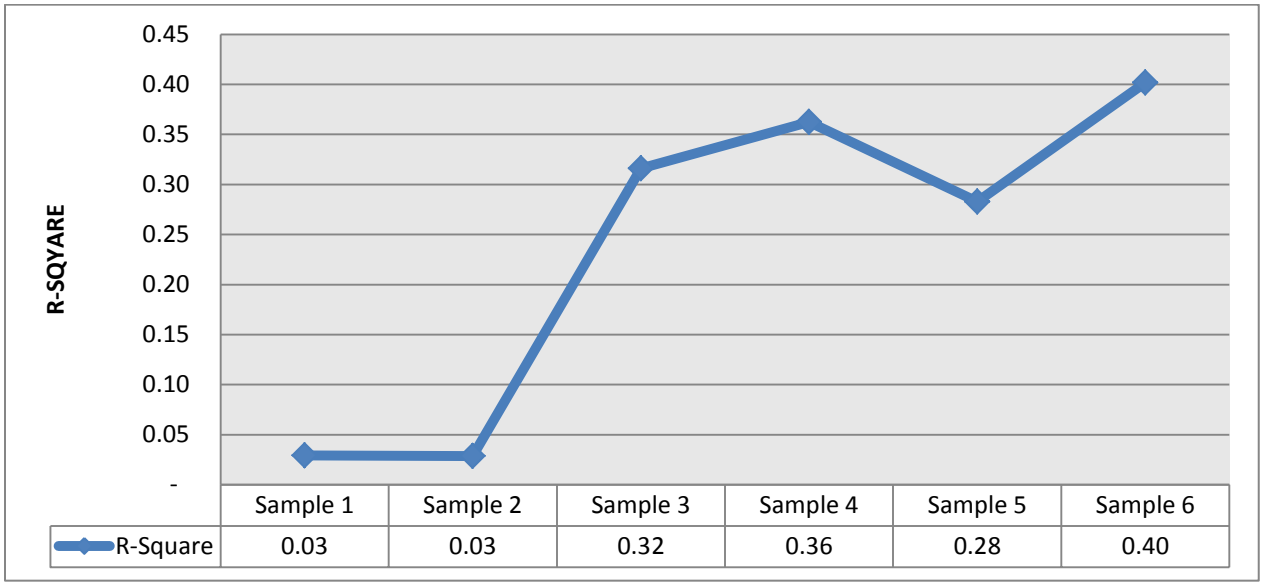
Test 1: CFO_{t+0} regressed with P_{t+1} to P_{t+6}

TABLE 11: CASH FLOWS-SHARE PRICE PREDICTION RESULTS (LONG RUN)

Sample Number	Description	R-Square	Standard Error	Intercept Coefficient	X-Variable Coefficient
Sample 1	CFO t+0 predicts P t+1	0.03	42.02	14.27	2.97
Sample 2	CFO t+0 predicts P t+2	0.03	49.12	16.22	3.43
Sample 3	CFO t+0 predicts P t+3	0.32	27.15	14.67	5.40
Sample 4	CFO t+0 predicts P t+4	0.36	29.85	11.86	9.13
Sample 5	CFO t+0 predicts P t+5	0.28	32.78	13.79	8.35
Sample 6	CFO t+0 predicts P t+6	0.40	30.61	15.43	10.17

The overall results of the regression analysis, indicate very low R2 with high standard error results. The average R^2 is estimated at R^2=0.24. The standard error, which measures the dispersion from the data line, indicated that the average of 35.26. The low average of R^2 = 0.24 and the high standard error, does not provide adequate information that current cash from operations has the long term predictive ability over future share prices in the long run. Therefore, **H_0: is rejected**.

FIGURE 18: PREDICTIVE POWER OF CASH FLOWS OVER FUTURE SHARE PRICES IN THE LONG RUN



Test 2: CFO $_{t+0}$ to CFO $_{t+6}$ to predict one year ahead of future share prices over 6 years

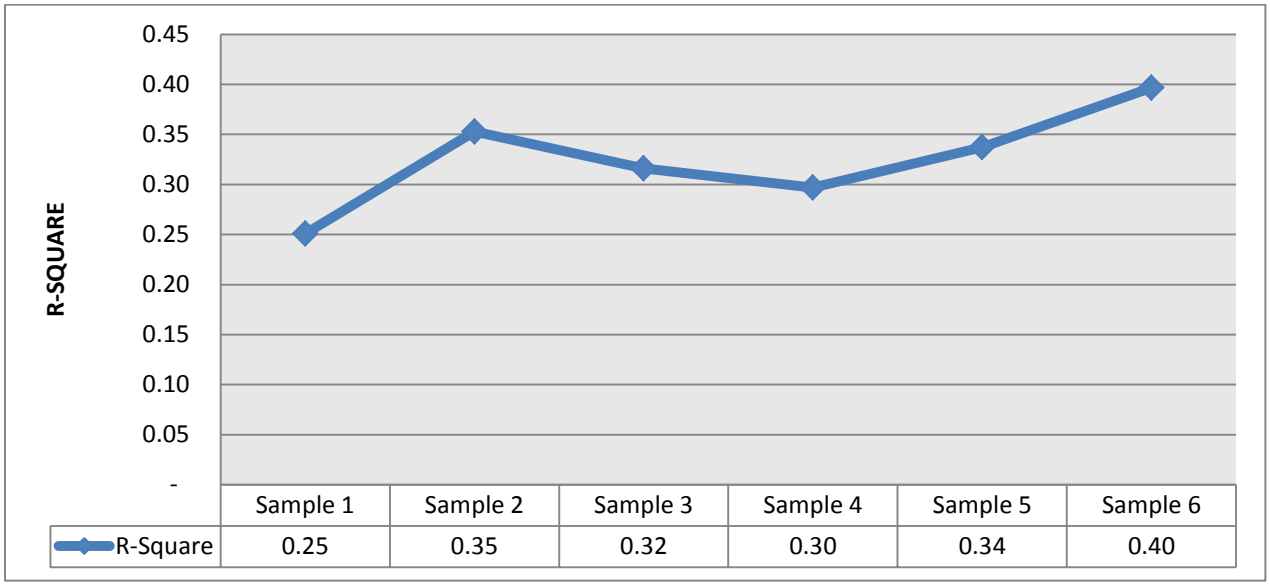
The testing of short run effect of the cash flows over share prices was performed. The table and the graphical presentation provided the overview of the results.

TABLE 12: CASH FLOWS-SHARE PRICE PREDICTION RESULTS (SHORT RUN)

Sample Number	Description	R-Square	Standard Error	Intercept Coefficient	X-Variable Coefficient
Sample 1	CFO t+0 predicts P t+1	0.25	4.75	1.12	0.10
Sample 2	CFO t+1 predicts P t+2	0.35	2.01	0.46	0.10
Sample 3	CFO t+2 predicts P t+3	0.32	27.15	14.67	5.40
Sample 4	CFO t+3 predicts P t+4	0.30	31.34	13.91	8.63
Sample 5	CFO t+4 predicts P t+5	0.34	31.51	12.17	9.59
Sample 6	CFO t+5 predicts P t+6	0.40	30.74	17.17	5.55

There is a slight improvement from this regression analysis compared to the long run regression analysis. The R^2s are still low. The average of this test was estimated at R^2=0.33. The standard error is persistently high at the average of 21.25, although improved from the long run results.

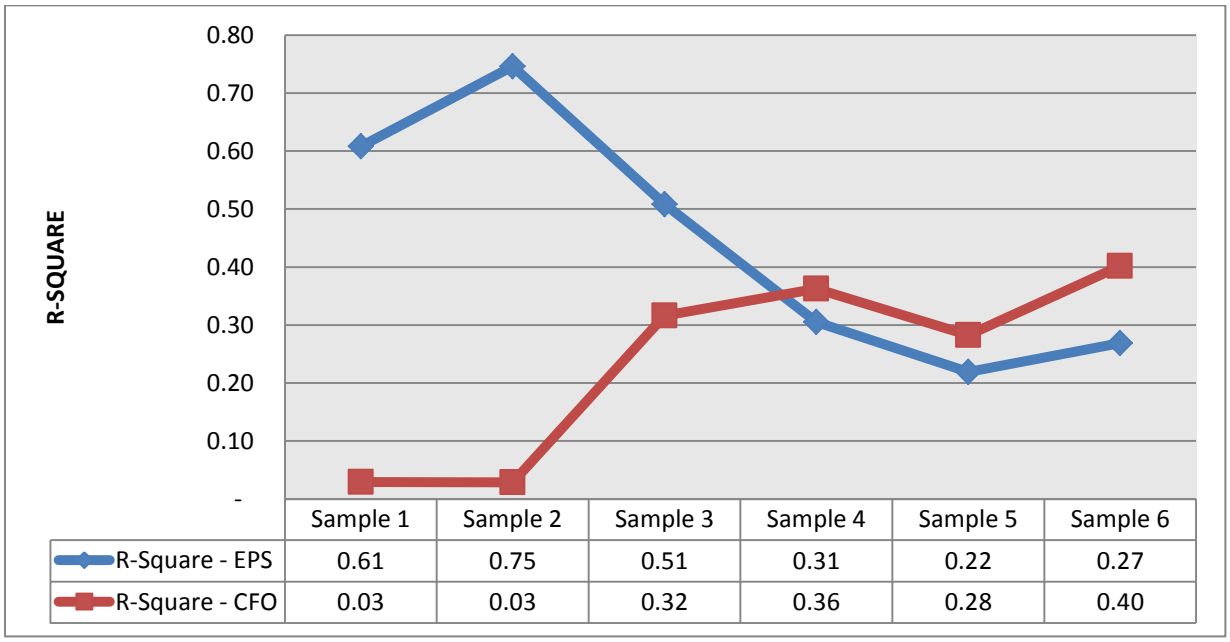
FIGURE 19: PREDICTIVE POWER OF CASH FLOWS OVER FUTURE SHARE PRICES IN THE SHORT RUN



The results above show an erratic behaviour of the predictive line. This could be attributed to the high standard error that was noted. From the graph, it is noted that that from sample 4 to sample 6, an upward trend was noticeable.

A further test was performed to test which of the two, earnings or cash flows had a better predictive power over future share prices. The results were graphically below.

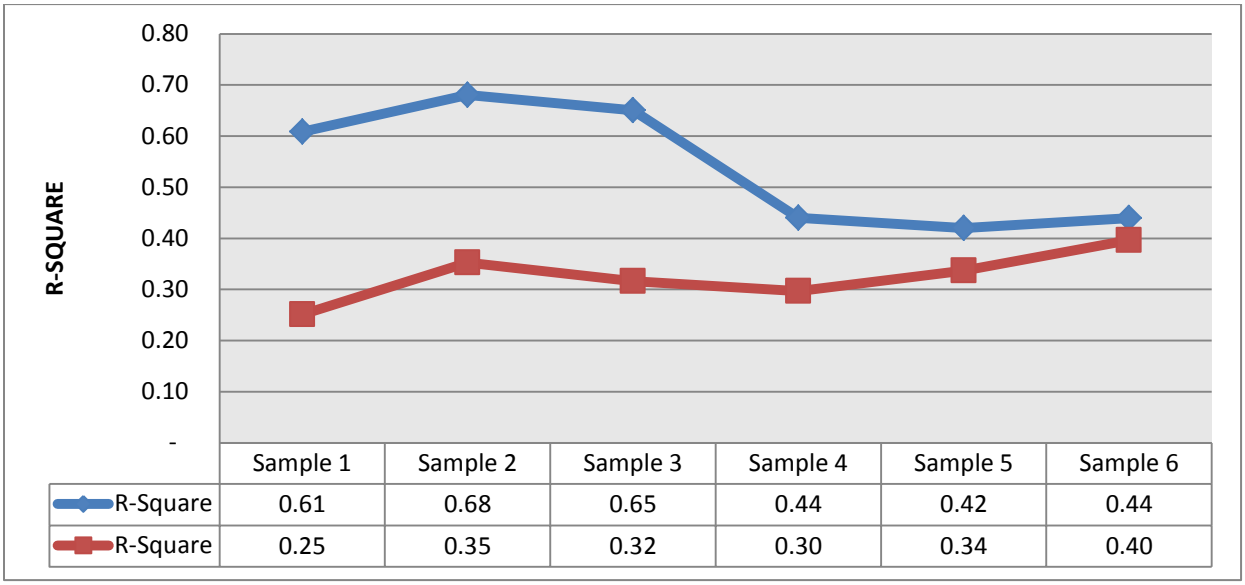
FIGURE 20: COMPARISON OF CURRENT CASH FLOW AND CURRENT EARNING TO PREDICT FUTURE SHARE PRICES



e

The earnings indicated a stronger ability at the beginning and fell after sample 4 (share price in year 4). It was interesting to note in sample 5 where both earnings and cash flow graphs started to take an upward trend. The overall result is that earnings showed a rather higher predictive power of share price in the long run.

FIGURE 21: COMPARISON OF CURRENT EARNINGS AND CURRENT CASH FLOW TO PREDICT FUTURE SHARE PRICES



Earnings showed to be better predictor of future share prices than cash flow.

5.3.2 TEST OF COEFFICIENT OF CORRELATION

The tests of confidence of correlation was performed on two tests only that the reliance was intended to be place on them. The 0.05 level of significance was applied when confidence of correlations were performed. The null hypotheses 2 and 3 were accepted based on average R^2 results. The following outcomes were obtained.

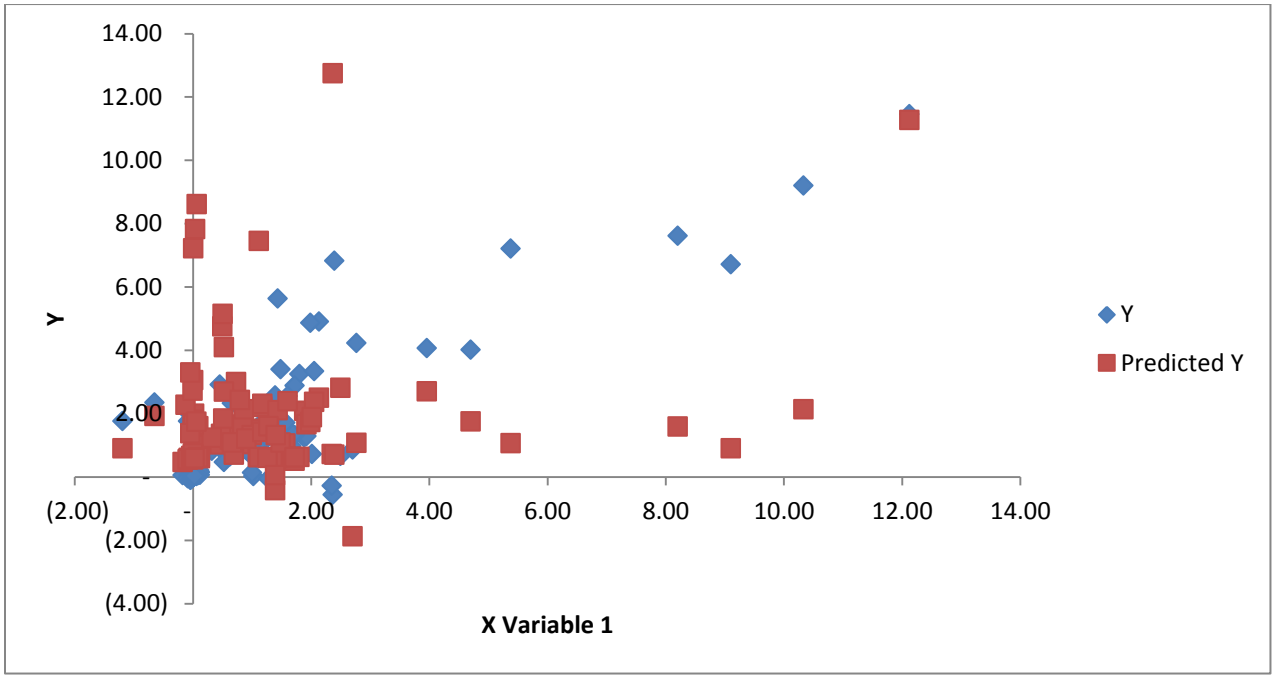
H2 Confidence of Correlation tests

TABLE 13: H2 CONFIDENCE OF CORRELATIONS RESULTS

Statistical Data	Before Elimination of Outliers	After Elimination of Outliers
R-Square	0.44	0.71
Y-Intercept	0.62	0.39
X-Variable	0.88	0.87
Mean -Y	1.54	1.08
Mean -X	1.08	1.31
t-test (confidence outcome)	0.02	(184.40)
Final result	**Accept**	**Accept**

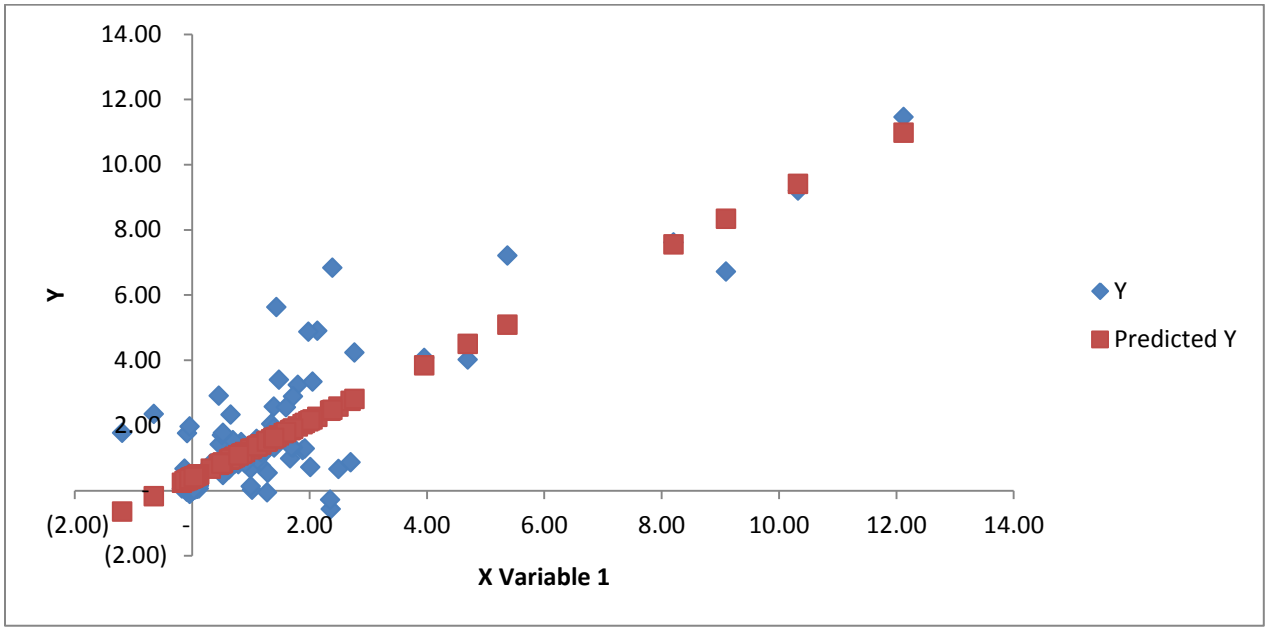
The process of establishing confidence of correlation was performed more than once. The first process indicated a high number of outliers as indicated on the graph below:

FIGURE 22: VARIABLE X LINE FIT PLOT WITH OUTLIERS



The number of outliers was 8 and believed to have distorted the outcome. Another regression analysis was performed and indicated some improvements as the table indicates above. The graph with eliminated outliers is here below:

FIGURE 23: VARIABLE LINE FIT PLOT ELIMINATED OUTLIERS



The test statistic results before and after the elimination of the outliers showed the t-statistic results of 0.02 and -184.4, which are below the level of significance of 0.05. Therefore, **the null hypothesis is accepted**.

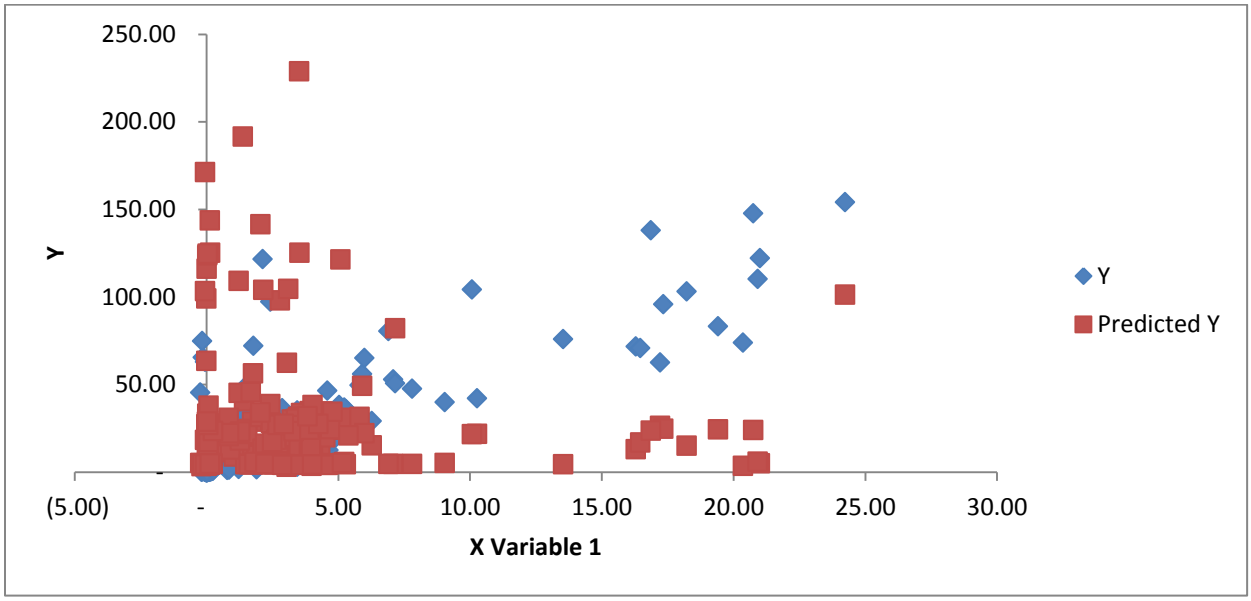
H3 Confidence of Correlation tests

TABLE 14: H3 CONFIDENCE OF CORRELATION RESULTS

Statistical Data	Before Elimination of Outliers	After Elimination of Outliers
R-Square	0.60	0.67
Y-Intercept	4.46	3.95
X-Variable	5.75	5.26
Mean -Y	108.39	99.06
Mean -X	18.08	18.08
t-test (confidence outcome)	0.03	0.03
Final result	**Accept**	**Accept**

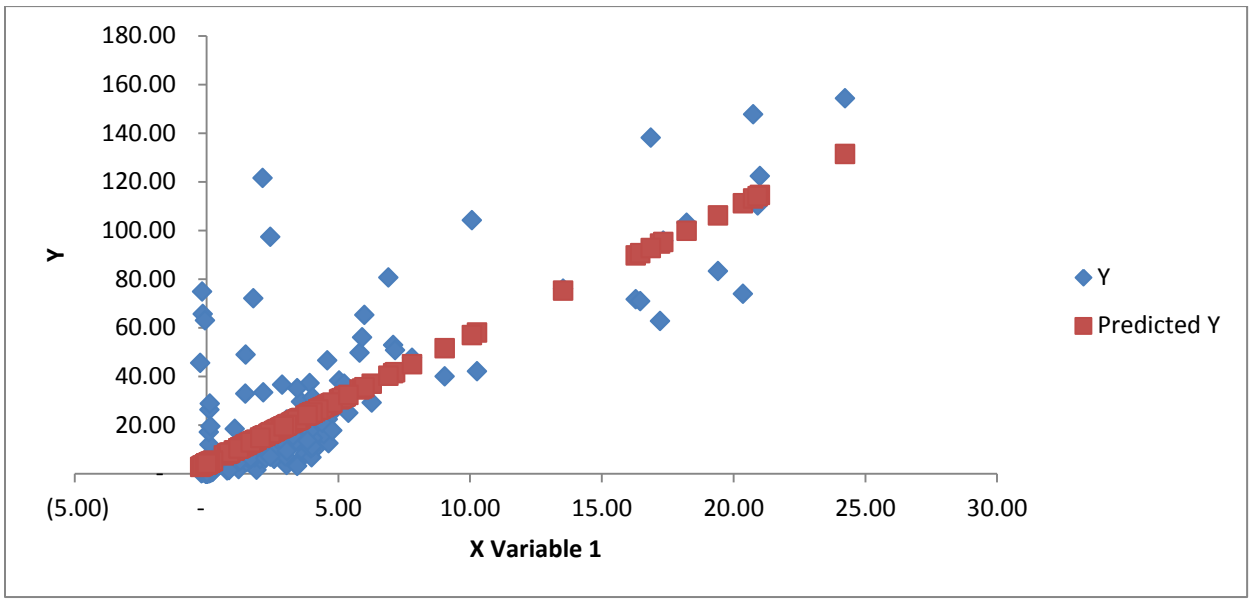
In this case of H3, the outliers were identified as the plot graph indicates below. The second process was to eliminate the outliers as indicated on FIGURE 25.

FIGURE 24: VARIABLE X LINE PLOT BEFORE ELIMINATION OF OUTLIERS



The graphical presentation below shows a much improved graph that shows a lesser dispersion of data from the prediction line.

FIGURE 25: VARIABLE X LINE FIT PLOT AFTER ELIMINATION OF OUTLIERS



The test statistic results before and after the elimination of the outliers showed the t-statistic results of 0.03 and 0.03, which are below the level of significance of 0.05. Therefore, **the null hypothesis is accepted**.

Chapter 6

Discussion

This chapter discusses the hypotheses findings and elaborates more on the results.

6. DISCUSSION

6.1 INTRODUCTION

The purpose and objective of this study was to evaluate the ability of current earnings and cash flows to predictive future cash flows and future share price. The research project was motivated by the assertion that investors look at the company's historical and current performances to determine future performance by analysing the earnings from the income statement and cash flows from operations (Higgins, 2009) and Banker *et al*. (2009).

The research adapted most parts of Kim and Kross (2005) report on the topic of earnings ability to predict future cash flows and future prices. The topic by Kim and Kross (2005) was a follow up on the previous reports by Dechow *et al*. (1998) and Collins *et al.* (1997).

The research project also set some objectives which included to investigate whether current year earnings can predict future cash flows; whether current year cash flows can predict future cash flows and lastly was investigate which of the two variables; earnings or cash flows have a better predictability of future share price.

A further investigation to the topic as to what other scholars had research before led to the formulation of the hypotheses in Chapter 3, which provided the basis for further investigation to this current research. There were four hypotheses that were set as follows:

H1: Current earnings have the ability to predict future cash flows

H2: Current cash flow from operations has the ability to predict future cash flows

H3: Current earnings have ability predict on future share prices

H4: Current cash flows from operations have the ability to predict future share prices

The purpose of this chapter is to discuss the findings of these hypotheses and provide a detail account of the results. The chapter also provided the detailed account of results in comparison to the other researchers on this topic.

6.2 CURRENT EARNINGS' ABILITY TO PREDICT FUTURE CASH FLOWS

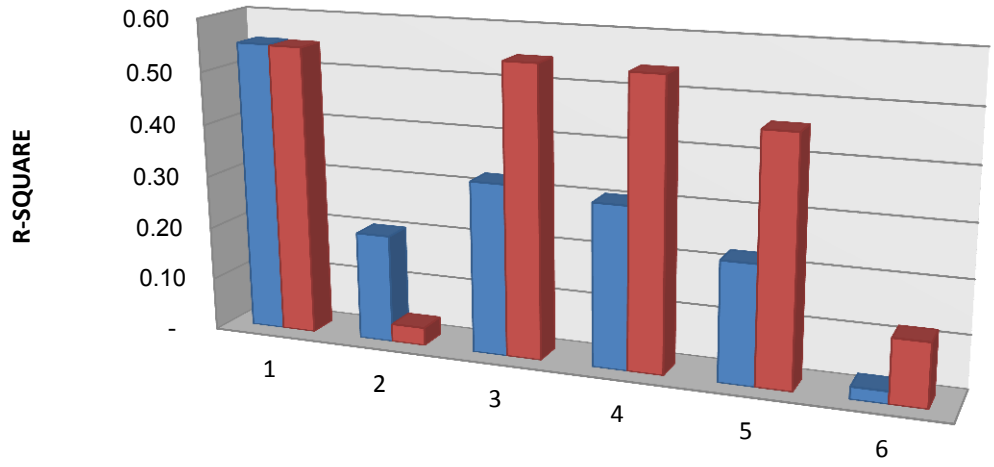
The research of earnings ability to predict future cash flows was prompted by the interest that shareholders do look at these two variables (amongst others) to evaluate past performance and forecast the future performance. The literature review found that earnings had a long term predictability power to predict future cash flows (Finger, 1994 and Bowen *et al*. 1986). Dechow *et al*.'s (1998) findings were corroborated by Kim and Kross (2005) that earnings have a better predictive ability of future cash flows than current cash flows. Barth *et al*. (2001) and Al-Attar and Husain (2004) further studied and analysed the findings by Dechow *et al*. (1998) and concluded that the disintegration of earnings components, being accruals and cash flows provided an improved ability to predict future cash flows.

Some authors added that earnings had become conservative and as such their predictive ability had become irrelevant, (Bandyopadhyay *et al*., 2010 and Reidl, 2010). However, Murdoch and Krause (2012) argued that the conservatism is line with the matching principles which improve the credibility or earnings and their ability to predict future cash flows. The credibility of earnings reduces any "tempering" with future cash flows in a form of accruals by management (Roychowdhury, 2003).

The theoretical findings led to the development of the hypotheses that needed to be further researched within the context of South African listed companies. The first hypothesis is denoted as (H1) above.

In this research, it was found that current earnings have no ability to predict future cash flows.

FIGURE 26: COMPARISON BETWEEN SHORT AND LONG TERM



	1	2	3	4	5	6
Long run	0.55	0.20	0.32	0.31	0.22	0.02
Short run	0.55	0.03	0.55	0.54	0.46	0.12

The average results of the R^2 provided that the relationship between earnings and future cash flows is lower than what was actually hypothesised. The short term analysis and the long term computations proved that the average R^2 results were 0.27 and 0.38, respectively.

The outcome was not in agreement with the previous findings by other researchers. The expected results were that earnings had a high predictive ability to predict future cash flows. It is outlined from above that the *R*-square of the earning over future cash flows started at high R^2 of 0.55, with time the power of predictability deteriorated which is not in line with the findings by Finger (1986). Allen and Cote (2005) warned against the possibility that not all earnings are able to predict future earnings. The adoption of IFRS by JSE companies must have improved the quality of the earnings. Any earnings management could have been rooted by the new reporting framework. Krause and Murdoch's (2012) assertion alluded to the fact that improved earnings management results in the improved probability of its ability to predict future cash flows.

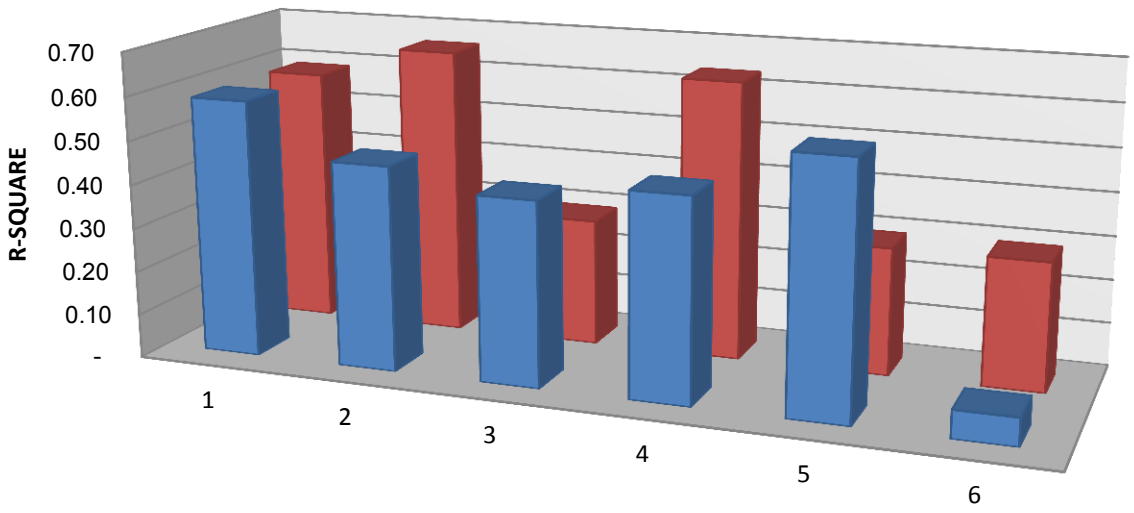
6.3 CURRENT CASH FLOWS'ABILITY TO PREDICT FUTURE CASH FLOWS

Current cash flows are derived from the Statement of Cash flows where they are disclosed as operations from operating activities. It is a requirement under IFRS that a set of annual financial statements to include this Statement of Cash flows. Graham and Whitfield (2010) and Broome (2004) mentioned the two types of Statement of Cash flow, being Direct and Indirect Method; Direct Method being a highly recommended method (Broome, 2004). Orpurt and Zang (2007) confirmed that the Direct Method provides a better ability to predict future cash flows that the Indirect Method.

It was noted that previous writers stated that current cash flows had a very low ability to predict future cash flows (Finger, 1994; Dechow et al. 1998; Kim and Kross, 2005). Barth et al. (2001) concluded that the disintegration of earnings into accruals and cash flows improved the ability of cash flow to predict future cash flow. These findings were replicated by Al-Attar and Husain (2004) applying it to the United Kingdom listed companies. They arrived at the same set of results that the disintegration of earnings components improves current cash flows' ability to predict future cash flows.

The hypothesis clearly intended to test if such ability by current cash flows had the ability to predict future cash flows. The information from a sample of 69 listed companies was regressed with each other. The first test intended to prove or disprove current cash flows' ability to predict future cash flows in a long run. The R^2 results found an average of R^2=0.43 which is higher than the hypothesis' R^2 of 0.40. A further test to determine current cash flows' ability to predict future cash flows in a short run provided the regression results average R^2= 0.46. Again the results indicated that current cash flows had an ability to predict future cash flows. The graph below compares long-and short run effects of current cash flows' ability to predict future cash flows.

FIGURE 27: COMPARISON BETWEEN SHORT RUN AND LONG RUN



	1	2	3	4	5	6
Long Run	0.59	0.47	0.42	0.46	0.57	0.06
Short run	0.59	0.66	0.29	0.64	0.29	0.29

The regression results suggested the null hypothesis be accepted. The test results were further subjected to a confidence of coefficients test to ensure that the results obtained could provide same results with an independent data. At significant level of 0.05, the t-test result was equal to 0.01613536 before the elimination of outliers; after the elimination, the t-test result was (184.399978). Both t-test results were lower than 0.05 and the R^2 results improved from 0.44 to 0.71.

The results provided by these tests that were performed indicate that current cash flows have the ability to predict future cash flows both in the short- and ling run. The **null hypothesis** was **accepted**.

The tests results are in contradiction to what the previous scholars have presented. Dechow *et al*. (1998) and Kim and Kross (2005) research findings concluded that current cash flows had a lower ability to predict future cash flows. The findings are in contradiction with the findings by Finger (1994). The assertion by Orpurt and Zang (2007) that the Direct Method of Statement of Cash flow was better predictor of future cash flow could not be proved due to the fact that the companies in the tests use the Indirect Method.

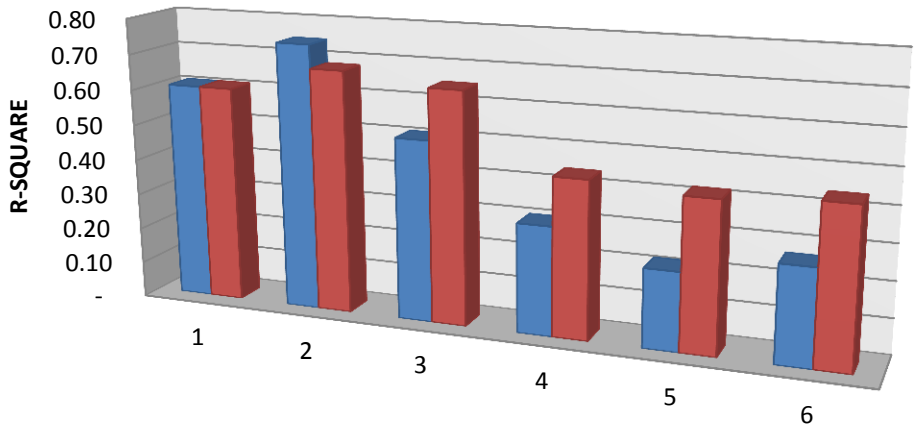
The disintegration of earnings components in terms of accruals and cash flow was not tested (Barth *et al*., 2001) but cash flow supported their findings about cash flows ability to predict future cash flows.

6.4 CURRENT EARNINGS' ABILITY TO PREDICT FUTURE SHARE PRICES

The evidence presented by the researchers was that earnings had no relationship with future share prices. Collins *et al.* (1997), Kim and Kross (2005) and Bandyopadhyay *et al*. (2010) found that the relationship between earnings and future share prices was deteriorating rather than improving over a period of time. Hecht and Vuolteenaho (2006) also added that there was no relationship between earning and share price.

The hypothesis tested whether current earnings had the ability to predict future share prices. In line with the other hypotheses, it was that the average of the μ of R^2 of the regression test should equal or the greater that 0.40. The long-and the short run scenarios were tested so as to establish the ability of current earnings to predict future share prices. The tests for long- and short run scenarios indicated the results of average R^2 to be 0.44 and 0.54, respectively. The results indicated that current earnings had a lower ability to predict future share prices whereas the short run indicates a stronger ability. The previous writers found that earnings had a diminishing ability to predict future share prices. They exhibit high ability in the short run and decline, (Collins *et al*., (1997) and Kim and Kross, 2005). On the basis of the findings, the hypothesis was accepted.

FIGURE 28: COMPARISON BETWEEN LONG AND SHORT RUN



	1	2	3	4	5	6
Long run	0.61	0.75	0.51	0.31	0.22	0.27
Short run	0.61	0.68	0.65	0.44	0.42	0.44

The graphical presentation further exhibits the pattern that current earnings ability to predict future price, both in short- and long run. Although the short run tests indicate better regression results than long run, however the relationship over time in both scenarios diminishes. The findings are in agreement with the previous findings on the relationship between earnings and future share price. However, the analysis between period 5 and 6 shows an increasing trend after a diminishing $R^{2.}$ The use of a longer period would have assisted in actually explaining this trend noted in period 5 to 6.

The benefit of applying a longer period of the sampled companies is noted in Penman and Zhang (2002) where they concluded applying a sample of 30 450 listed companies over a period between 1976 to 1995, that earnings had an incremental in predicting future share prices. In the following year a conflicting assertion was made by Ryan and Zarowin (2003) and later confirmed by Kim and Kross (2005) that earnings indicated a low ability to predict future share prices. The relationship between the two financial variables was not palatable to conclude that current earnings had the ability to predict future share prices.

Although the regression analysis presented the results that current earnings were able to predict future share prices, it was considered necessary to test confidence of coefficients. The first results showed that there was a high level of data points dispersed far from the prediction line. The second test eliminated the outliers as they distorted the confidence and reliability results

The results improved, the R^2 improved from 0.60 to 0.67 which symbolises a high level of correlation. The t-test 0.3 in both tests augured well with the fact that they were below the 0.05 level of significance and the regression test was regarded as the one that presents higher ability of current earnings to predict future share prices.

6.5 CURRENT CASH FLOWS' ABILITY TO PREDICT FUTURE SHARE PRICES

It is Charitou and Ketz (1990) who hold a strong view that share price is a reflection of discounted future cash flows. Platt *et al*. (2010) questioned if the discounted future cash flows were a reflection of the companies' values. An argument by Kaplan and Rubeck (1994) that there was no evidence that suggested that discounted cash flows provided a reliable estimate for the market value of share prices contrasted the view by Charitou and Ketz (1990).

It was also noted that some writers put string emphasis on accounting data as the strong predictor of future share prices. DeFond and Huang (2002) and Choi and Sias (2012) emphasised that the strong financial data suggested strong performance by the company and also persuasive to conclude that the company will continue to produce such financial information. The viability of the company is critical for investors to invest in the company. It is the same argument that was presented by Higgins (2009) that investors look at how the company performed and project it viability in the future. The sentiments were confirmed by Cohen and Kudryadstev (2012) that investors look at the future prospects of the company based on the past experience and knowledge about the historical market indices.

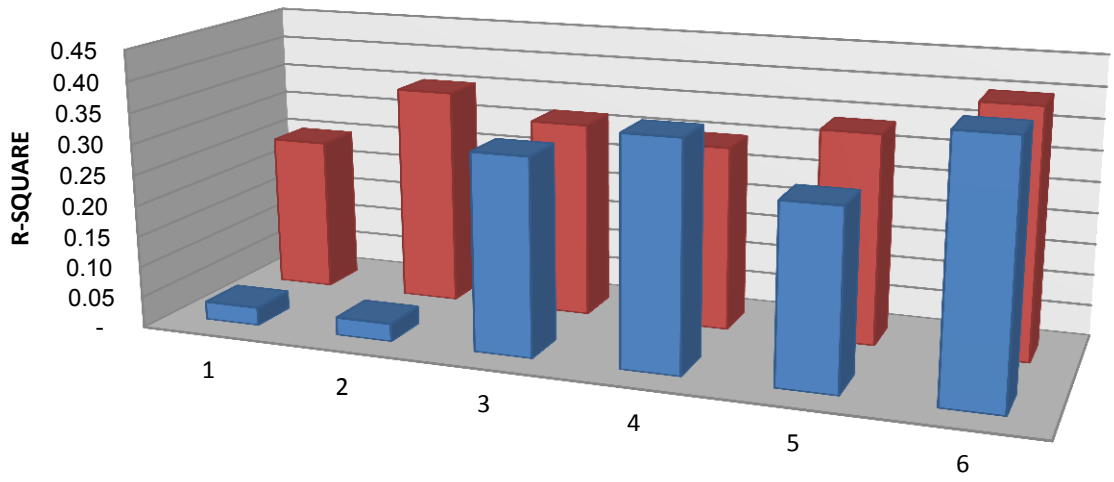
Another argument presented by the previous researchers suggested that investors react to the market news (Cohen *et al*., 2002; Hecht and Vuolteenho (2006). All these factors have an influence to the future share prices. The cash flow from operations form part of the accounting data provided by companies, it could be well suggested that they have an impact on the future prices of shares.

It was Kim and Kross (2005) who performed a regression analysis test between future share price and current cash flow. They concluded that the contemporaneous relationship between share price and current cash flow was declining. These tests were conducted over a period of 11 years. This was the only concrete evidence that was established where ability of current cash flows to predict future share prices was tested.

It was felt that a further investigation be conducted on these financial variables. The hypothesis was to prove that the μ average of future share prices will exceed R^2 of 0.40. The outcome of the tests was rejected as they concurred with Kim and Kross' (2005) findings. The averages of the long run and short run were 0.24 and 0.33, respectively.

The findings showed a declining trend and only in the last two periods were some increases started. The evidence is further presented graphically below:

FIGURE 29: COMPARISON BETWEEN LONG RUN AND SHORT RUN



	1	2	3	4	5	6
Long run	0.03	0.03	0.32	0.36	0.28	0.40
Short run	0.25	0.35	0.32	0.30	0.34	0.40

The graph above shows a low relationship between current cash flows and future share prices. The long run tests suggest that the R^2 results started from a low base and kept on improving. At period 6 they were at the same R^2 of 0.40. The short term results graph indicate that the R2 for the period were relatively higher that the long run graph although were below 0.40 with period 6 being and exception.

The short run showed a high level of erratic trend and no reliance could be placed on this prediction model. The standard error average for both long run and short run results were 35.26 and 21.25, respectively/

The hypothesis was rejected and no further correlation of coefficient tests was performed. The findings of this research project are in line with Kim and Kross (2005) that there was a low relationship between current cash flows and future share price. The contrast was that Kim and Kross (2005) found that the relationship was declining whereas the R^2 results of this research found that the relationship between current cash flows and future share prices was growing rather than declining in the long run.

6.6 CONCLUSION

It was evident from the results and the discussions presented above that the results were not in agreement with the previous researchers. The incidence opens up opportunities for further researches to be undertaken. It was not expected of earnings to be able to predict future in a long run. The reason for this assertion is the fact that most of the previous research findings have concluded earnings are not good predictors of future share price particularly in a long run. The results proved the opposite.

Again cash flows was able to predict future cash flows in a long run. The results or findings defied the previous findings by the researcher who have provided evidence that current cash flows were not good predictors of future cash flows in a long run.

It was noted that inability of current earnings to predict future cash flows was not expected. There have been many writers who have provided and proved that current earnings had a high predictive ability of future cash flows. Current flows inability to predict future share price was expected as there has not been any findings that suggested otherwise.

Further key findings are discussed in chapter 7 below where possible further researches were discussed in detail.

Chapter 7

Conclusion

This chapter discusses

7. CONCLUSION

The primary objective of this research was to establish the predictive ability of current earnings and cash flows on future cash flows and share prices. In the earlier chapters it was established that there was a relationship between the two elements, that is, earnings and cash flow from operations. Earnings are useful in measuring company's annual performance generated from it business operations. It is remembered that for the purposes of this study, EBITDA were used as earnings as they are useful in measuring the true performance of a company performance. Cash from operations represents cash that is actually generated by the company during the financial period. It is clear that earnings measure financial performance whereas cash flow from operations measure cash generated ability by business' operations.

It was then critical to assess whether their usefulness could be stretched beyond the mandatory reporting as required by the Companies Act and IFRS to determine their ability to predict future cash flows and future share prices. Investors have a propensity to invest in such businesses that indicate such qualities, that is, ability to predict future growth in share prices and liquid enough to pay dividends when due.

There were three objectives that we had set to achieve. The objectives that were set were

1. To investigate current earnings' ability to predict future cash flows;
2. To investigate current cash flows' ability to predict future cash flows;
3. To investigate which of the two variables, current earnings or cash flows had a better ability to predict future share prices.

In achieving these objectives set above, a sample of 69 companies was selected from the JSE listed companies. These companies excluded Mining, Financial Services and the companies that did not have a completed set of financial data that included the period from 2001 to 2011. The financial information was provided by McGregor BFA and downloaded into Excel worksheet. The price data that coincided with financial year ends was obtained for measuring the

7.1 KEY FINDINGS

7.1.1 CURRENT EARNINGS ABILITY TO PREDICT FUTURE CASH FLOWS

The study found that current earnings could not predict future cash flows given that fact that cash flow is one of the components of earnings (Barth *et al*., 2001). The findings proved that short and the long run; earnings indicated a low relationship with future cash flows. The findings were based on the regression analysis performed using Excel Data Analysis functions. The average R square for earnings ability to predict future cash flows over a long run was R^2=0.27. The average was lower than expected. The short run test results provided that the R^2 = 0.38. The hypothesis had set the minimum of R^2 = 0.40.

The previous researchers on the similar topics had found that there was a strong relationship between current earnings and future cash flows. Dechow *et al*. (1998) and Kim and Kross (2005) found that there was a strong relationship between these two variables. It came as unexpected that the results will indicate that there was no strong relationship between the two variables. As a result, the hypothesis was rejected and no further tests were conducted to verify the possible outliers.

The results may suggest that a future study on the current earnings ability to predict future earnings could be ensued to further investigate the discrepancy on the findings between these findings and the previous researchers.

7.1.2 CURRENT CASH FLOWS' ABILITY TO PREDICT FUTURE CASH FLOWS

However, current cash flows demonstrated that it had predictive ability on future cash flows. Again this finding did not agree with the theory that was found earlier research reports. The previous findings concluded that current cash flows had no predictive ability in a long run. In this research, it was found that current cash flows did not only demonstrate the predictive ability over future cash flows in a short run but also showed the power of predicting future cash flows in the long run.

The R^2 results in the short run and in the long run indicated R^2 = 0.43 and 0.46, respectively. The findings were beyond the R^2=0.40 threshold and they were subjected to further scrutiny through the use of t-test of the confidence of coefficients.

The t-test results indicated quite a number of outliers. The outliers identified were eliminated and a second round of confidence tests was conducted. The tests strengthened the earlier findings that current cash flows had the ability to predict future cash flows.

It was rather unprecedented that current cash flows had a high ability to predict future cash flows as shown in this research report. The study by Finger (1994) concluded that current cash flows only had the ability to predict future cash flows only in a short run. These findings by Finger (1994) were further supported by Dechow *et al.* (1998) and Kim and Kross (2005). It would have also been interesting to assess the abilities of cash flows applying different forms of the Statement of Cash flows to prove or disprove the findings by Orpurt and Zang (2007). The findings of this research were limited to the Indirect Method.

7.1.3 CURRENT EARNINGS' ABILITY TO PREDICT FUTURE SHARE PRICES

Current earnings were found have the ability to predict future share prices. The findings of this research project defied the previous findings by Collins *et al*. (1997), Kim and Kross (2005) and Bandyopadhyay *et al*. (2010) that earnings have a declining relationship with current earnings. The previous findings went to allude that earnings were no a good predictor of future share prices.

The findings were contrary to the previous researchers findings. Under normal strategic financial management practices, earnings are capitalised, declared as dividends or reinvested back to the company. The residual value impacts the earnings growth of the company which subsequently impacts the balance sheet value of the shares. The combination of retained earnings and shares issued is disclosed as shareholders' interest. In Collins et al. (1997) and Kim and Kross (2005) the shareholders' interest is regarded as book values. The book values were able to predict the future share prices. This shows that indirectly, earnings have the ability to predict share price. The retained earnings or the book value are the value of the accounting share price whereas, the share at the stock exchange could be perceived share prices by the capital market. In the literature, it was note that between the accounting financial data and the capital there is a lot of "noise" that impact positively or adversely to the perception and the value of share prices.

The hypothesis was accepted and the coefficients were subjected to a confidence test. The t-test performed confirmed the earlier results that earnings do have the ability to predict future share prices.

7.1.4 CURRENT CASH FLOWS' ABILITY TO PREDICT FUTURE SHARE PRICES T

The findings tend to follow the assertion made by Charitou and Ketz (1990) that share prices represented discounted future cash flows discount by a factor that took the riskiness other economic cycles that impact the capital market. The results proved the previous literature to be valid. The current cash flows could not predict future share prices. The tests were performed to test the abilities of current cash flows with future share prices both in the long run and long run. Kim and Kross (2005) conducted a similar test and obtained similar results.

The previous studies could not confirm the ability of current cash flows to predict future share prices. Some writers argued that strong financial data, which include cash flows from operations, had the ability to predict future share prices. Some pointed out that the past experience and future expectations, influenced the value of the share prices. Again the economic turbulences like inflation, recession or economic boom and interest rate influence the share prices.

It is not easy to predict future cash share prices without factoring these factors into account. The period between 2001 and 2011 has quite a number of incidences that impacted the economy and somehow influence the markets. In 2001, America was attacked and the airline industry was affected adversely and the global economy at large. This was followed by the financial crisis which started in America and impacted the rest of the World. In South Africa, year June 2007, the National Credit Act was implemented and followed by an economic meltdown which saw a rise in interest rates and slowdown in retail activity. To highlight but a few issues, some of these factors might have impacted the economy and capital market during the period of the research report.

7.2 IMPLICATIONS TO STAKEHOLDERS

There are three stakeholders that are impacted by this research and its findings. These identified stakeholders include the investors, traders and credit providers.

Investors

The investors normally take a long term view of their investment. Their decisions are influenced amongst other things by the liquidity of the company and its ability to grow it future shares. The study becomes important in making such decisions as they impact the future of the long term investments. The study looked at both the long term and the short one to assess the future predictability of these two elements. The results were mixed but provided the "platform" for the long term investors to apply in their investment decision making process..

Traders

The traders are looking mainly at the short term gains rather than the long term growth of the shares. They are interested in short term gains resulting from the short term appreciation of the share price and profit from such gains. The current earnings were able to predict future share prices and this finding is important in their prediction tests.

Credit providers

Credit providers grant credit facilities to firms in a form of asset finance or loan funding and other funding instruments. They are interested the firms' ability to meet its future obligation both in the short run and in the near future. The research findings would influence the creditor providers in terms of additional due diligence tests to perform in order to ascertain their ability to predict the firm's cash flow generation ability.

7.3 POSSIBLE FUTURE RESEARCH

The possible future researches include the following:

- The research could be repeated by taking a long term view of more than 11 years. It was noticed that most of the findings the results tend to start at the high R^2 then decline and in the long run start to increase again. It would be interesting to the longer run impact of these findings.
- This study did not disintegrate the earnings elements in terms of accruals and cash flows and to assess their impact of predictive ability on future cash flows. A multi regression analysis would be highly recommended to perform this research.
- The research focusing of the ability of current cash flow to predict future cash flows applying two different forms of Statement of Cash flows. The research to find out which of the two had a better ability to predict the future cash flows.
- The study of predictive ability of current earnings and cash flows could be applied in predicting other elements of financial information like earnings and dividend paying abilities.
- The predictive ability of other elements of the Statement of Cash flow, like Cash Utilised in Investing or Financing activities would have on future earnings of the firms.

These five possible research would assist in adding knowledge of the abilities of financial elements to predict future elements.

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