VALUE-BASED MANAGEMENT: SHAREHOLDER VALUE CREATION AND MANAGEMENT

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M.Comm (Cost and Management Accounting)

Dissertation submitted in partial fulfilment of the requirements for the Degree:
MASTER IN BUSINESS ADMINISTRATION at the NORTH-WEST UNIVERSITY

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Potchefstroom

ACKNOWLEDGEMENTS

God Almighty for good health, strength and the knowledge to complete this study.

My parents for their support, patience and love throughout my years of study. Had it not been for their support, this study and my MBA could not have been completed.

My son Zander, for his patience and love through the period of this study and completing my MBA.

Prof Ines Nel for his support and guidance during this study. His enthusiasm and passion for Financial Management were the major motivational factors that led to this study.

Dr J C Huebsch (MTGSA/MSATI) for his professional editing/proofreading of this study.

Vanderbijlpark
November 2009
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EXECUTIVE SUMMARY

The objective of this study is to evaluate the value drivers that drive the value of companies, as reflected in the share-prices. Through this study, the aim is to draw conclusions on the aspects that drive the share-price of companies.

A detailed literature study was performed on the value-creation process that takes place in a company. The literature study has a significant focus on Value-Based Management and the elements that should be considered when evaluating the manner in which companies create shareholder value through the operational activities that are performed. Through applying the principles of value-based management, the management of companies should maximise the value-created for shareholders by utilising company resources in the most effective and efficient way possible. Value-based management should not be seen as a once-of initiative, but should be ingrained in the day-to-day operating and management activities of companies. The objective of applying value based management principles in a company should be to enhance the value of financial assets through the optimisation of the real assets of the company. Value is created in a company when the company can maintain a return on capital that is greater than the cost of capital.

Through the literature study several value-drivers were identified that influence the shareholder value-creation process and that should be managed optimally. These value-drivers have been identified to be (1) sales growth, (2) cash profit margin – earnings before interest, tax, depreciation and amortisation (EBITDA), (3) cash tax rate, (4) working capital, (5) capital expenditure, (6) WACC – the risk and inflation adjusted weighted average cost of capital, and (7) the competitive advantage period. The competitive advantage period is defined as the time during which a company has a positive net present value when discounted at the WACC. Any actions that the management of a company can take to optimise these value-drivers will have a positive effect on the value created for shareholders.

The link between shareholder value-creation and share-price was investigated in the literature study. It was found that different factors influence share prices and that some

have nothing to do with the company itself, but more with investor sentiment about the economy as a whole and other socio-political factors.

The empirical study was based on analysing key value-drivers and financial ratios that were identified during the literature study, in order to establish the relationship between company value-creation and the share-price. The data sample that was used in the empirical study, consisted of 55 publicly listed companies that had a net asset value of one billion rand (R1,000,000,000) or more in 1998. This data sample parameter was chosen in order to consider companies in the empirical study that have significant market presence in the respective industries, sectors and sub-sectors. The time-horizon of the empirical study was over a 10-year period, from 1998 to 2007.

The relationship that exists between the dependent variables of (1) Average Share Price (ASP) and (2) Year-End Share Price (YESP) and the independent variables of (1) net assets, (2) turnover, (3) trading profit, (4) operating profit, (5) profit before interest and tax, (6) Net Operating Profit After Tax (NOPAT), (7) retained profits, (8) free cash flow, (9) Economic Value-Added (EVA), (10) Earnings Per Share (EPS), (11) Cash Flow Per Share (CFPS), (12) the price earnings ratio, (13) operating assets, (14) Return On Assets (ROA), and (15) Return On Equity (ROE) were analysed during the empirical study. These dependent and independent variables were chosen based on the insights gained through the literature study and was identified as appropriate to formulate conclusions on the relationship that exists between shareholder value-creation and share-price.

The distributions of the above-mentioned variables are discussed in detail and distribution figures are provided to contextualise the spread of the variables and provide background on the data that was used in the empirical study. Although the study of the variables was conducted over a 10-year period, from 1998 to 2007, distribution figures for the years 1998 and 2007, are depicted and discussed in order to provide a comparison of the changes that took place over the 10-year period.

Due to the nature of the variables analysed during the empirical study, the Spearman Rank Correlation Coefficient is used to measure the relationship that exists between the dependent and independent variables. The Spearman Rank Coefficient, is a factor

model that explains complex phenomena through a small number of basic causes or factors. Given the relative large number of shares available on the share market, the estimation of dependent, share-price variables cannot be performed without simplification to dimensionality, therefore the use of the Spearman Rank Coefficient.

The coefficient of correlation between the dependent and independent variables was calculated for the each of the years over the 10-year period and the applicability to explain the relationship between shareholder value-creation and share-price was analysed.

Through the statistical analyses and the interpretation of the results, it was concluded that earnings per share and cash flow per share are the most appropriate indicators for estimating the relationship that exists between shareholder value-creation and the share-price as reflected on the share market.

Table of Contents

		Page
ACKNOWLEDGEMENTS		i
EXECUTIVE SUMMARY		ii
CHAPTER 1: SHAREHOLDER VALUE-CREATION AND VALUE-MANAGEMENT		
1.1	INTRODUCTION	2
1.2	BACKGROUND TO THE STUDY	3
1.3	PROBLEM STATEMENT	6
1.4	OBJECTIVES OF THE STUDY	6
	1.4.1 Primary objectives	*6*
	1.4.2 Secondary objectives	*7*
1.5	SCOPE OF THE STUDY	7
1.6	RESEARCH METHODOLOGY	7
	1.6.1 Literature/theoretical study	*7*
	1.6.2 Empirical study	*8*
1.7	LIMITATIONS OF THE STUDY	8
1.8	CHAPTER DIVISION	8
1.9	CHAPTER SUMMARY	9
CHAPTER 2: SHAREHOLDER VALUE-CREATION AND SHAREHOLDER VALUE-MANAGEMENT		
2.1	INTRODUCTION	11
2.2	REAL ASSETS VERSUS FINANCIAL ASSETS	12
2.3	VALUE-BASED MANAGEMENT	14
2.4	THE LINK BEWEEN SHAREHOLDER VALUE-CREATION AND SHARE-PRICE	19
2.5	VALUE-CREATION INDICATORS	21
2.6	MEASURING SHAREHOLDER VALUE-CREATION	23

2.7 SHAREHOLDER VALUE-CREATION METRICS 26
2.7.1 Economic Value-Added (EVA) *26*
2.7.2 Market Value-Added (MVA) *31*
2.7.3 Free Cash Flow (FCF) *33*
2.7.4 The DuPont Analysis *36*
2.8 FINANCIAL RATIOS AS MEASURES OF COMPANY PERFORMANCE 39
2.8.1 Earnings per Share (EPS) *40*
2.8.2 Price-Earnings Ratio (P/E) *41*
2.8.3 Price/Cash Flow Ratio *41*
2.8.4 Return on Assets (ROA) *42*
2.9 CONCLUSION 42

CHAPTER 3: EMPIRICAL STUDY

3.1 INTRODUCTION 45
3.2 DATA SAMPLE USED IN THE EMPIRICAL STUDY 45
3.3 STATISTICAL ANALYSIS TECHNIQUES USED 46
3.4 DATA DISTRIBUTION OF THE ANALYSED INDEPENDENT VARIABLES 47
3.5 COEFFICCIENT OF CORRELATION ANALYSIS BETWEEN THE DEPENDENT AND INDEPENDENT VARIABLES INVESTIGATED 81
3.5.1 Dependent and independent variable coefficient of correlation *81*
3.5.2 Cefficient of correlation *81*
3.6 CONCLUSION 129

CHAPTER 4: CONCLUSIONS

4.1 INTRODUCTION 131
4.2 CONCLUSIONS 132
4.2.1 Conclusions on primary objectives *132*
4.2.2 Conclusions on secondary objectives *133*
4.3 RECOMMENADATIONS 135
BIBLIOGRAPHY 136

List of Tables

Table 1: Mean values in '000 of the analysed variables for the years 1998 to 2007 per year 47

Table 2: Percentage change in mean values year-on-year and over the 10-year period of the analysed variables for the years 1998 to 2007 48

Table 3: Standard deviation in '000 of each analysed variable over the 10-year period, 1998 to 2007 48

Table 4: Median values in '000 of each analysed variable over the 10-year period, 1998 to 2007 49

Table 5: Minimum and maximum values in '000 of each analysed variable over the 10-year period, 1998 to 2007 50

Table 6: Coefficient of correlation of the average share-price (ASP) and the respective independent variables 82

Table 7: Coefficient of correlation of the year-end share-price (YESP) and the respective independent variables 83

Table 8: Highest mean coefficient of correlation between the dependent variables ASP and YESP and the independent variables EPS and CFPS 132

Table 9: The 10-year mean coefficient of correlation between the dependent variables ASP and YESP and the independent variables FCF and EVA 133

List of Figures

Figure 1: Macro and micro shareholder value-drivers 15

Figure 2: Deriving shareholder value 17

Figure 3: How a company's business strategy affects financial analysis 23

Figure 4: Example of Economic Value-Added (EVA) calculation 27

Figure 5: Three courses of action for Economic Value-Added (EVA) Improvement 28

Figure 6: MVA where market value is greater than book value 31

Figure 7: MVA where market value is less than book value 32

Figure 8: Measuring free cash flows (FCF) 33

Figure 9: Interrelated financial and non-financial value drivers 35

Figure 10: Elements of Return on Equity 37

Figure 11: Distribution of net assets in 1998 in '000 of the sample of analysed companies 51

Figure 12: Distribution of net assets in 2007 in '000 of the sample of analysed Companies 52

Figure 13: Distribution of turnover in 1998 in '000 of the sample of analysed Companies 53

Figure 14: Distribution of turnover in 2007 in '000 of the sample of analysed Companies 54

Figure 15: Distribution of trading profit in 1998 in '000 of the sample of analysed companies 55

Figure 16: Distribution of trading profit in 2007 in '000 of the sample of analysed companies 56

Figure 17: Distribution of operating profit in 1998 in '000 of the sample of analysed companies 57

Figure 18: Distribution of operating profit in 2007 in '000 of the sample of analysed companies 58

Figure 19: Distribution of profit before interest and tax in 1998 in '000 of the sample of analysed companies 59

Figure 20: Distribution of profit before interest and tax in 2007 in '000 of the

Sample of analyses companies 60
Figure 21: Distribution of net operating profit after tax in 1998 in '000 of the sample of analysed companies 61
Figure 22: Distribution of net operating profit after tax in 2007 in '000 of the sample of analysed companies 62
Figure 23: Distribution of retained profits in 1998 in '000 of the sample of analysed companies 63
Figure 24: Distribution of retained profits in 2007 in '000 of the sample of analysed companies 64
Figure 25: Distribution of free cash flow in 1998 in '000 of the sample of analysed companies 65
Figure 26: Distribution of free cash flow in 2007 in '000 of the sample of analysed companies 66
Figure 27: Distribution of economic value-added (EVA) in 1998 in '000 of the sample of analysed companies 67
Figure 28: Distribution of economic value-added (EVA) in 2007 in '000 of the sample of analysed companies 68
Figure 29: Distribution of earnings per share (EPS) in 1998 in cents of the sample of analysed companies 69
Figure 30: Distribution of earnings per share (EPS) in 2007 in cents of the sample of analysed companies 70
Figure 31: Distribution of cash flow per share (CFPS) in 1998 in cents of the sample of analysed companies 71
Figure 32: Distribution of cash flow per share (CFPS) in 2007 in cents of the sample of analysed companies 72
Figure 33: Distribution of the price earnings ratio (PE) in 1998 of the sample of analysed companies 73
Figure 34: Distribution of the price earnings ratio (PE) in 2007 of the sample of analysed companies 74
Figure 35: Distribution of operating assets in '000 in 1998 of the sample of analysed companies 75
Figure 36: Distribution of operating assets in '000 in 2007 of the sample of analysed companies 76
Figure 37: Distribution of return on assets (ROA) in 1998 of the sample

of analysed companies 77
Figure 38: Distribution of return on assets (ROA) in 2007 of the sample of analysed companies 78
Figure 39: Distribution of return on equity (ROE) in 1998 of the sample of analysed companies 79
Figure 40: Distribution of return on equity (ROE) in 2007 of the sample of analysed companies 80
Figure 41: Scatterplot of the values for ASP and net assets for the year 1998 84
Figure 42: Scatterplot of the values for YESP and net assets for the year 1998 85
Figure 43: Scatterplot of the values for ASP and turnover for the year 1998 87
Figure 44: Scatterplot of the values for YESP and turnover for the year 1998 88
Figure 45: Scatterplot of the values for ASP and trading profit for the year 1998 90
Figure 46: Scatterplot of the values for YESP and trading profit for the year 1998 91
Figure 47: Scatterplot of the values for ASP and operating profit for the year 1998 93
Figure 48: Scatterplot of the values for YESP and operating profit for the year 1998 94
Figure 49: Scatterplot of the values for ASP and profit before interest and tax for the year 1998 96
Figure 50: Scatterplot of the values for YESP and profit before interest and tax for the year 1998 97
Figure 51: Scatterplot of the values for ASP and NOPAT for the year 1998 99
Figure 52: Scatterplot of the values for YESP and NOPAT for the year 1998 100
Figure 53: Scatterplot of the values for ASP and retained profits for the year 1998 102
Figure 54: Scatterplot of the values for YESP and retained profits for the year 1998 103
Figure 55: Scatterplot of the values for ASP and free cash flow (FCF) for the year 1998 105
Figure 56: Scatterplot of the values for YESP and free cash flow (FCF)

for the year 1998 107
Figure 57: Scatterplot of the values for ASP and economic value-added (EVA) for the year 1998 108
Figure 58: Scatterplot of the values for YESP and economic value-added (EVA) for the year 1998 110
Figure 59: Scatterplot of the values for ASP and earnings per share (EPS) for the year 1998 111
Figure 60: Scatterplot of the values for YESP and earnings per share (EPS) for the year 1998 113
Figure 61: Scatterplot of the values for ASP and cash flow per share (CFPS) for the year 1998 114
Figure 62: Scatterplot of the values for YESP and cash flow per share (CFPS) for the year 1998 116
Figure 63: Scatterplot of the values for ASP and price earnings ratio (PE) for the year 1998 117
Figure 64: Scatterplot of the values for YESP and price earnings ratio (PE) for the year 1998 119
Figure 65: Scatterplot of the values for ASP and operating assets for the year 1998 120
Figure 66: Scatterplot of the values for YESP and operating assets for the year 1998 122
Figure 67: Scatterplot of the values for ASP and return on assets (ROA) for the year 1998 122
Figure 68: Scatterplot of the values for YESP and return on assets (ROA) for the year 1998 125
Figure 69: Scatterplot of the values for ASP and return on equity (ROE) for the year 1998 126
Figure 70: Scatterplot of the values for YESP and return on equity (ROE) for the year 1998 128

List of Graphs

Graph 1: Coefficient of correlation of ASP and net assets for the period 1998 to 2007 85

Graph 2: Coefficient of correlation of YESP and net assets for the period 1998 to 2007 86

Graph 3: Coefficient of correlation of ASP and turnover for the period 1998 to 2007 88

Graph 4: Coefficient of correlation of YESP and turnover for the period 1998 to 2007 89

Graph 5: Coefficient of correlation of ASP and trading profit for the period 1998 to 2007 91

Graph 6: Coefficient of correlation of YESP and trading profit for the period 1998 to 2007 92

Graph 7: Coefficient of correlation of ASP and operating profit for the period 1998 to 2007 94

Graph 8: Coefficient of correlation of YESP and operating profit for the period 1998 to 2007 95

Graph 9: Coefficient of correlation of ASP and profit before interest and tax for the period 1998 to 2007 97

Graph 10: Coefficient of correlation of YESP and profit before interest and tax for the period 1998 to 2007 98

Graph 11: Coefficient of correlation of ASP and NOPAT for the period 1998 to 2007 100

Graph 12: Coefficient of correlation of YESP and NOPAT for the period 1998 to 2007 101

Graph 13: Coefficient of correlation of ASP and retained profits for the period 1998 to 2007 103

Graph 14: Coefficient of correlation of YESP and retained profits for the period 1998 to 2007 104

Graph 15: Coefficient of correlation of ASP and FCF for the period 1998 to 2007 106

Graph 16: Coefficient of correlation of YESP and FCF for the period 1998 to 2007 108

Graph 17: Coefficient of correlation of ASP and EVA for the period 1998 to 2007 109
Graph 18: Coefficient of correlation of YESP and EVA for the period 1998 to 2007 111
Graph 19: Coefficient of correlation of ASP and EPS for the period 1998 to 2007 112
Graph 20: Coefficient of correlation of YESP and EPS for the period 1998 to 2007 114
Graph 21: Coefficient of correlation of ASP and CFPS for the period 1998 to 2007 115
Graph 22: Coefficient of correlation of YESP and CFPS for the period 1998 to 2007 117
Graph 23: Coefficient of correlation of ASP and PE for the period 1998 to 2007 118
Graph 24: Coefficient of correlation of YESP and PE for the period 1998 to 2007 120
Graph 25: Coefficient of correlation of ASP and operating assets for the period 1998 to 2007 121
Graph 26: Coefficient of correlation of YESP and operating assets for the period 1998 to 2007 123
Graph 27: Coefficient of correlation of ASP and ROA for the period 1998 to 2007 124
Graph 28: Coefficient of correlation of YESP and ROA for the period 1998 to 2007 126
Graph 29: Coefficient of correlation of ASP and ROE for the period 1998 to 2007 128
Graph 30: Coefficient of correlation of YESP and ROE for the period 1998 to 2007 129

CHAPTER 1: SHAREHOLDER VALUE-CREATION AND VALUE-MANAGEMENT

1.1	INTRODUCTION	2
1.2	BACKGROUND TO THE STUDY	3
1.3	PROBLEM STATEMENT	6
1.4	OBJECTIVES OF THE STUDY	6
	1.4.1 Primary objectives	*6*
	1.4.2 Secondary objectives	*7*
1.5	SCOPE OF THE STUDY	7
1.6	RESEARCH METHODOLOGY	7
	1.6.1 Literature/theoretical study	*7*
	1.6.2 Empirical study	*8*
1.7	LIMITATIONS OF THE STUDY	8
1.8	CHAPTER DIVISION	8
1.9	CHAPTER SUMMARY	9

CHAPTER 1

SHAREHOLDER VALUE-CREATION AND VALUE-MANAGEMENT

1.1 INTRODUCTION

Company share-price is one of the most important measures to evaluate public perception of the value of a specific listed company. An array of financial analysis techniques, have been developed in order to analyse and predict the behavioural aspects of the share-price of companies. However, as shown by the recent global credit crisis predicting the future of company share-price and hence, perceived value is a very complex and subjective exercise. Historical data analysis forms the backbone of most of the financial analysis techniques in order to predict future company performance and value. This in itself is not incorrect however, the concern that should be raised is "what" historical data and information are analysed and "how" this is interpreted.

Magliolo (2005:2) states that the performance of company shares on the stock-market, is part of everyday news, but it is difficult to be sure about what really influences share-prices. The basic economic principle of supply and demand affecting share-prices, is obvious, but the factors that influence supply and demand are not.

The efficient utilisation and consumption of available organisational resources should be a determinant factor of the value-created through organisational activities and hence the perceived value of a company's share. Organisations should ensure that operational activities generate more value for each rand utilised, than invested in operating activities. Copeland, Koller and Murrin (1998:7) state that managing an organisation on value-based principles, requires the willingness to adopt a dispassionate, value-orientated view of corporate activities that recognises businesses for what they are –

investments in productive capacity that either earn a return above their opportunity cost of capital or not.

1.2 BACKGROUND TO THE STUDY

The background to this study is the fact that it appears that organisational value and share-price is frequently based on perception, without an understanding of true organisational value-creation and what it entails. The purpose of this study will be to analyse the factors that should be considered when estimating current and future value of organisations. One of the most important objectives of this study will be to analyse the correlation between key financial indicators of organisations and share-price, in order to establish how investor decisions are influenced by facts and perception. This statement can be linked to the current world-wide credit crisis where it appears that banks were valued, based on turnover, without understanding the underlying factors that should be considered when determining the creation of value within an organisation.

If one asks a group of senior executives of a public company what drives them to work, most will answer the creation of shareholder value (Sharman, 2009:5). In other words, executives want to ensure that shareholders are provided not only with a financial return that exceeds initial investment, but a return that is greater than an alternative investment. In order for organisations to achieve sustainable value-creation, the whole organisation must adopt a culture of value-creation. Studies of value-based management (VBM) methods were initially conducted when academics theorised that traditional accounting measures were inadequate measures of an organisation's performance. Value-Based Management is not a methodology per se, but rather how an organisation analyse, plan, measure and takes action in order to achieve economic profit (EP), EP = NOPAT – Capital Charges, (Sharman, 2009:7). Maximising shareholder value should be management's primary objective. In order to implement value-based management, managers must have concrete and clear target measures, since "value" is abstract and vague in its nature. Managers need to know the specific strategic variables that derive the value of a business in order to develop strategic

planning processes and tract its progress (Kim, 2004). It is argued that value-based management should not be seen as a once-off project or improvement initiative, it should be ingrained into the day-to-day operating and management principles of the organisation and every employee should be made aware of the impact that actions have on the overall achievement of a value-creating organisational environment. It is also argued that effective corporate governance and financial control should include the use of monitoring and incentive mechanisms to align divergent interests between shareholders and managers, and should aim to encourage the creation of shareholder value through informed decision making. Value-based management is a management philosophy that uses analytical tools and processes to focus an organisation on the single objective of creating shareholder value. It includes an alignment of corporate strategy, performance reporting and incentive compensation, and aids to bring all staff together to act like shareholders, making decisions that maximize value (Athanassakos, 2007). It is concluded that the fundamental objective of VBM is the alignment of organisational resources to create intrinsic organisational value that will lead to improvements in stock market performance over the long run.

Hagstrom (2005:121) states that any investor must weigh two factors when opting to purchase a company's shares, namely is the company of a good value, and is this a good time to purchase shares in this company – that is, is the price favourable? The share price of a company can be influenced by several factors. The question that any investor should familiarise with is "Why do share prices fluctuate?" Many different factors influence share-prices; some have nothing directly to do with the company itself, but have more to do with general sentiments about the economy. It can be argued that such factors include expectations about interest and inflation rates, growth or recession in the economy, exchange rates, political stability and the technological landscape. These factors can be both industry-specific to a company or can be for the economy as a whole. An investor should determine the value of a company's share after weighing all the relevant information known about the company's business, management, and financial situation.

Mills (1998:5) states that shareholder value-realisation is defined as the process whereby a company can maintain a return on capital greater than its cost of capital. This represents the value shareholders are looking for when making decisions to invest

in a company. Value-creation involves being able to offer something to customers at a price that satisfies the condition of earning a positive return. It is therefore concluded that value-preservation is the need to ensure that the value that is created is not wasted or destroyed through inefficiencies or poor management and that value-realisation is the need to ensure that investors realise value through capital appreciation of shares, share buy-backs and dividend pay-outs.

Cant (2006) argues that there are seven "value-drivers" that determine the corporate goal of creating shareholder value namely turnover/sales growth, operating profit margins, cash income tax, fixed assets/capital, working capital, weighted-average cost of capital (WACC) and the growth duration period, and that these value-drivers can be classified into three groups that represent key functions namely operating, investing and financing objectives. Depending on organisational circumstances and the industry sector, each value-driver will have a greater or lesser leverage impact on organisational value-creation. Organisations in certain industries might achieve a greater value-creation through cost optimisation or cost reduction while organisations in different industries might realise higher value-creation through sales growth. The important factor according to organisations should be able to focus value-creation efforts on those key organisational value-drivers that maximise value-creation. As stated earlier, a company creates shareholder value only if it achieves returns in excess of its cost of capital.

It is argued that historically, the assessment of a company's performance was based on annual profit returns, but in recent years this has been seen as a short-term and subjective assessment of organisational performance, providing a poor indication of long-term financial return. Consequently, there has been a significant shift to measuring value-creation instead. Mills (1998:9) states that there is one particular problem with using profits or earnings for value-creation and investment analysis, and that is, creative accounting. This represents a means by which companies are able to create a favourable picture of performance while doing nothing necessarily illegal. There are a number of well-documented methods of creative accounting, but one potential creative accounting approach that can be used, is to keep costs away from the profit-and-loss account by capitalising these costs. This is achieved by including these costs with fixed assets in the balance sheet. Treating certain costs in this way, a company can inflate or

overstate its periodic returns and provide inaccurate financial information on which potential investors may make investment decisions.

Value-creation measures come in a variety of forms, such as Shareholder Value-Added (SVA), Economic Value-Added (EVA), Cash Flow Return on Investment (CFROI) or Return on Net Assets (RONA), Discounted Cash Flow (DCF) and Market Value-Added (MVA). These measures all provide an aggregate measure of whether, and to what extent, an organisation is creating value. Investors and analysts use these measures to assess how an organisation is performing relative to other investment choices, which in turn influences what they are willing to pay for that organisation's shares. According to Hagstrom (2005: 121) share-price and value are not necessarily equal, and that Warren Buffet often remarks that price is what an investor is willing to pay, while value is what an investor receives.

1.3 PROBLEM STATEMENT

Organisational share price should reflect the value that is created by an organisation. The opinion is that share-price should be based on the value that organisations create for shareholders. It can be argued that strong relationships should exist between key financial indicators and the value of shares of an organisation.

1.4 OBJECTIVES TO THE STUDY

1.4.1 Primary objectives

The primary objective of this study is to analyse the key financial indicators of a sample of listed organisations on the Johannesburg Stock Exchange (JSE) that had a net asset value of one billion rand (R1,000,000,000) or more in 1998 and the relationship that exists between these indicators and the changes in share-price.

1.4.2 Secondary objectives

The secondary objectives of the study is to analyse and evaluate the operational efficiencies created or destroyed, through the efficient utilisation and consumption of available organisation resources that influence the key financial indicators as analysed and evaluated in the primary objective. This analysis will be based on analysing publicly available financial information of the sample of JSE-listed organisations.

1.5 SCOPE OF THE STUDY

An analysis and evaluation of the financial factors that influence and should be considered when determining and predicting the value of an organisation and the correlation thereof with the value of the company as reflected in the current and future share-price. The scope of this study will be to analyse financial information of a selected sample of JSE-listed organisations. The scope of this study excludes the operational analysis of these organisations. Conclusions about the operational efficiencies of the sample of organisations will be based on analysing publicly available financial information.

1.6 RESEARCH METHODOLOGY

1.6.1 Literature/theoretical study

The literature study will be based on analysing and evaluating financial analysis methodologies currently utilised in the determining and prediction of organisation value and the variables that are included in these methodologies. This will be conducted through the utilisation of various sources including the internet, libraries and professional services organisations.

1.6.2 Empirical study

The empirical study will be conducted through the analysis and evaluation of annual reports and analyst reports of the sample companies, combined with other publicly available information on the companies in the sample for a specific period. The empirical study will entail both a historical financial analysis, as well as an analysis on the historical strategic directions of the companies. The information from these historical analyses will be used to evaluate and calculate the correlation that exist between the various key financial indicators and strategic decisions and the perceived value that the share-price represents.

The main statistical methods that will be used in the study, are the calculation of relationships and correlations between identified key financial and non-financial indicators from the sample company information.

1.7 LIMITATIONS OF THE STUDY

The major limitation to the study will be the depth of publicly available financial and strategic information or sensitive with regards to financial and strategic information. As mentioned before, the study will be based on the analysis of historical annual reports and analyst information.

1.8 CHAPTER DIVISION

The chapters in this mini-dissertation are presented as follows:

Chapter 1: An introduction to the background of the study was done, which included a brief introduction to the concept of value of the firm and maximising shareholders' value. The need for good performance measures to help managers make good decision is also discussed and problem statement, objectives of the study has been defined in this chapter.

Chapter 2: Literature review on economic value added (EVA) and the underlying principles will be discussed. The concept of maximising shareholders' value, the concept of value- based management and a detailed discussion of economic value added are included. The traditional performance measures that will be used in the analysis will also be discussed and the perceived benefits or drawbacks will be highlighted.

Chapter 3: Empirical study will be conducted on the databases of industrial firms listed on the JSE between 1998 and 2007 to assess how well the theoretical discussion in Chapter 2 correlates with the results from the analysis of the data.

Chapter 4: Conclusions and Recommendations are drawn based on the empirical study done in Chapter 3.

1.9 CHAPTER SUMMARY

This chapter is an introduction to the research area on which the research will be done. The value of the firm and the concept of maximising shareholders' value was introduced. The problem statement and the objectives of the research were demarcated. The primary objective of the research is to analyse how well economic value added (EVA) will measure the shareholders' value in the South African context. The literature study in the next chapter is based on articles published in journals and on the Internet that provide the most recent research on this area.

A breakdown of the chapters and their contents was provided in this chapter.

CHAPTER 2: SHAREHOLDER VALUE-CREATION AND SHAREHOLDER VALUE-MANAGEMENT

2.1	INTRODUCTION	11
2.2	REAL ASSETS VERSUS FINANCIAL ASSETS	12
2.3	VALUE-BASED MANAGEMENT	14
2.4	THE LINK BEWEEN SHAREHOLDER VALUE-CREATION AND SHARE-PRICE	19
2.5	VALUE-CREATION INDICATORS	21
2.6	MEASURING SHAREHOLDER VALUE-CREATION	23
2.7	SHAREHOLDER VALUE-CREATION METRICS	26
	2.7.1 Economic Value-Added (EVA)	26
	2.7.2 Market Value-Added (MVA)	31
	2.7.3 Free Cash Flow (FCF)	33
	2.7.4 The DuPont Analysis	36
2.8	FINANCIAL RATIOS AS MEASURES OF COMPANY PERFORMANCE	39
	2.8.1 Earnings per Share (EPS)	*40*
	2.8.2 Price-Earnings Ratio (P/E)	*41*
	2.8.3 Price/Cash Flow Ratio	*41*
	2.8.4 Return on Assets (ROA)	*42*
2.9	CONCLUSION	42

CHAPTER 2

SHAREHOLDER VALUE-CREATION AND SHAREHOLDER VALUE-MANAGEMENT

2.1 INTRODUCTION

Warren Buffets' philosophy on business investing is based on the value-investing approach of his mentor Benjamin Graham, who bought companies that were cheap, compared to intrinsic value (Magliolo, 2008:2). The first question that arises from this statement, is "How is the intrinsic value of a company determined?" The second question that arises, is "Are there specific financial variables, that when analysed over a period of time will provide an indication of a company's intrinsic value and how the analysis of these variables relate to the perception of the share-market, and eventually to a company's share-price. Busetti (2009:2) states that Benjamin Graham described an investment company as a company that upon thorough analysis, promises safety of principle and a satisfactory return and that companies that do not meet these requirements, are speculative. Hagstrom (2005:13) states the same explanation of an investment company from Benjamin Graham and quotes Graham as explaining "thorough analysis" as the careful study of available facts with the attempt to draw conclusions from the analysis based on established principles and sound logic. From the above it can be concluded that sound investment is based on the comprehensive understanding of available, relevant facts that pertain to the investment decision, and that any investment made without the application of analysis techniques merely, is speculative in nature. Cokins (2004:11) states that there is a need for a commonly accepted method to understand value and changes in an organisation's value and that determining value involves more than Earnings Per Share (EPS) reporting, value-creation involves understanding the generation of free cash flow above cost of capital, not just historical revenues, cost, and accounting profit; it involves measuring economic profit.

Investment analysts must continually address the same question for every investment that is either a current or prospective portfolio holding, and that is the question of should an investor purchase, sell or continue to own the specific share or portfolio of shares.

Equity analysts attempt to identify securities as fair value, overvalued or undervalued, relative to either market price or the price of comparable securities (Stowe *et al.*, 2002:3). Investment bankers, corporate analysts and investment analysts use valuation tools to assess the impact of various corporate actions on the value of shares in companies. Some of these actions are the acquisitions of other companies, divestures, spin-offs, management buyouts (MBO) and leveraged recapitalisation. Each of these actions may have an effect on future cash flow of a company, and therefore, the value of shares.

2.2 REAL ASSETS VERSUS FINANCIAL ASSETS

The understanding of the difference between real assets and financial assets is of significant importance in establishing the link between organisational performance and the creation of shareholder value. This is due to the fact that companies utilise and consume scarce resources in the production of products and the delivery of services. It is argued that the material wealth of a society is determined by the productive capacity of its economy, that is, the products and services that can be produced in a specific economy. The productive capacity of an economy is dependent on the allocation of available resources and it is with regards to the allocation of these resources that the economic principle of scarcity is applicable. Carbaugh (2007:3) argues that economics is first and foremost the study of choice under the condition of the scarcity of resources and that the creation of optimal value from resources the goal of economic choice is. Bodie, Kane and Marcus (2008:4) define real assets of an economy as the land, buildings, machines, and knowledge that can be used to produce goods and services. Brigham and Ehrhardt (2005:507) classify the assets of a company into two types: operating and non-operating and further distinguish operating assets into assets-in-place and growth options. Assets-in-place are tangible assets consisting of land, buildings, machines and inventory, plus intangible assets such as patents, customer

lists, reputation and general know-how. Growth options are defined by Brigham and Ehrhardt (2005:507), as opportunities to expand that arise from a company's operating knowledge, experience and other resources and that both assets-in-place and growth options expected, provide streams of cash flow. Hagstrom (2005:14) states that Benjamin Graham argued that the intrinsic value of a company is an elusive concept and that it was originally thought that intrinsic value is the same as a company's book value of its real assets minus obligations; however, analysts came to know that the value of a company was not only its real assets but also the value of the earnings that these assets produced.

In contrast to real assets, financial assets are defined by Busetti (2009:6) as securities such as stocks and bonds. Such securities are no more than sheets of paper and are the means by which claims are held against real assets by investors in these securities. Financial assets are claims to the income generated by real assets. Through understanding the difference between real assets and financial assets, it is now possible to investigate the relationship that exists between the effective utilisation of real assets and the impact on the value of financial assets. Real assets therefore, generate income in an economy while financial assets are the allocation of this income or wealth among investors. The funds raised by companies when investors purchase shares in these companies, are utilised to acquire real assets such as plant and equipment that are utilised in the production of products or the rendering of services and for the purchase of inventory that are consumed in the production of products. An investor's returns for investing in a company ultimately come from the income produced by the real assets that were financed by the money invested in the shares of the company.

McSweeney (2007:325) argues that shareholder-maximizing proponents regard the share-market as an epistemic device, processing, concentrating and concisely transmitting, via price signals disperse information and that through punishing underperforming companies through refusing further investment and rewarding better performing companies by investing in them, better utilisation of resources are achieved. Busetti (2009:2) states that investing is the spending of money now in order to receive more money back in the future. It is concluded therefore, of utmost importance that organisations and the economy as a whole, create value to the suppliers of money and funds through investment in financial assets. If countries whose economic systems are

not based on maximising shareholder value give investors lower returns on capital than those who do, those economies will slowly be starved of capital, as capital markets continue to globalise (Copeland, Koller & Murrin, 1998:4). It is therefore, concluded that the success or failure of financial assets is dependent on the performance of the underlying real assets.

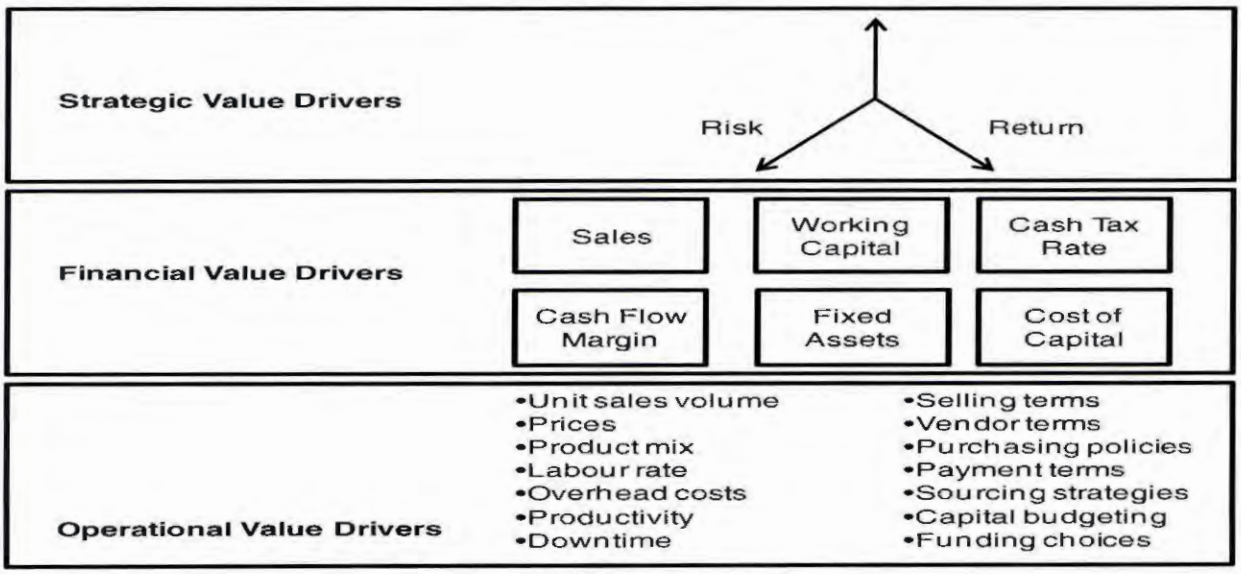
2.3 VALUE-BASED MANAGEMENT

In the quest of achieving value-creation and thus a high economic-profit (EP), many organisations are turning to value-based management. Value-based management are measures and methodologies that organisations use to plan operations, make decisions and act in order to create value. Black, Wright and Davies (2001:5) define shareholder value as the difference between corporate value and debt, where corporate value is the sum of future (or free) cash flows, discounted at the Weighted Average Cost of Capital (WACC) of the company and that value-based management is the alignment of strategies, policies, performance measures, rewards, processes, systems and people to deliver increased shareholder value. Brigham and Ehrhardt (2005:9) states that a company's value is determined by its ability to generate cash flows now and in future. In other words, after all claims of a company's debt holders have been taken care of, shareholder value is the value that can be claimed by the shareholders.

Ashton (2007:2) defines value-based management as the focus on defining and implementing management strategies having the highest potential for creating shareholder value, identifying value-drivers and aligning management processes that support value-creation and to design performance measures and incentive systems that reflect value-creation. Cokins (2004:11) argues that there are always trade-offs in the value-creation process because of natural conflicts, for example, if products, features and services for customers were expanded, would the spending increase or decrease shareholder wealth? The interrelationship that exists between real assets and financial assets necessitates organisations to be focussed on value-creation through operational and management activities. Hagstrom (2005:81) states that managers who behave like owners of companies tend not to lose sight of the company's prime objective, increasing

shareholder value, and that these managers tend to make decisions that further the goal of shareholder value optimisation. According to Kaplan and Norton (2001:1) a study of 275 portfolio managers reported that the ability to execute strategy is more important than the quality of the strategy itself and that these managers cited strategy implementation as the most important factor shaping corporate valuations. Sharman (2009:3) states that managers of a company should create measures and performance targets designed to deliver the desired value-creation goals through recognising the influences that value-drivers have on EP. Cokins (2004:218) states that share-price management with its accounting manipulations that are fueled by pressure from financial analysts, will predictably lead to suboptimal short-term decisions, and that share-price management will hopefully give way to economic value-management (EVM). According to Frigo (2002:6) value-based management, is the process used to determine the drivers of a particular strategy, understanding how those drivers link to value-creation, and then braking down those drivers into actionable steps and activities that can be pushed through the organisation all the way to the lowest levels of production or service delivery. One of the key messages of VBM is that shareholder value is created or destroyed at the point where management decisions are made and performance measurement and reward should reflect and reinforce the creation of shareholder value (Black, Wright and Davies, 2001:116). Figure 1 below indicates the drivers of shareholder value and the impact of management decisions.

Figure 1: Macro and micro shareholder value-drivers



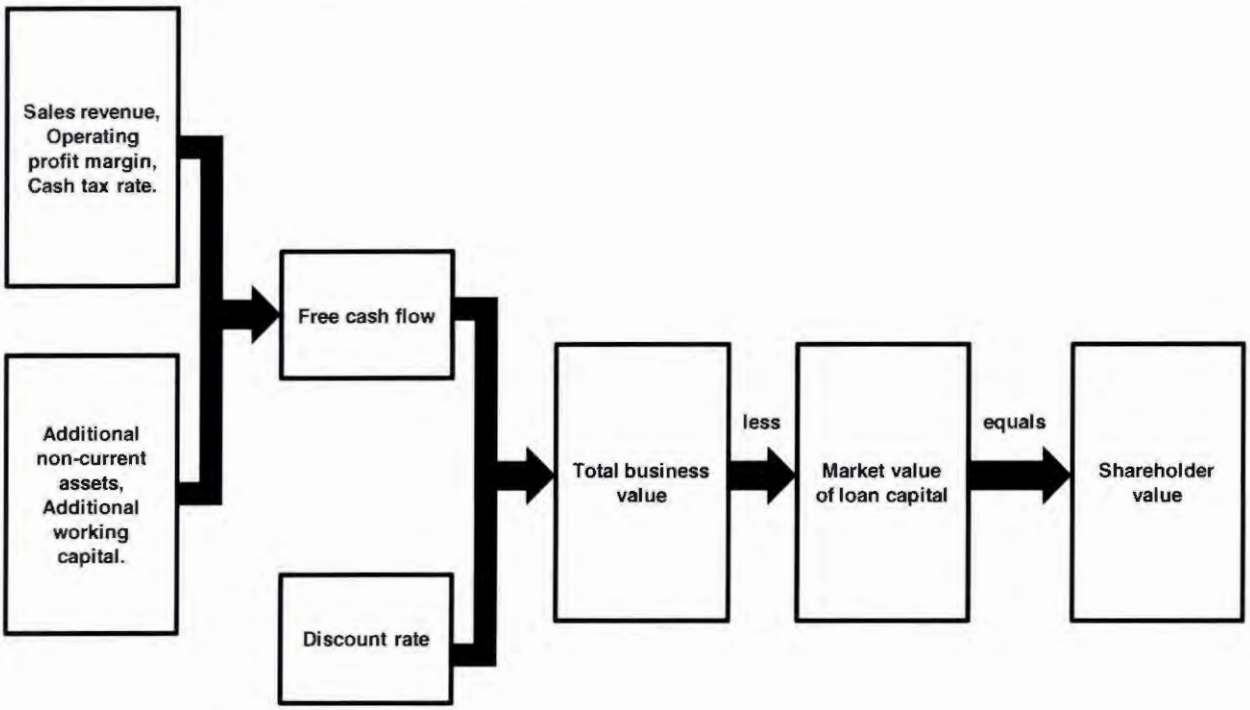
(Source: Black, Wright & Davies, 2001:117)

Ashton (2007:3) argues that much of the contemporary management accounting research involves a strategic focus on long-run value-creation through the identification, measurement, management and reporting of the value-drivers of a company's value. EP increases or decreases based on the performance of these value-drivers, which are financial measures that represent the component elements of EP. It should however, be stated that VBM is not just the adoption of EP metrics in order to evaluate the performance of a company, but rather the introduction of fundamental changes in a company that ensure that all resources are aligned to create shareholder value through the evaluation of available strategic options and subsequent investments, based on the maximisation of the company's long-term economic-profit creation.

According to Atrill and McLaney (2007:324) any actions that management can take to (1) boost sales revenue, (2) increase the operating profit margin, (3) reduce the effective tax rate, (4) reduce the investment in working capital, and (5) reduce the investment in non-current assets, will have the effect of increasing the shareholder's value. Black, Wright and Davies (2001:59) indicate that shareholder value-creation is influenced by (1) sales growth, (2) cash profit margin – earnings before interest, tax, depreciation and amortisation (EBITDA), (3) cash tax rate, (4) working capital, (5) capital expenditure, (6) WACC – the risk and inflation adjusted weighted average cost of capital, and (7) the competitive advantage period – the competitive advantage period is defined as the time during which a company has a positive net present value when discounted at the WACC. These are value-drivers of the company that reflect key business decisions and that the correct decisions with regards to these value-drivers convert into free cash flow and finally into shareholder value. In order to improve free cash flow and, in turn, shareholder value, management targets must be set for improving performance in relation to each value-driver and responsibility must be assigned for achieving these targets.

Figure 2 below depicts how shareholder value is derived.

Figure 2: Deriving shareholder value



(Source: Atrill & McLaney, 2007:328)

Frigo (2002:9) argues that performance metrics must be flexible to adapt to the purpose of the analysis required for resource allocation, executive compensation, business valuation and other decisions. The relationship between the cash inflows and outflows is important to recognise. The identification of key value-drivers is vital and it is important to recognise that these value drivers may vary over the life cycle of a company. Mills (1998:30) argues that in the start-up phase of a company, sales growth will often play a dominant role; however, with the development of the market and the increased participation of competitors, attention to profit margins may well be more important due to the fact that there will often come a point beyond which increased sales will result in value-destruction because of the fact that additional sales revenue might be outweighed by the costs associated with generating it.

Analysing the components of EP will help management to prioritise the opportunities that exist to drive value. The prioritisation of value-creation opportunities should be encapsulated in the corporate strategy. Collis and Montgomery (2005:8) state that corporate strategy is the way a company creates value through the configuration and

coordination of its resources and activities. This definition has three important aspects. The first is the emphasis on value-creation as the ultimate purpose of corporate strategy. The second is the focus on the scope of the corporation, including its products and/or services, geographic and vertical boundaries. The third is the emphasis on how the company manages the activities and businesses that lie within the corporate hierarchy. Brigham and Ehrhardt (2005:507) state that managers should evaluate the effects of alternative strategies on their company's value and that this means forecasting financial statements under alternative strategies, finding the present value of each strategy's cash flow stream, and then choosing the strategy that provides the maximum value.

Atrill and McLaney (2007:318) state that the creation of shareholder value involves a four-stage process. The first stage is to set objectives for the company that recognises the central importance of maximising shareholder returns. The second stage is to establish an appropriate means of measuring the returns, or value, that have been generated for shareholders. The third stage is to manage the company in such a manner as to ensure that shareholder returns are maximised, this means setting targets and then achieving these targets through the optimal utilisation and consumption of resources. The fourth and final stage is to measure the shareholder returns over a period of time in order to see whether the objectives have actually been achieved. From the above sections it can clearly be concluded that the process of shareholder value-creation is dependent on the optimal utilisation and consumption of different classes and categories of resources through informed management decision-making and the effective execution of appropriate organisational strategies.

In the contemporary globalised economic landscape, competition for shareholder funds are becoming increasingly intense and companies must offer adequate rates of returns to investors in order to ensure funding for continuous operational activities and to secure funds to finance growth opportunities. According to Mills (1998:4) the move towards shareholder value has been driven by a number of significant trends that include (1) continued globalisation of capital markets, (2) an increasing focus on corporate governance, (3) rising shareholder activism, and (4) investors moving increasingly towards cash flow-based evaluation. The importance of better corporate governance is signified by El Mir and Seboui (2006:242), stating that good corporate

governance of a company is considered a guarantee of the credibility of its financial and accounting reports and consequently, a crucial criterion for its valuation.

2.4 THE LINK BEWEEN SHAREHOLDER VALUE-CREATION AND SHARE-PRICE

Contrary to the widely-held view, stock markets are almost insignificant as a source of investment funds and stock market valuations of companies are often influenced by irrationalities and always by incomplete information (McSweeney, 2007:325). On the contrary Magliolo (2008:175) argues that share-prices reflect the information that is available to investors, and that share-prices are influenced by information that a company discloses and that each of these factors can be directly linked to a company's most recent share-price, providing an indication of whether a share is expensive or not. Company information includes (1) profits earned by the company, (2) dividends paid out by the company, (3) net asset value of the company, and (4) cash flows generated by the company. Hagstrom (2005:16) indicates that Benjamin Graham believed that stock markets frequently mispriced stocks because of the human emotions of fear and greed and that at a height of optimism, greed moved stocks beyond the intrinsic value, creating an overpriced market and that in times of fear, prices moved below intrinsic value, creating an undervalued market. Brigham and Ehrhardt (2005:269) argue that the existence of computers and telecommunications networks ensures that new company information hit the stock-markets on a continuous basis, and it causes frequent and sometimes large changes in stock-prices, in other words, readily available information causes stock-prices to be volatile.

The question that must be asked is whether there is a relationship between share-prices and value-creation in a company? From the above it can be concluded that company information does have an impact on the value of shares, but that emotion and perception also play a significant role in the establishment of share-prices.

Magliolo (2005:29) states that different factors influence share-prices and that some have nothing directly to do with the company itself; but more to do with general

sentiments about investing and the economy; such factors include expectations about interest and inflation rates, growth or recession in the economy, exchange rates, political stability and technological interference. Other factors influencing a company's share-price are more directly linked to the company itself, fundamentals such as solvency and profitability are important, and so is growth. The quality of management can also affect share-price, the market perception of management often has a significant impact on the share-price.

McSweeney, (2007:327) states that VBM as measured by Economic Value-Added (EVA) is the real key to creating wealth, as it derives stock-prices and that the logic is that a company's current stock market value is the discounted value of all future cash flows which will accrue to the shareholders and that the key to creating maximum shareholder value, is to ensure that each decision within a company generates the maximum discounted cash flow. Investors invest for anticipated future returns, but those returns can rarely be predicted precisely. There will almost always be risk associated with investments; actual or realised returns will almost always deviate from the expected return anticipated at the start of the investment period.

The notion that stocks already reflect all available information, is referred to as the efficient market hypothesis (EMH). Bodie, Kane and Marcus (2008:360) distinguish between three versions of the EMH, (1) the weak form, (2) the semi-strong form, and (3) the strong form. The weak form of the hypothesis asserts that stock-prices reflect all information that can be derived by examining market-trading data such as the history of past prices and trading volume. The weak form hypothesis holds that if such data conveyed reliable signals about future performance, all investors already would have learned to exploit the signals, and ultimately, these signals lose value as it becomes widely known. The semi-strong form of the hypothesis states that all publicly available information regarding the prospects of a firm must be reflected in the stock-price. Such information includes, in addition to past prices, fundamental data on the firm's product line, quality of management, balance sheet composition, patents held, earning forecast, and accounting practices. It is therefore, argued that if investors have access to those publicly available information, it would be expected to be reflected in the stock-price of a company. The strong form of the efficient market hypothesis states that stock -prices reflect all information relevant to a company, including information available only to

company insiders. Brigham and Ehrhardt (2005:269) states that if a stock's price is stable, it probably means that little new information on the company is available.

The importance of understanding of the EMH for this study, is the fact that it is hypothesised that company information and financial performance indicators should be reflected in the share-price of a company. As stated, the objective of this study is to investigate the relationship that exists between company financial indicators and the share-prices with a focus on the application of value-based management principles.

2.5 VALUE-CREATION INDICATORS

Frigo (2006: 6) states that the ultimate financial strategic objective for any company should be to create more cash flow than the cash invested into the company and that to achieve the goal of VBM, a company's strategy should be designed to maximise shareholder value-creation. The management of a company must be able to determine if the operational activities of the company is creating or destroying value. When considering the EMH, management and investors in a company should base management and investment decisions on well-analysed available information. According to Hagstrom (2005: 58), Warren Buffett's investment philosophy is a clear understanding that by owning shares in a company, he owns a part of the company and not just pieces of paper and that it is of fundamental importance to understand the company's operating functions, inclusive of its products and services, labour relations, raw material expenses, plant and equipment, capital reinvestment requirements, inventories, receivables and needs for working capital. Warren Buffet reasons that the owners of shares who perceive that they own merely a piece of paper, are far removed from a company's financial statements and that they behave as if the market's ever-changing price is a more accurate reflection of their share value than the company's balance sheet and income statement.

The importance of understanding the impact that certain key indicators on the balance sheet and income statement have on an investment decision, is clearly highlighted through assessing Buffet's investment philosophy. Potential investors in a company

should analyse key financial indicators thoroughly and clearly articulate the impact that changes of these indicators might have on the value of the company and its shares. Investors must for instance analyse if more value is created by increasing revenue growth or by improving margins and must understand if the resources of the company are allocated and utilised in a manner that ensure maximum shareholder value-creation. According to Kaplan and Norton (2001:25) the quest for better understanding the drivers of shareholder value-creation has led companies to extend financial frameworks to embrace financial metrics that correlate better with shareholder value, leading to economic value-added (EVA) and value-based management (VBM) metrics.

The commitment to maximising shareholder value and returns must be accompanied by selecting appropriate measures that will optimally asses the returns to shareholders over time. Atrill and McLaney (2007:319) argue that the traditional methods for measuring shareholder returns are seriously flawed and should not be used for this purpose and state that there are broadly four problems with using accounting profit, or a ratio based on profit to assess shareholder returns, (1) profit is measured over a relatively short period of time, usually one year, (2) the level of risk that has to be incurred in order to achieve certain levels of return, is ignored, (3) accounting profit does not take account of all of the costs of the capital invested by the company, and (4) accounting profit reported by a company can vary according to the particular accounting policies that have been adopted by the company.

The argument is therefore, that in order to asses changes in shareholder value fairly, measures need to be utilised that will consider the long-term, take account of risk, acknowledge the cost of shareholders funds and will not be affected by accounting policy choices. Ward and Price (2006: 1) state that there are many formats in which financial statements are prepared and even when conforming to generally accepted accounting practises (GAAP) are difficult to interpret and not useful for financial analysis and decision-making as GAAP tends to deal with issues of disclosure rather than of interpretation. DiPiazza and Eccles (2002: 4) state that the management and boards of companies are not consistently making available information that investors would want and that too often this failure is based on the mistaken belief that playing "*the earnings game*", managing and beating the market's expectation about the next period's earnings, will increase shareholder value; however, today shareholders and other

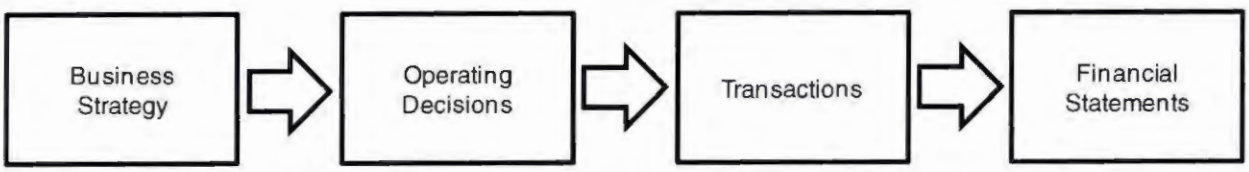
stakeholders are recognising that transparency is necessary to create and protect value.

Investors need supplemental information, both financial and non-financial, to gain a more complete view of a company's past performance and to analyse its future prospects. Hagstrom (2005: 15) states that the price earnings-ratio (P/E) is not enough to ensure profitable returns and that today's investors rely more on John Burr Williams's classic definition of value, stating that the value of any investment is the discounted present value of its future cash flow.

2.6 MEASURING SHAREHOLDER VALUE-CREATION

Various financial measures exist that are utilised to determine the increase or decrease in shareholder valueusing financial statements. In this section several of these measurements will be investigated and the applicability to measure the extent to which shareholder-value is created will be analysed. Although a special focus is placed on value-based management (VBM) and the most appropriate measures and metrics to evaluate how VBM contributes to shareholder value-creation, the objective of this study is furthermore concerned with the relationship that exists between other financial indicators measuring profitability, liquidity, solvency and market tests and how these measures relate to the share-price of a company. Short, Libby and Libby (2007: 714) states that financial statement analysis involves more than just "crunching numbers", before starting to analyse the numbers, one should know what one is looking for and that while financial statements report on transactions, each of those transactions is the result of a company's operating decisions as it implements its business strategy. Figure 3 below indicates how a company's business strategy affects financial analysis.

Figure 3: How a company's business strategy affects financial analysis



(Source: Short, Libby & Libby, 2007: 714)

It has been discussed that various factors may have an impact on accounting figures that get reported in the financial statements of companies. It is therefore, important that the financial statements of a company should not be analysed in isolation without understanding the larger strategic and economic environment that a company operates in. Atrill and McLaney (2007:328) argue that shareholder value-analysis (SVA) should replace traditional accounting measures such as profit, earnings per share and return on ordinary shareholder's funds and that SVA is a powerful tool for strategic planning and can be extremely useful when a company considers changes in direction such as, (1) acquiring new businesses, (2) selling existing businesses, (3) developing new products or markets, and (4) reorganising or restructuring a company.

Hagstrom (2005: 62) states that when Warren Buffet considers investing in a company he concentrates on learning all he can about the company under consideration, focussing on four areas, namely (1) business tenets, (2) management tenets, (3) financial tenets, and (4) value tenets. Business tenets consist of (1) is the company simple to understand?, (2) does the company have a consistent operating history?, and (3) does the company have favourable long-term prospects?. Management tenets are (1) is management rational?, (2) is management candid with its shareholders?, and (3) does management resist the institutional imperative? Financial tenets represent (1) what is the return on equity?, (2) what are the company's "owner earnings"?, (3) what are the profit margins?, and (4) has the company created at least one dollar of market value for every dollar retained. Value-tenets are described as (1) what is the value of the company?, and (2) can it be purchased at a significant discount to its value? It can therefore, be seen that analysing the value that a company creates or destroys far encompasses just performing financial analyses of the company's financial statements and that any investment decision should be based on internal as well as external company factors that can influence the value of that company.

Ryan and Trahan (1999: 46) state that numerous consulting firms have developed and popularised metrics designed to help companies' implement and measure the impact of value-based management practises and that these metrics include Discounted Cash flow (DCF), Cash Flow Return on Investment (CFROI), Return on Invested Capital (ROIC) and Economic Value-Added (EVA). Black, Wright and Davies (2001:10) state that investment analysts are looking behind the headline figures to find other numbers

that can measure more informative the long-term prospects of a company and that shareholder value analysis based on free cash flow and the cost of capital, can produce these numbers. It is argued that these measures are increasingly being used to analyse investment decisions and concentrate on economic or cash flow measures, rather than earnings or traditional accounting measures. All of these firms link their metrics upwards to shareholder value and link them downwards to a series of value-drivers. Value-drivers are defined as operating decisions that have a high impact on the value of a company and are manageable by the company in executing its activities. Cokins (2004:215) states that the largest pension fund in the world, The California Public Employees Retirement System (CALPERS) looks at two aspects when considering an investment: (1) how much economic value the company is creating, and (2) whether the company has implemented processes to use economic value in the management of its business in order to ensure that any cash outlay generates returns that exceed the cash outlay plus the cost of capital of that cash outlay. Ward and Price (2006: 44) state that many executives, when asked the question, "What is the purpose of business?" respond that it is to make a profit and that with profits the potential to improve business performance by minimising the capital used to produce these profits are mostly overlooked.

In order to make sound management and investment decisions managers and investors must know which performance areas create both growth and long-term value. Managers and investors need to be able to identify these growth- and value-drivers of companies and need to be able to track the trends and performance of these value-drivers through measuring appropriate metrics. Cokins (2004:233) states that managers and employee teams can increase shareholder value by, (1) focussing on the more profitable customers, channels and products, (2) addressing value-destroying customers, channels, products and processes, (3) increasing revenue-related activities while holding invested funds constant, (4) reducing assets while holding revenue-related activities constant, and (5) investing only in assets and projects whose projected return is higher than the company's cost of capital.

From the above it can be concluded that effective financial and investment management lies not in tracking isolated measures of performance, but in being able to identify key

value- drivers and understand how a change in any one of them can affect one or all of the others.

2.7 SHAREHOLDER VALUE-CREATION METRICS

2.7.1 Economic Value-Added (EVA)

It is argued that EVA is based on the idea of economic profit which has been around for many years. EVA reflects the point, that in order for a company to be profitable in an economic sense, it must generate returns that exceed the required returns of investors. When measuring company performance, it is not enough to measure only accounting profit, because this measure does not take full account of the returns required by investors. The creation of economic value is therefore, an economic and not an accounting concept.

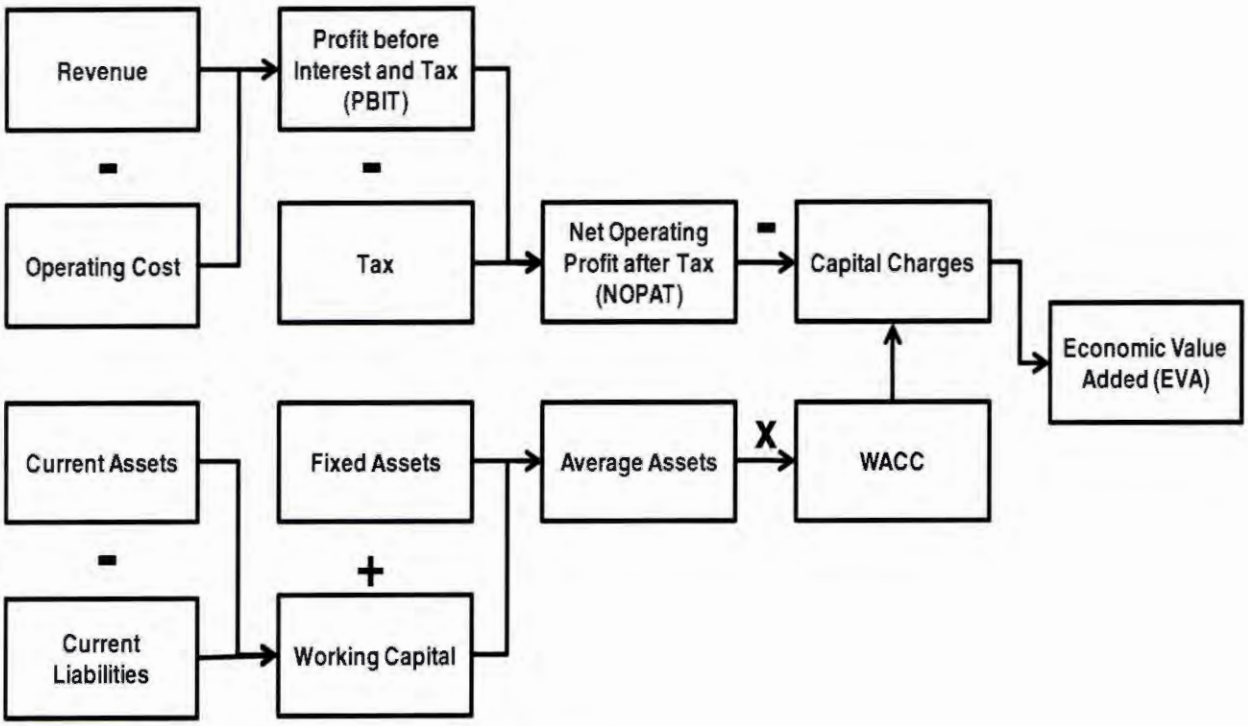
Ward and Price (2006:96) argue that if managers of a company rely solely on traditional financial statements, these managers will not be able to know whether the decisions taken are going to increase the value of operations and that managers need practical measures of the company's operating performance that correlates with the factors on which shareholders base decisions in the market place. The return to a shareholder, who purchases equity in a company, will be reflected by changes in share-price over time and the objective of any shareholder is, that the value of a held share portfolio should increase at an acceptable rate that reflects the risk for holding the investment. A company should be viewed as successful only if the return on its projects is better than the rate investors could expect to earn for themselves in the capital market. Bodie, Kane and Marcus (2008:445) state that a company increases share value only if the company earns a higher return on invested funds than the opportunity cost of capital, that is, the market capitalisation rate and that to account for this opportunity cost, the success of a company should be measured as the difference between the Return on Assets (ROA), and the opportunity costs of capital. EVA is the spread between ROA and the cost of capital multiplied by the capital invested in the company and therefore, measures the currency value of the company's return in excess of its opportunity cost of capital.

The definition of EVA as defined by Black, Wright and Davies (2001:74) is expressed in the formula-

EVA = Total Capital x (Return on Total Capital – WACC)

Figure 4 below depicts graphically how EVA is calculated.

Figure 4: Example of Economic Value-Added (EVA) calculation



(Source: Black, Wright & Davies, 2001:75)

Brigham and Ehrhardt (2005:110) state that EVA focuses on managerial effectiveness in a given year and indicates that EVA can be calculated also in the following ways-

EVA = Net Operating Profit after Taxes (NOPAT) – After-Tax Cost of Capital used to support operations

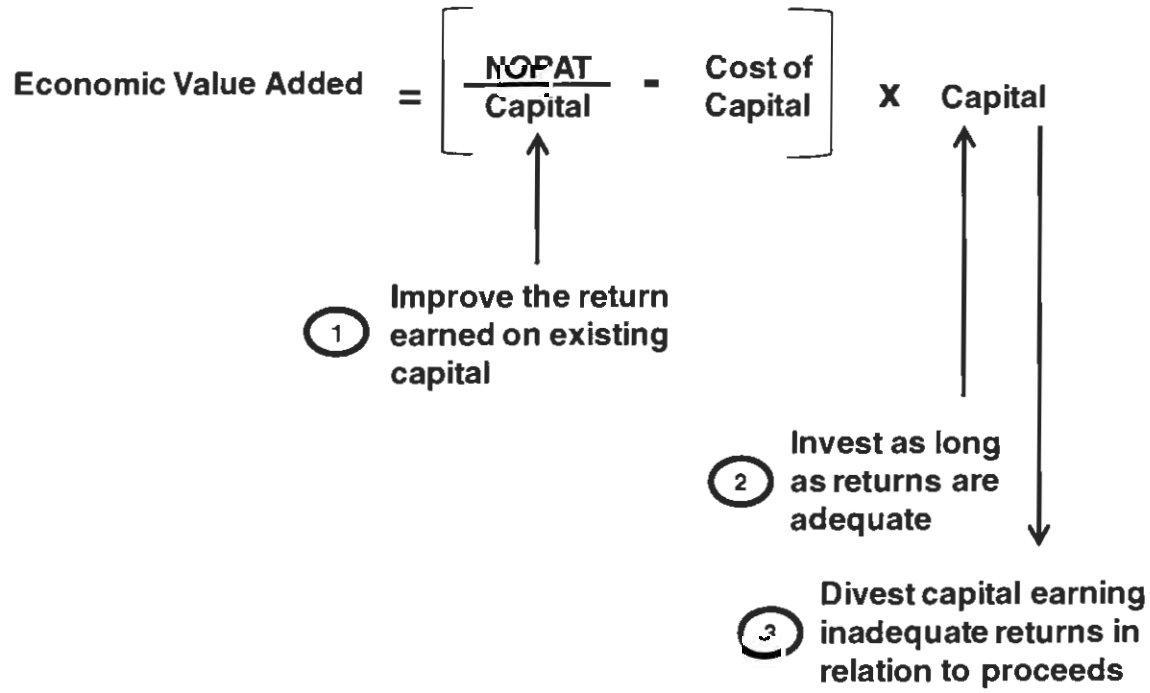
EVA can be calculated also in terms of Return on Invested Capital (ROIC)-

EVA = (Operating Capital) x (ROIC – WACC)

From this equation it can be seen that a company adds value if its ROIC is greater than its WACC, and that if WACC exceeds ROIC, new investments in operating capital will reduce the company's value. EVA is an estimate of a company's true economic profit for a year and it differs significantly from accounting profit due to the fact that EVA represents the residual income that remains after the cost of all capital, including equity has been deducted, whereas accounting profit is determined without imposing a charged for equity capital (Brigham and Ehrhardt, 2005:110)

In order to increase EVA, ROIC should be maximised and WACC minimised. Mills (1998:64) states that a company is only profitable in a truly economic sense if it generates a return in excess of that required by its providers of funds, that is the shareholders and investors and that an increase in EVA correspond with improving the return on capital, decreasing the cost of capital and decreasing the capital employed within a company. Figure 5 below depicts graphically how any action taken on these, should improve performance in terms of EVA.

Figure 5: Three courses of action for Economic Value-Added (EVA) improvement



(Source: Mills, 1998:64)

The focus of EVA is both on balance sheet and on income statement items. An increase in Net Operating Income After Tax (NOPAT) and a decrease in WACC, will yield value-creation. Atrill and McLaney (2007:329) suggest that managers can increase EVA by (1) increasing NOPAT, either by reducing expenses or by increasing sales revenue, (2) reduce capital invested by using assets more efficiently, meaning selling off any assets that are not generating adequate returns and investing in assets that are generating a satisfactory NOPAT, and (3) reduce the required rates of return for investors by changing the capital structure of the company in favour of loan capital that tends to be cheaper than share capital. It is argued that EVA is generally regarded as the most appropriate internal measure to determine if management decisions create or destroy value.

The adoption of EVA as a performance measure can be illustrated when comparing the evaluation of a project or an asset based on EVA to that of evaluating a project or an asset based on Return on Investment (ROI). Garrison, Noreen and Brewer (2007:563) state that the primary reason why companies would switch from ROI to EVA, is the fact that EVA encourages managers to make investment decisions profitable for the entire company, but that would be rejected by managers who are focussed on the ROI of individual projects or investments. The problem with ROI as a performance measure, can be illustrated using a simple example. Suppose a manager is considering purchasing a new machine. The machine would cost R25 000 and is expected to generate additional operating income of R4 500 a year. From the standpoint of the company, this would be a good investment since it promises a rate of return of 18% (R4 500/R25 000) which is in excess of the company's minimum required rate of return of 15%. If the purchase is evaluated based on EVA, the following situation would be realised-

	Project Evaluation based on EVA (Residual Income)		
	Present	**New project**	**Total**
Current average operating assets	R100 000	R25 000	R125 000
Net operating income	R 20 000	R 4 500	R 24 500
Minimum required return	R 15 000	R 3 750	R 18 750
Residual income	**R 5 000**	**R 750**	**R 5 750**

Since the project would increase the total residual income of the company, the manager would want to invest in the machine. However, if the purchase of the new machine is evaluated based on ROI, the following situation would be applicable-

	Project Evaluation based on Return on Investment (ROI)		
	Present	**New project**	**Total**
Current average operating assets (a)	R100 000	R25 000	R125 000
Net operating income (b)	R 20 000	R 4 500	R 24 500
ROI, (b) / (a)	**20%**	**18%**	**19.6%**

The new project reduces the company's ROI from 20% to 19.6%. This happens because the 18% rate of return on the new machine, while above the company's 15% minimum required rate of return, is below the present 20% ROI of the company. Therefore, based on ROI, the purchase of the new machine would be rejected although for the company as a whole, it would create additional value.

Ferguson, Rentzler and Yu (2005:101) state that economic value-added (EVA) is the financial performance measure that comes closest than any other to capturing the true economic profit of a company and that EVA is the performance measure most directly linked to the creation of shareholder value. Ryan and Trahan (1999:51) states that EVA is the method most commonly used for long-term planning, annual budgeting, performance measurement and compensation. The ultimate objective of EVA is to measure the extent to which shareholder value has been created or destroyed, which should ultimately be reflected in the share price of a company. Ward and Price (2006:103) argues that many highly regarded corporations have adopted EVA as an internal performance measure, due to the fact that it has been shown that there is a correlation between EVA and successful performance and that the relationship between EVA and share-price is closer than between any other accounting measure and the share-price.

2.7.2 Market Value-Added (MVA)

Shareholder wealth is maximised by maximising the difference between the market value of a company's stocks and the amount of equity capital supplied by shareholders; the difference is called the Market Value-Added (MVA) and is defined in the formula (Brigham and Ehrhardt, 2005:109)-

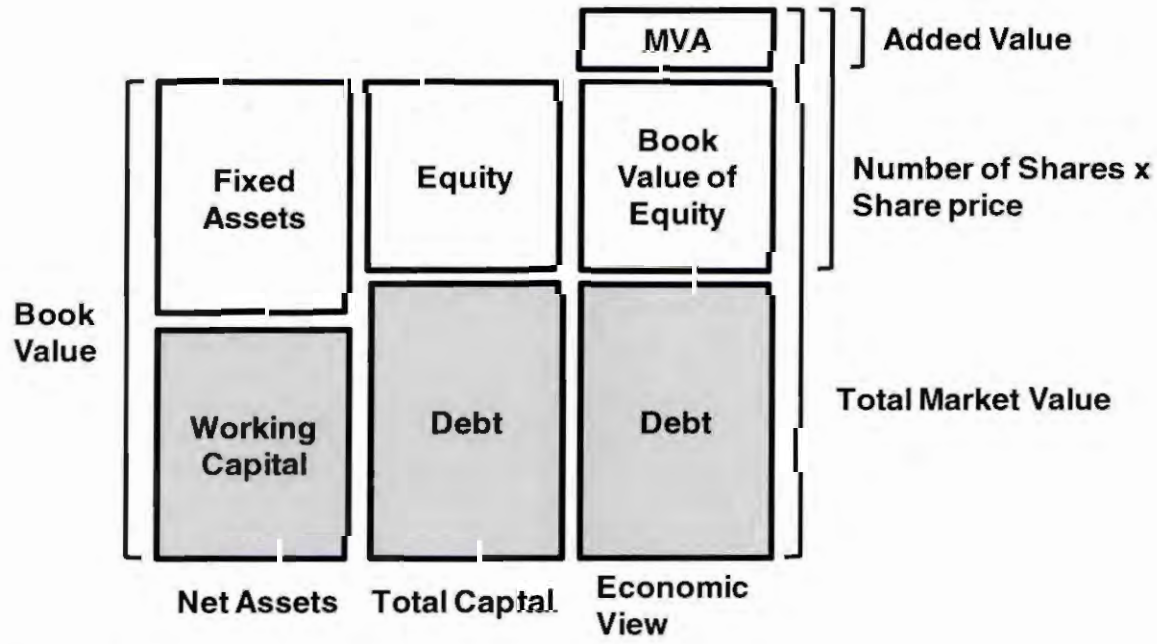
MVA = Market value of stock – Equity capital supplied by shareholders
= (Shares outstanding) x (Stock price) – Total common equity

Sometimes MVA is defined as the total market value of the company minus the total amount of investor-supplied capital as shown in the formula-

MVA = Total market value – Total capital
= (Market value of stock + Market value of debt) – Total capital

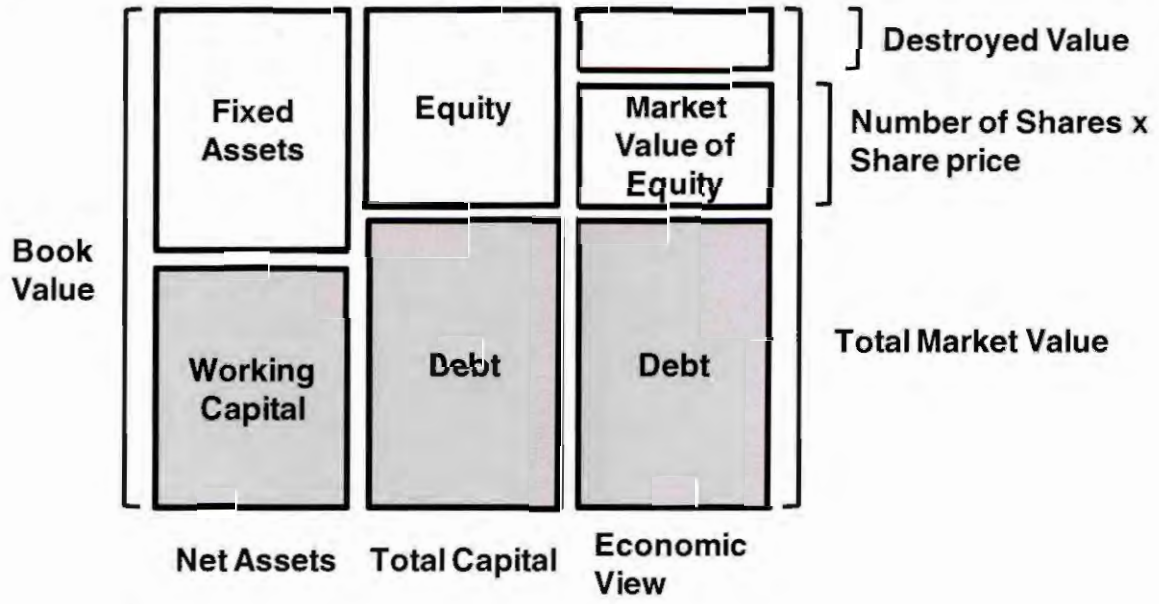
The difference between market value-created and market value destroyed is diagrammatically depicted in figures 6 and 7 below.

Figure 6: MVA where market value is greater than book value



(Source: Ward & Price, 2006:110)

Figure 7: MVA where market value is less than book value



(Source: Ward & Price, 2006:110)

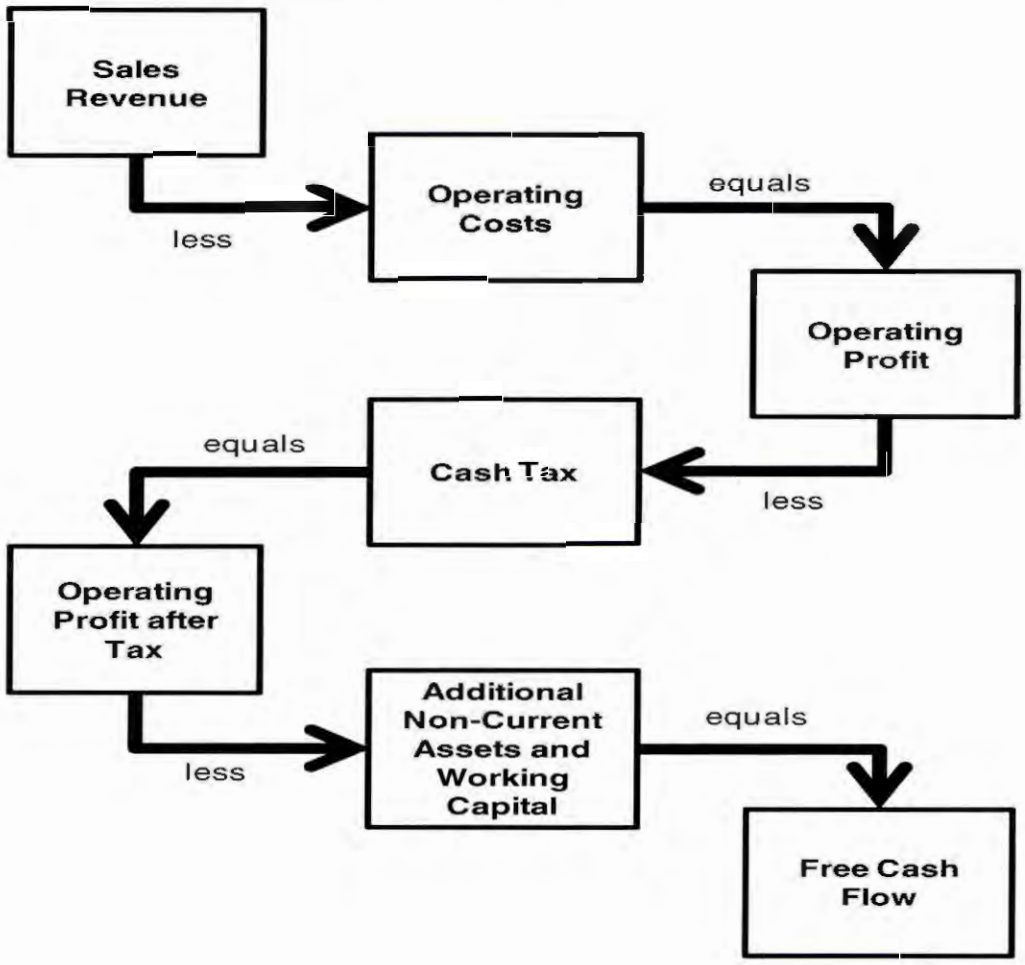
The total value of a company at a particular point in time, is represented by the market value of its equity plus the value of its debt. Whether this is greater or less than book value (net assets) is a function of the shareholder's expectations of the future performance of the company. Ward and Price (2006:110) argue that if the future performance expectations of a company are high, the share price will increase; conversely, if future performance expectations are low, share price and total market value will decrease. The difference between book value and total market value, is MVA added or MVA destroyed.

Over time, a company must generate a positive EVA in order for its market value to increase; a company that generates positive EVA should have a market value in excess of the accounting book value of its capital (Stowe, Robinson, Pinto & McLeavey, 2002:266). The intrinsic value of a company at a particular point in time, is the book value (its net assets) plus or minus the sum of the EVAs expected in future years, discounted back to the same point in time. The difference between MVA and EVA is that MVA is measured from the inception of the company and thus has a long-term view of value creation, whereas EVA is measured based on a shorter time period, normally a year. EVA is therefore, more suitable for making short-term management decisions.

2.7.3 Free Cash Flow (FCF)

The conventional approach to company valuation, discounts the Free Cash Flows (FCFs) of a company using the WACC to a present value of the company, when debt is subtracted from this value the value of equity is arrived at and when the number of shares in issue are known, the share price can be determined (Ward & Price, 2006:117). McSweeney (2007:322) states that a company's current stock market value is the discounted value of all future cash flows which will accrue to the shareholders and that the key to creating maximum shareholder value is to ensure that each decision within a company generates the maximum discounted cash flow. Figure 8 below depicts diagrammatically the process of measuring the Free Cash Flow (FCF) for a company.

Figure 8: Measuring Free Cash Flows (FCF)



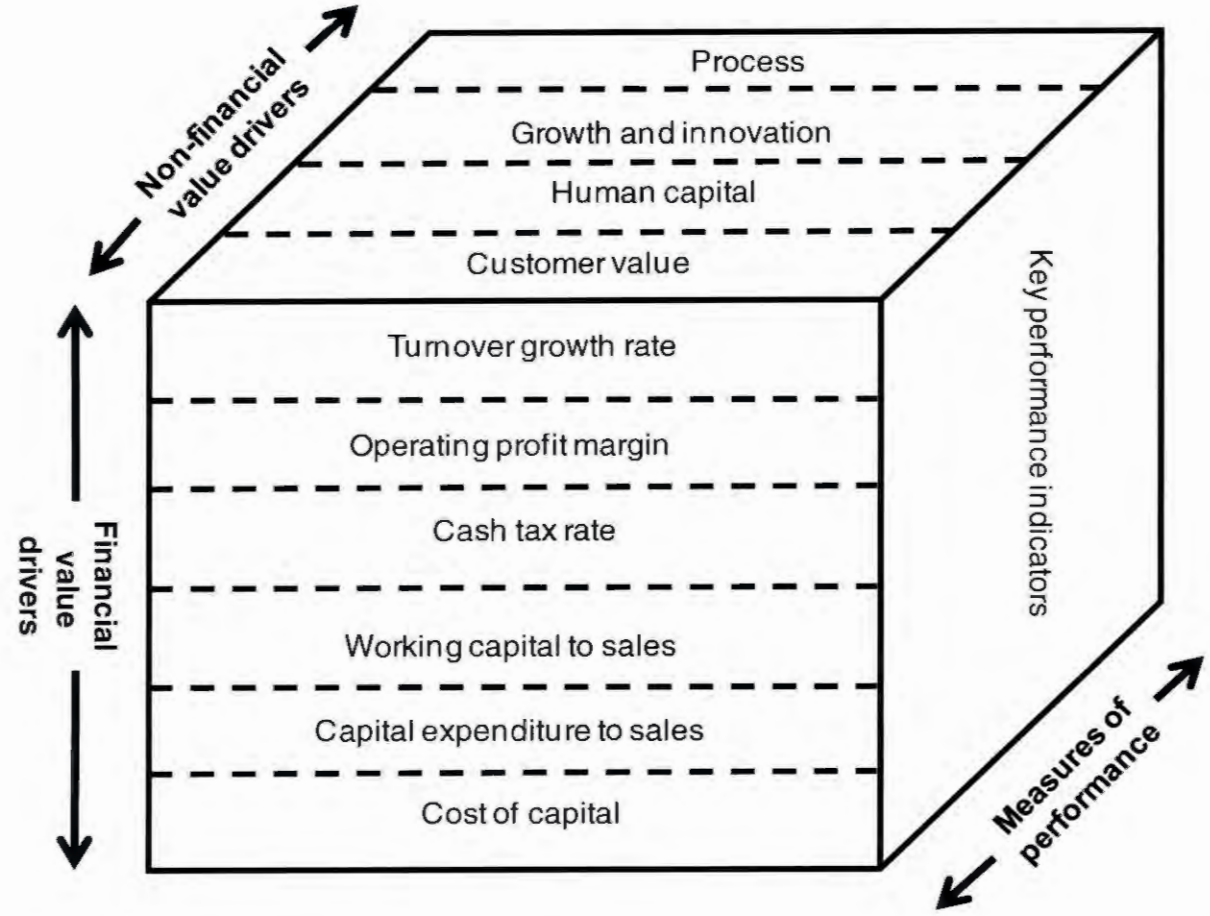
(Source: Atrill & McLaney, 2007:325)

From Figure 8, it can clearly be seen that the key value-drivers in determining free cash flow are (1) sales revenue, (2) operating profit margin, (3) tax rate, (4) additional investment in working capital, and (5) additional investment in non-current assets.

As stated earlier, the management of a company should make value-based decisions in order to optimise these value-drivers. Managers and analysts often calculate free cash flow as a measure of a company's ability to pursue long-term investment opportunities and any positive FCF is available for additional capital expenditure, investments in other companies and merger and acquisitions without the need for external financing (Short, Libby and Libby, 2007: 679) Brigham and Ehrhardt (2005:9) state that managers can enhance company value by increasing the size of the expected cash flows, by speeding up cash receipt and by reducing the risk in generating these cash flows by optimising (1) sales revenue, (2) operating costs, (3) tax rates, and (4) the required investments in operations.

Financial measures should be based on the drivers of past and future cash flows. According to Black, Wright and Davies (2001:336) non-financial measures help to assess the value of several critical areas, which include customers, employees, growth and innovation, and internal processes and that by improving these indicators continuously, financial performance will improve and hence value. Value-drivers are the framework used to analyse the free cash flow in a company and to understand how optimisation of these value-drivers will affect the value-creation within a company. Figure 9 below illustrates the fact that all value-drivers in a company, whether financial or non-financial, are interrelated and that by changing one value-driver, the value-creation in a company is influenced.

Figure 9: Interrelated financial and non-financial value drivers



(Source: Black, Wright & Davies, 2001:337)

In order to create free cash flow and therefore, shareholder value, companies should focus on activities that improve key value-drivers and commit resources to value-add activities that influence the value-drivers.

FCF is the cash from operations that is actually available for distribution to investors, including shareholders and preferred shareholders. Brigham and Ehrhardt (2005:510) state that the value of a company's operations is the present value of the free cash flows that the company expects to generate out into the future and that the value of a company can be calculated at the present value of its expected future free cash flows from operations, discounted at its Weighted Average Cost of Capital (WACC). The equation below indicates how the value of a company can be calculated.

Value of operations = V_{op} = Present Value (PV) of expected future free cash flows,

$$= \frac{FCF_1}{(1 + WACC)^1} + \frac{FCF_2}{(1 + WACC)^2} + ... + \frac{FCF_\infty}{(1 + WACC)^\infty}$$

From the equation above, it can be seen that the value of a company is dependent on its ability to generate free cash flows. These free cash flows should be optimised through optimal managerial decisions that have the maximum impact on the value-drivers that increase FCF.

The relationship that exists between FCF and share price of a portfolio of companies will be analysed in this study and conclusions will be formulated on the effectiveness of FCF to explain changes in the share price of companies. Black, Wright and Davies (2001:54) state that large institutional investors are moving from earnings-based return calculations to a more sophisticated assessment based on risk, growth expectations and cash flow returns on invested capital. An independent market research initiative by PricewaterhouseCoopers on 50 of the largest global investment managers, confirmed that cash-flow-based economic models are vital as valuation techniques (Black, Wright & Davies, 2001:337).

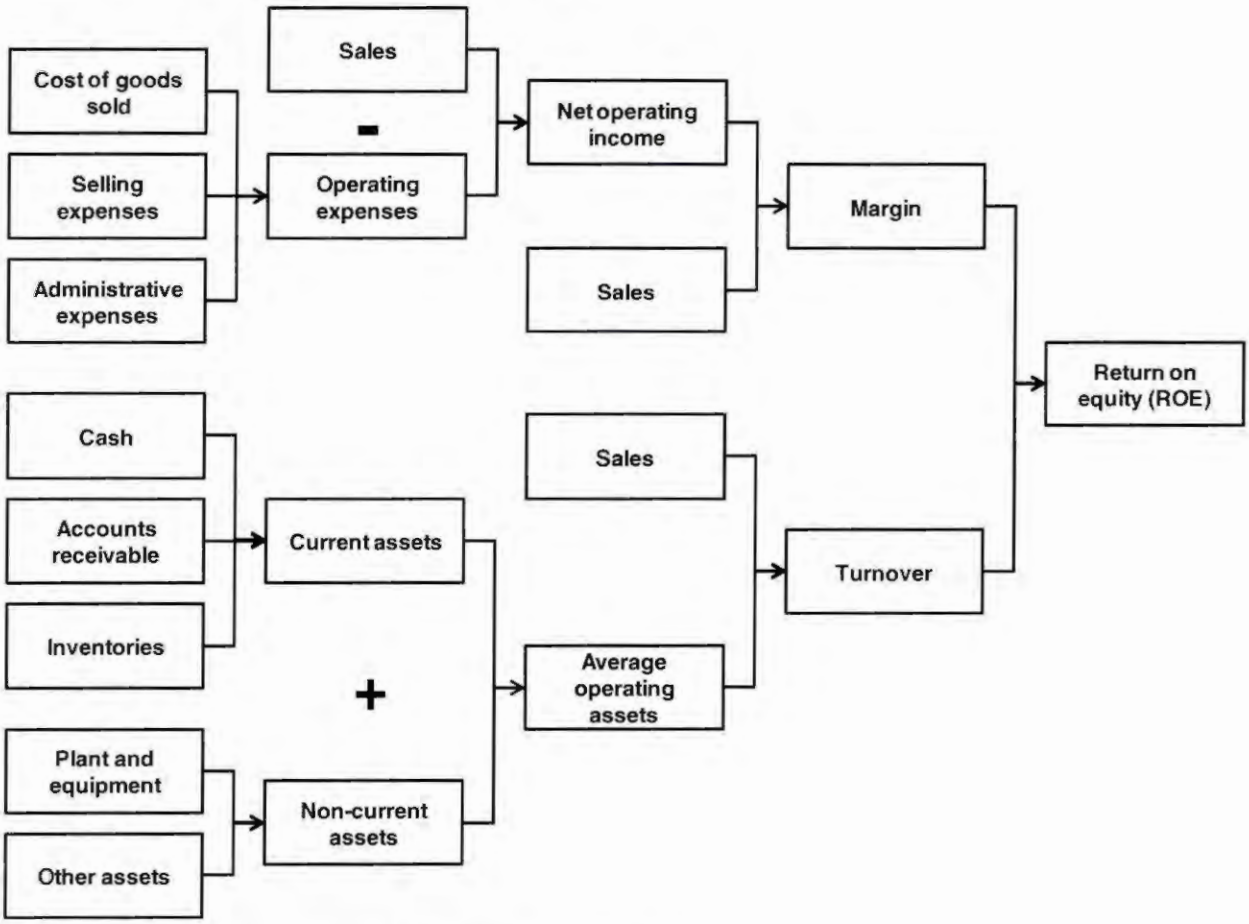
2.7.4 The DuPont Analysis

In order to understand the factors affecting a firm's return on equity (ROE), including its trend over time and its performance relative to competitors, analysts often "decompose" ROE into the product of a series of ratios, each having meaning in itself and serving to focus an analyst's attention on the separate factors influencing company performance (Bodie, Kane and Marcus, 2008:657). The DuPont analysis breaks down ROE into three factors, often called profit-drivers or profit-levers that describe the ways in which management can improve ROE. According to Short, Libby and Libby (2007: 253) profit drivers are measured by (1) net profit margin, (2) asset turnover, and (3) financial leverage. Net profit margin is Net Income/Net Sales and measures how much of every rand of sales is profit and it can be increased by (1) increasing sales unit volume, (2) increasing sales price, and (3) decreasing expenses. Asset turnover is Net

Sales/Average Total Assets and measures how much sales the company generates with each rand of assets and it can be increased by (1) increasing sales volume, and (2) disposing of unproductive assets. Financial leverage is the Average Total Assets/Average Shareholder's Equity and measures the amount of assets that are employed for each rand of shareholders' investment and can be increased by (1) increasing debt, and (2) the repurchasing of outstanding shares. It can be seen that these three ratios report on the effectiveness of a company's operating, investing and financing activities respectively.

Figure 10 below depicts a diagram developed by DuPont to help understand how to improve ROE in companies.

Figure 10: Elements of Return on Equity



(Source: Garrison, Noreen & Brewer, 2007:558)

Most managers will see maximising profit as the main objective of a company; however, Ward and Price state (2006:35) that maximising value to shareholders should

be the main focus of any organisation and that the DuPont analysis provides a useful framework to calculate the value that a company creates for its shareholders through understanding and illustrating operating performance through profit margin and the efficiency of assets utilisation.

The DuPont system defines the relationship between profit margin, total asset turnover and change in financial leverage and is able to tie these factors together to determine Return On Equity (ROE). It is argued that the DuPont system allows management to monitor performance in the mentioned three areas and to take informed decisions in order to maximise the effect of increased performance with regards to these performance levers. The DuPont system is a adequate instrument for the comparison of a company's performance against that of other companies in the same industry. As the aim of effective financial management is the maximisation of shareholder value-creation, a structured analysis should aim towards measuring how effectively this objective is achieved. The DuPont system uses the return on equity as the overall indicator of shareholder value-creation. While profit maximisation would not be a primary objective, a satisfactory return on shareholder funds would be an indication of shareholder value and hence, wealth creation.

Net profit or net income is dependent on the variables as depicted in the DuPont system. If management of a company can increase sales revenue while maintaining the same level of operating expenses and total assets required to generate the increased sales revenue, more FCF will be generated that will inevitably influence the value of the company. This is depicted in the formulae calculating the value of a company's operations and is the discounted value of expected future cash flows at WACC of its operating activities.

2.8 FINANCIAL RATIOS AS MEASURES OF COMPANY PERFORMANCE

Financial measures portray various aspects of business achievement, for example, sales revenues, profits and return on capital employed that can help managers determine whether the company is increasing the wealth of its shareholders and these measures are vitally important as indicators to managers who drives shareholder value and wealth creation (Atrill & McLaney, 2007:313). Short, Libby and Libby (2007: 717) state that financial analysts use ratio analysis or percentage analysis when reviewing companies and that ratio analysis helps decision-makers to identify significant relationships and make meaningful comparisons between financial measures and companies. Financial ratios may be calculated using amounts in one statement, such as the income statement, or in two different statements, such as the income statement and the balance sheet. If management is to maximise a company's value, it must take advantage of the company's strengths and correct its weaknesses. Financial statement analysis involves (1) comparing a company's performance with that of other firms in the same industry and (2) evaluating trends in the company's financial position over time and by doing these analysis, management identifies deficiencies and take actions to improve company performance and hence shareholder value-creation (Brigham & Ehrhardt, 2005:443). White, Sondhi and Fried (2003:5) state that financial statements, augmented by footnotes and supplementary data, are interrelated and collectively intended to provide relevant, reliable and timely information essential to making investment, credit and similar decisions, thus meeting the objectives of financial reporting. Financial statements provide information about assets (resources), liabilities (obligations), income and cash flows, and shareholders' equity of a company. The effects of operating activities and transactions are recorded in the appropriate financial statement(s).

As stated earlier, the objective of this study is to analyse the relationship that exists between key financial and shareholder value-creation measures and metrics and the share-price of companies. All measures of shareholder value-creation will be analysed and their relationship to share-price fluctuations will be analysed through various statistical methods.

Financial statement analysis, report on a company's financial position at a point in time and on its operations over some past period. However, the real value of financial statements lies in the fact that it can be used to help predict future earnings, dividends and free cash flow. From an investor's standpoint, predicting the future is what financial statement analysis is all about, while from management's perspective, financial statement analysis is useful both to help anticipate future conditions and, more important, as a starting point for planning actions that will improve the company's future performance (Brigham & Ehrhardt, 2005:443).

Financial statement analysis consists of various categories of financial ratios that include (1) profitability ratios, (2) liquidity ratios, (3) solvency ratios, and (4) market test ratios. Although each of these categories consists of various ratios, only selected ratios will be analysed and discussed in this study.

2.8.1 Earnings per Share (EPS)

Earnings Per Share (EPS) have long been recognised by investment managers as a convenient shorthand for valuing shares, however, the difficulty is that the EPS calculation is inconsistent with shareholder value measures and is poorly correlated with share-price movements (Black, Wright & Davies, 2001:49). Magliolo (2005:177) states that EPS is calculated by dividing attributable profits by the total number of issued shares and that the earnings of a firm indicate the net income or net profit available to the shareholders after all the company's obligations have been covered.

$$\text{Earnings per Share} = \frac{\text{Net Income}}{\text{Average number of common shares outstanding}}$$

The earnings per share ratio is a measure of return on investment based on the number of shares outstanding. Earnings per share is probably the single most widely watch ratio (Short, Libby & Libby, 2007: 717).

2.8.2 Price-Earnings Ratio (P/E)

The relationship between the market price of a share and the share's current earnings per share is stated in terms of the Price-Earnings (P/E) ratio. According to Garrison, Noreen and Brewer (2007:794), a high price-earnings ratio means that investors are willing to pay a premium for the company's shares, presumably because the company is expected to have higher than average future earnings growth; conversely, if investors believe a company's future earnings growth prospects are limited, the company's price-earnings ratio would be relatively low.

$$\text{Price-earnings ratio} = \frac{\text{Market price per share}}{\text{Earnings per share}}$$

Brigham and Ehrhardt (2005:455) state that the price-earnings ratio shows how much investors are willing to pay for a company's shares per unit of reported profit and that a company that has a P/E ratio of below that of its industry competitors, be regarded as riskier, with having poorer growth prospects.

2.8.3 Price/Cash Flow Ratio

Earnings as reported on the income statement can be affected by a company's choice of accounting practices, in contrast, cash flow, which tracks cash actually flowing into or out of a company, is less affected by accounting decisions and as a result, some analysts prefer to use the ratio of cash flow per share rather than price to earnings per share to evaluate the performance of a company (Bodie, Kane & Marcus, 2008:629).

$$\text{Price/cash flow} = \frac{\text{Price per share}}{\text{Cash flow per share}}$$

Brigham and Ehrhardt (2005:455) state that in some industries, share-prices are more closely related to cash flow, rather than net income and that ultimately value depends on free cash flows and the forecasting of these free cash flows.

2.8.4 Return on Assets (ROA)

The Return On Assets (ROA) ratio compares income to the total assets used to earn the income. According to Short, Libby and Libby (2007:721) many analysts consider the return on assets ratio to be a better measure, compared to ROE, of a company's management's ability to utilise assets effectively because it is not affected by the way in which the assets are financed.

$$\text{Return on Assets} = \frac{\text{Net Income} + [\text{Interest expense} \times (1 - \text{Tax Rate})]}{\text{Average total assets}}$$

Adding interest expense back to net income results, in an adjusted earnings figure that shows what earnings would have been if the company had no debt. With this adjustment, the return on total assets can be compared for companies with differing amounts of debt or over time, for a single company that has changed its mix of debt and equity (Garrison, Noreen & Brewer, 2007:796).

2.9 CONCLUSION

Shareholder value-creation and wealth maximisation should be the primary objective of any company. In order to achieve this objective, the management of a company should be able to clearly identify and understand how company resources should be allocated in order to maximise value-creation. The real assets that are utilised in a company ultimately determine the value of financial assets and the management of a company should focus on those value-drivers in a company that optimise the effectiveness of real assets. It has been showed that in order to optimise value-creation in a company, key

value-drivers must be optimally managed and the interrelationship that exists must be analysed so as to ensure that changes in one value-driver does not negatively affect another and ultimately destroy shareholder value-creation.

Value-Based Management (VBM) is a management methodology, whereby a portfolio of methodologies is combined in order to ensure that all resources in a company are aligned to the creation of value. Several measures and metrics for the evaluation and management of VBM have been identified and discussed in order to indicate the appropriateness of these measures to manage the value creation process in a company.

CHAPTER 3: EMPIRICAL STUDY

3.1	INTRODUCTION	45
3.2	DATA SAMPLE USED IN THE EMPIRICAL STUDY	45
3.3	STATISTICAL ANALYSIS TECHNIQUES USED	46
3.4	DATA DISTRIBUTION OF THE ANALYSED INDEPENDENT VARIABLES	47
3.5	COEFICCIENT OF CORRELATION ANALYSIS BETWEEN THE DEPENDENT AND INDEPENDENT VARIABLES INVESTIGATED	81
	3.5.1 DEPENDENT AND INDEPENDENT VARIABLES COEFFICIENT OF CORRELATION	*81*
	3.5.2 COEFFICIENT OF CORRELATION	*81*
3.6	CONCLUSION	129

CHAPTER 3

EMPIRICAL STUDY

3.1 INTRODUCTION

In this chapter the value drivers and key financial ratios of companies that have been identified and discussed in chapter 2, will be empirically tested, based on the correlation with the (1) Average Share-Price (ASP) and (2) Year-End Share-Price (YESP). Although the Change in Average Share-Price (CASP) and Change in Average Year-End Share-price (CAYES) are included in selective tables, ASP and YESP have been identified as the most appropriate dependent variables to investigate and analyse the coefficient of correlation with the independent variables as identified. The ASP indicates the average value of the share-prices of the companies in the sample for the last month of the financial year, whereas the YESP indicates the share price of these companies on the last day of each financial year.

The results of this empirical study will form the bases of establishing which of the value-drivers and financial ratios are the best suited for predicting changes in the above-mentioned share-price values.

3.2 DATA SAMPLE USED IN THE EMPIRICAL STUDY

The data sample that was used in the empirical study, consisted of 55 publicly listed companies on the JSE, that had a net asset value of one billion rand (R1 billion) or more in 1998. The empirical study was performed over a 10-year period from 1998 to 2007. The data sample parameter of net asset value of R1 billion or more was chosen in order to consider companies in the empirical study that have significant market presence in the respective industries, sectors and sub-sectors.

3.3 STATISTICAL ANALYSIS TECHNIQUES USED

The Spearman Rank Correlation statistical analysis technique was used in the empirical study. This statistical analysis technique was seen as appropriate due to the fact that the 55 companies that were analysed in this study, had a large distribution in values between the dependent variables of (1) Average Share Price (ASP) and (2) Year-End Share-Price (YESP) and the independent variables of (1) net assets, (2) turnover, (3) trading profit, (4) operating profit, (5) profit before interest and tax, (6) Net Operating Profit After Tax (NOPAT), (7) retained profits, (8) free cash flow, (9) Economic Value-Added (EVA), (10) Earnings Per Share (EPS), (11) Cash Flow Per Share (CFPS), (12) the price earnings ratio, (13) operating assets, (14) Return On Assets (ROA), and (15) Return On Equity (ROE).

The Spearman Rank Correlation was utilised to analyse the relationships that exist between the above-mentioned dependent and independent variables. Factor models like the Spearman Rank Correlation, are statistical models that explain complex phenomena through a small number of basic causes or factors. Factor models serve two main purposes (1) it reduces the dimensionality of models to make estimation possible and (2) it finds the true causes that drive data (Rachev, Mittnik, Fabozzi, Focardi & Jasic, 2007:429). With the Spearman Rank Correlation, each variable is ranked separately by putting the values of the variable in order and numbering them; the lowest value is given rank 1, the next lowest is given rank 2 and so on. If two data values for the variable are the same they are given averaged ranks, so if they would have been ranked 14 and 15 they then both receive rank 14.5. Spearman's rank correlation coefficient is used as a measure of linear relationships between two sets of ranked data, and measures how tightly the ranked data clusters around a straight line. In financial econometrics, factor models are needed not only to explain data but to make estimation feasible. Given the relative large number of shares available on the share market, the estimation of dependent, share-price variables, cannot be performed without simplifications to dimensionality. The key objective of factor models is to reduce the dimensionality of the co-variance matrix so that the co-variances between dependent and independent variables are determined only by the co-variances between factors.

3.4 DATA DISTRIBUTION OF THE ANALYSED INDEPENDENT VARIABLES

Prior to discussing the results of the empirical statistical analysis, it is important to comment on the distribution of each of the analysed variables over the time horizon of the study. However, due to the large amount of data related to each variable, the years 1998 and 2007 will be compared based on data distribution in order to explain the changes that realised over the 10-year period from 1998 to 2007. This discussion of the data distribution will contextualise the changes in data distribution that occurred over the time horizon of this study with regards to each analysed variable. The distributions of each of these variables are plotted and discussed for the year 1998 and 2007 in figures 11 to 40, referring to the values contained in tables 1, 3, 4 and 5.

Table 1 below indicates the mean values of the analysed variables over the 10-year period from 1998 to 2007.

Table 1: Mean values in '000 of the analysed variables for the years 1998 to 2007 per year.

		Mean									
Variable	N	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
NET ASSETS	55	6 831 094	5 476 677	5 376 760	5 443 620	5 778 183	5 986 381	6 687 095	7 422 328	8 673 813	10 192 926
TURNOVER	55	8 613 046	7 389 398	8 412 105	9 214 305	10 383 042	11 485 695	12 298 654	13 928 933	15 764 571	18 846 066
TRADING PROFIT	55	1 073 626	603 328	1 010 785	1 328 315	1 822 483	1 708 136	1 608 653	344 877	500 851	2 822 369
OPERATING PROFIT	55	975 943	742 752	879 389	608 586	752 158	1 441 991	2 039 053	1 971 218	2 495 510	2 498 165
PROFIT BEFORE INTEREST AND TAX	55	2 464 871	2 686 939	2 813 974	3 204 579	3 399 148	3 494 904	3 765 004	5 013 002	5 956 816	7 596 493
NOPAT	55	1 803 436	1 567 821	1 896 349	2 268 976	2 772 960	2 870 540	2 594 388	2 333 090	2 591 827	5 039 825
RETAINED PROFITS	55	492 697	109 978	592 511	754 180	482 705	441 771	795 955	1 509 209	1 488 665	2 016 215
FREE CASH FLOW	55	19 907 121	16 329 029	14 903 796	12 304 380	11 022 819	11 358 424	9 534 754	9 209 601	2 591 827	-4 641 695
ECONOMIC VALUE ADDED	55	-161 809	224 924	734 013	1 255 672	1 623 308	1 607 041	1 185 080	712 702	909 287	3 255 585
EARNINGS PER SHARE	55	350	344	458	540	498	416	575	752	985	848
CASH FLOW PER SHARE	55	649	490	673	919	964	555	446	158	72	1 214
PRICE EARNINGS RATIO	55	14	9	10	10	9	10	21	14	10	25
OPERATING ASSETS	55	8 896 133	7 869 983	8 449 485	9 159 186	10 499 939	10 953 689	11 520 587	13 258 593	14 629 683	16 379 702
RETURN ON ASSETS	55	11	10	11	11	16	11	12	12	12	13
RETURN ON EQUITY	55	17	23	30	48	-4	14	25	12	22	17
AVERAGE SHARE PRICE (ASP)	55	4445	3965	4870	5133	5190	4925	5396	6992	10652	11093
CHANGE IN AVERAGE SHARE PRICE (CASP)	55	-594	-480	905	263	57	-265	471	1596	3661	441
YEAR END SHARE PRICE (YESP)	55	3848	4461	5694	5415	5106	4797	5863	8429	12144	11428
CHANGE IN YEAR END SHARE PRICE (CYESP)	55	-1290	613	1233	-279	-310	-309	1066	2566	3715	-716

Table 2 below indicates the percentage change that has occurred in the mean for each variable year-on-year, as well as the percentage change over the 10-year period from 1998 to 2007.

Table 2: Percentage change in mean values year-on-year and over the 10-year period of the analysed variables for the years 1998 to 2007.

		Percentage Change in Mean										
Variable	N	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	1998 to 2007
NET ASSETS	55		-20%	-2%	1%	6%	4%	12%	11%	17%	18%	49%
TURNOVER	55		-14%	14%	10%	13%	11%	7%	13%	13%	20%	119%
TRADING PROFIT	55		-44%	68%	31%	37%	-6%	-6%	-79%	45%	464%	163%
OPERATING PROFIT	55		-24%	18%	-31%	24%	92%	41%	-3%	27%	0%	156%
PROFIT BEFORE INTEREST AND TAX	55		9%	5%	14%	6%	3%	8%	33%	19%	28%	208%
NOPAT	55		-13%	21%	20%	22%	4%	-10%	-10%	11%	94%	179%
RETAINED PROFITS	55		-78%	439%	27%	-36%	-8%	80%	90%	-1%	35%	309%
FREE CASH FLOW	55		-18%	-9%	-17%	-10%	3%	-16%	-3%	-72%	-279%	-123%
ECONOMIC VALUE ADDED	55		239%	226%	71%	29%	-1%	-26%	-40%	28%	258%	2112%
EARNINGS PER SHARE	55		-2%	33%	18%	-8%	-16%	38%	31%	31%	-14%	142%
CASH FLOW PER SHARE	55		-25%	37%	37%	5%	-42%	-20%	-64%	-55%	1597%	87%
PRICE EARNINGS RATIO	55		-41%	23%	-8%	-8%	16%	102%	-31%	-34%	159%	71%
OPERATING ASSETS	55		-12%	7%	8%	15%	4%	5%	15%	10%	12%	84%
RETURN ON ASSETS	55		-7%	8%	0%	47%	-26%	1%	4%	-1%	10%	22%
RETURN ON EQUITY	55		36%	29%	59%	-109%	450%	77%	-54%	90%	-23%	-1%
AVERAGE SHARE PRICE (ASP)	55		-11%	23%	5%	1%	-5%	10%	30%	52%	4%	150%
CHANGE IN AVERAGE SHARE PRICE (CASP)	55		19%	288%	-71%	-78%	-563%	-278%	239%	129%	-88%	174%
YEAR END SHARE PRICE (YESP)	55		16%	28%	-5%	-6%	-6%	22%	44%	44%	-6%	197%
CHANGE IN YEAR END SHARE PRICE (CYESP)	55		148%	101%	123%	-11%	0%	445%	141%	45%	-119%	45%

Table 3 on the next page indicates the standard deviation of each of the analysed variables for the 10-year period, 1998 to 2007 and indicates the distribution of each of the respective variables.

Table 3: Standard deviation in '000 of each analysed variable over the 10-year period, 1998 to 2007.

		Standard Deviation									
Variable	N	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
NET ASSETS	55	10 231 269	5 638 759	5 751 694	6 564 327	7 214 402	8 017 149	9 056 372	10 284 899	12 584 673	14 665 647
TURNOVER	55	13 673 304	7 324 468	9 303 123	10 388 722	12 821 153	13 883 372	15 617 489	18 225 239	20 717 075	25 759 584
TRADING PROFIT	55	2 130 266	5 188 322	2 671 872	3 554 087	3 741 884	4 453 507	4 860 193	8 890 461	11 224 515	8 728 536
OPERATING PROFIT	55	1 947 151	1 223 322	2 864 798	4 793 410	4 283 956	2 262 703	4 771 391	3 935 258	5 409 724	5 851 159
PROFIT BEFORE INTEREST AND TAX	55	4 632 670	5 120 246	4 620 621	5 591 983	6 025 930	6 967 614	6 728 330	8 911 761	9 901 742	14 289 955
NOPAT	55	3 072 974	3 372 800	3 136 356	3 381 134	4 925 527	5 538 565	5 401 904	6 610 837	7 236 225	10 096 902
RETAINED PROFITS	55	805 745	2 000 204	1 316 562	1 553 956	1 763 864	1 154 626	1 445 951	2 161 660	2 211 381	3 979 243
FREE CASH FLOW	55	80 831 843	75 796 564	75 456 248	64 984 380	68 287 625	62 371 940	49 428 388	28 967 139	7 236 225	49 454 762
ECONOMIC VALUE ADDED	55	6 645 709	5 837 222	5 981 526	6 050 101	6 505 969	6 946 798	7 058 074	7 892 378	9 624 927	12 115 177
EARNINGS PER SHARE	55	462	464	807	1 087	1 014	775	711	824	1 302	964
CASH FLOW PER SHARE	55	921	1 072	1 155	1 224	1 201	1 916	2 835	5 664	7 231	1 752
PRICE EARNINGS RATIO	55	12	39	29	20	10	48	58	22	20	44
OPERATING ASSETS	55	12 218 226	9 965 788	10 975 214	11 386 365	13 623 741	14 571 345	15 841 692	19 759 143	20 204 623	22 466 233
RETURN ON ASSETS	55	7	11	11	13	31	13	11	14	15	16
RETURN ON EQUITY	55	15	38	53	164	215	41	67	195	89	67
AVERAGE SHARE PRICE (ASP)	55	5696	5465	6877	7262	8861	7979	8142	8713	15864	15331
CHANGE IN AVERAGE SHARE PRICE (CASP)	55	3039	2250	2395	3689	3452	2446	1261	1949	7610	11483
YEAR END SHARE PRICE (YESP)	55	4998	6792	8510	8435	9058	7625	7446	10663	19148	14950
CHANGE IN YEAR END SHARE PRICE (CYESP)	55	3947	3772	3270	4661	3380	2219	2168	4133	9097	13564

Table 4 indicates the median of each variable for the 10 year-period and the changes that realised.

Table 4: Median values in '000 of each analysed variable over the 10-year period, 1998 to 2007.

		Median									
Variable	N	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
NET ASSETS	55	3 156 000	2 904 831	2 874 400	2 778 800	2 578 300	2 840 300	3 088 000	3 080 300	3 445 584	3 758 000
TURNOVER	55	4 711 459	4 622 000	4 991 000	5 059 200	5 603 000	6 559 000	6 852 500	7 036 900	7 848 000	8 043 000
TRADING PROFIT	55	685 693	662 000	649 600	786 300	832 600	1 085 100	1 223 100	1 142 406	1 349 000	1 531 000
OPERATING PROFIT	55	485 900	403 400	403 000	460 000	453 379	727 144	694 700	860 000	982 000	977 624
PROFIT BEFORE INTEREST AND TAX	55	766 445	652 000	691 500	819 200	854 700	940 800	1 290 699	1 808 000	1 779 700	1 900 100
NOPAT	55	609 830	608 090	507 150	629 300	663 658	817 307	906 080	942 208	1 176 470	1 299 300
RETAINED PROFITS	55	259 621	174 400	230 000	207 428	164 493	189 600	274 000	688 360	577 400	460 800
FREE CASH FLOW	55	347 985	466 000	419 027	325 100	476 210	389 926	522 900	1 027 206	1 176 470	1 616 752
ECONOMIC VALUE ADDED	55	-158 310	-107 146	-36 412	31 606	167 868	323 015	408 357	602 700	732 161	754 184
EARNINGS PER SHARE	55	204	228	193	259	230	184	302	482	525	566
CASH FLOW PER SHARE	55	285	270	341	607	546	537	511	743	565	778
PRICE EARNINGS RATIO	55	9	12	10	9	9	9	10	11	12	14
OPERATING ASSETS	55	3 805 568	4 565 619	4 694 000	5 039 000	4 812 500	5 287 416	5 121 396	5 646 000	6 815 200	7 358 000
RETURN ON ASSETS	55	10	10	10	9	8	11	10	11	9	10
RETURN ON EQUITY	55	15	15	14	18	13	16	22	28	25	23
AVERAGE SHARE PRICE (ASP)	55	2428	2085	2638	2676	2120	2324	3342	5367	7300	8055
CHANGE IN AVERAGE SHARE PRICE (CASP)	55	-240	-277	213	23	15	-19	422	1313	1188	1006
YEAR END SHARE PRICE (YESP)	55	1919	2357	2668	2864	1843	2853	4092	5942	7019	8641
CHANGE IN YEAR END SHARE PRICE (CYESP)	55	-95	57	58	51	-5	45	736	1235	1252	741

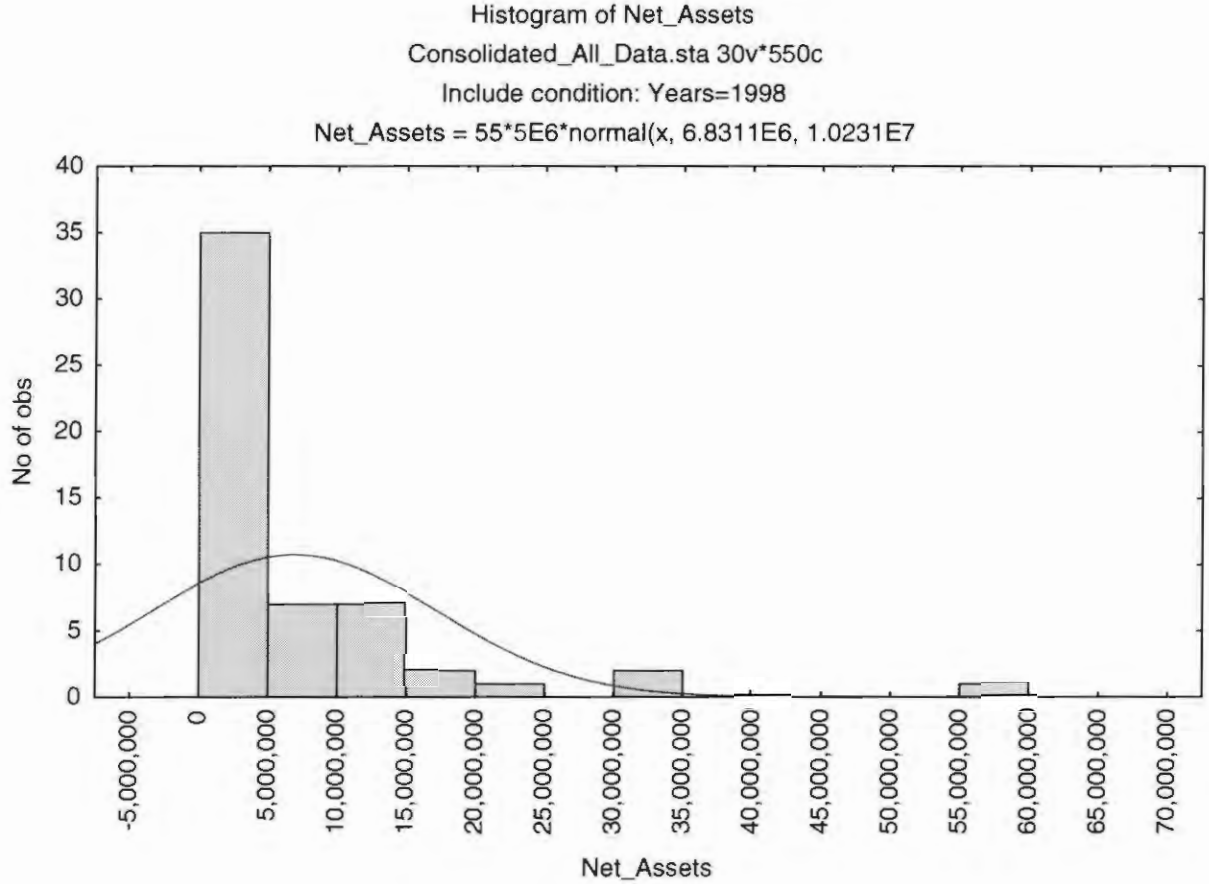
Table 5 below indicates the minimum and maximum values of the respective analysed variables in order to indicate the distribution of the variables over the 10-year period.

Table 5: Minimum and maximum values in '000 of each analysed variable over the 10-year period, 1998 to 2007.

Minimum and Maximum												
Variable		N	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
NET ASSETS	Minimum	55	1 018 835	811 404	891 800	534 685	-525 400	-5 370 700	-1 326 800	-534 300	-4 802 900	-4 370 000
	Maximum		59 452 000	24 498 000	25 122 000	33 861 000	31 989 000	35 118 000	37 810 000	43 264 000	55 699 000	65 337 000
TURNOVER	Minimum	55	-	-	-	-	-	-	-	-	-	-
	Maximum		92 332 000	28 950 000	46 926 000	47 148 000	61 578 000	64 555 000	70 731 000	84 654 000	83 686 000	116 910 000
TRADING PROFIT	Minimum	55	-2 906 000	-19 297 000	-5 046 100	-12 579 000	-4 874 300	-8 441 600	-13 904 000	-28 444 000	-36 898 000	-22 808 000
	Maximum		9 762 000	25 366 000	9 373 000	14 350 000	18 956 000	19 372 000	19 533 000	21 931 000	23 242 000	30 225 000
OPERATING PROFIT	Minimum	55	-3 723 000	-2 859 000	-12 592 000	-28 260 000	-22 065 000	-898 095	-5 834 000	-6 655 000	-11 064 000	-9 613 000
	Maximum		10 508 000	4 093 000	9 261 600	11 793 300	13 435 000	10 735 000	30 566 000	15 941 000	22 259 000	23 427 000
PROFIT BEFORE INTEREST AND TAX	Minimum	55	15 004	-56 068	111 738	-624 816	-1 026 084	-830 770	18 600	-65 000	4 200	1 500
	Maximum		19 302 000	23 922 000	19 256 000	29 130 000	26 264 000	34 488 000	35 283 000	44 677 000	52 566 000	66 191 000
NOPAT	Minimum	55	-	-8 142 400	-824 530	-	-160 511	-3 488 170	-6 939 800	-13 952 920	-18 927 890	-5 956 900
	Maximum		12 792 000	17 037 300	12 966 800	13 531 700	25 576 600	25 533 900	25 757 200	31 323 070	23 716 840	47 680 050
RETAINED PROFITS	Minimum	55	-477 600	-11 619 100	-3 051 500	-784 328	-3 029 800	-2 691 479	-3 509 800	-642 000	-1 982 000	-2 163 000
	Maximum		4 589 000	2 581 350	5 815 000	8 643 000	9 253 000	4 298 000	5 008 000	8 668 000	8 719 000	22 292 000
FREE CASH FLOW	Minimum	55	-48 884 750	-55 483 300	-72 585 600	-101 995 700	-147 001 200	-162 024 200	-184 704 100	-22 176 266	-18 927 890	-329 725 320
	Maximum		435 807 600	424 961 700	424 690 900	334 541 500	361 919 600	299 631 500	196 899 200	151 021 070	23 716 840	77 895 298
ECONOMIC VALUE ADDED	Minimum	55	-18 091 813	-19 387 095	-14 620 528	-14 032 503	-11 006 504	-12 432 002	-15 848 128	-27 545 614	-36 071 337	-22 645 672
	Maximum		23 655 713	22 699 004	22 723 696	27 081 447	23 356 101	32 693 166	32 422 817	28 520 582	25 091 320	61 215 139
EARNINGS PER SHARE	Minimum	55	9	-12	-111	-299	-313	-870	3	3	-176	0
	Maximum		2 510	2 073	3 879	7 024	6 863	5 140	3 966	4 325	6 006	5 239
CASH FLOW PER SHARE	Minimum	55	3	-4 443	-3 277	-324	-39	-10 108	-18 595	-39 251	-50 233	-3 642
	Maximum		4 483	4 164	5 573	6 912	6 208	6 248	4 743	7 332	7 873	7 766
PRICE EARNINGS RATIO	Minimum	55	-	-240	-112	-114	-39	-117	3	4	-123	7
	Maximum		63	104	103	58	48	320	428	167	33	250
OPERATING ASSETS	Minimum	55	2 418	375	2 598	473	-	4 661	31 975	33 712	34 100	4 108
	Maximum		46 726 400	51 546 000	61 957 000	53 894 000	58 618 000	62 594 000	66 286 000	102 754 000	109 571 000	115 190 000
RETURN ON ASSETS	Minimum	55	1	-17	-3	-5	-8	-12	-10	-32	-12	-8
	Maximum		47	69	74	70	156	75	63	72	94	106
RETURN ON EQUITY	Minimum	55	-6	-7	-2	-44	-1 495	-152	-362	-1 392	-563	-406
	Maximum		104	245	335	1 104	445	187	245	162	165	112
AVERAGE SHARE PRICE (ASP)	Minimum	55	-	-	-	-	-	25	31	30	41	21
	Maximum		29 893	26 982	35 183	33 034	49 734	51 177	53 427	51 646	92 434	103 917
CHANGE IN AVERAGE SHARE PRICE (CASP)	Minimum	55	-17 924	-10 889	-4 343	-19 156	-10 742	-12 227	-2 851	-1 781	-1 887	-65 676
	Maximum		7 386	5 371	11 888	13 790	16 875	10 164	4 535	9 230	40 788	36 785
YEAR END SHARE PRICE (YESP)	Minimum	55	-	-	-	-	-	28	24	34	22	25
	Maximum		23 850	38 111	40 885	41 945	57 537	48 786	46 609	58 162	110 551	98 872
CHANGE IN YEAR END SHARE PRICE (CYESP)	Minimum	55	-19 281	-8 988	-1 554	-22 840	-9 358	-8 751	-7 316	-1 605	-6 796	-87 645
	Maximum		9 959	20 814	14 749	16 427	15 592	7 000	6 360	24 315	52 389	16 232

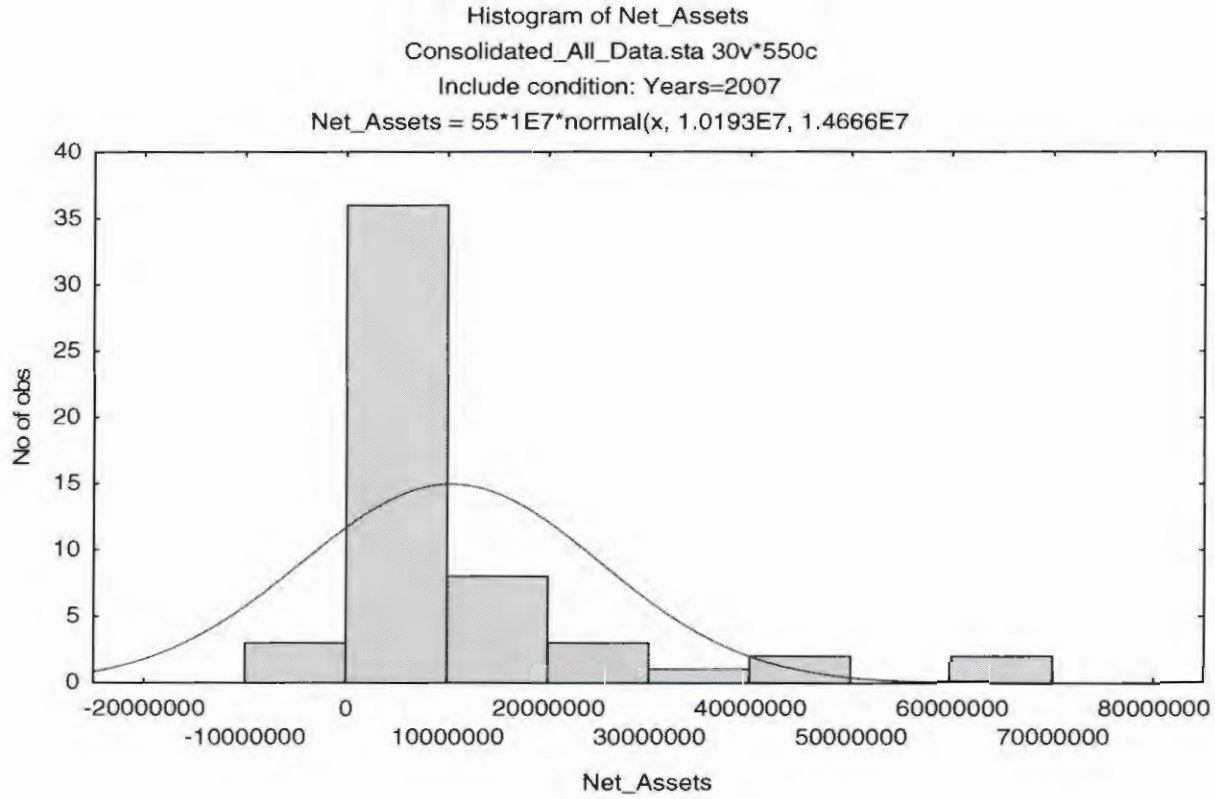
Figures 11 and 12 below indicate the distribution of net assets of the sample of analysed companies for the years 1998 and 2007 respectively and the changes in the distributions that occurred during this period.

Figure 11: Distribution of net assets in 1998 in '000 of the sample of analysed companies



From Figure 11 it can clearly be denoted that the majority of the companies in the analysed sample had a net asset value of between R0 and R5 billion in 1998. The distribution is slightly skewed to the right, with a limited number of companies with a net asset value of between R30 and R35 billion and companies with a net asset value of R55 to R60 billion. The mean net asset value in 1998 was R6.8 billion, with a standard deviation of R10.2 billion in the sample. The minimum net asset value was R1.0 billion and the maximum net asset value was R59.5 billion. The median of the sample of companies was R3.2 billion.

Figure 12: Distribution of net assets in 2007 in '000 of the sample of analysed companies.



The distribution of net assets in 2007 is slightly skewed to the right as was the situation in 1998. It can be noted in Figure 12 that there were a few companies with net liabilities in 2007, in contrast with none in 1998. From Figure 12 it can be seen, that the majority of the sample companies had a net asset value of between R0 and R10 billion in 2007. The mean net asset value in 2007 was R10.2 billion rand, compared to R6.8 billion in 1998, constituting a 49% growth in net asset value in the 10-year period. The spread in the distribution has increased, as indicated by the standard deviation in the sample of companies that have increased from R10.2 to R14.7 billion in 2007. This can be contributed to the fact that in 2007 there were companies with a net liability value of R4.4 billion and companies with a net asset value of R65.3 billion. An interesting fact that can be noted is that the median net asset value in 1998 was R3.2 billion and that it had increased only to R3.8 billion in 2007, another indication that the spread in the net asset value had increased from 1998 to 2007.

Figures 13 and 14 indicate the distribution of turnover of the sample of analysed companies for the years 1998 and 2007 respectively and the changes in the distributions that occurred during this period.

Figure 13: Distribution of turnover in 1998 in '000 of the sample of analysed companies.

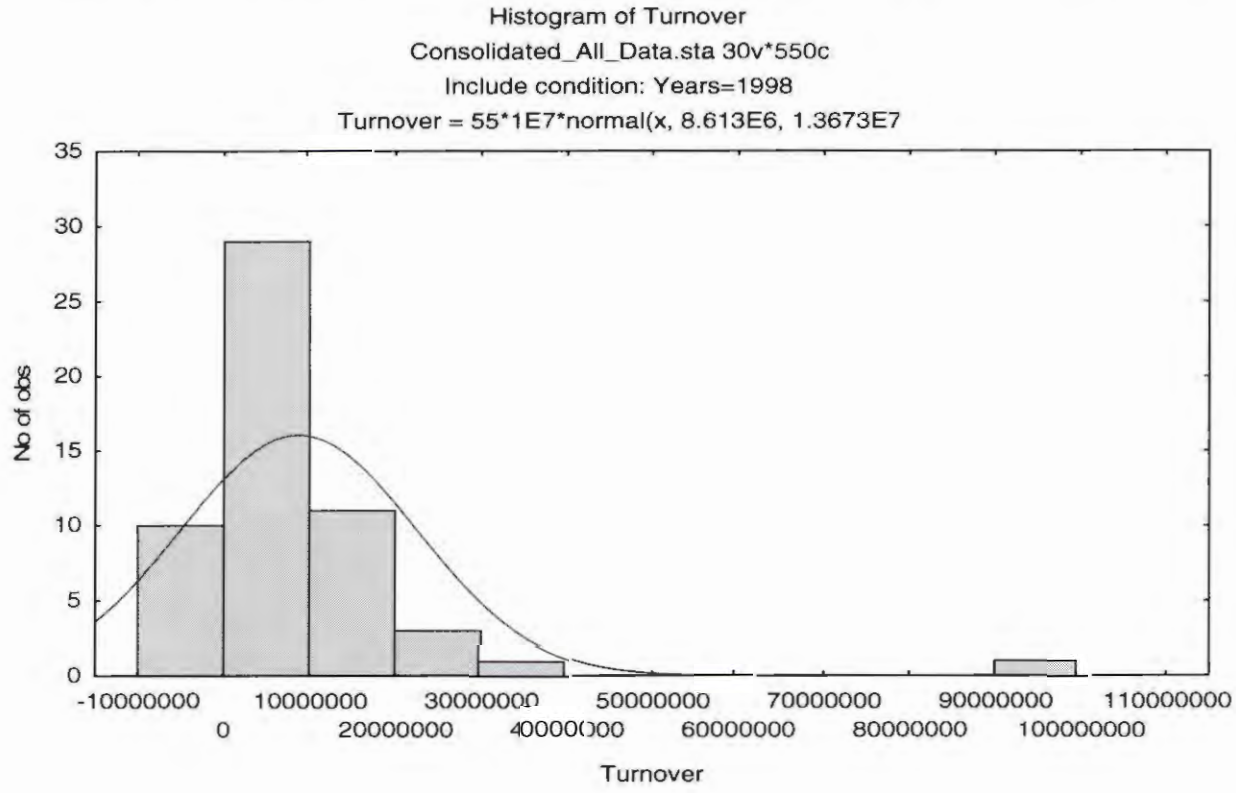
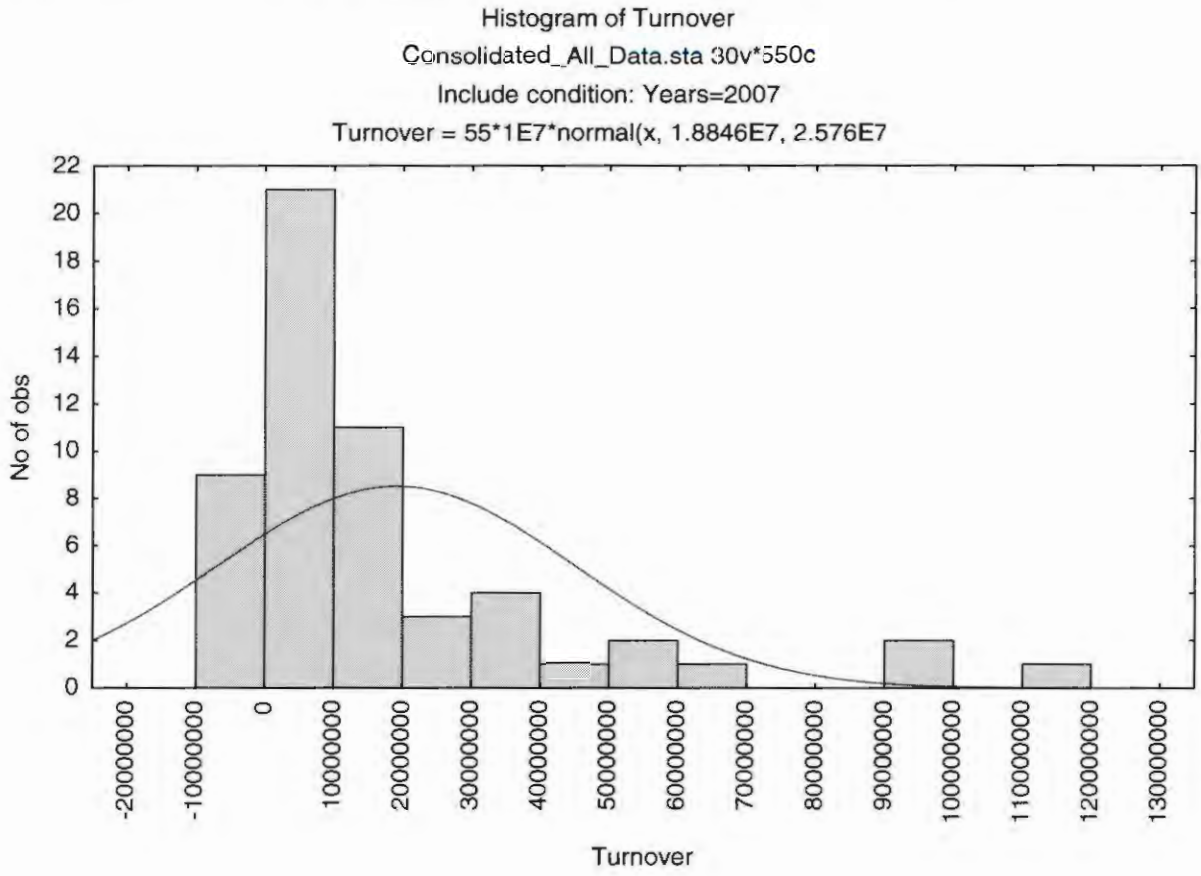


Figure 13 indicates the distribution of turnover for the sample of companies for the year 1998. It can be seen that the distribution is slightly skewed to the right, with a largest turnover value of R92.3 billion. Although Figure 13 indicates that there are companies with a negative turnover, this is only due to the fact that the Spearman Rank Correlation was used to analyse the data and that these negative values are attributable to rank and not to absolute values. The mean turnover value in 1998 was R8.6 billion with a standard deviation of R13.7 billion. This fairly large standard deviation can be attributed to a small number of companies that had large turnovers. The median turnover value in 1998 was R4.7 billion.

Figure 14: Distribution of turnover in 2007 in '000 of the sample of analysed companies.



The turnover histogram for the year 2007 is slightly skewed to the right. This is again due to the fact that there are a few companies with large turnover values of between R90.0 and R100 billion and R110 and R120 billion. The mean turnover value in 2007 was R18.9 billion, compared to R8.6 billion in 1998, indicating a 119% increase in turnover over the 10-year period. The standard deviation in the sample, based on turnover, had increased for R13.7 to R25.8 billion in 2007, again indicating that the spread had increased from 1998 to 2007. The increase in the spread is explained by the median that had increased from R4.7 in 1998 to 8.0 billion in 2007, indicating a 70% increase in the median turnover value from 1998 to 2007.

Figures 15 and 16 indicate the distribution of trading profit of the sample of analysed companies for the years 1998 and 2007 respectively and the changes in the distributions that occurred during this period.

Figure 15: Distribution of trading profit in 1998 in '000 of the sample of analysed companies.

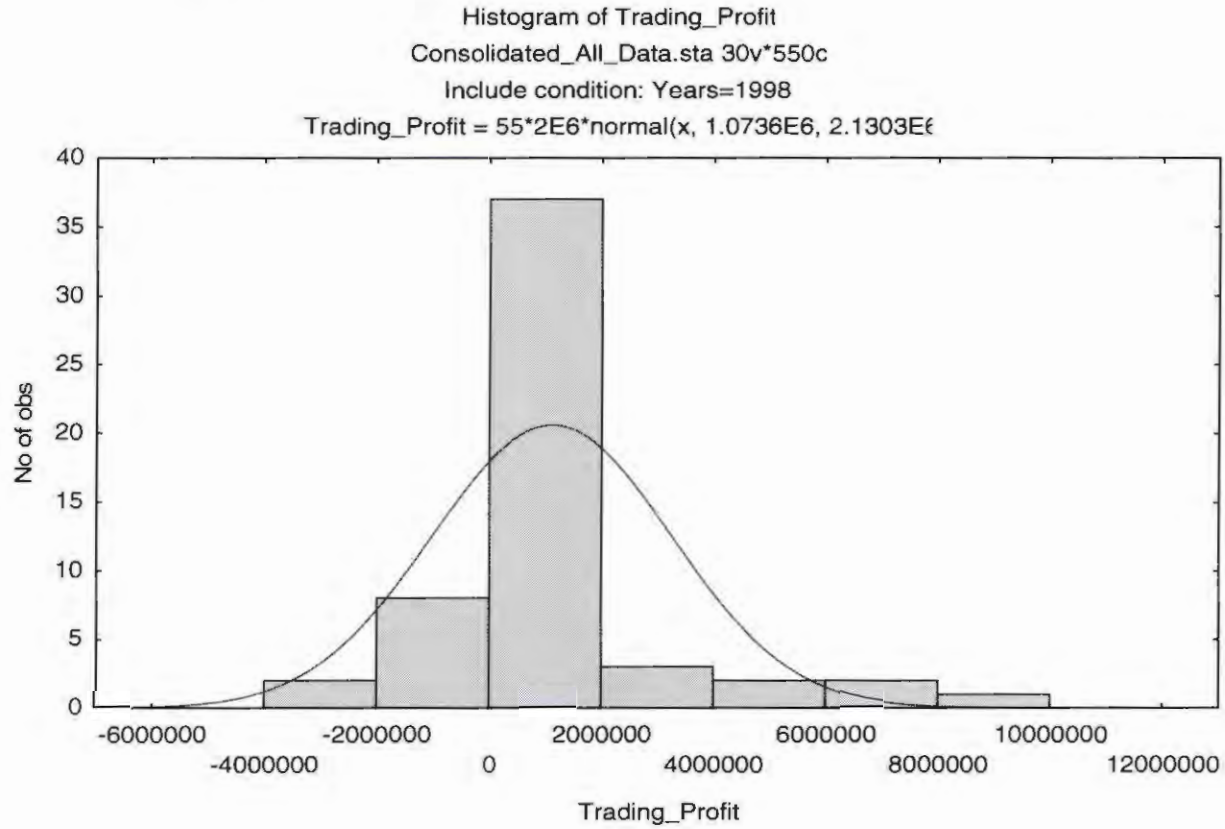


Figure 15 indicates an almost normal distribution of trading profit for the sample of companies. The majority of companies have a trading profit of between R0 and R2 billion, with a mean trading profit of R1.1 billion. The median trading profit for the sample of companies is R0.69 billion and a standard deviation of R2.1 billion. The fairly large standard deviation is again indicative of a fairly large spread between the trading profits of the companies in the sample. The smallest trading profit value in the sample is (R2.9) billion and the largest is R9.8 billion.

Figure 16: Distribution of trading profit in 2007 in '000 of the sample of analysed companies.

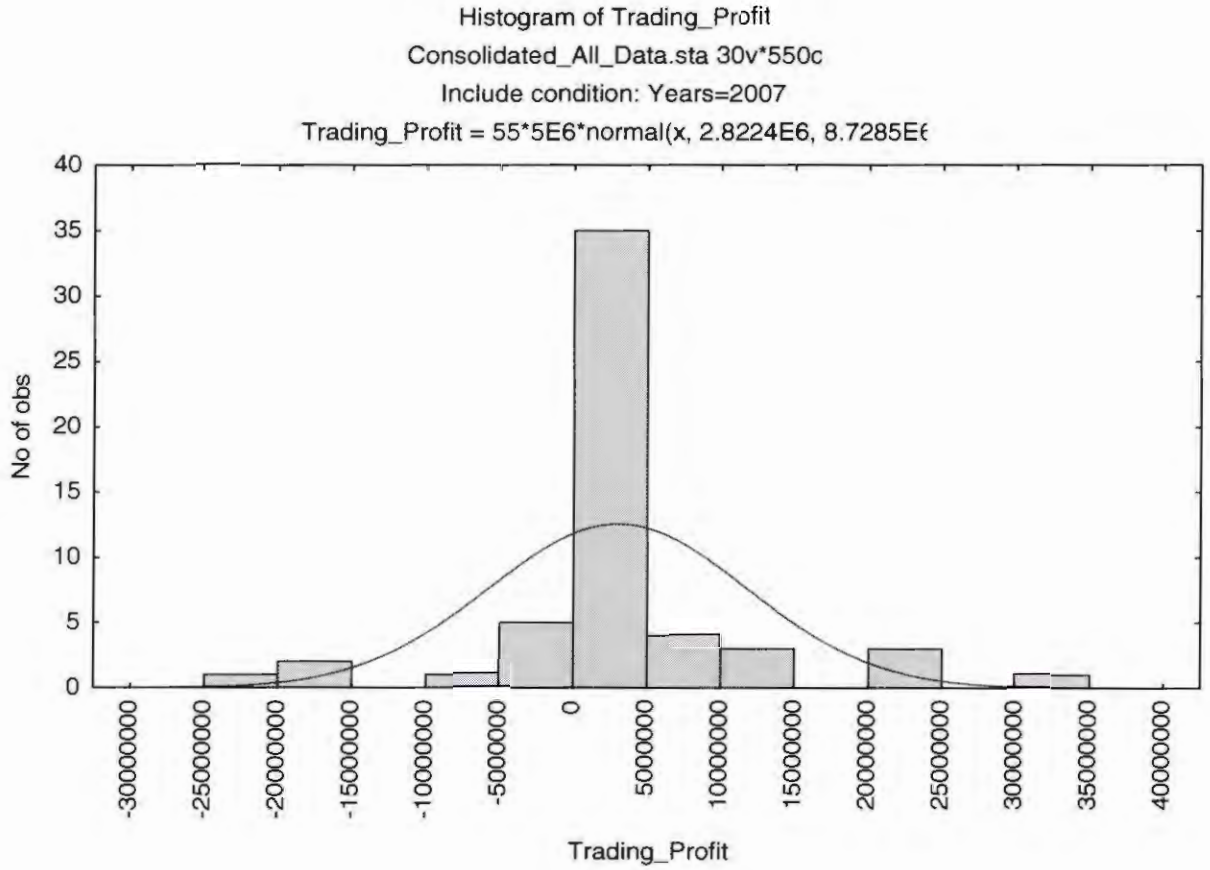
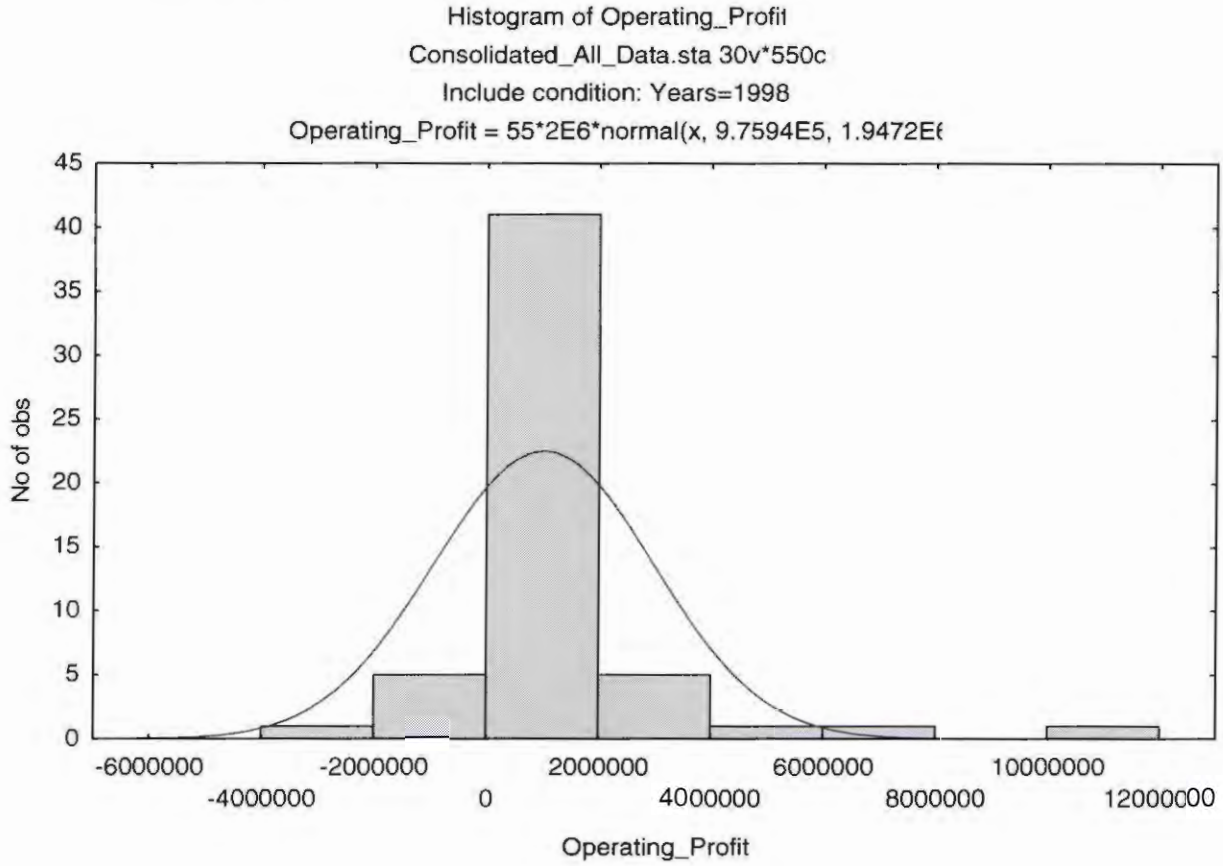


Figure 16 indicates an almost normal distribution of trading profit for the year 2007. The majority of the sample companies have a trading profit of between R0 and R5 billion with the smallest trading profit value being (R22.80) billion and the largest trading profit value R30.2 billion. The mean trading profit value for 2007 was R2.8 billion compared to R1.1 billion in 1998, constituting an increase of 163% over the period 1998 to 2007 in trading profit. The standard deviation in trading profit in the year 2007 was R8.7 billion compared to R2.1 billion in 1998 indicating a larger spread in trading profit values occurring in the 10-year period.

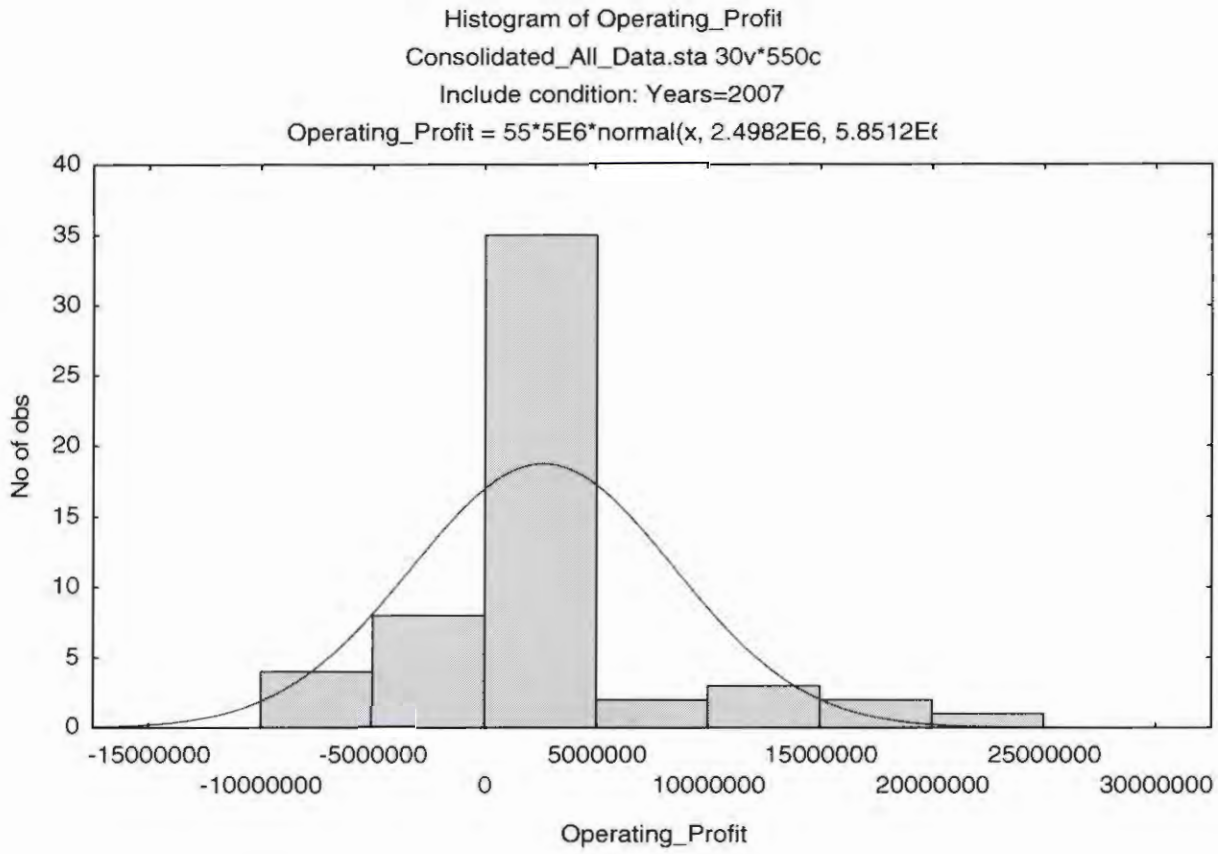
Figures 17 and 18 indicate the distribution of operating profit of the sample of analysed companies for the years 1998 and 2007 respectively and the changes in the distributions that occurred during this period.

Figure 17: Distribution of operating profit in 1998 in '000 of the sample of analysed companies.



From Figure 17 it can be seen that the operating profit distribution of the sample of companies has an almost normal distribution. The mean operating profit value of the sample is R0.98 billion, with a maximum operating profit value of R10.5 billion and a minimum operating profit value of (R3.7) billion. The standard deviation for the operating profit for the year 1998 is R1.9 billion and the median R0.49 billion.

Figure 18: Distribution of operating profit in 2007 in '000 of the sample of analysed companies.



The operating profit for the year 2007 exhibits an almost normal distribution. The mean operating profit value is R2.5 billion for 2007 in comparison to R0.98 billion for the year 1998, constituting a 156% increase from 1998 to 2007. The median operating profit value in 2007 was R0.98 billion compared to R0.49 billion in 1998, with a standard deviation of R5.6 billion in 2007 compared to R1.9 billion in 1998, indicating a larger spread between the operating profit values in the sample of companies in 2007, when compared to 1998.

Figures 19 and 20 indicate the distribution of profit before interest and tax of the sample of analysed companies for the years 1998 and 2007 respectively and the changes in the distributions that occurred during this period.

Figure 19: Distribution of profit before interest and tax in 1998 in '000 of the sample of analysed companies.

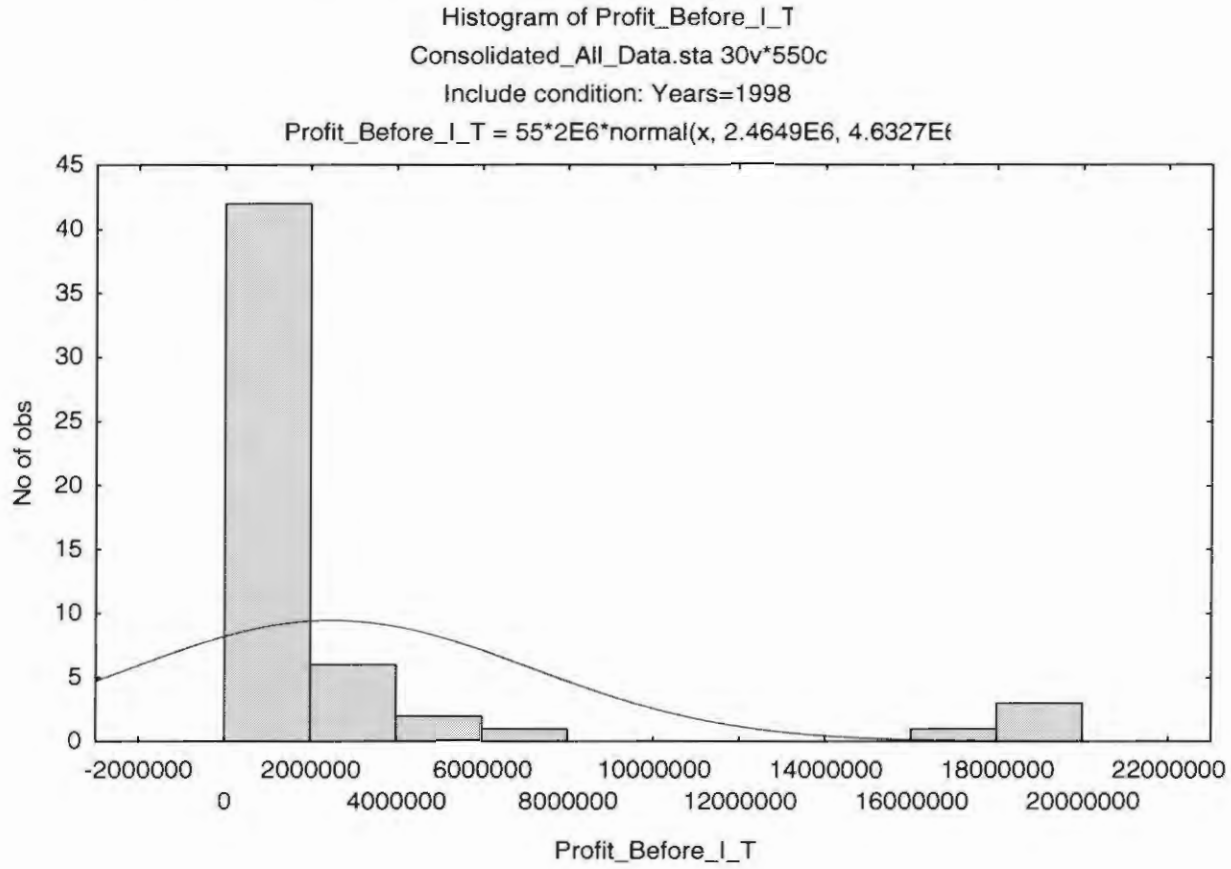


Figure 19 indicates a distribution of profit before interest and tax that is skewed to the right. The majority of the sample companies have a profit before interest and tax of between R0 and R2 billion. The mean profit before interest and tax for the year 1998 was R2.5 billion, with a standard deviation of R4.6 billion, indicating a large spread in the profit before interest and tax. The median profit before interest and tax for the year 1998 was R0.77 billion rand with a maximum value of R19.3 billion and a minimum value of R0.15 billion.

Figure 20: Distribution of profit before interest and tax in 2007 in '000 of the sample of analysed companies.

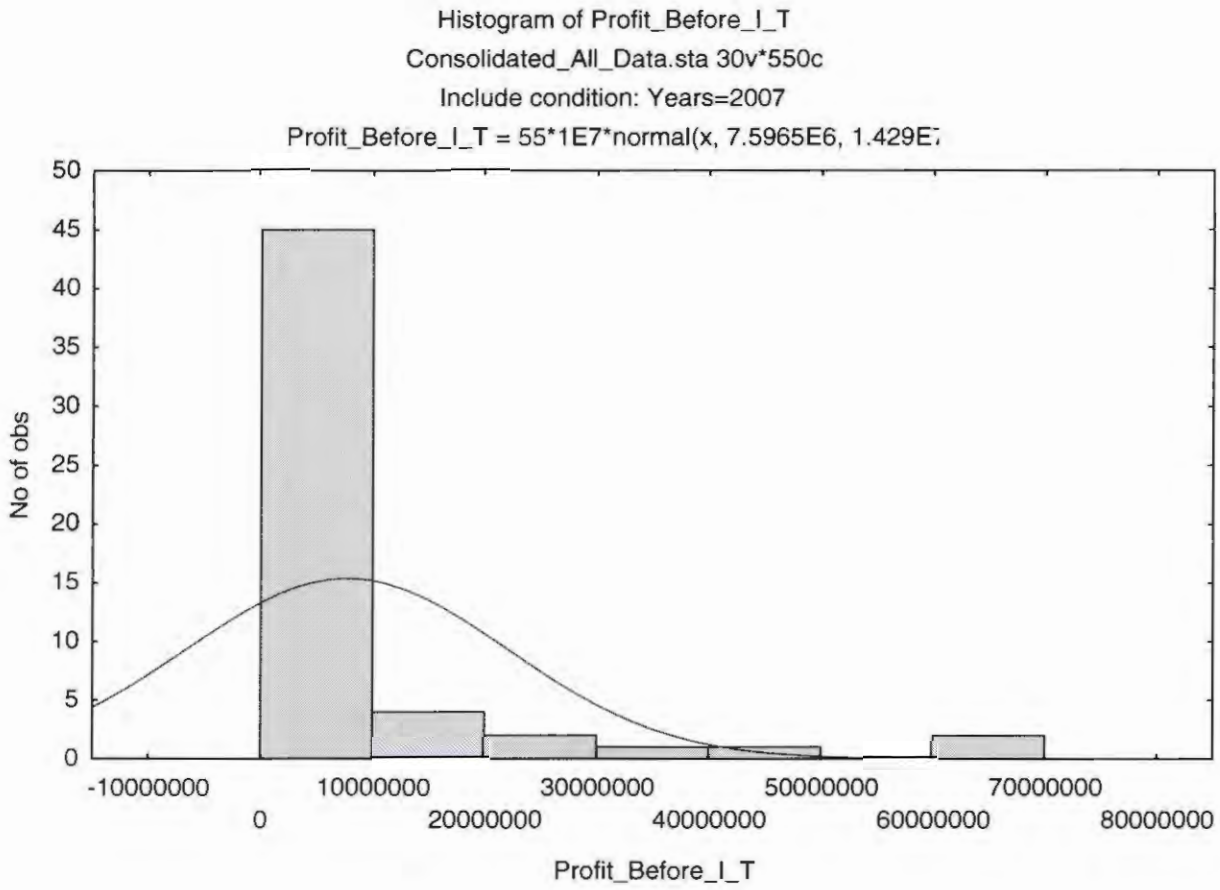


Figure 20 indicates that the distribution of profit before interest and tax for the year 2007 is slightly skewed to the right. This is due to the fact that there are a small number of companies that have a profit before interest and tax of between R60 billion and R70 billion. The mean profit before interest and tax value is R7.6 billion, with a median value of R1.9 billion. The increase in profit before interest and tax from 1998 to 2007 was 208% and constitutes an increase from R2.5 billion to R7.6 billion in 2007. The minimum profit before interest and tax in 2007 was R0.015 billion and the maximum value was R66.2 billion. The standard deviation in the sample of companies was R14.3 billion for the 2007 year.

Figures 21 and 22 indicate the distribution of profit before interest and tax of the sample of analysed companies for the years 1998 and 2007 respectively and the changes in the distributions that occurred during this period.

Figure 21: Distribution of net operating profit after tax in 1998 in '000 of the sample of analysed companies.

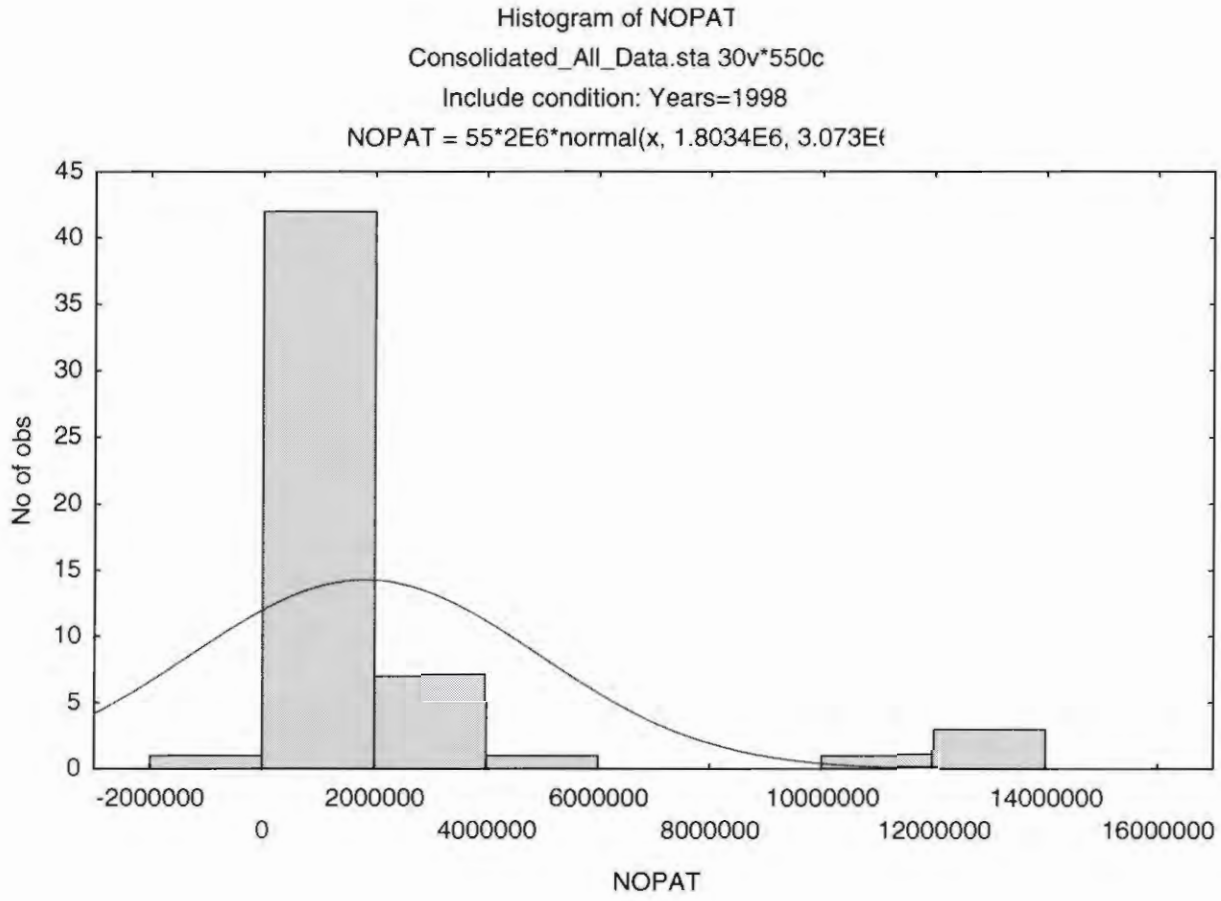


Figure 21 indicates that the distribution of NOPAT for the year 1998 is slightly skewed to the right. This is due to the fact that there are a few companies in the sample with a NOPAT of between R10.0 billion and R14.0 billion. The mean NOPAT for the year 1998 is R1.8 billion, with a standard deviation of R3.1 billion. The median NOPAT is R0.6 billion with a maximum of R12.8 billion rand and a minimum value of R0.0 billion. Again, the fact that figure 21 indicates negative NOPAT values, is only due to the fact that the Spearman Rank Correlation was used to analyse the sample of data and that these negative figures are only due to the ranking and not absolute values.

Figure 22: Distribution of net operating profit after tax in 2007 in '000 of the sample of analysed companies.

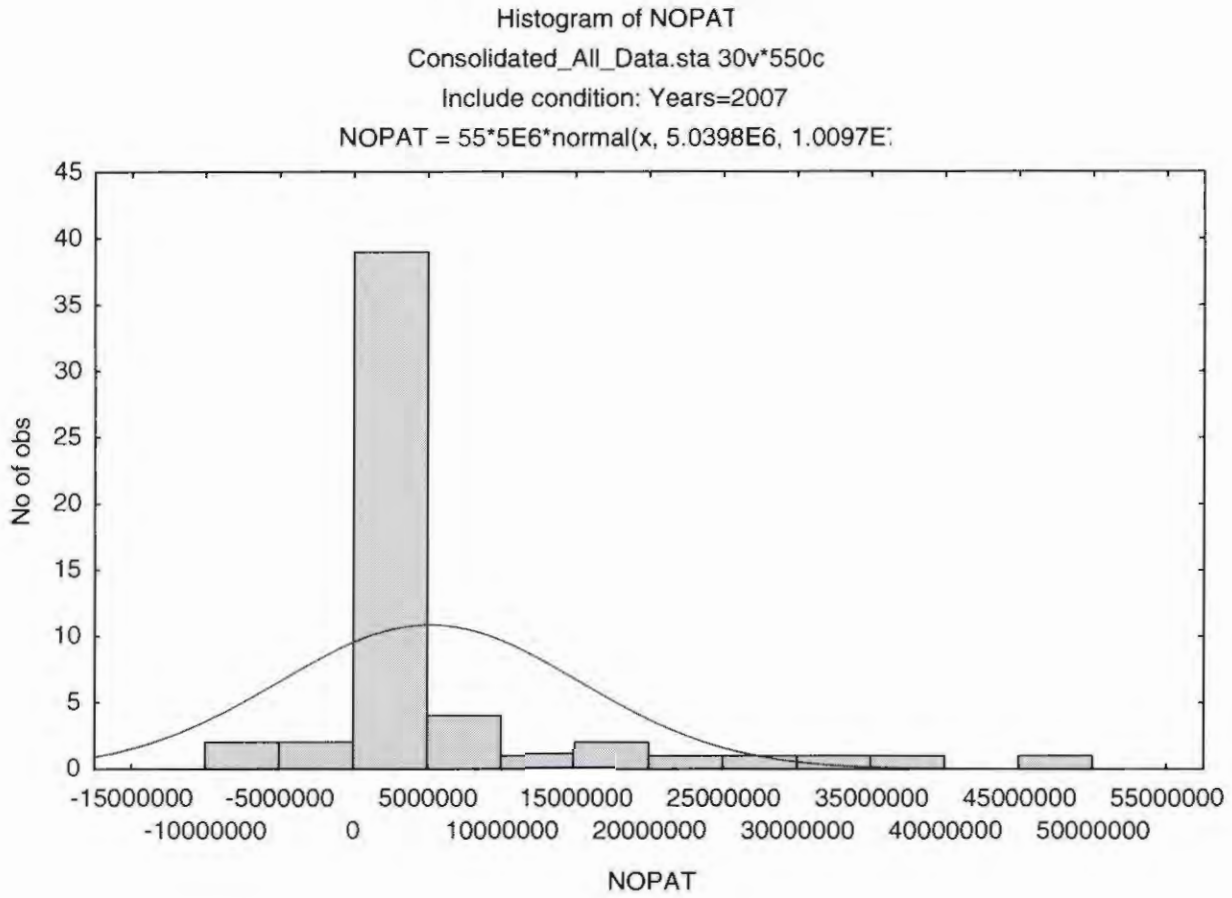


Figure 22 indicates that the NOPAT distribution for 2007 is slightly skewed to right. The mean NOPAT value for 2007 is R5.0 billion compared to R1.8 billion in 1998, constituting an increase of 179% from 1998 to 2007. The standard deviation for NOPAT in 2007 was R10.1 billion indicating a large spread in the sample of companies based on NOPAT, with a median of R1.3 billion. The large standard deviation can be attributed to the fact that the mean is R5.0 billion and that there are several companies in the sample with a NOPAT of between R25.0 billion and R50.0 billion. The minimum NOPAT value for 2007 was (R6.0) billion rand and the maximum value R47.7 billion rand.

Figures 23 and 24 indicate the distribution of retained profits of the sample of analysed companies for the years 1998 and 2007 respectively and the changes in the distributions that occurred during this period.

Figure 23: Distribution of retained profits in 1998 in '000 of the sample of analysed companies.

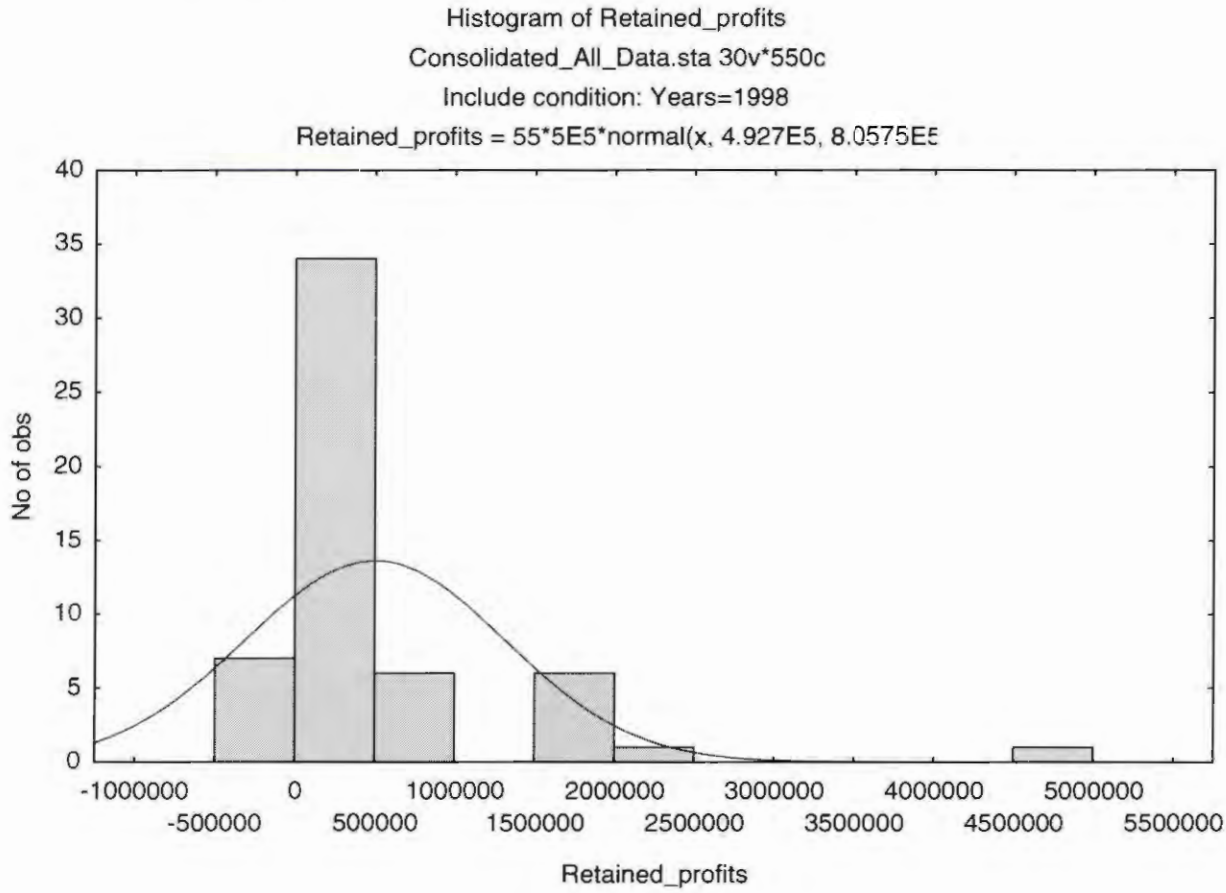


Figure 23 indicates that the distribution for retained profits for the year 1998 is slightly skewed to the right. This is due to the fact that there are a few companies with retained profits for the year of between R45.0 billion and R50.0 billion. The mean retained profit value for the year 1998, is R0.5 billion with a standard deviation of R0.8 billion and a median of R0.3 billion. The maximum value for retained profits in 1998 was R4.6 billion and the minimum (R0.5) billion.

Figure 24: Distribution of retained profits in 2007 in '000 of the sample of analysed companies.

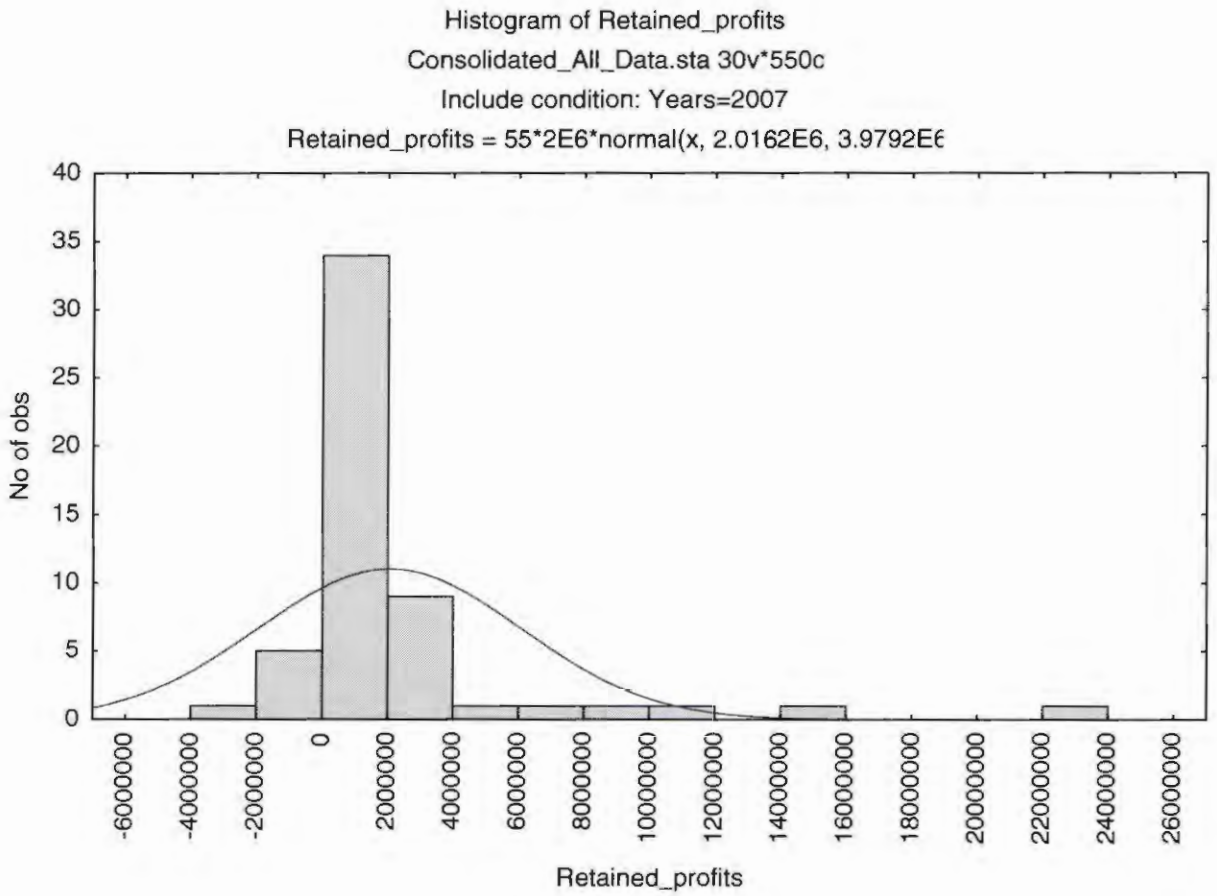


Figure 24 indicates that the distribution is slightly skewed to the right with a few companies with a retained profit of R14.0 billion to R24.0 billion. The mean retained profit value for the year 2007 was R2.0 billion, with a standard deviation of R4.0 billion. The fairly large standard deviation is due to a few companies with a retained profit value of in excess of R14.0 billion going up to R24.0 billion. The increase in the mean retained profit value from 1998 to 2007 was 309%, increasing from R0.5 billion in 1998 to R2.0 billion in 2007. The median for the year 2007 for retained profits was R0.5 billion, increasing from R0.3 billion in 1998.

Figures 25 and 26 indicate the distribution of free cash flow of the sample of analysed companies for the years 1998 and 2007 respectively and the changes in the distributions that occurred during this period.

Figure 25: Distribution of free cash flow in 1998 in '000 of the sample of analysed companies.

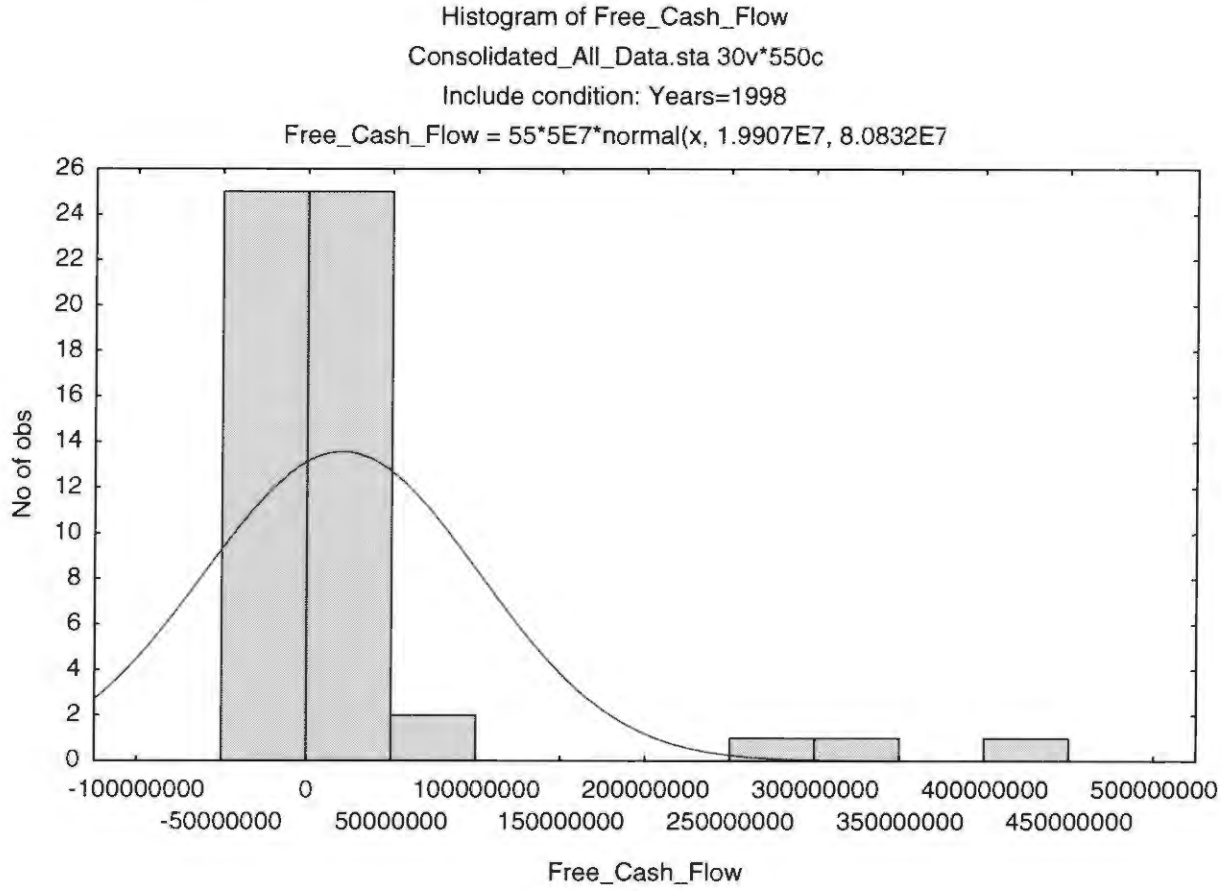


Figure 25 indicates that the distribution for free cash flow is slightly skewed to the right. This is due to the fact that there are a few companies with free cash flow of between R25 billion and R45 billion. The mean free cash flow value for the year 1998, was R19.9 billion with a very large standard deviation of R80.8 billion. This large standard deviation is attributable to the fact that there are a significant number of companies with a free cash flow of between R0.0 and R50.0 billion in the sample. The median for free cash flow in 1998 was R0.4 billion.

Figure 26: Distribution of free cash flow in 2007 in '000 of the sample of analysed companies.

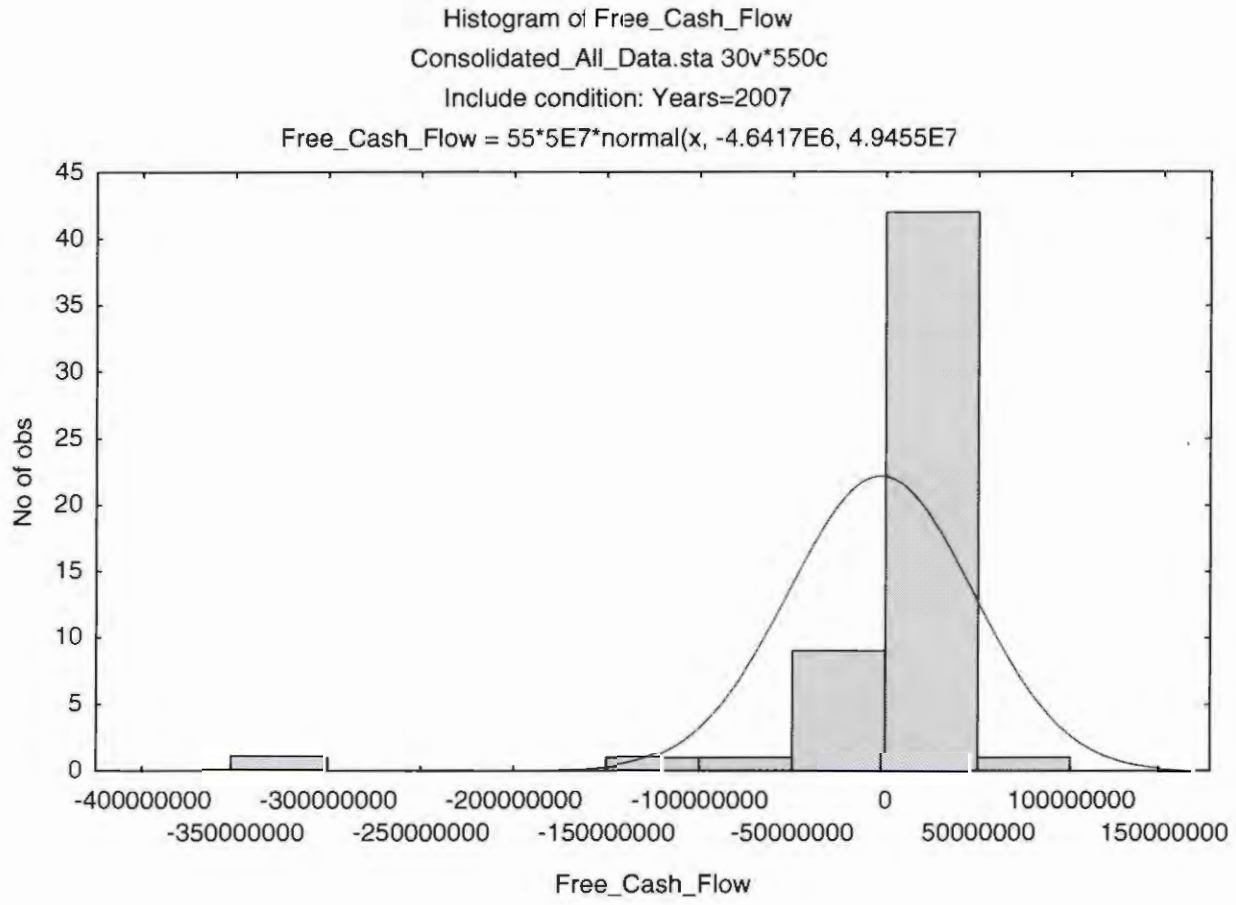


Figure 26 clearly indicates that the distribution for free cash flow for the year 2007, is skewed to the left. This is due to the fact that there are a few companies with a free cash flow value of (R100) billion to (R350) billion. The mean free cash flow value in 2007 was (R4.6) billion, indicating a decrease in the mean free cash flow generated by companies from 1998 to 2007 of 123%. The standard deviation of free cash flow in 2007 was R49.5 billion, with a maximum free cash flow value of R77.8 billion compared to R435.8 billion in 1998. The minimum cash flow value generated in 1998, was (R48.9) billion compared to the minimum in 2007 of (R329.7) billion. The median cash flow value for 2007 was R1.6 billion.

Figures 27 and 28 indicate the distribution of economic value added (EVA) of the sample of analysed companies for the years 1998 and 2007 respectively and the changes in the distributions that occurred during this period.

Figure 27: Distribution of Economic Value Added (EVA) in 1998 in '000 of the sample of analysed companies.

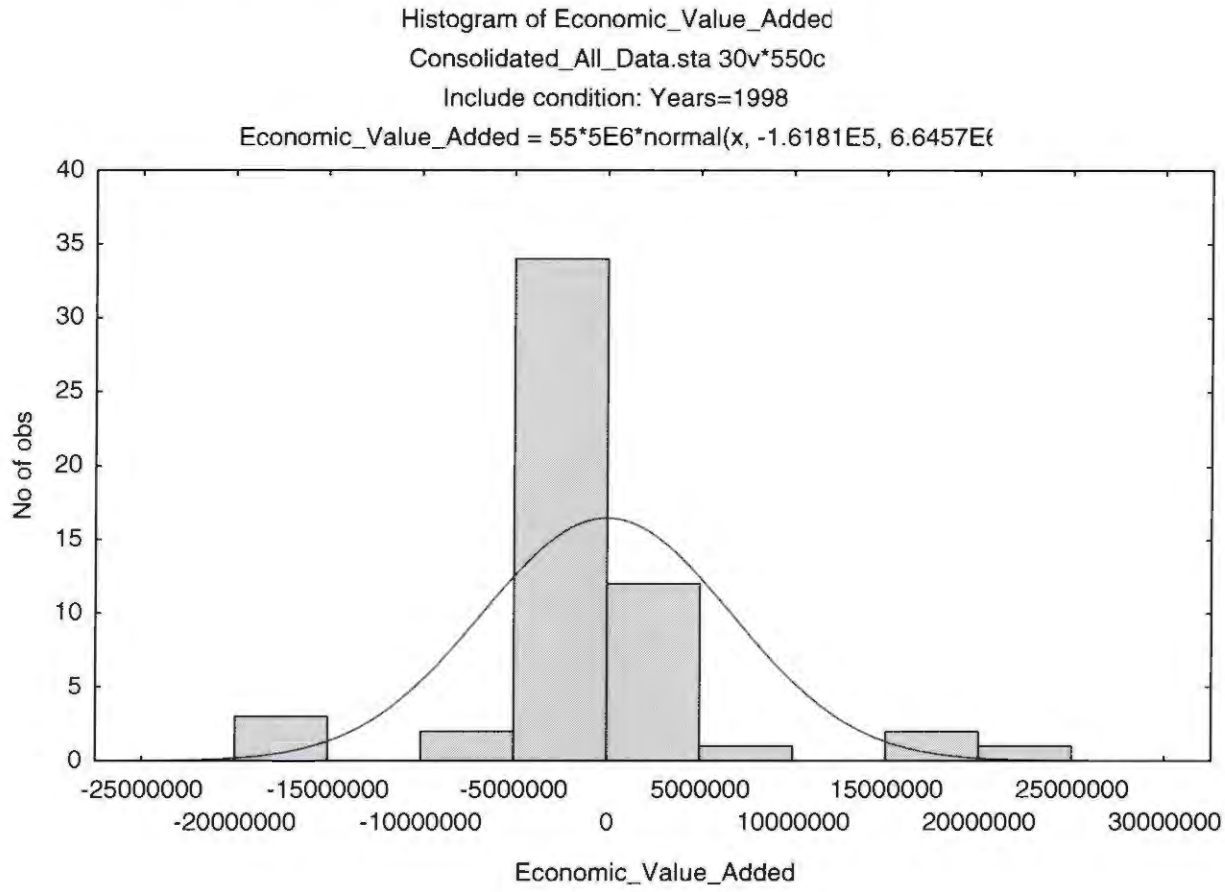


Figure 27 indicates that the distribution of EVA is almost a normal distribution. The mean EVA value for 1998 is (R0.2) billion, with a standard deviation of R6.7 billion. This fairly large standard deviation, is due to the fact that there are a few companies that generated large positive EVA of in excess of R15.0 billion and companies that generated large negative EVA of in excess of (R15.0) billion. The median EVA for 1998 was (R0.2) billion, with a maximum EVA of R23.7 billion and a minimum EVA of (R18.1) billion.

Figure 28: Distribution of Economic Value-Added (EVA) in 2007 in '000 of the sample . of analysed companies.

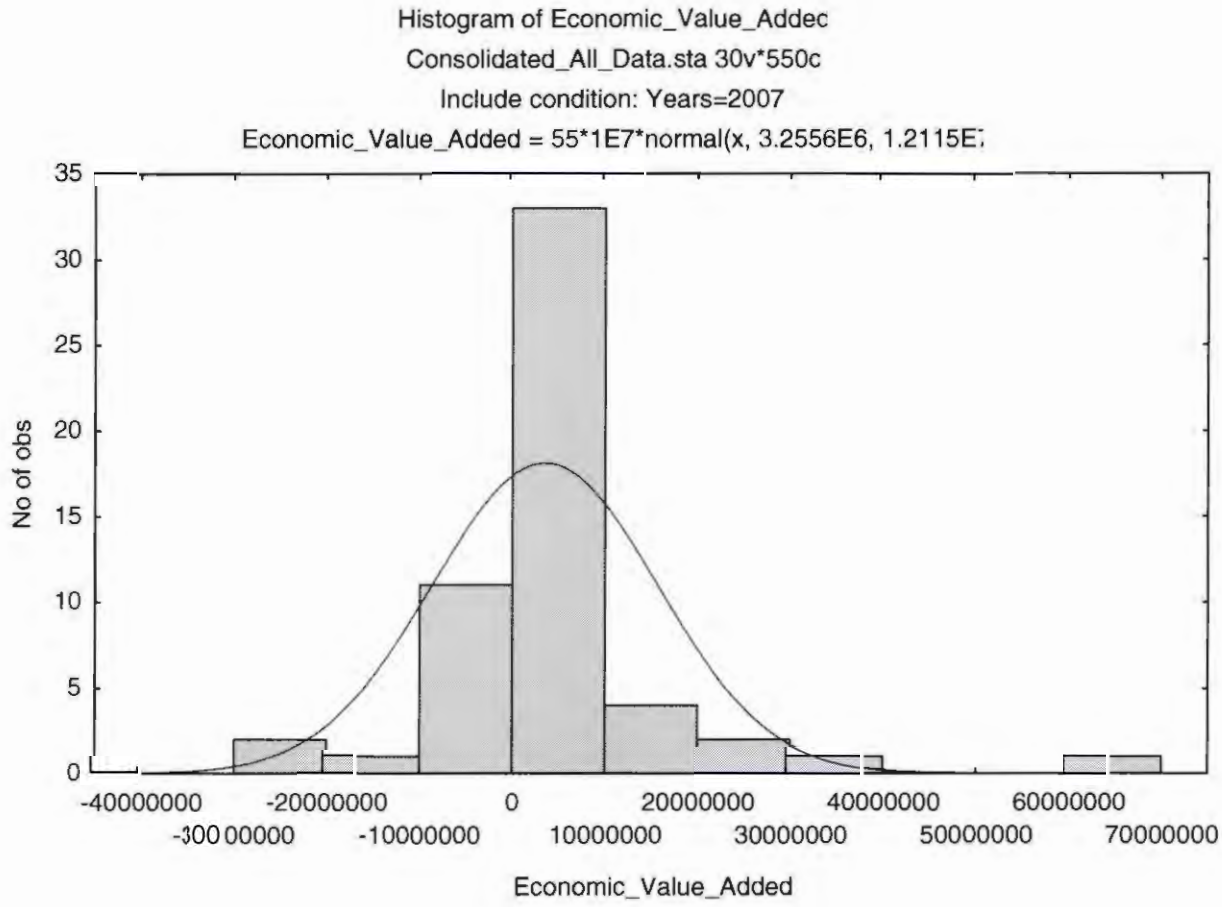


Figure 28 shows a distribution of EVA that is slightly skewed to the right, with a few companies that generated EVA of between R60 and R70 billion. The mean EVA value for the 2007 year was R3.3 billion, compared to (R0.2) billion in 1998, an increase in the mean EVA generated by companies from 1998 to 2007 of 2112 %. The standard deviation of the EVA in 2007 was R0.8 billion compared to (R0.2) billion in 1998. The maximum EVA generated in 2007 was R61.2 billion and the minimum EVA generated (R22.7) billion, compared to a maximum EVA in 1998 of R23.7 billion and a minimum EVA of (R18.1) billion.

Figures 29 and 30 indicate the distribution of earnings per share (EPS) of the sample of analysed companies for the years 1998 and 2007 respectively and the changes in the distributions that occurred during this period.

Figure 29: Distribution of Earnings Per Share (EPS) in 1998 in cents of the sample of analysed companies.

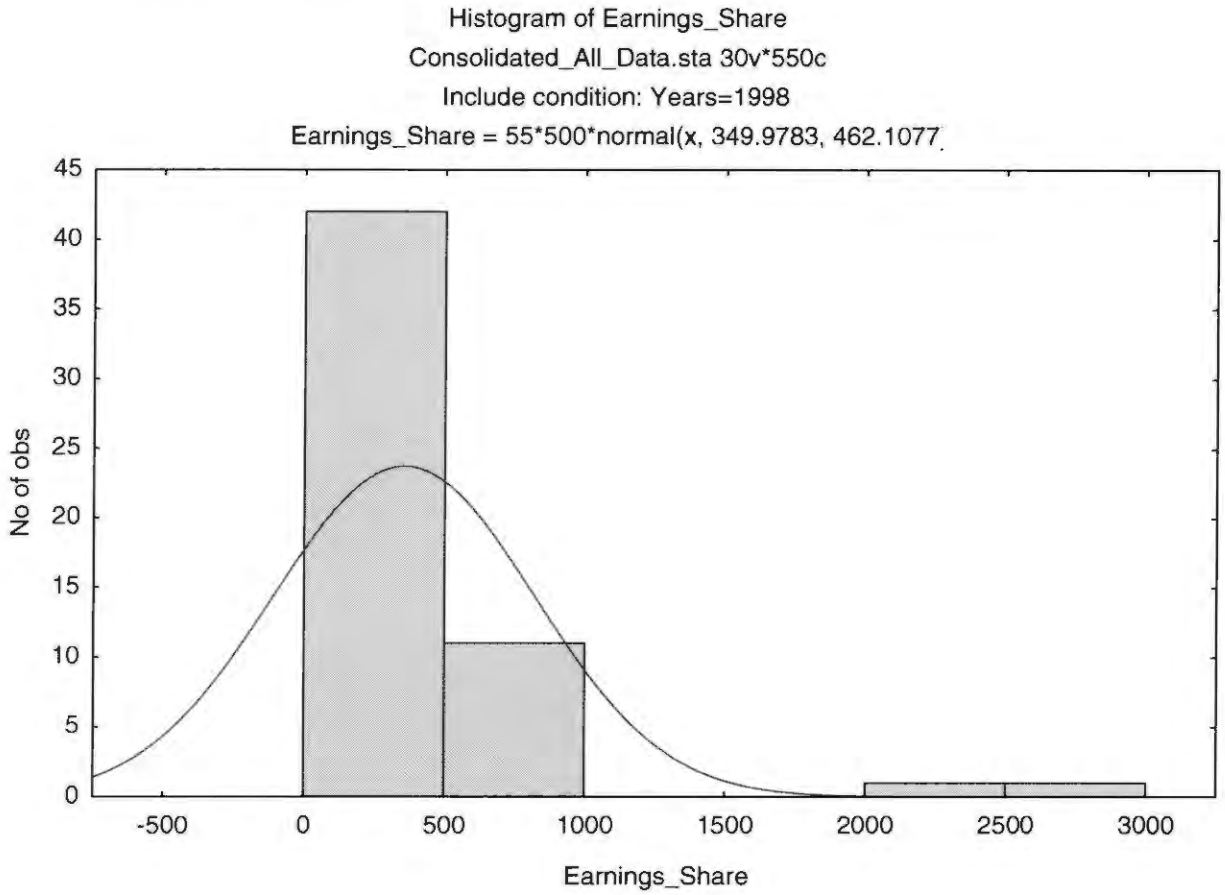


Figure 29 indicates that the distribution of EPS is slightly skewed to the right. This is due to the fact that the majority of companies in the sample have an EPS of between 0 cent and 500 cents have with only a few companies with an EPS of between 2 000 and 3 000 cents. The mean EPS for the year 1998 is 350 cents, with a standard deviation of 462 cents. The maximum EPS for the year 1998 is 2 510 cents and the minimum is 9 cents per share. The median EPS for the year 1998 is 204 cents.

Figure 30: Distribution of Earnings Per Share (EPS) in 2007 in cents of the sample of analysed companies.

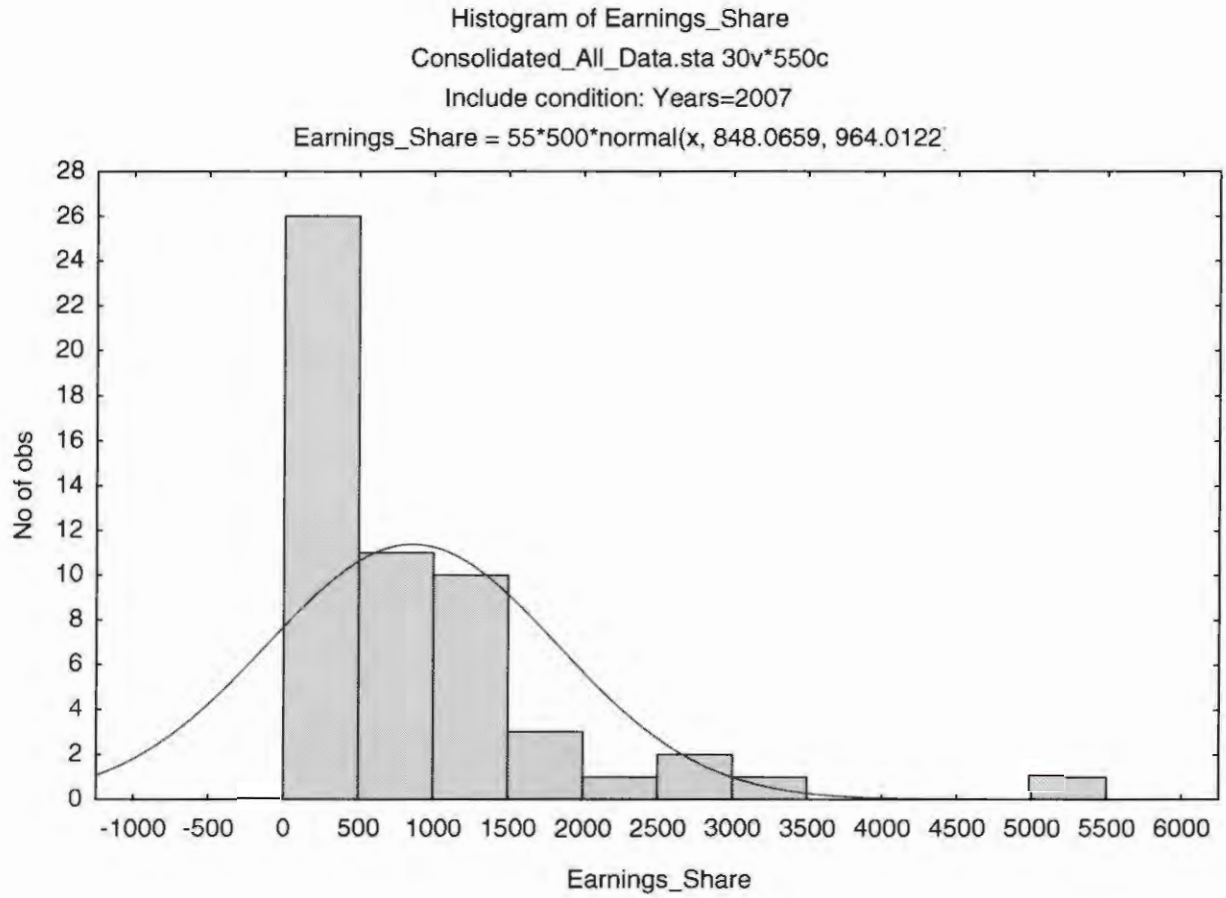
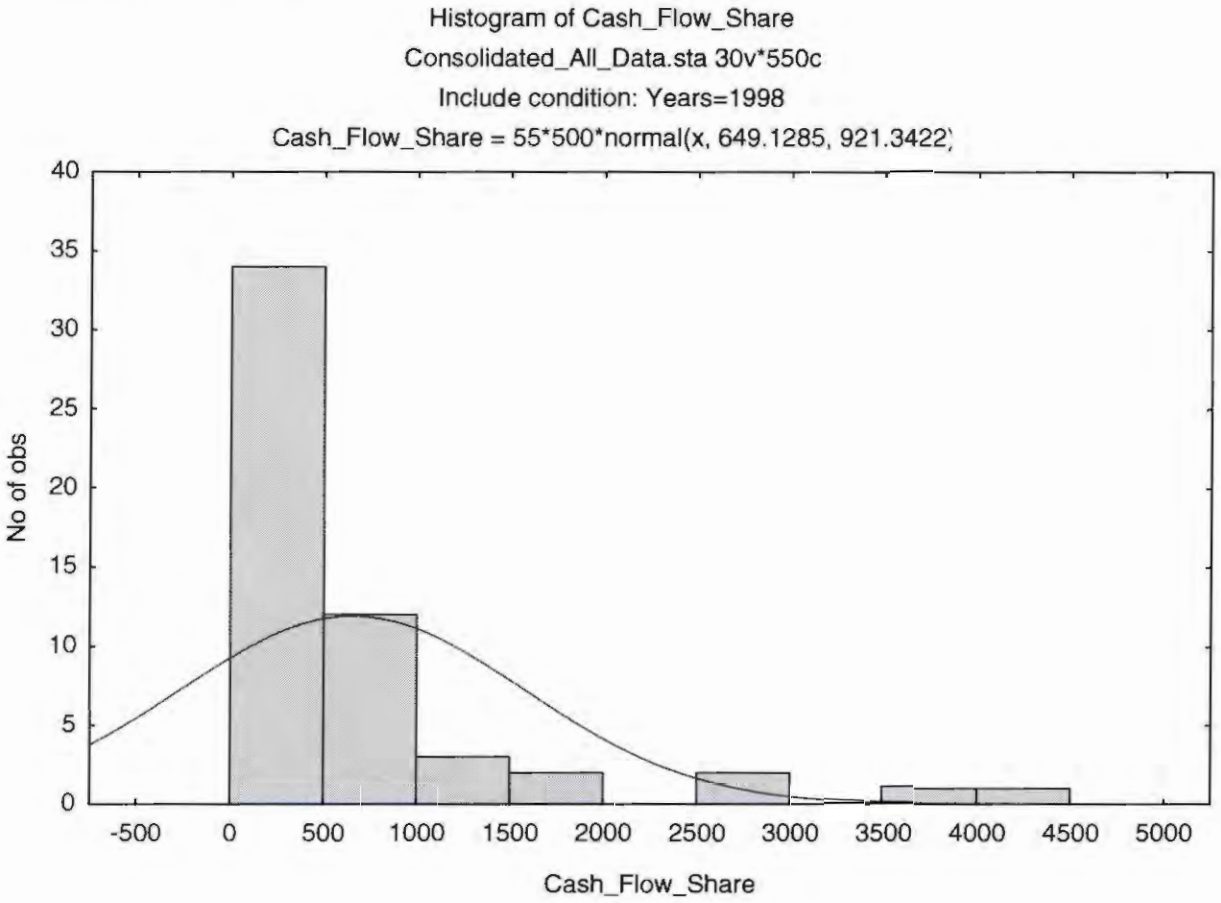


Figure 30 indicates a distribution of EPS that is skewed to the right, due to the fact that there are a significant number of companies that have an EPS of between 1 000 and 3 500 cents. The mean EPS for the year 2007 is 848 cents compared to 350 cents for the year 1998, indicating an increase in EPS from 1998 to 2007 of 142%. The standard deviation for EPS for the year 2007 was 964 cents compared to 462 cents for the year 1998, indicating a larger spread between the EPS in the year 2007. The median EPS in 2007 was 566 cents with a maximum of 5 239 cents and a minimum of 0 cents, compared to a maximum EPS in 1998 of 2 510 cents and a minimum of 9 cents.

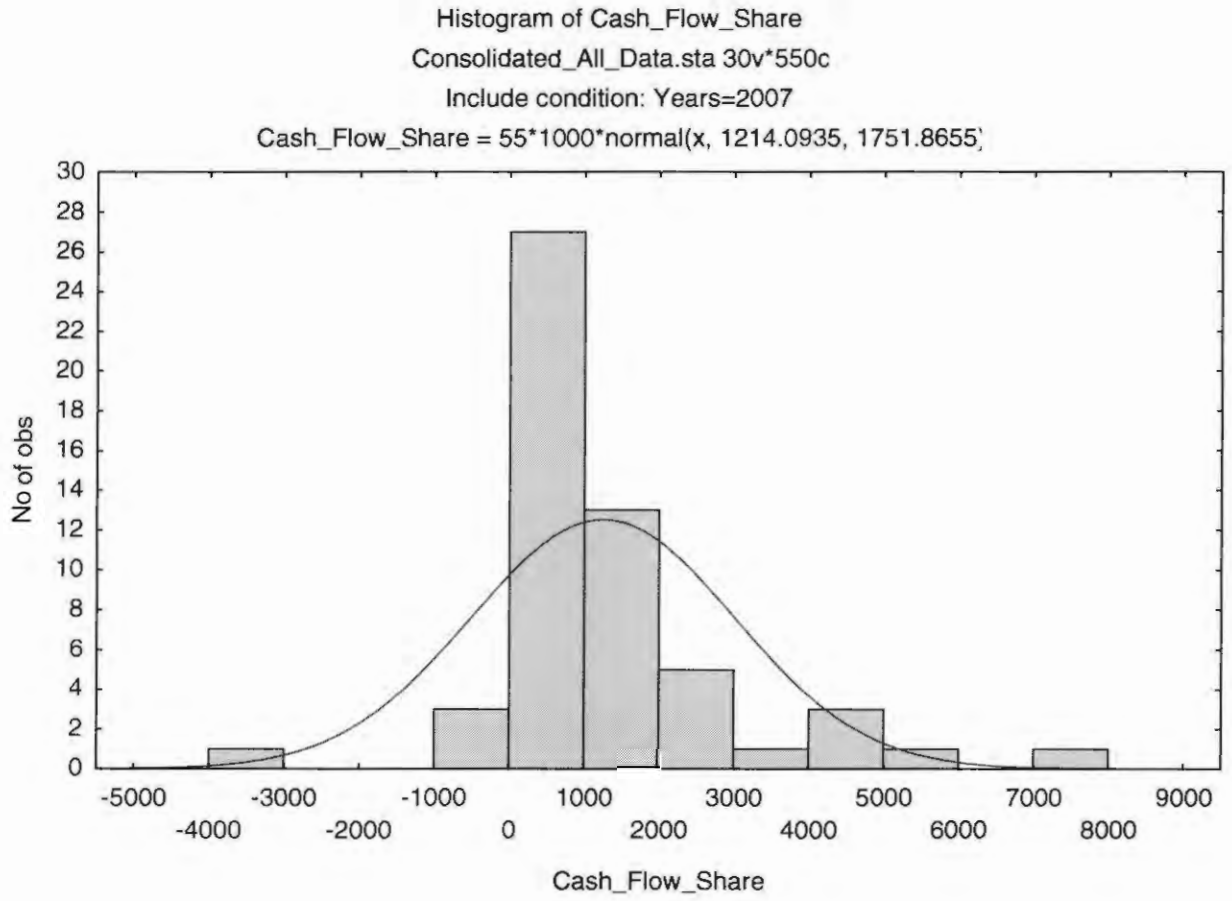
Figures 31 and 32 indicate the distribution of Cash Flow Per Share (CFPS) of the sample of analysed companies for the years 1998 and 2007 respectively and the changes in the distributions that occurred during this period.

Figure 31: Distribution of Cash Flow Per Share (CFPS) in 1998 in cents of the sample of analysed companies.



The Cash Flow Per Share (CFPS) distribution for 1998 is skewed to the right, due to the fact that there are a few companies with CFPS's of between 2 500 cents and 4500 cents. The mean CFP for the year 1998, was 649 cents, with a standard deviation of 921 cents, indicating a fairly large spread in the CFPS. The median CFP for the year 1998 was 285 cents, with a maximum CFP of 4 483 cents and a minimum CFP's of 3 cents.

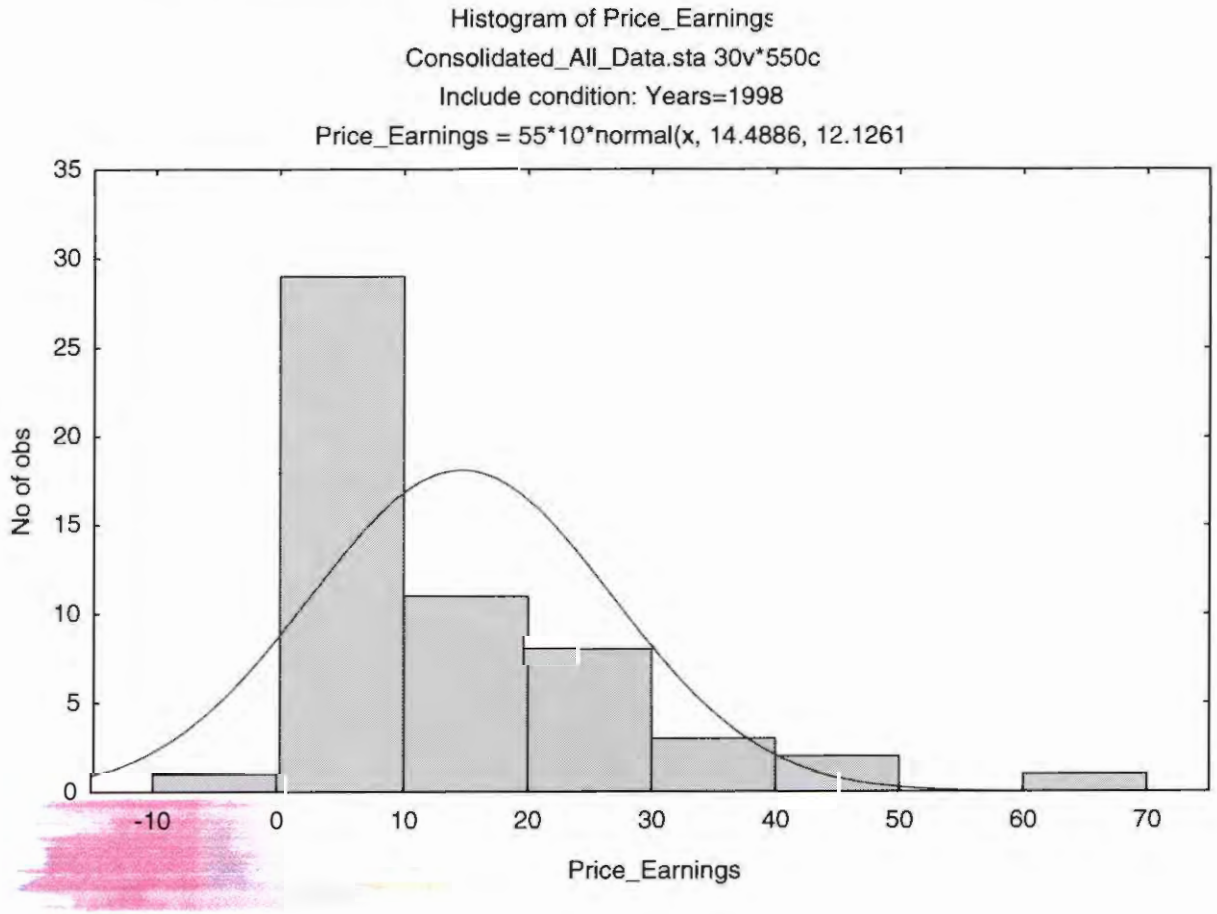
Figure 32: Distribution of Cash Flow Per Share (CFPS) in 2007 in cents of the sample of analysed companies.



The distribution for CFPS's for 2007 illustrates a fairly normal distribution. The mean CFPS's for 2007 was 1 214 cents compared to 649 cents for 1998, indicating an increase in the mean CFP from 1998 to 2007 of 87%. The standard deviation in the CFPS's for 2007 was 1 752 cents, compared to 921 cents in 1998. The maximum CFPS's in 2007 was 7 766 cents and the minimum (3 642) cents, compared to a maximum of 4 483 cents and a minimum of 3 cents in 1998. The median CFPS's in 2007 was 778 cents compared to 285 cents in 1998.

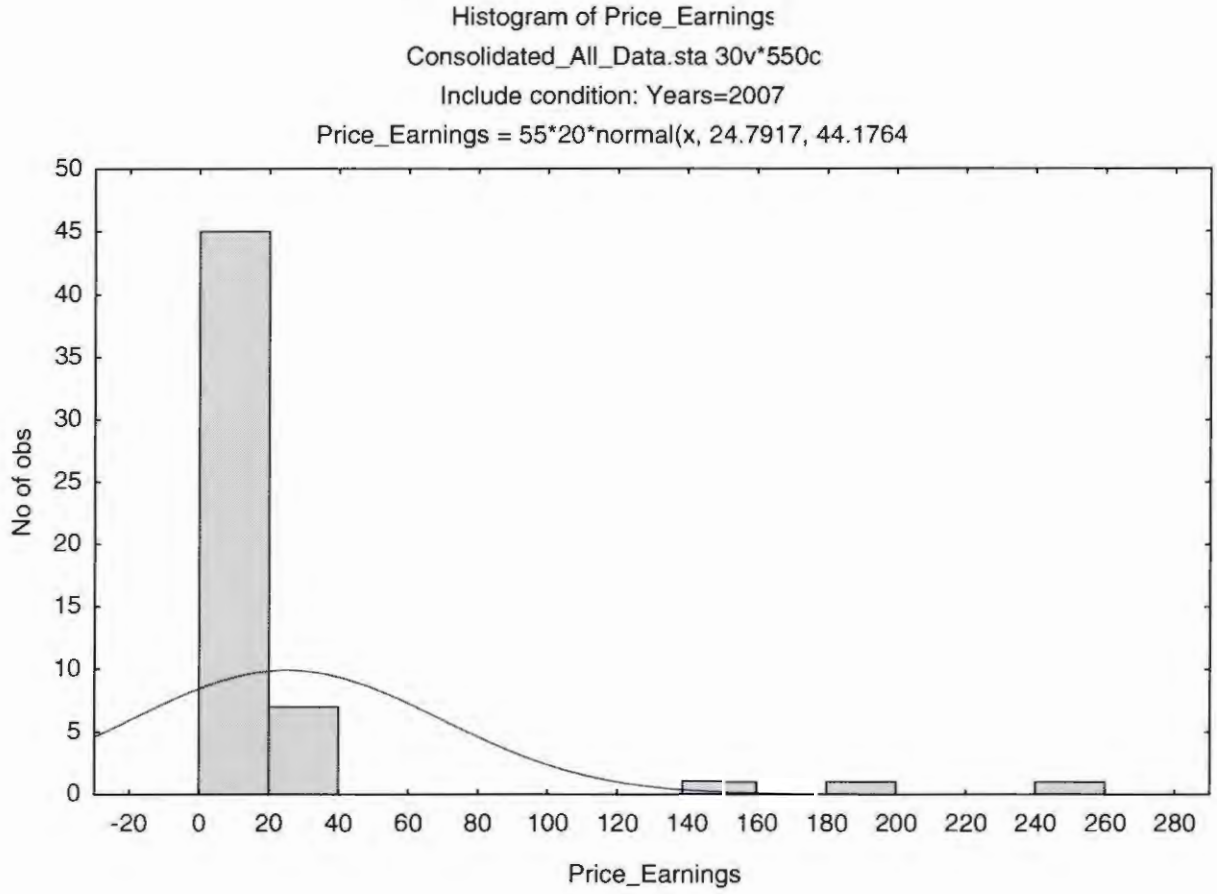
Figures 33 and 34 indicate the distribution of the Price Earnings ratio (PE) of the sample of analysed companies for the years 1998 and 2007 respectively and the changes in the distributions that occurred during this period.

Figure 33: Distribution of the Price Earnings ratio (PE) in 1998 of the sample of analysed companies.



The distribution of PE ratio is skewed to the right, due to the fact that there are a number of companies with a PE ratio of between 30 and 70. The mean PE ratio in 1998 was 14, with a standard deviation of 12, indicating a fairly large spread. The maximum PE ratio in 1998 was 63 and the minimum 0. The median PE ration was 9.

Figure 34: Distribution of the Price Earnings ratio (PE) in 2007 of the sample of analysed companies.



The PE ratio distribution for 2007 is skewed to the right, with a number of companies with a PE ratio of between 140 and 260. The mean PE ratio for 2007 was 25 with a standard deviation of 44, compared to a mean PE ratio of 14 in 1998, indicating a 71% increase and a standard deviation of 12, again indicating that the spread of PE ratios has increased from 1998 to 2007. The median PE ratio in 2007 was 14, compared to 9 in 1998, with a maximum PE ratio in 2007 of 250, compared to 63 in 1998. The minimum PE ratio in 2007 was 7, compared to 0 in 1998.

Figures 35 and 36 indicate the distribution of operating assets of the sample of analysed companies for the years 1998 and 2007 respectively and the changes in the distributions that occurred during this period.

Figure 35: Distribution of operating assets in '000 in 1998 of the sample of analysed companies.

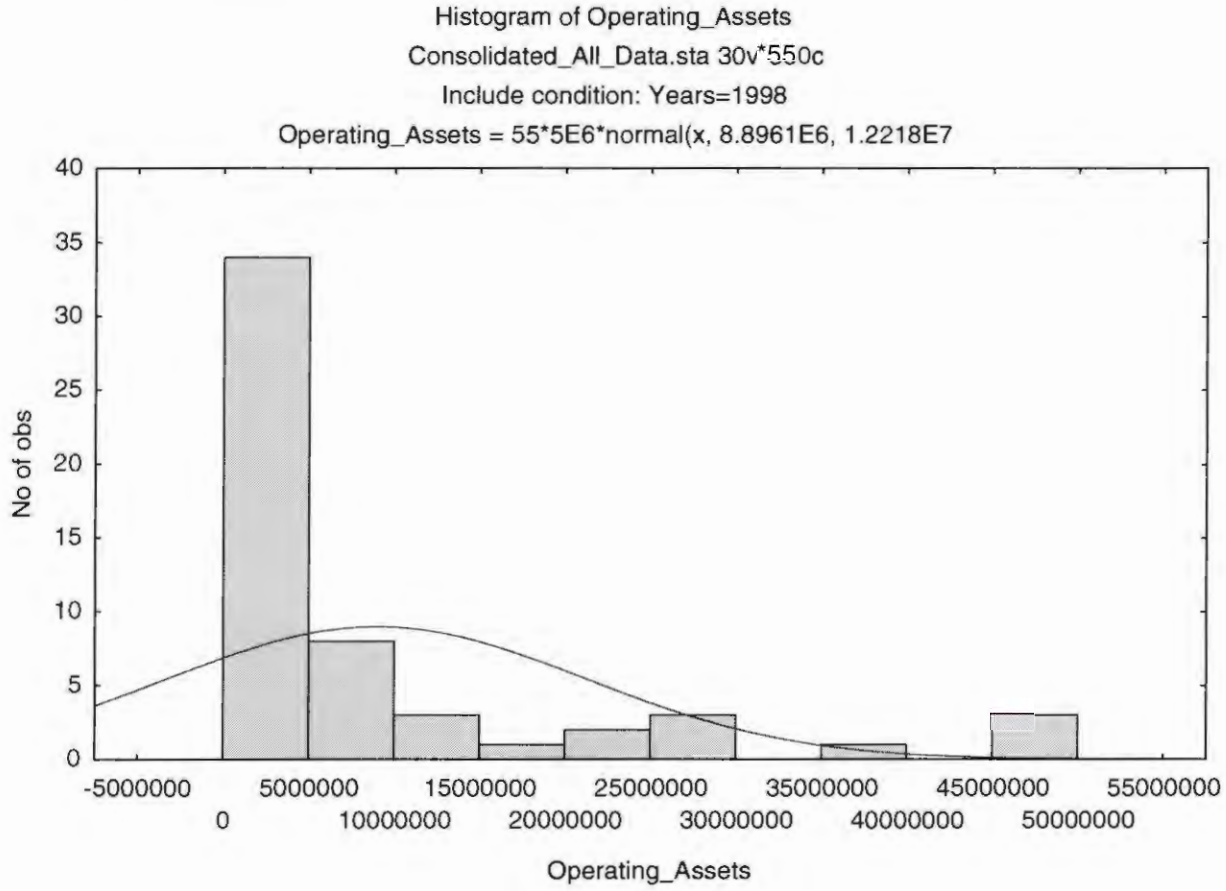
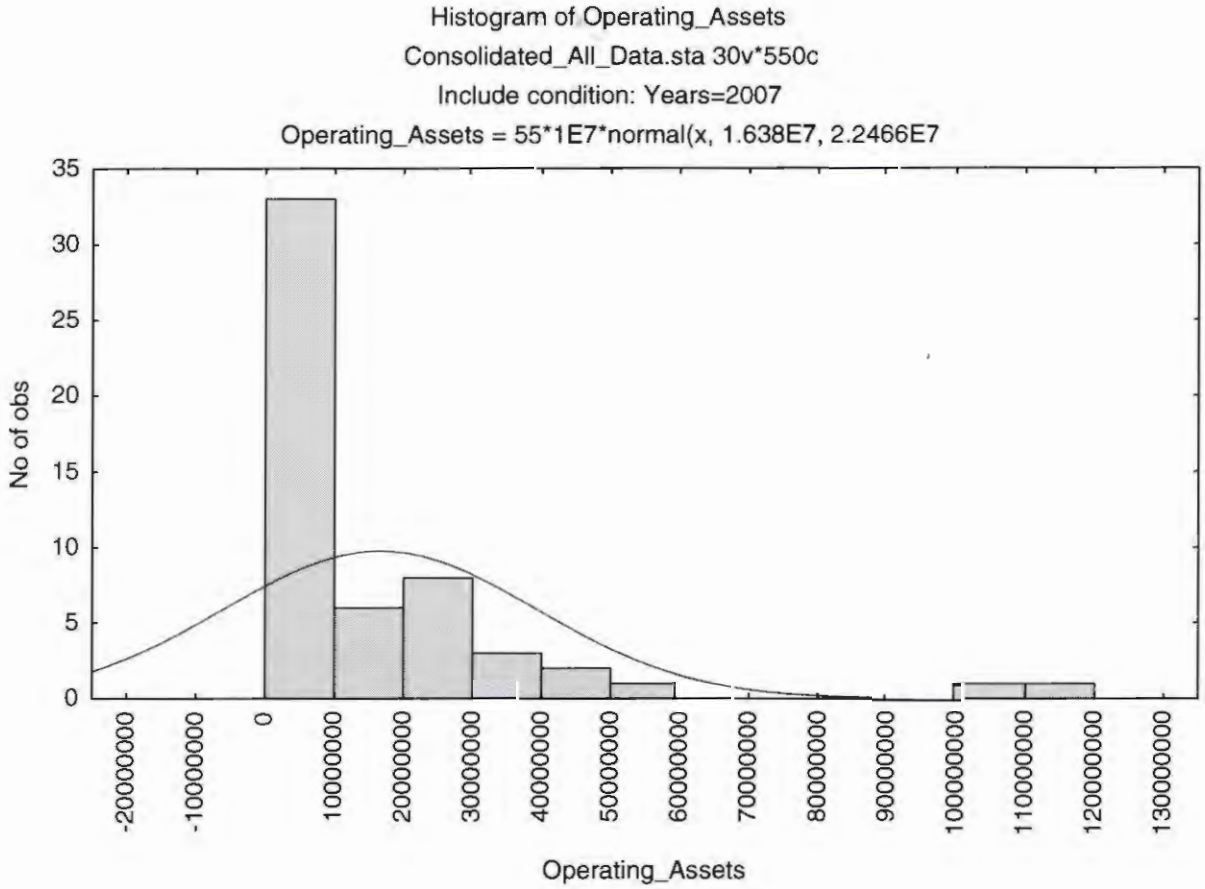


Figure 35 indicates that the distribution for operating assets in 1998 is skewed to the right, due to the fact that there are a number of companies with an operating value of between R20 billion and R50 billion. The mean operating asset value for 1998 was R8.9 billion and a standard deviation of R12.2 billion, indicating a fairly large spread. The median operating asset value for 1998 was R3.8 billion, with a maximum value of R46.7 billion and a minimum value of R0.2 billion.

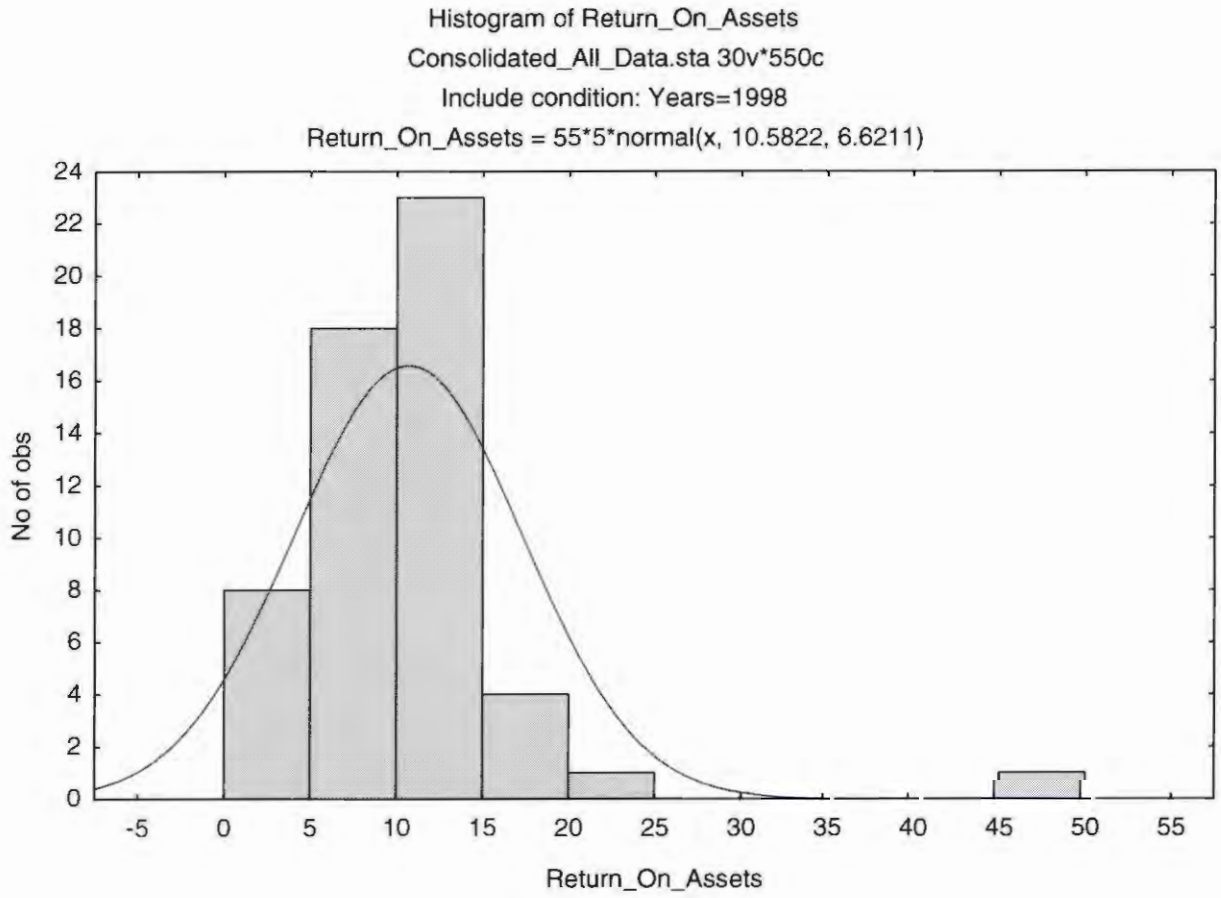
Figure 36: Distribution of operating assets in '000 in 2007 of the sample of analysed companies.



The distribution of operating assets for the year 2007 is slightly skewed to the right, with a number of companies with an operating asset value of between R110.0 billion and R120.0 billion. The mean operating asset value for 2007 was R16.4 billion, compared to a mean operating asset value in 1998 of R8.9 billion, indicating an 84% increase from 1998 to 2007. The standard deviation for the year 2007 was R22.5 billion, compared to R12.2 billion in 1998. The median operating asset value in 2007 was R7.4 billion, compared to R3.8 billion in 1998 with a maximum value of R115.2 billion in 2007 and a minimum value of R0.4 billion, compared to a maximum value of R46.7 billion in 1998 and a minimum value of R0.2 billion.

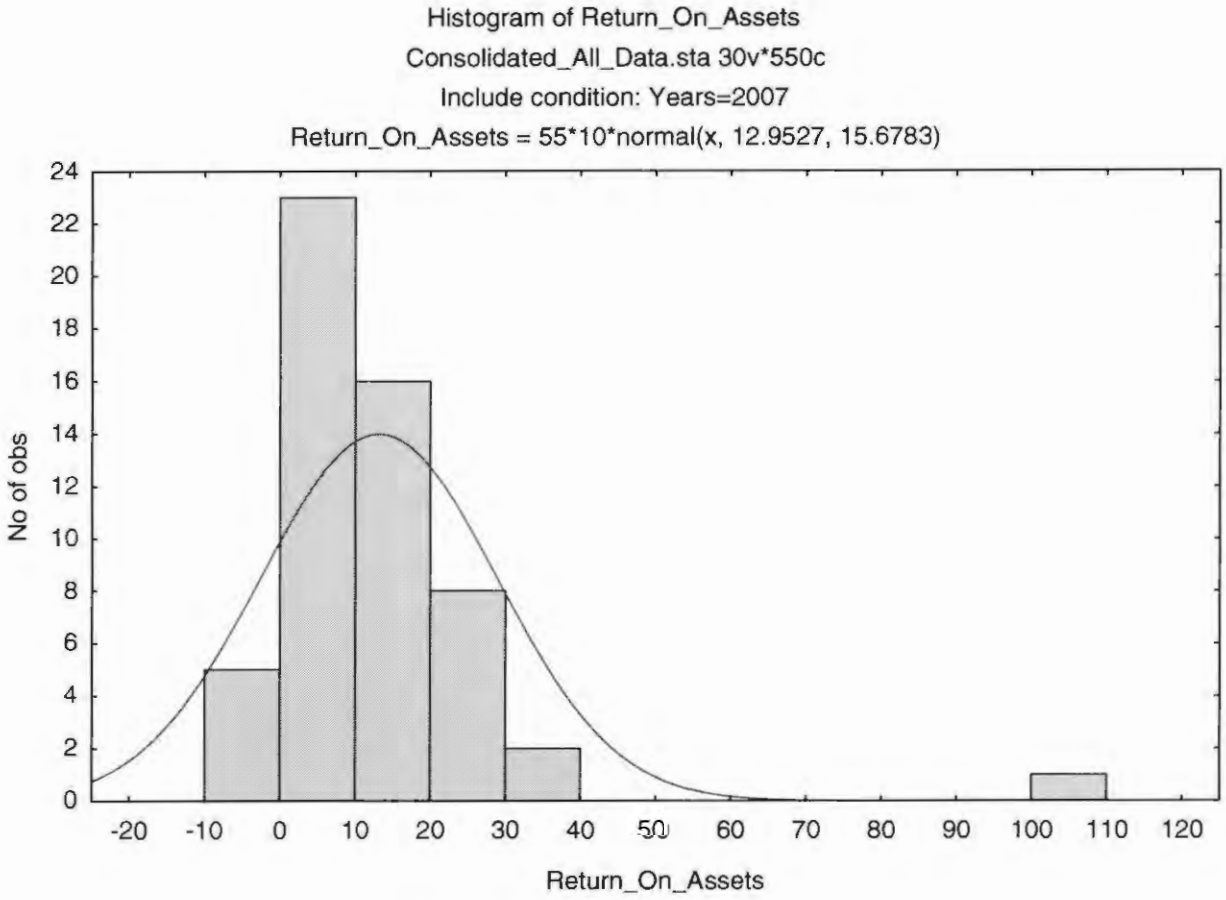
Figures 37 and 38 indicate the distribution of return on assets (ROA) of the sample of analysed companies for the years 1998 and 2007 respectively and the changes in the distributions that occurred during this period.

Figure 37: Distribution of Return On Assets (ROA) in 1998 of the sample of analysed companies.



The ROA distribution indicates an almost normal distribution. The mean ROA value for 1998 was 11 with a standard deviation of 7. The median ROA value in 1998 was 10 with a maximum value of 47 and a minimum value of 1.

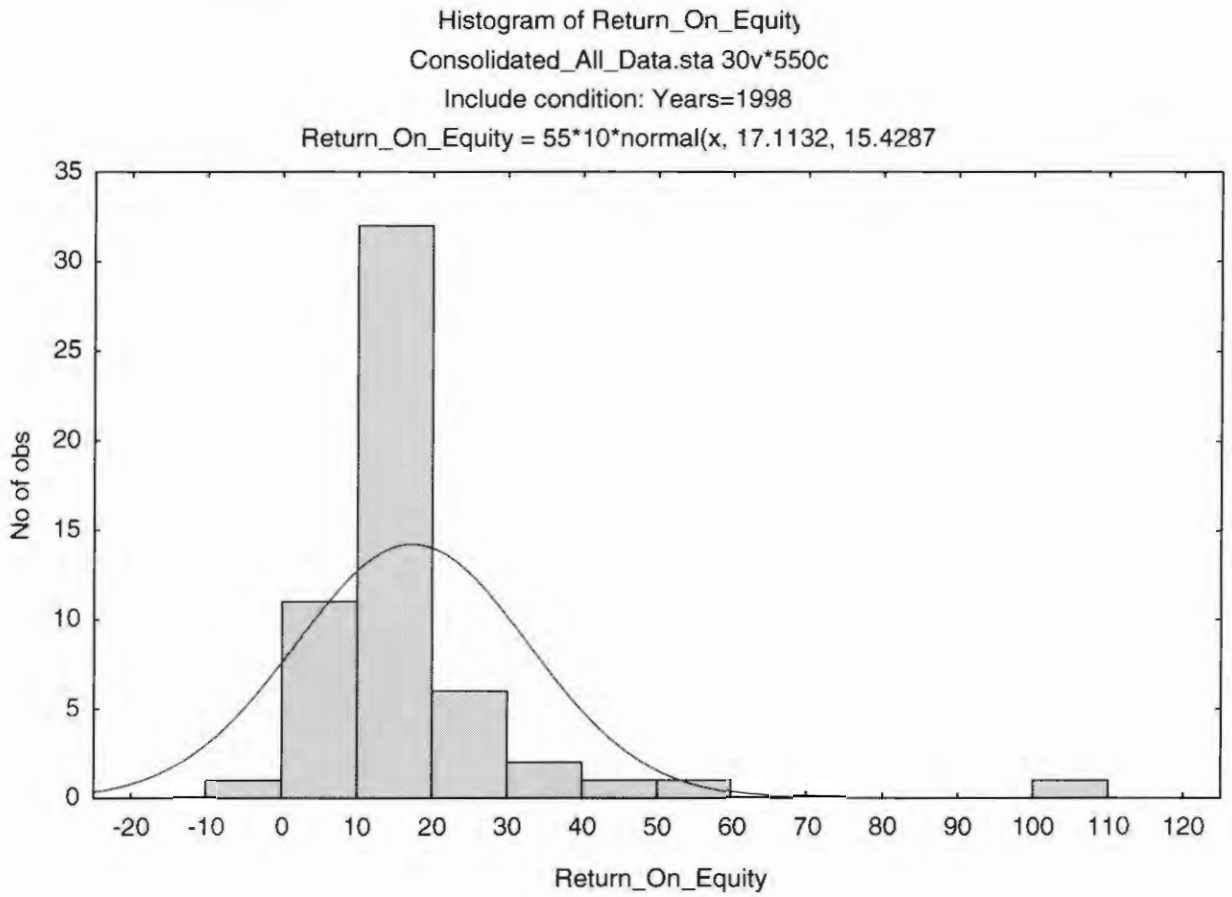
Figure 38: Distribution of Return On Assets (ROA) in 2007 of the sample of analysed companies.



The ROA distribution for 2007 exhibits an almost normal distribution, with only a few companies that can be classified as outliers. The mean ROA value for the year 2007 was 13, compared to 11 for 1998, indicating a 22% increase in ROA from 1998 to 2007. The standard deviation for 2007 was 16, compared to 7 for 1998. The maximum ROA value for 2007 was 106 and the minimum value (8), compared to a maximum ROA value in 1998 of 47 and a minimum value of 1.

Figures 39 and 40 indicate the distribution of return on equity (ROE) of the sample of analysed companies for the years 1998 and 2007 respectively and the changes in the distributions that occurred during this period.

Figure 39: Distribution of Return On Equity (ROE) in 1998 of the sample of analysed companies.



The distribution of ROE exhibits an almost normal distribution, with a limited number of companies that can be categorised as outliers, with a ROE of between 100 and 110. The mean ROE value for the year 1998 is 17, with a standard deviation of 15, indicating a fairly large spread. The maximum ROE value is 104 and the minimum value is (6). The median for the ROE value in 1998 is 15.

Figure 40: Distribution of Return on Equity (ROE) in 2007 of the sample of analysed companies.

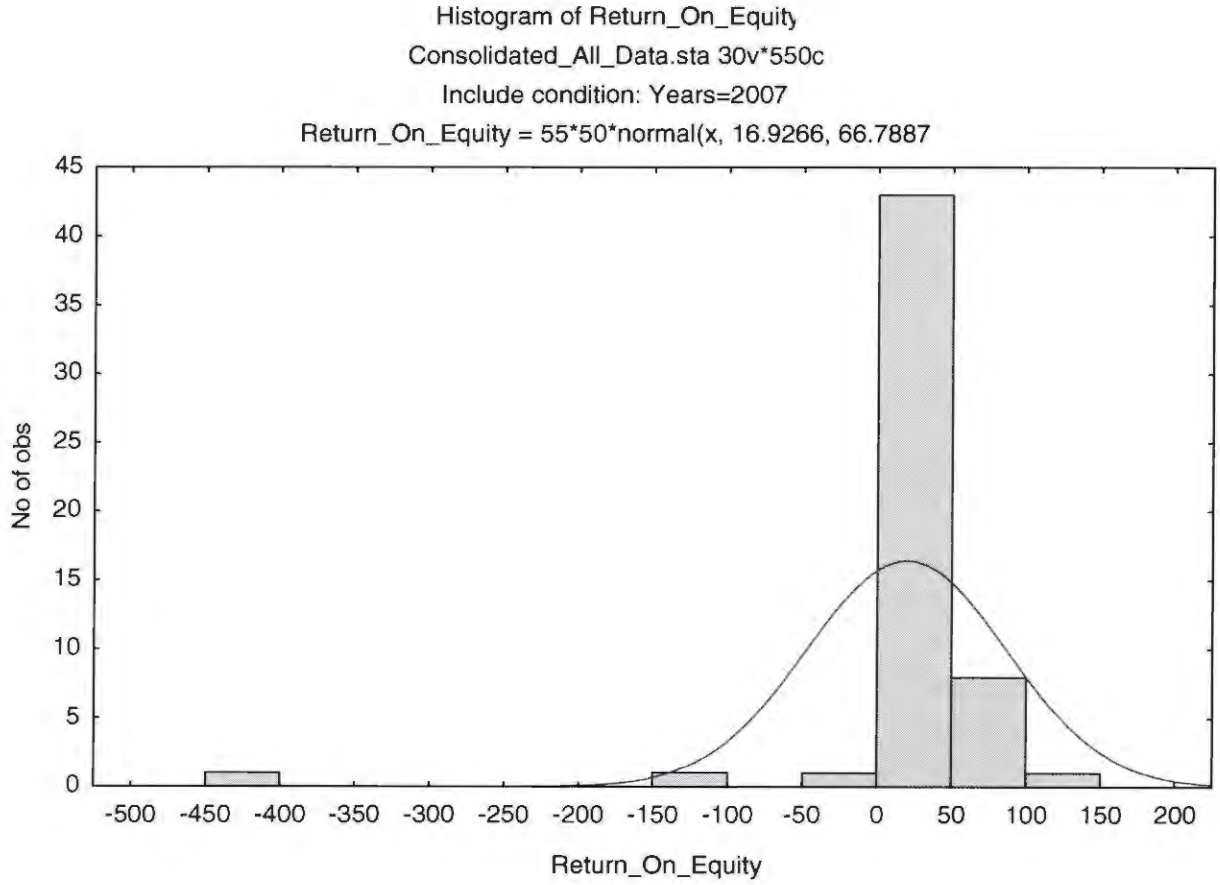


Figure 40 illustrates a distribution for ROE that is slightly skewed to the left, with a limited number of companies with a ROE value of between (400) and (450). The mean ROE value for the year 2007 is 17 the same as for the year 1998. Only due to rounding of the large numbers, the decrease in ROE from 1998 to 2007, is calculated at (1)%. The standard deviation in ROE for the year 2007 is 67, indicating a fairly large spread in the ROE values, compared to a standard deviation of 15 in 1998. The maximum ROE value in 2007 was 112, compared to 104 in 1998 and the minimum ROE value in 2007 was (406), compared to (6) in 1998.

3.5 COEFFICIENT OF CORRELATION ANALYSIS BETWEEN THE DEPENDENT AND INDEPENDENT VARIABLES INVESTIGATED

3.5.1 DEPENDENT AND INDEPENDENT VARIABLES COEFFICIENT OF CORRELATION

In this section of the empirical study the coefficient of correlation between the dependent variables, (1) Average Share-Price (ASP) and (2) Year-End Share-Price (YESP) and the independent variables (1) nett assets, (2) turnover, (3) trading profit, (4) operating profit, (5) profit before interest and tax, (6) Net Operating Profit After Tax (NOPAT), (7) retained profits, (8) free cash flow, (9) Economic Value-Added (EVA), (10) earnings per share, (11) Cash Flow Per Share (CFPS), (12) Price Earnings (PE), (13) operating assets, (14) Return On Assets (ROA), and (15) Return On Equity (ROE), of 55 publicly listed companies will be analysed and discussed over the 10-year period of the empirical study. The coefficient of correlation for the full 10-year period will be discussed and scatter plots for the year 1998 and 2007 will be visualised for comparison.

3.5.2 COEFFICIENT OF CORRELATION

The coefficient of correlation measures the relative strength of a linear relationship between two numerical variables. The values of the coefficient of correlation range from -1 for a perfect negative correlation to +1 for a perfect positive correlation, where perfect means that if the points were plotted in a scatter plot, all the points could be connected with a straight line. The Greek letter ρ is used as the symbol for the coefficient of correlation (Levine, Stephan, Krehbiel and Berenson, 2008:128). Svetlozar *et al.* (2007:47) state that correlation is a quantitative measure of the strength of the dependence between two variables intuitively the two variables are dependent if they move together and if they move together, they will be above, or below their respective means in the same state.

Table 6 below indicates the coefficient of correlation that exists between the independent variable Average Share-Price (ASP) and the respective independent variables over the 10-year period 1998 to 2007.

Table 6: Coefficient of correlation of the Average Share Price (ASP) and the respective independent variables.

		Spearman Rank Correlation Coefficients of the Average Share Price (ASP)										
Variable	N	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Average
NET ASSETS	55	0.28586	0.20224	0.18687	0.08600	0.25285	0.25281	0.19747	0.17655	0.29769	0.34986	0.22882
TURNOVER	55	0.11727	0.09256	0.18934	0.23280	0.28200	0.31697	0.32463	0.28399	0.34769	0.42321	0.26105
TRADING PROFIT	55	0.02857	0.03600	0.17035	0.17388	0.28936	0.25065	0.30801	0.33874	0.41299	0.45426	0.24628
OPERATING PROFIT	55	0.16248	0.14762	0.37280	0.34885	0.39286	0.26190	0.23052	0.33063	0.45310	0.49755	0.31983
PROFIT BEFORE INTEREST AND TAX	55	0.32843	0.40823	0.42335	0.44618	0.47032	0.48882	0.47107	0.45635	0.56710	0.57597	0.46358
NOPAT	55	0.31926	0.30693	0.28218	0.40592	0.49600	0.34264	0.34062	0.42237	0.52165	0.48160	0.39192
RETAINED PROFITS	55	0.11797	0.29293	0.21905	0.29387	0.33208	0.18333	0.32547	0.32706	0.41999	0.50209	0.30138
FREE CASH FLOW	55	0.24452	0.19747	0.13766	0.11349	0.12457	0.08600	0.32951	0.45909	0.52165	0.36898	0.25829
ECONOMIC VALUE ADDED	55	0.03478	0.10613	0.25765	0.27648	0.33829	0.25685	0.34531	0.37807	0.47172	0.47244	0.29377
EARNINGS PER SHARE	55	0.82496	0.80005	0.74185	0.81991	0.85039	0.71580	0.89214	0.90736	0.91039	0.92237	0.83852
CASH FLOW PER SHARE	55	0.71941	0.64913	0.62648	0.71234	0.81347	0.65570	0.74610	0.73045	0.69004	0.78167	0.71248
PRICE EARNINGS RATIO	55	0.20671	0.26638	0.25895	0.29769	0.44103	0.20620	0.20440	0.12554	-0.13932	-0.25022	0.16174
OPERATING ASSETS	55	0.19906	0.17597	0.31046	0.36263	0.40737	0.37648	0.36703	0.33066	0.36659	0.44531	0.33416
RETURN ON ASSETS	55	0.00065	0.10599	0.13427	0.20058	0.20091	0.11818	0.11999	0.22208	0.30620	0.33773	0.17466
RETURN ON EQUITY	55	0.01912	0.35563	0.32027	0.46667	0.20036	0.11955	0.22013	0.20722	0.29228	0.28167	0.24829

Table 7 on the next page indicates the -price (YESP) and the respective independent variables over the 10-year period 1998 to 2007.

Table 7: Coefficient of correlation of the Year-End Share Price (YESP) and the respective independent variables.

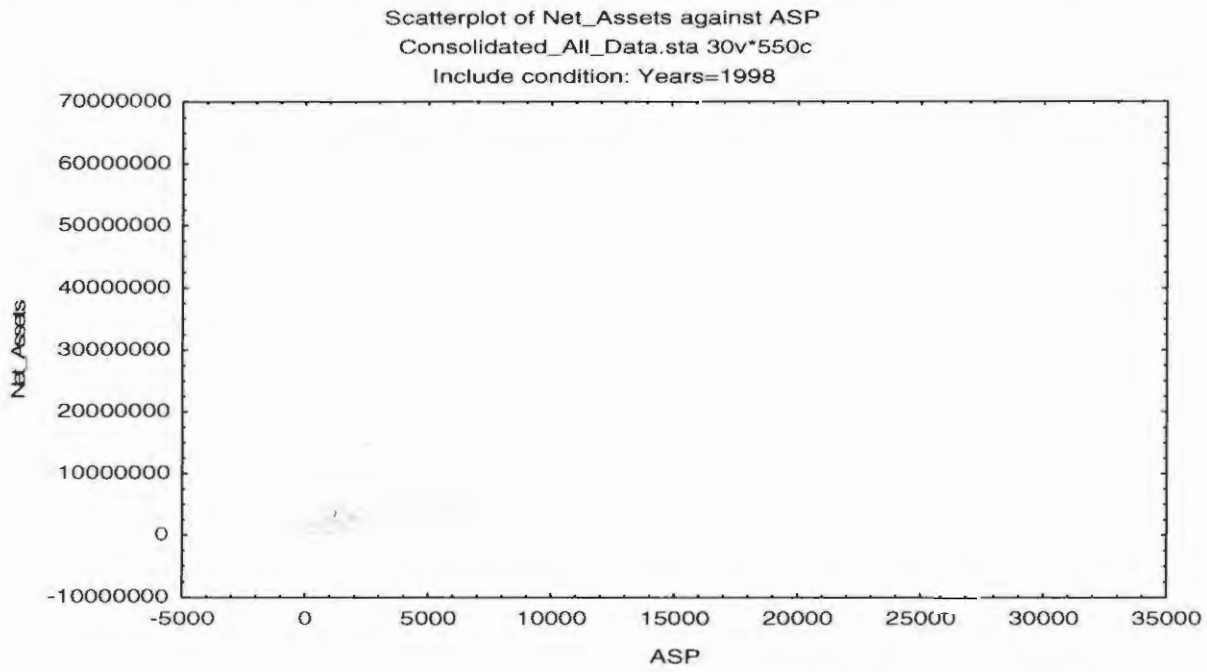
		Spearman Rank Correlation Coefficients of the Year End Share Price (YESP)										
Variable	N	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Average
NET ASSETS	55	0.26205	0.23377	0.18362	0.09856	0.27515	0.26457	0.18203	0.16331	0.31977	0.35022	0.23331
TURNOVER	55	0.04921	0.12610	0.20000	0.24592	0.31272	0.33919	0.31389	0.29543	0.37051	0.44223	0.26952
TRADING PROFIT	55	-0.03124	0.06714	0.18095	0.22042	0.30365	0.27136	0.30325	0.35964	0.43009	0.46126	0.25665
OPERATING PROFIT	55	0.14308	0.17489	0.35693	0.39134	0.42288	0.28932	0.23983	0.36708	0.46017	0.49567	0.33412
PROFIT BEFORE INTEREST AND TAX	55	0.31486	0.41328	0.42479	0.44747	0.46180	0.50491	0.46898	0.45845	0.57258	0.56443	0.46316
NOPAT	55	0.28831	0.31909	0.25303	0.44596	0.48893	0.35245	0.35087	0.43121	0.53131	0.47965	0.39408
RETAINED PROFITS	55	0.14935	0.29661	0.23897	0.28838	0.35242	0.22071	0.31645	0.29719	0.44610	0.50094	0.31071
FREE CASH FLOW	55	0.21068	0.19538	0.11955	0.09437	0.08597	0.10361	0.31465	0.44763	0.53131	0.38918	0.24923
ECONOMIC VALUE ADDED	55	0.01068	0.07179	0.20772	0.32424	0.30690	0.25354	0.37605	0.39124	0.47338	0.46861	0.28842
EARNINGS PER SHARE	55	0.78687	0.82285	0.68831	0.85815	0.85443	0.75274	0.91970	0.92707	0.92345	0.93016	0.84637
CASH FLOW PER SHARE	55	0.66955	0.64704	0.61349	0.75743	0.78930	0.66284	0.76111	0.74478	0.70209	0.78059	0.71282
PRICE EARNINGS RATIO	55	0.32056	0.27316	0.27814	0.32915	0.49998	0.21284	0.17027	0.11559	-0.12482	-0.21652	0.18584
OPERATING ASSETS	55	0.16299	0.20224	0.29185	0.37237	0.43183	0.38369	0.35779	0.33352	0.39618	0.42316	0.33556
RETURN ON ASSETS	55	-0.02042	0.08990	0.11739	0.26162	0.18994	0.13665	0.14553	0.26097	0.32799	0.36472	0.18743
RETURN ON EQUITY	55	0.03059	0.32662	0.32691	0.44848	0.19322	0.15628	0.22561	0.22190	0.27215	0.26775	0.24695

During the analysis of the coefficient of correlation between the dependent variables and the independent variables change in the actual values of the variables will be incorporated in the analysis so as to explain the correlations between the dependent and independent variables. The changes in the distribution of the different variables will assist in explaining how changes in the actual values of the variables impacted on the coefficient of correlation with ASP and YESP.

In the following section the correlation coefficient of ASP and YESP will be discussed, referring to Tables 6 and 7. In each of the instances a scatterplot for the base-year 1998 will be provided to indicate how low the actual values of the sample of companies were distributed for the base-year.

Figure 41 below, indicates a scatterplot of the values for ASP and net assets for the years 1998.

Figure 41: Scatterplot of the values for ASP and nett assets for the year 1998



From Table 6 it can be seen that the coefficient of correlation between net assets and the ASP has increased from 0.28586 in 1998 to 0.34986 in 2007. The mean net asset value of the companies in the sample has increased with 49%, compared to an increase of 150% in the mean ASP from 1998 to 2007 as indicated in Table 2. The highest ASP for the year 1998 was R298.93, compared to a maximum ASP of R1 039.17 in 2007, an increase of 248% as indicated in Table 5.

The minimum coefficient of correlation for the period 1998 to 2007 was 0.08600 in the year 2001 and the maximum coefficient of correlation 0.34986 in 2007. The mean coefficient of correlation for the 10-year period was 0.22882, as depicted in Graph 1 on the next page. Although there was an increase over time in the coefficient of correlation from 1998 to 2007, the increase was not constant over the individual years, with fluctuations that took place. The standard deviation in ASP had increased from R56.96 in 1998 to R153.31 in 2007, an increase of 169%. It can therefore, be seen that although the ASP had increased with 248%, the standard deviation of ASP had also

increased significantly, indicating a larger spread in the ASP of the sample of companies from 1998 to 2007.

Graph 1: Coefficient of correlation of ASP and net assets for the period 1998 to 2007

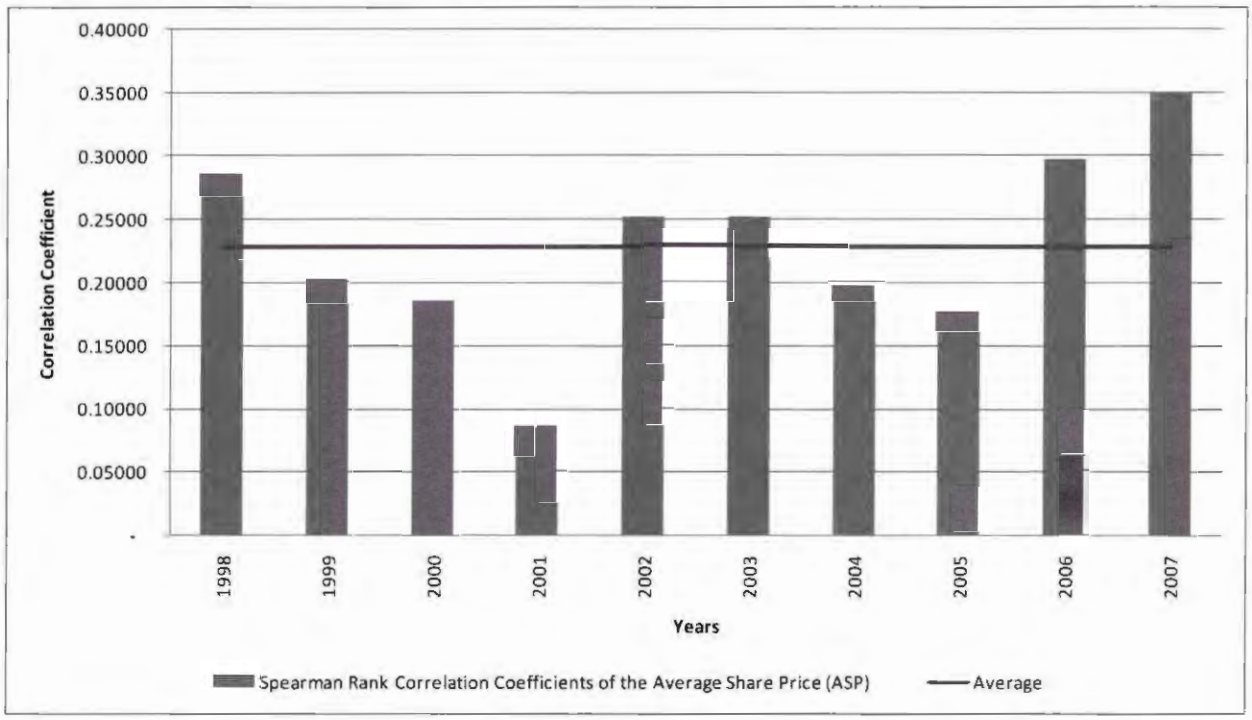
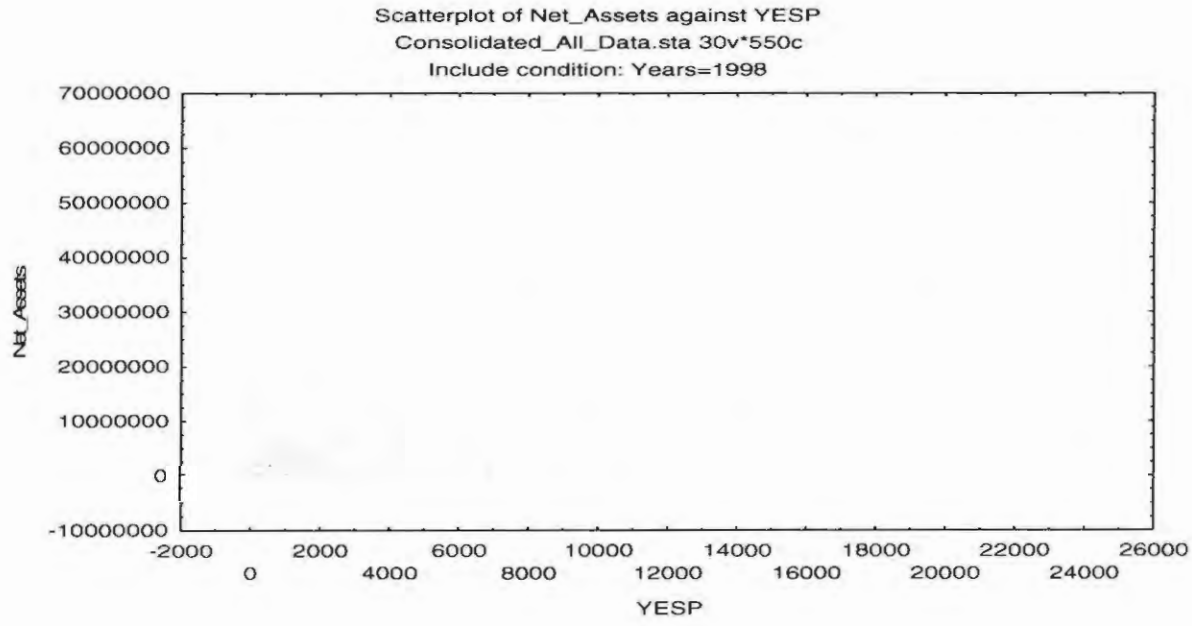


Figure 42: Scatterplot of the values for YESP and net assets for the year 1998



From Table 7 it can be seen that the coefficient of correlation between net assets and the YESP had increased from 0.26205 in 1998 to 0.35022 in 2007. The mean net asset value of the companies in the sample has increased with 49%, compared to an increase of 197% in the mean YESP from 1998 to 2007, as indicated in Table 2. The highest YESP for the year 1998 was R238.50, compared to a maximum YESP of R988.72 in 2007, an increase of 315% as indicated in Table 5.

The minimum coefficient of correlation for the period 1998 to 2007 was 0.09856 in the year 2001 and the maximum coefficient of correlation 0.35022 in 2007 as indicated in Table 7. The mean coefficient of correlation for the 10-year period was 0.23331 as depicted in Graph 2. The increase in the coefficient of correlation over the 10-year period was not constant, with fluctuations that occurred in individual years. The standard deviation in YESP had increased from R49.98 in 1998 to R149.50 in 2007, an increase of 199%. It can therefore, be seen that although the YESP had increased with 315%, the standard deviation of YESP had also increased significantly, indicating a larger spread in the YESP of the sample of companies from 1998 to 2007.

Graph 2: Coefficient of correlation of YESP and net assets for the period 1998 to 2007

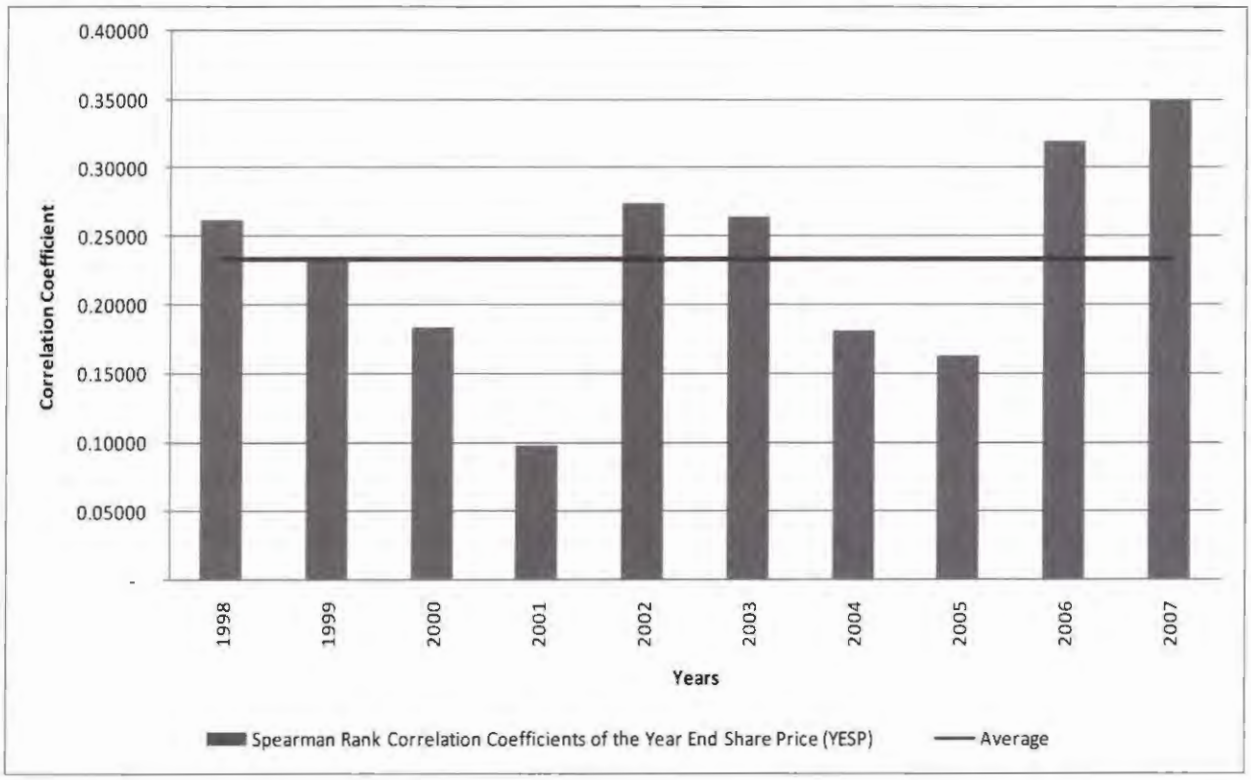
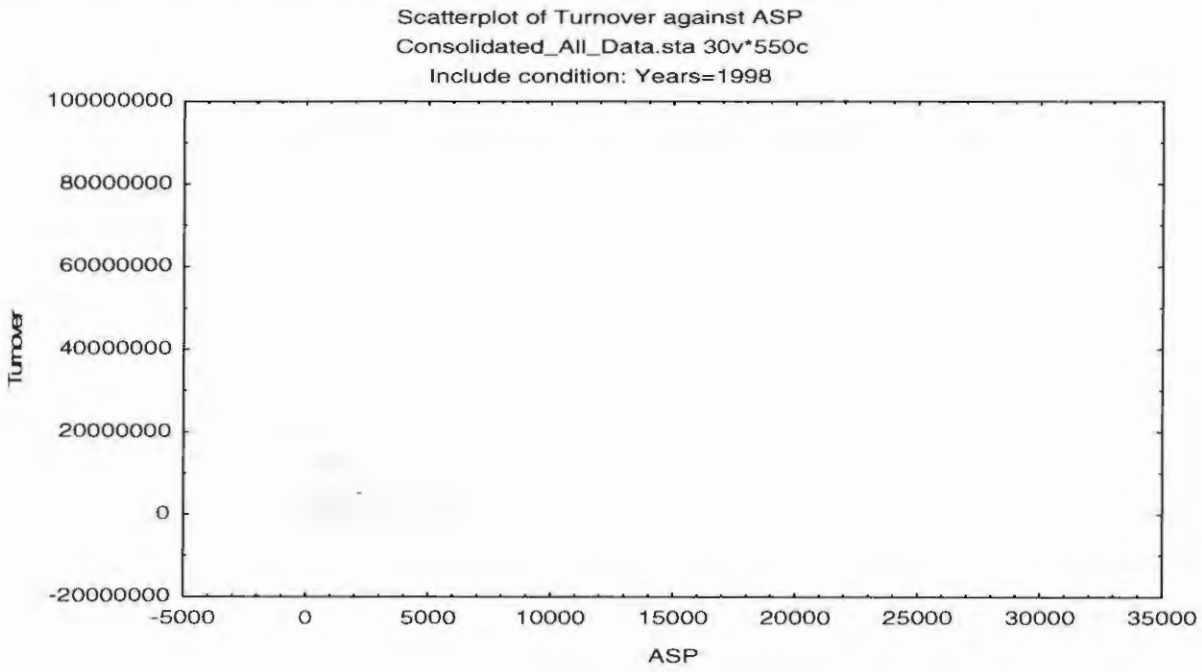


Figure 43 below, indicates a scatterplot of the values for the ASP and turnover for the years 1998.

Figure 43: Scatterplot of the values for ASP and turnover for the year 1998



From Table 6 it can be seen that the coefficient of correlation between turnover and the ASP has increased from 0.11727 in 1998 to 0.42321 in 2007. The mean turnover value of the companies in the sample had increased with 119%, compared to an increase of 150% in the mean ASP from 1998 to 2007 as indicated in Table 2.

The minimum coefficient of correlation for the period 1998 to 2007 was 0.09256 in the year 1999 and the maximum coefficient of correlation 0.45321 in 2007. The mean coefficient of correlation for the 10-year period was 0.26105, as depicted in graph 3 on the next page. The increase in the coefficient of correlation over the 10-year period was fairly constant, with only slight fluctuations in 1999, 2005 and 2006. The standard deviation in ASP had increased from R56.96 in 1998 to R153.31 in 2007, an increase of 169%, compared to an increase in standard deviation of turnover in 1998 of R13.7 billion to R25.6 billion in 2007, an increase of 87%. This fact indicates that although there was a significant increase in the coefficient of correlation between ASP and turnover, the turnover value of the companies in the sample had a larger spread in 2007 than in 1998.

Graph 3: Coefficient of correlation of ASP and turnover for the period 1998 to 2007

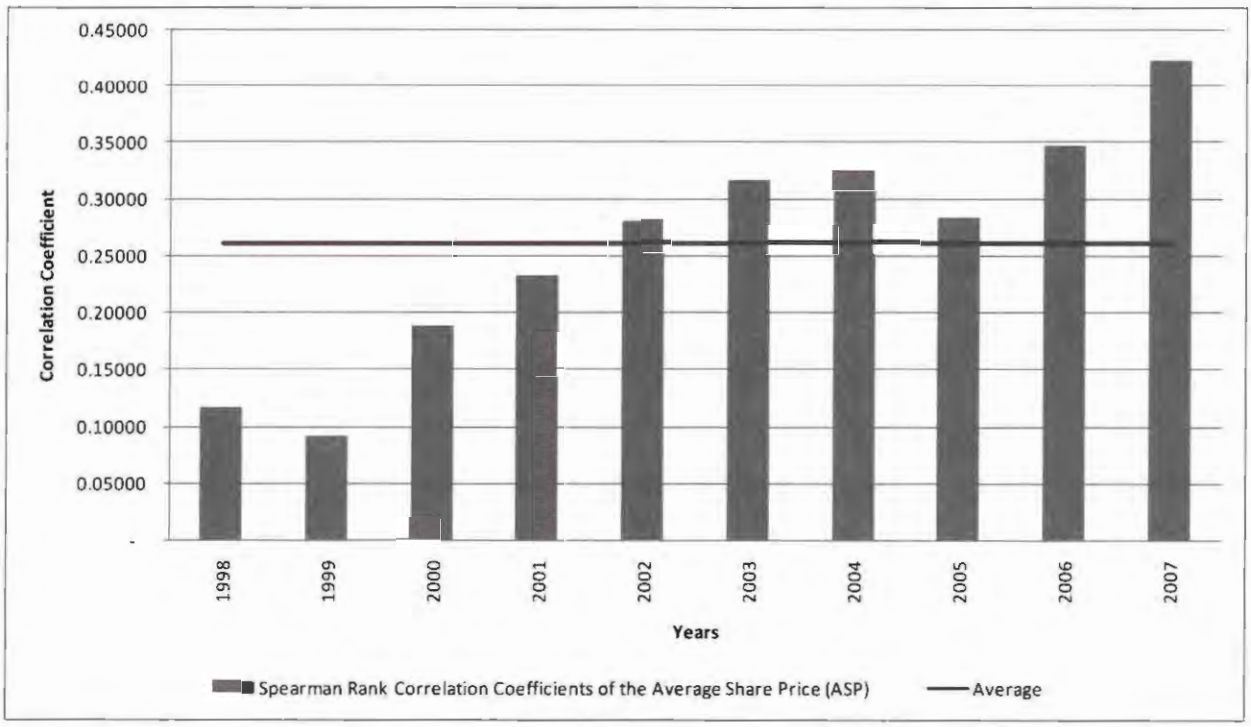
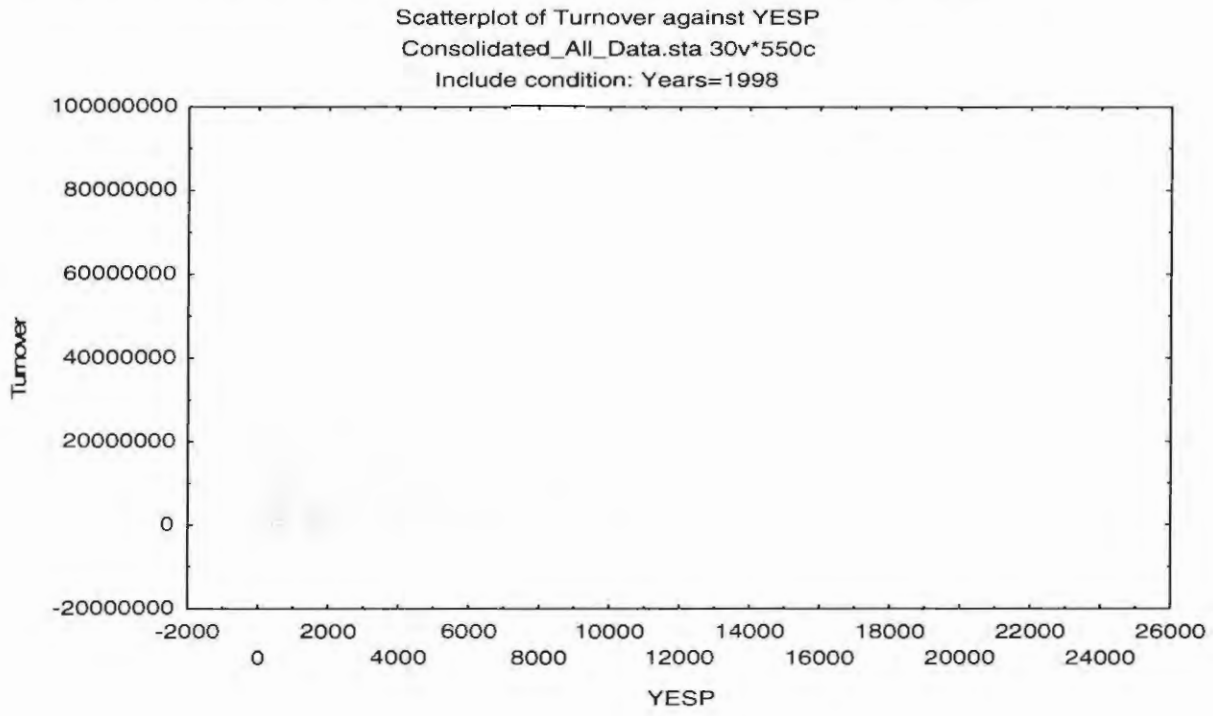


Figure 44 below, indicates a scatterplot of the values for YESP and turnover for the years 1998.

Figure 44: Scatterplot of the values for YESP and turnover for the year 1998



From Table 7 it can be seen, that the coefficient of correlation between turnover and the YESP had increased from 0.04921 in 1998 to 0.44223 in 2007. The mean turnover value of the companies in the sample had increased with 119%, compared to an increase of 197% in the mean YESP from 1998 to 2007, as indicated in Table 2.

The minimum coefficient of correlation for the period 1998 to 2007 was 0.04921 in the year 1998 and the maximum coefficient of correlation 0.44223 in 2007, as indicated in table 7. The mean coefficient of correlation for the 10-year period was 0.26952 as depicted in Graph 4, with a fairly constant increase over the 10-year period with slight fluctuations for the years 2004 and 2005.

Graph 4: Coefficient of correlation of YESP and turnover for the period 1998 to 2007

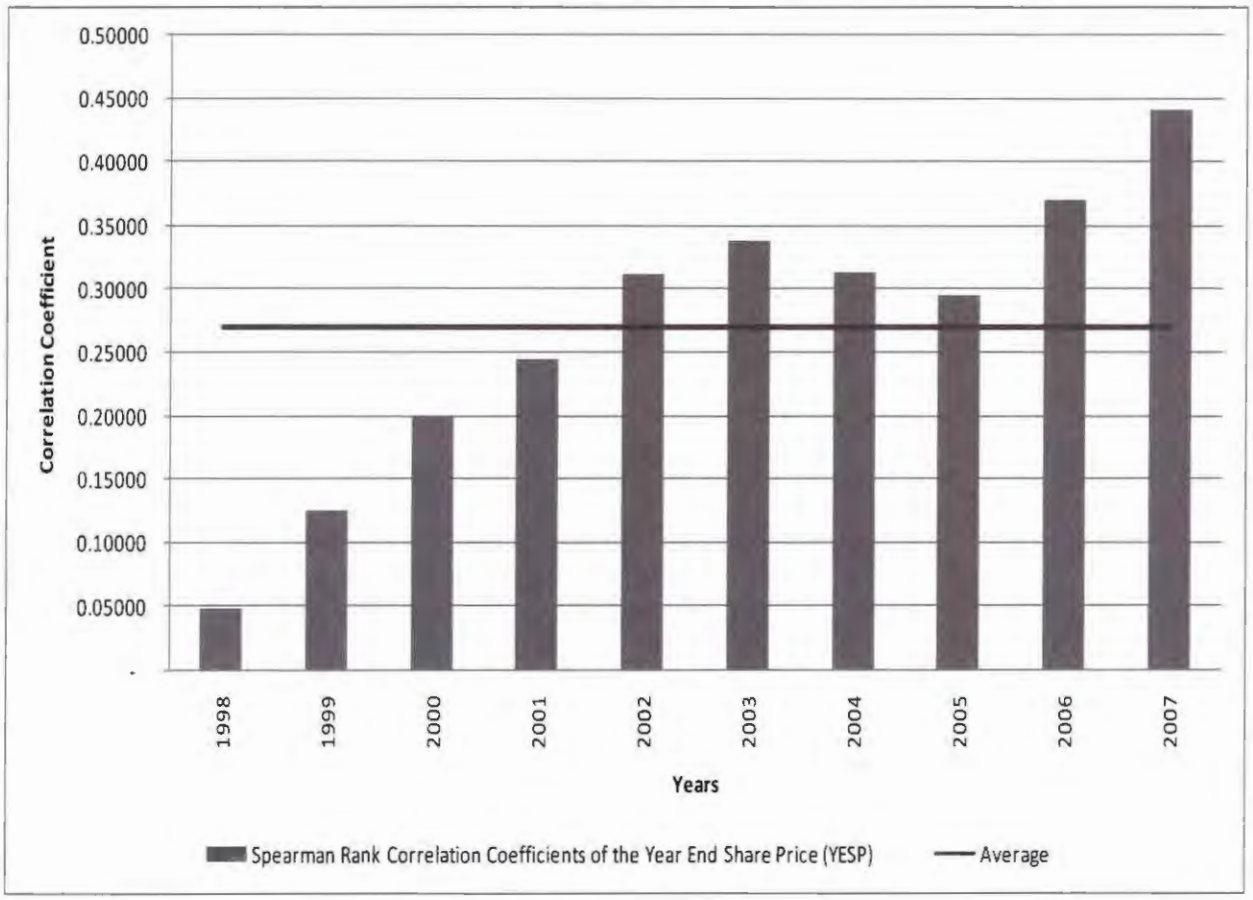
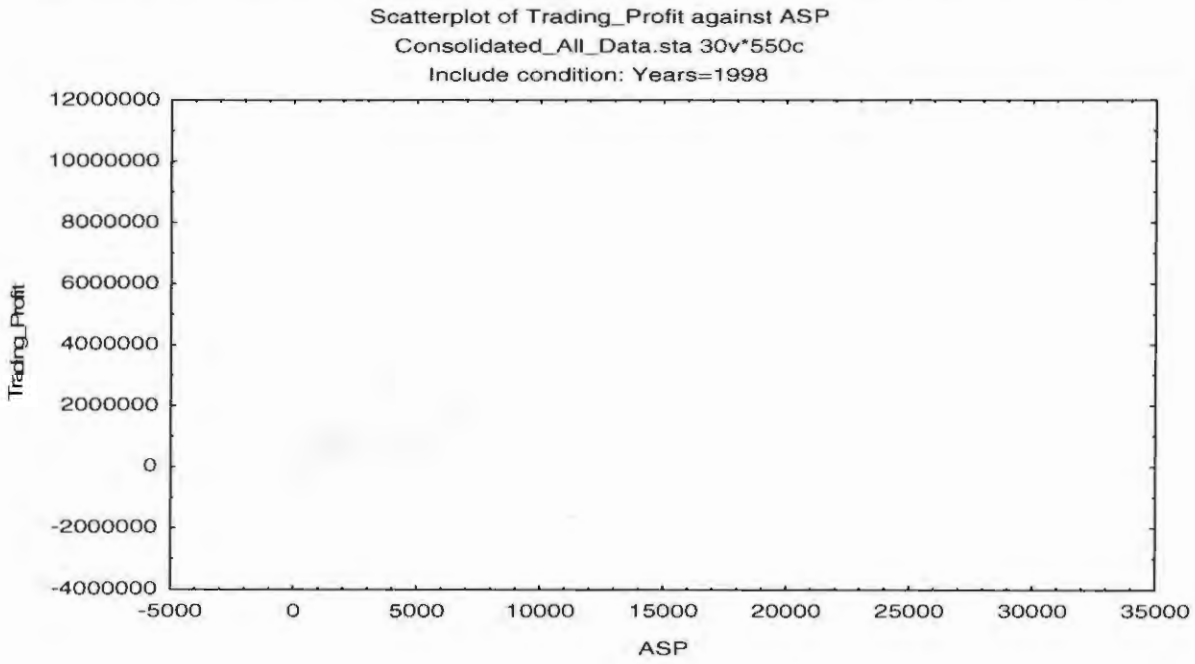


Figure 45 below, indicates a scatterplot of the values for ASP and trading profit for the years 1998.

Figure 45: Scatterplot of the values for ASP and trading profit for the year 1998



From Table 6 it can be seen, that the coefficient of correlation between trading profit and the ASP had increased from 0.02857 in 1998 to 0.45426 in 2007. The mean trading profit value of the companies in the sample had increased with 163%, compared to an increase of 150% in the mean ASP from 1998 to 2007, as indicated in Table 2.

The minimum coefficient of correlation for the period 1998 to 2007 was 0.02857 in the year 1998 and the maximum coefficient of correlation 0.45426 in 2007. The mean coefficient of correlation for the 10-year period was 0.24628, as depicted in Graph 5 on the next page. There was a fairly constant increase in the coefficient of correlation over the 10-year period with only the year 2002 that exhibits a higher increase than the year 2003. The standard deviation in ASP had increased from R56.96 in 1998 to R153.31 in 2007, an increase of 169%, compared to an increase in standard deviation of trading profit in 1998 of R2.1 billion to R8.7 billion in 2007, an increase of 314%. This fact indicates that although there was a significant increase in the coefficient of correlation between ASP and trading profit, the trading profit value of the companies in the sample had a larger spread in 2007 than in 1998.

Graph 5: Coefficient of correlation of ASP and trading profit for the period 1998 to 2007

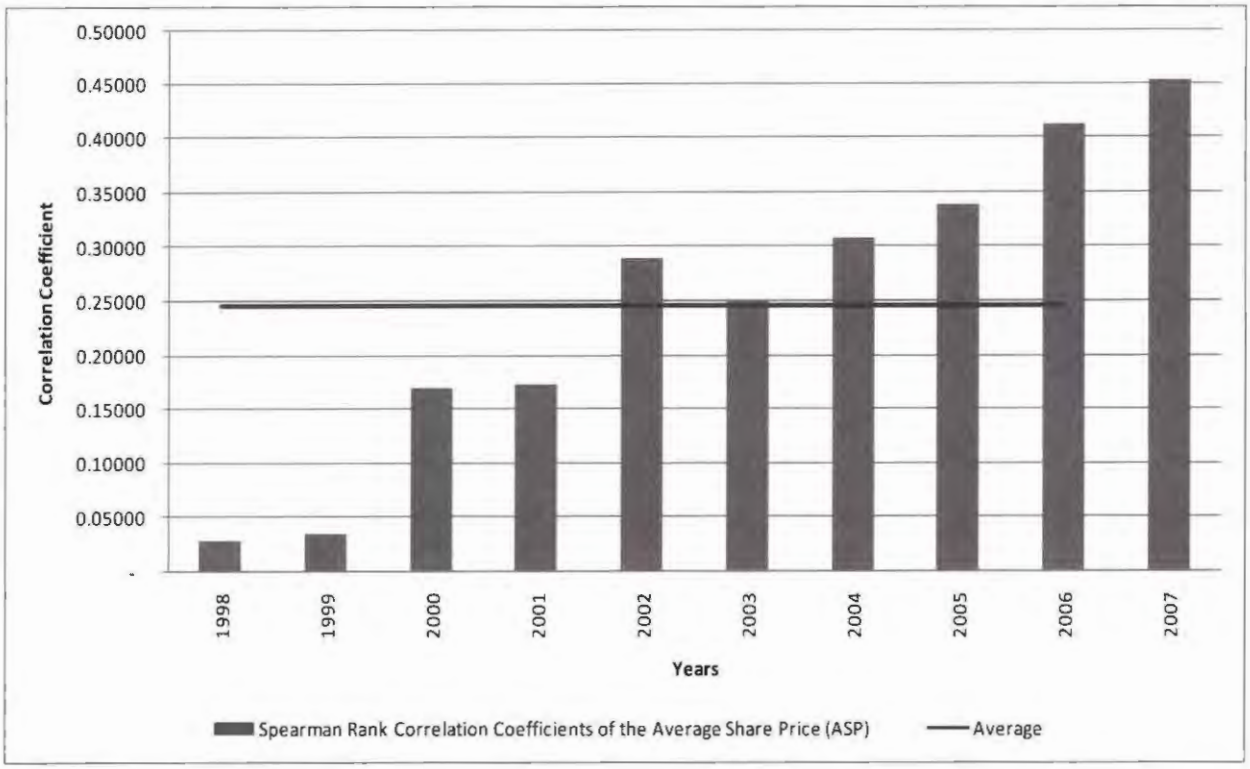
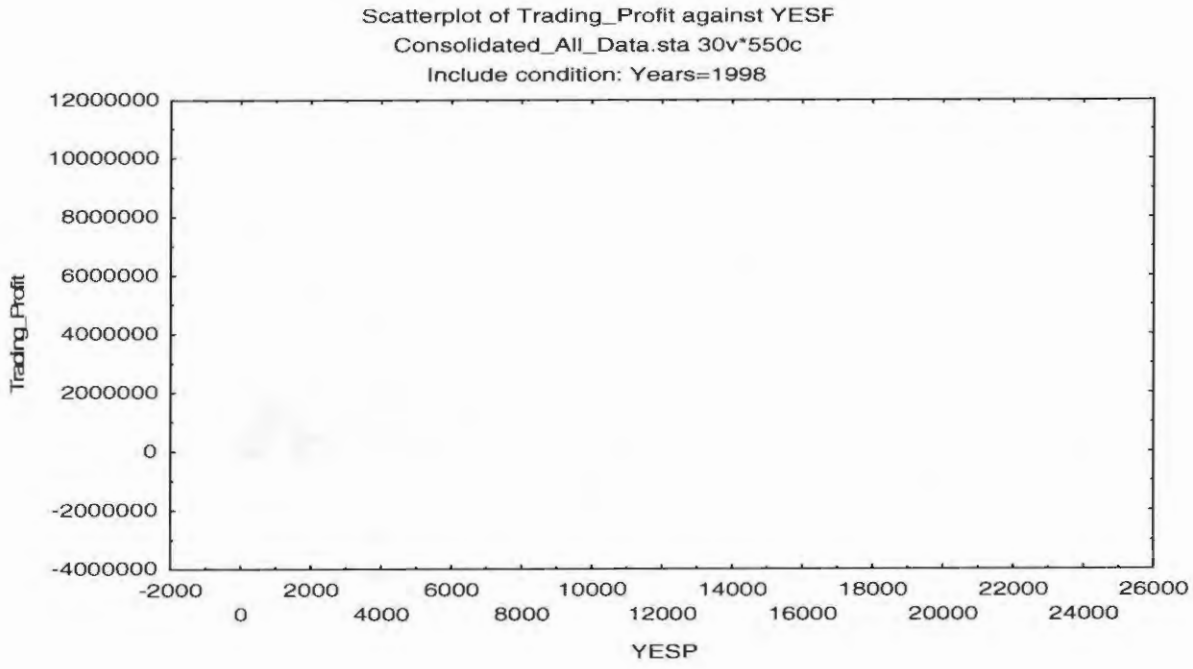


Figure 46 below, indicates a scatterplot of the values for YESP and trading profit for the years 1998.

Figure 46: Scatterplot of the values for YESP and trading profit for the year 1998



From Table 7 it can be seen that the coefficient of correlation between trading profit and the YESP had increased from (0.03124) in 1998 to 0.46126 in 2007. The value for the coefficient of correlation of (0.03124) for the year 1998 indicates that there was a negative correlation between YESP and trading profit for that specific year, meaning that the higher the trading profits for the sample of companies was, the lower the YESP. The mean trading profit value of the companies in the sample had increased with 163%, compared to an increase of 197% in the mean YESP from 1998 to 2007 as indicated in Table 2.

The minimum coefficient of correlation for the period 1998 to 2007 was (0.03124) in the year 1998 and the maximum coefficient of correlation 0.46126 in 2007, as indicated in Table 7. The mean coefficient of correlation for the 10-year period was 0.25665 as depicted in Graph 6, with a fairly constant increase in the coefficient of correlation, except for the year 2002 that exhibits a slightly higher year-on-year increase than the remainder of the years.

Graph 6: Coefficient of correlation of YESP and trading profit for the period 1998 to 2007

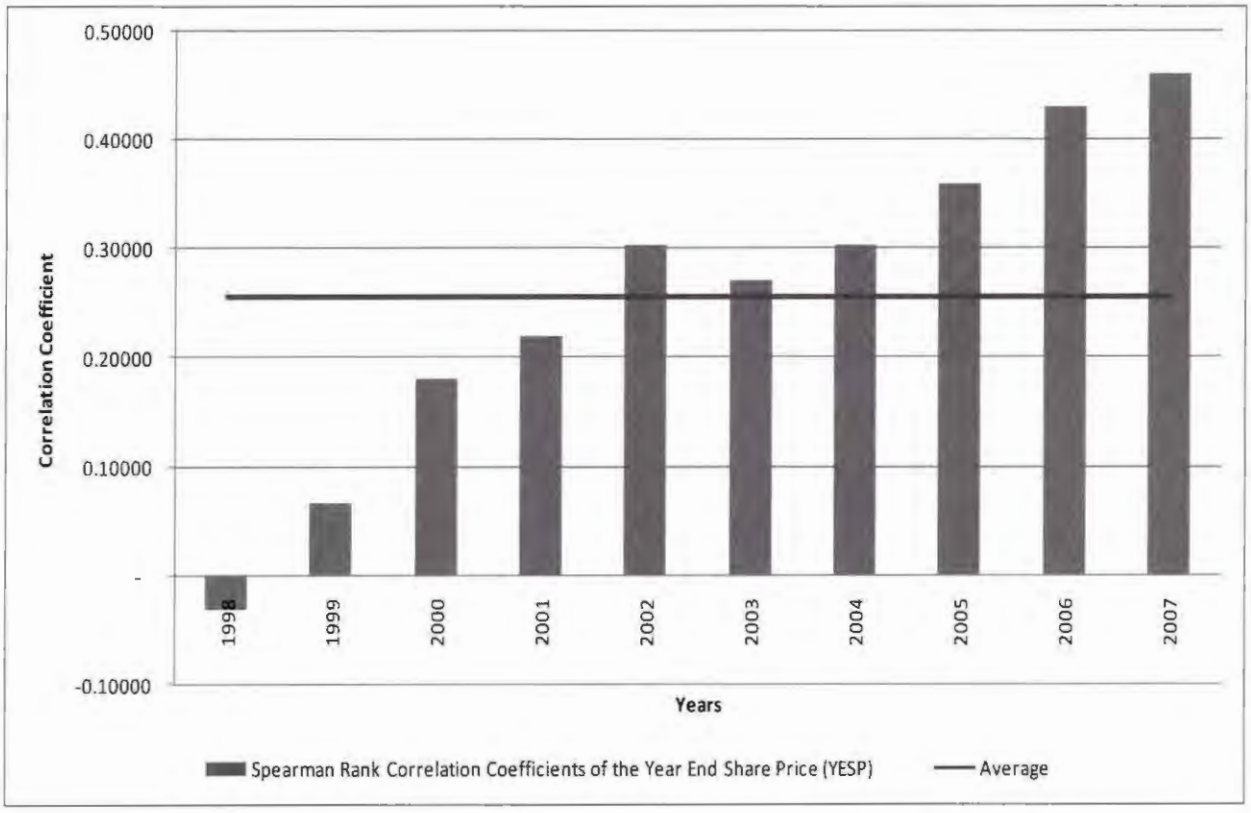
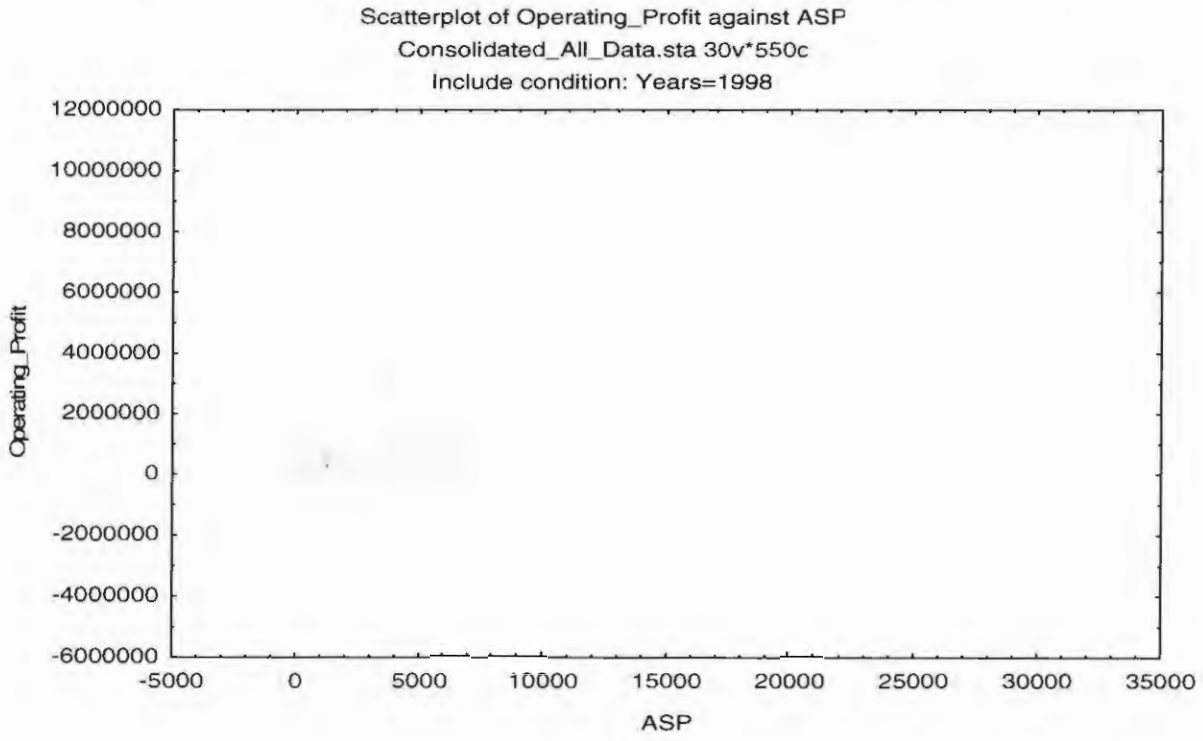


Figure 47 below, indicates a scatterplot of the values for ASP and operating profit for the years 1998.

Figure 47: Scatterplot of the values for ASP and operating profit for the year 1998



From Table 6 it can be seen that the coefficient of correlation between operating profit and the ASP had increased from 0.16248 in 1998 to 0.49755 in 2007. The mean operating profit value of the companies in the sample had increased with 156%, compared to an increase of 150% in the mean ASP from 1998 to 2007, as indicated in Table 2.

The minimum coefficient of correlation for the period 1998 to 2007 was 0.14762 in the year 1999 and the maximum coefficient of correlation 0.49755 in 2007. The mean coefficient of correlation for the 10-year period was 0.31983, as depicted in Graph 7. The increase in the coefficient of correlation over the 10-year period fluctuated between the individual years, with no clear indication of a constant increase on a year-on-year basis. The standard deviation in ASP had increased from R56.96 in 1998 to R153.31 in 2007, an increase of 169%, compared to an increase in standard deviation of operating profit in 1998 of R1.9 billion to R5.6 billion in 2007, an increase of 195%. This fact indicates that although there was a significant increase in the coefficient of correlation

between ASP and operating profit, the operating profit value of the companies in the sample has a larger spread in 2007 than in 1998.

Graph 7: Coefficient of correlation of ASP and operating profit for the period 1998 to 2007

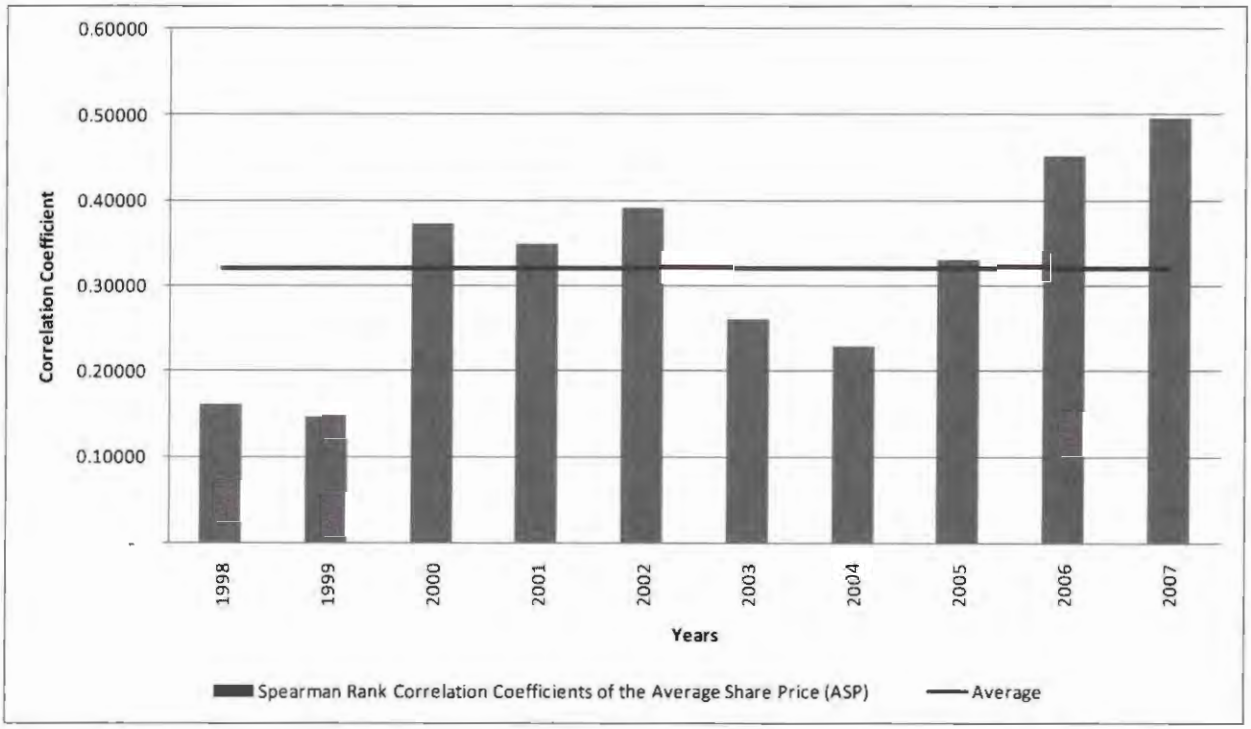
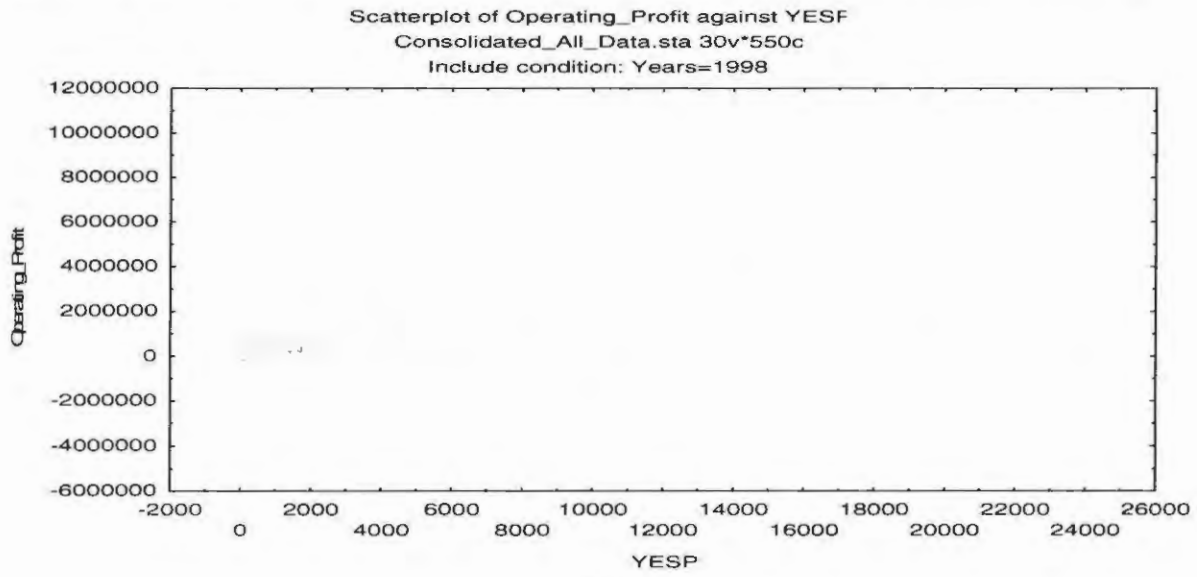


Figure 48 below, indicates a scatterplot of the values for YESP and operating profit for the years 1998.

Figure 48: Scatterplot of the values for YESP and operating profit for the year 1998



From Table 7 it can be seen that the coefficient of correlation between operating profit and the YESP had increased from 0.14308 in 1998 to 0.49567 in 2007. The mean operating profit value of the companies in the sample had increased with 156%, compared to an increase of 197% in the mean YESP from 1998 to 2007, as indicated in Table 2.

The minimum coefficient of correlation for the period 1998 to 2007 was 0.14308 in the year 1998 and the maximum coefficient of correlation 0.49567 in 2007, as indicated in Table 7. The mean coefficient of correlation for the 10-year period was 0.33412 as depicted in Graph 8.

Graph 8: Coefficient of correlation of YESP and operating profit for the period 1998 to 2007

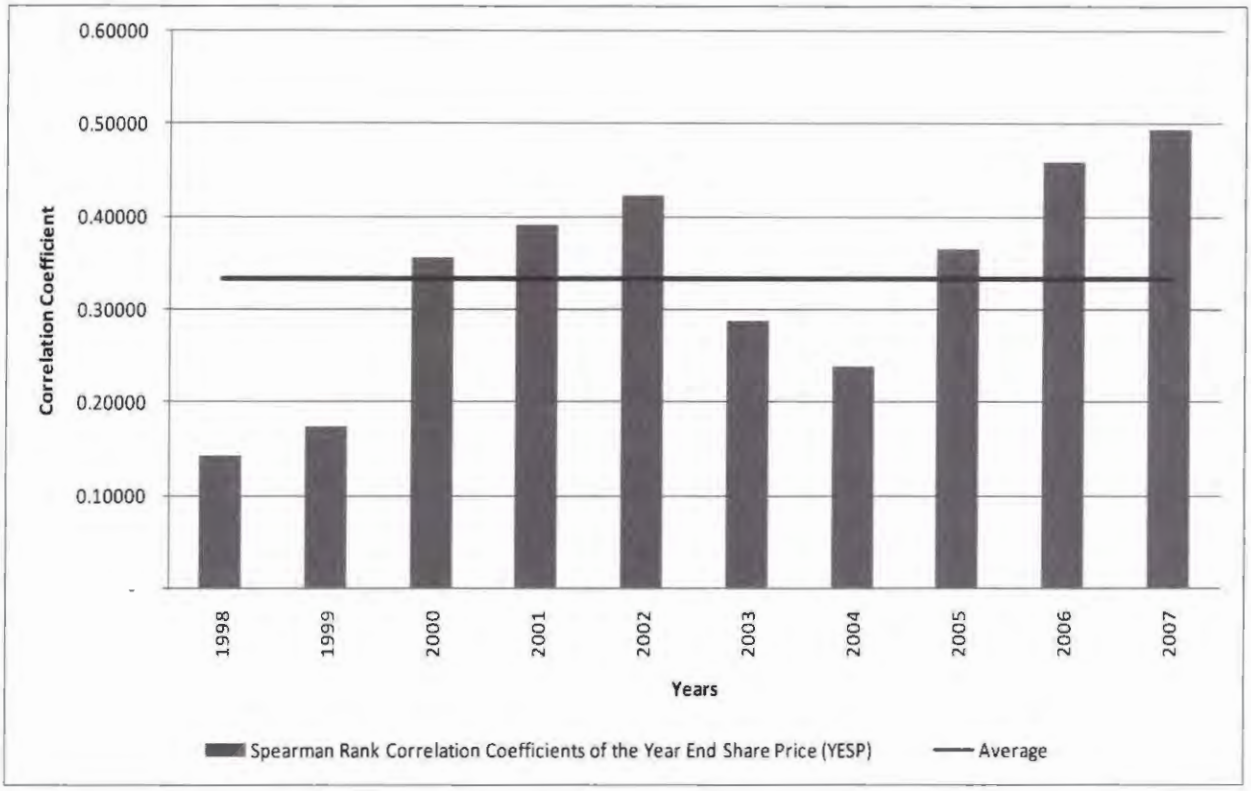
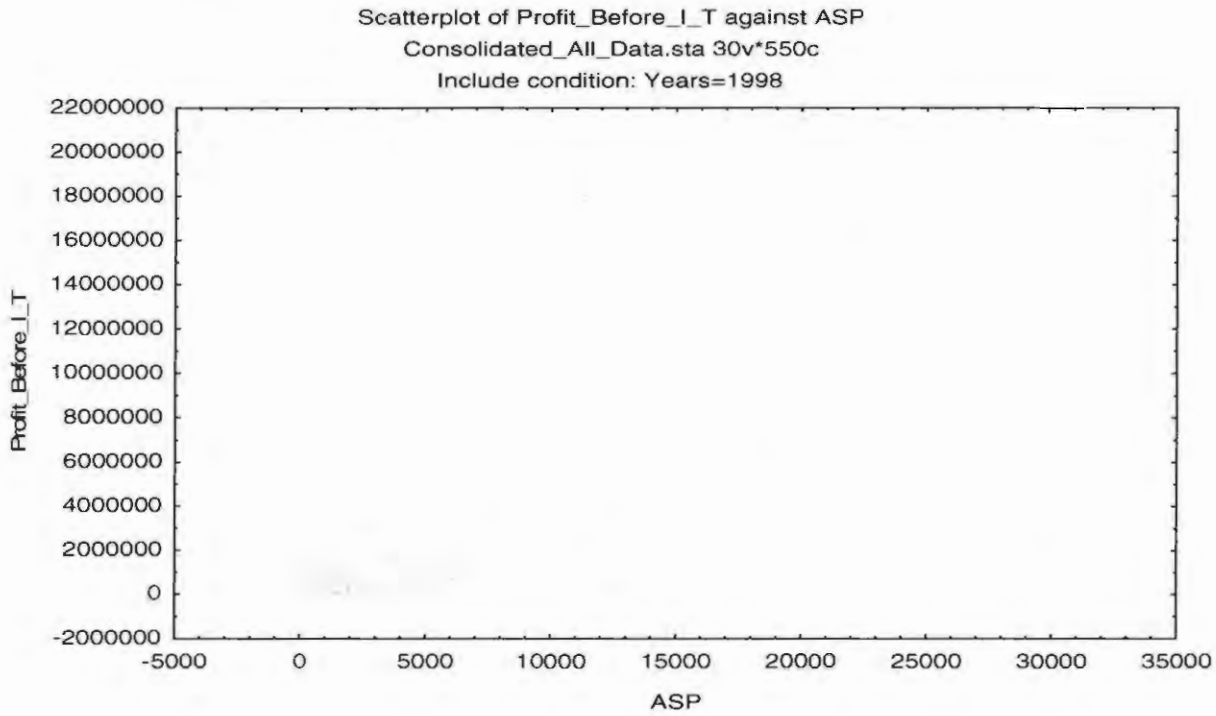


Figure 49 below, indicates a scatterplot of the values for ASP and profit before interest and tax for the years 1998.

Figure 49: Scatterplot of the values for ASP and profit before interest and tax for the year 1998



From Table 6 it can be seen that the coefficient of correlation between profit before interest and tax and the ASP had increased from 0.32843 in 1998 to 0.57597 in 2007. The mean profit before interest and tax value of the companies in the sample had increased with 208%, compared to an increase of 150% in the mean ASP from 1998 to 2007, as indicated in Table 2. The minimum coefficient of correlation for the period 1998 to 2007 was 0.32843 in the year 1998 and the maximum coefficient of correlation 0.57597 in 2007. The mean coefficient of correlation for the 10-year period was 0.46358, as depicted in graph 9 on the next page. Graph 9 clearly indicates that there was a constant increase in the coefficient of correlation over the 10-year period, except for the years 2004 and 2005. The standard deviation in ASP has increased from R56.96 in 1998 to R153.31 in 2007, an increase of 169%, compared to an increase in standard deviation of profit before interest and tax in 1998 of R4.6 billion to R14.3 billion in 2007, an increase of 211%. This fact indicates that although there was a significant increase in the coefficient of correlation between ASP and profit before interest and tax,

the profit before interest and tax value of the companies in the sample had a larger spread in 2007 than in 1998.

Graph 9: Coefficient of correlation of ASP and profit before interest and tax for the period 1998 to 2007

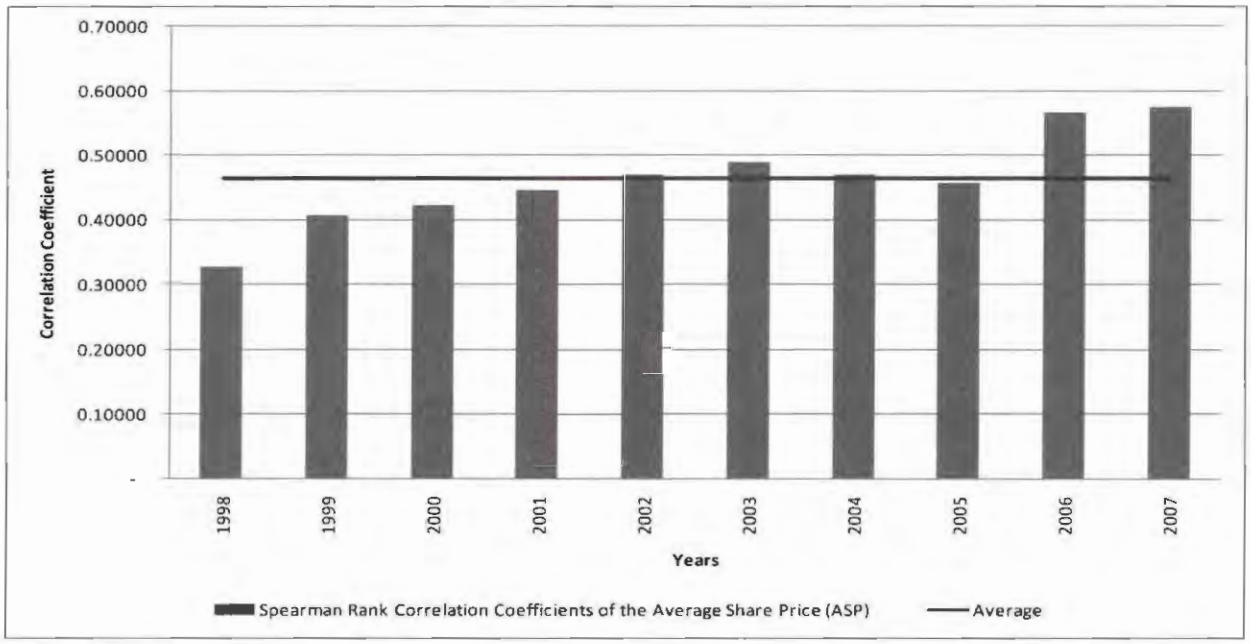
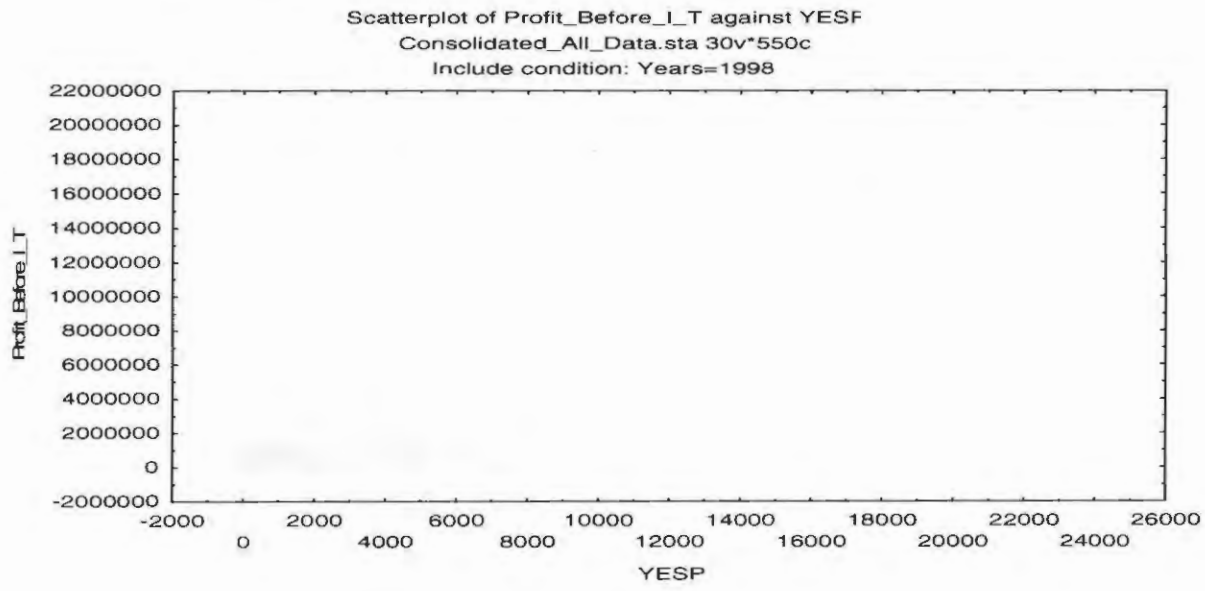


Figure 50 below, indicates a scatterplot of the values for YESP and profit before interest and tax for the years 1998.

Figure 50: Scatterplot of the values for YESP and profit before interest and tax for the year 1998



From Table 7 it can be seen that the coefficient of correlation between profit before interest and tax and the YESP had increased from 0.31486 in 1998 to 0.56443 in 2007. The mean profit before interest and tax value of the companies in the sample had increased with 208%, compared to an increase of 197% in the mean YESP from 1998 to 2007 as indicated in Table 2.

The minimum coefficient of correlation for the period 1998 to 2007 was 0.31486 in the year 1998 and the maximum coefficient of correlation 0.56443 in 2007, as indicated in Table 7. The mean coefficient of correlation for the 10-year period was 0.46316 as depicted in Graph 10. The coefficient of correlation for YESP indicates a constant increase, except for the years 2004 and 2005.

Graph 10: Coefficient of correlation of YESP and profit before interest and tax for the period 1998 to 2007

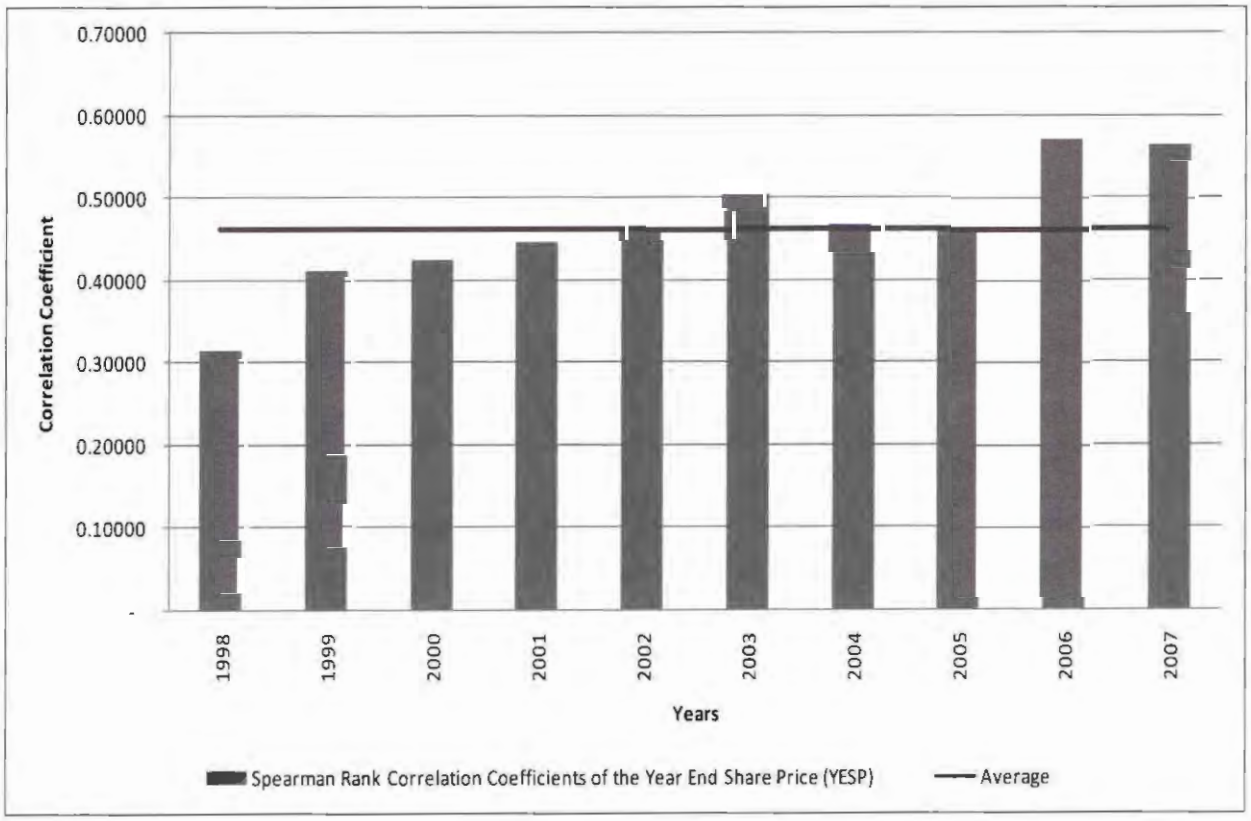
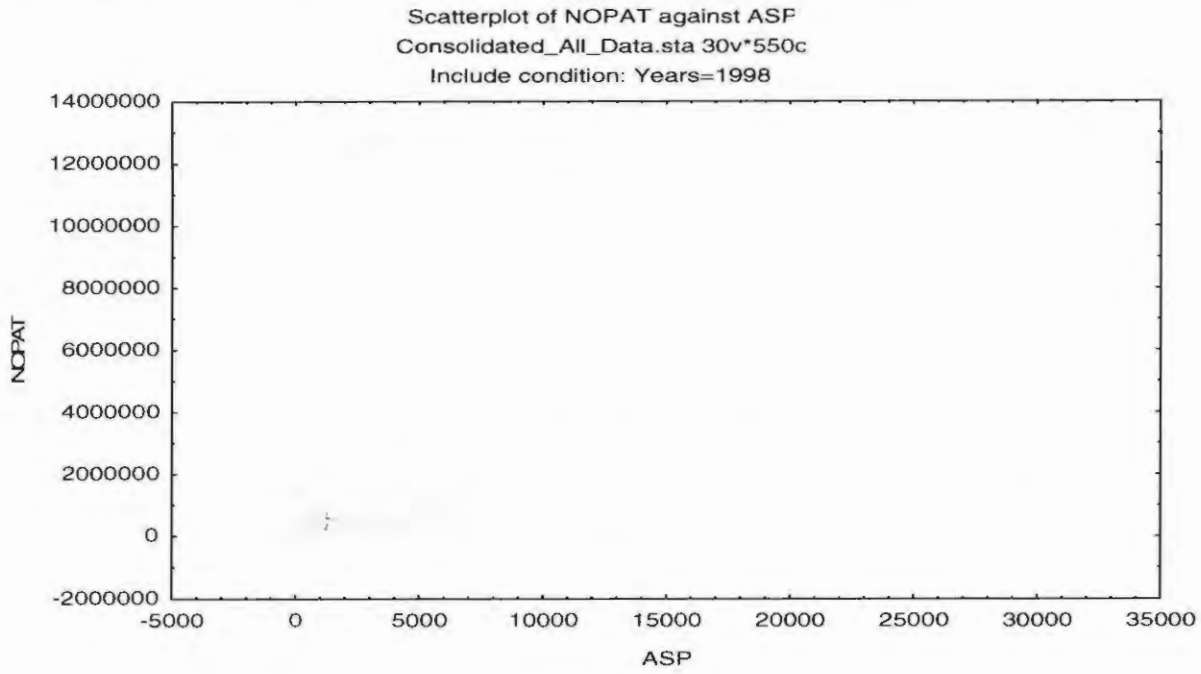


Figure 51 below, indicates a scatterplot of the values for ASP and NOPAT for the years 1998.

Figure 51: Scatterplot of the values for ASP and NOPAT for the year 1998



From Table 6 it can be seen that the coefficient of correlation between NOPAT and the ASP had increased from 0.31926 in 1998 to 0.48160 in 2007. The mean NOPAT value of the companies in the sample had increased with 179%, compared to an increase of 150% in the mean ASP from 1998 to 2007, as indicated in Table 2.

The minimum coefficient of correlation for the period 1998 to 2007 was 0.28218 in the year 1998 and the maximum coefficient of correlation 0.52165 in 2006. The mean coefficient of correlation for the 10-year period was 0.39192, as depicted in graph 11 on the next page. The standard deviation in ASP had increased from R56.96 in 1998 to R153.31 in 2007, an increase of 169%, compared to an increase in standard deviation of NOPAT in 1998 of R3.1 billion to R10.1 billion in 2007, an increase of 226%. This fact indicates that although there was a significant increase in the coefficient of correlation between ASP and NOPAT, the NOPAT value of the companies in the sample has a larger spread in 2007 than in 1998.

Graph 11: Coefficient of correlation of ASP and NOPAT for the period 1998 to 2007

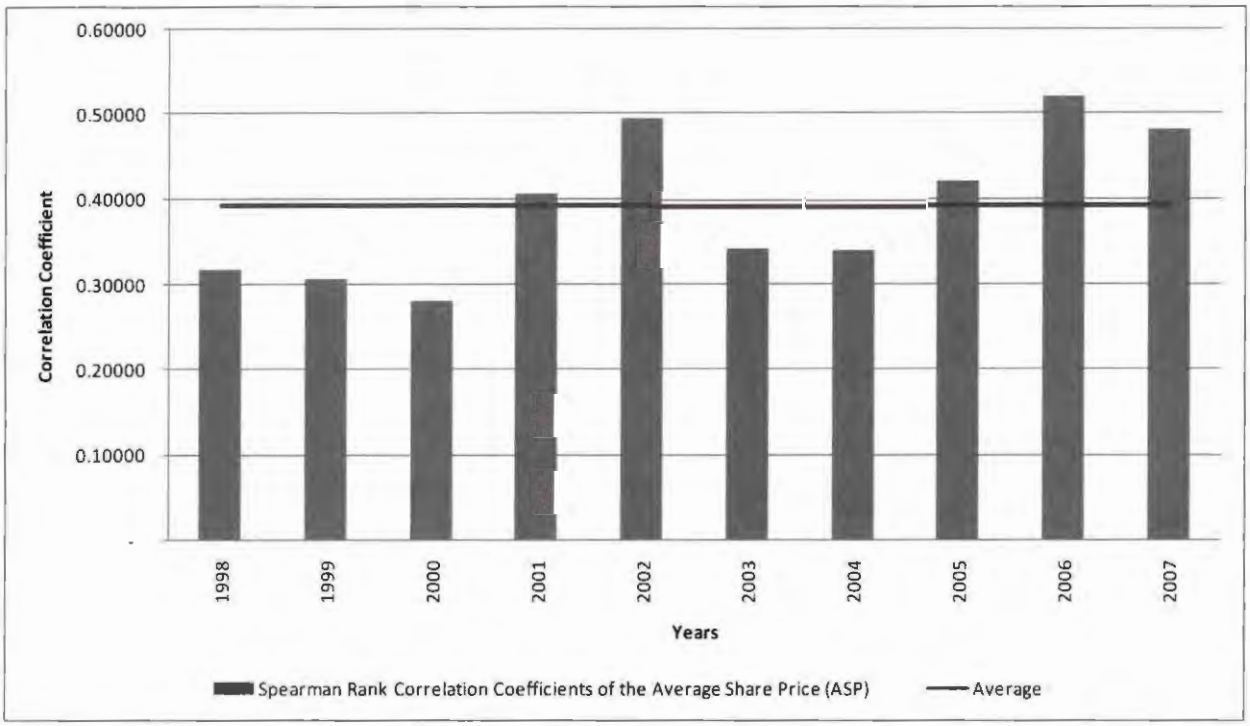
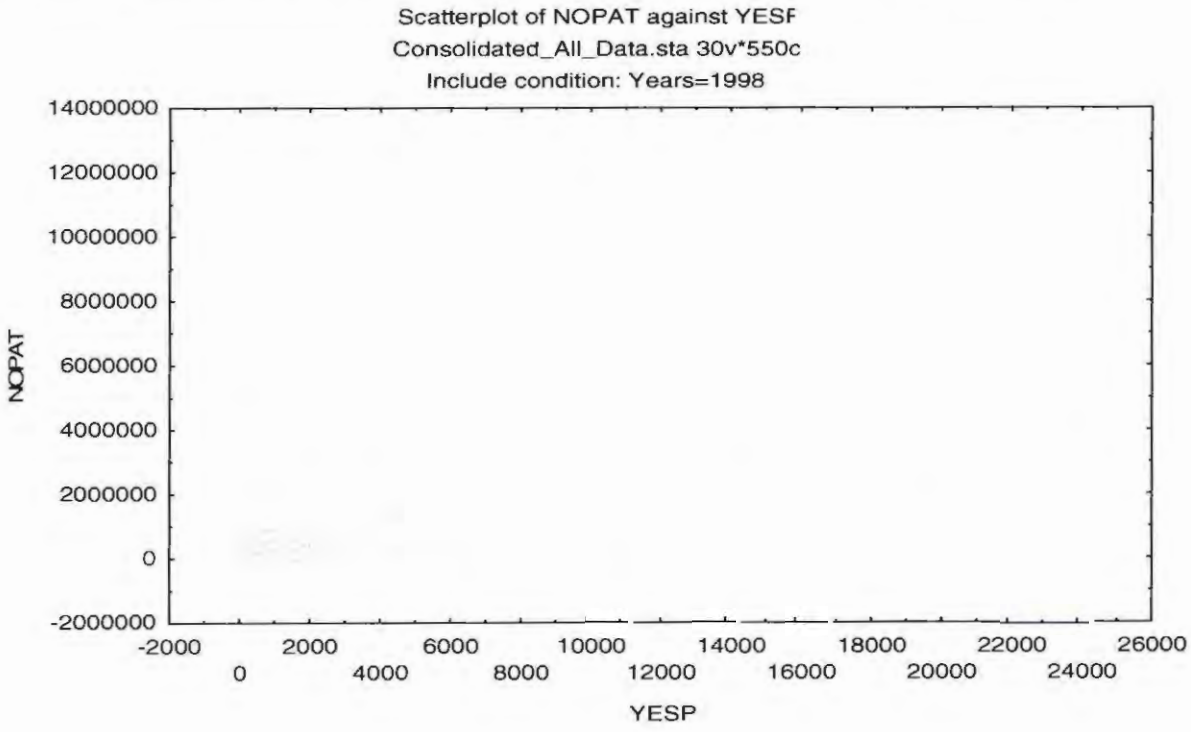


Figure 52 below, indicates a scatterplot of the values for YESP and NOPAT for the years 1998.

Figure 52: Scatterplot of the values for YESP and NOPAT for the year 1998



From Table 7 it can be seen that the coefficient of correlation between NOPAT and the YESP had increased from 0.28831 in 1998 to 0.47965 in 2007. The mean NOPAT value of the companies in the sample had increased with 179%, compared to an increase of 197% in the mean YESP from 1998 to 2007, as indicated in Table 2.

The minimum coefficient of correlation for the period 1998 to 2007 was 0.25303 in the year 2000 and the maximum coefficient of correlation 0.47965 in 2007, as indicated in Table 7. The mean coefficient of correlation for the 10-year period was 0.39408, as depicted in Graph 12.

Graph 12: Coefficient of correlation of YESP and NOPAT for the period 1998 to 2007

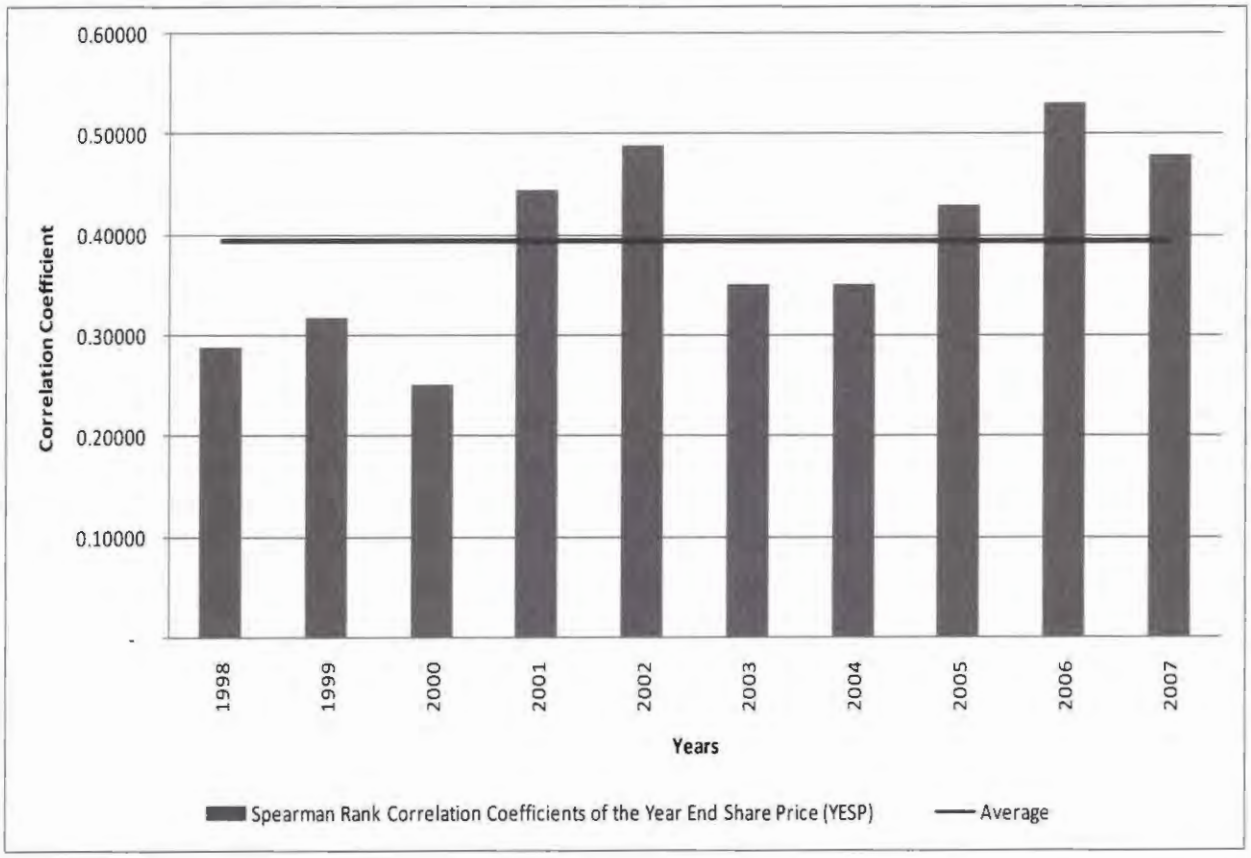
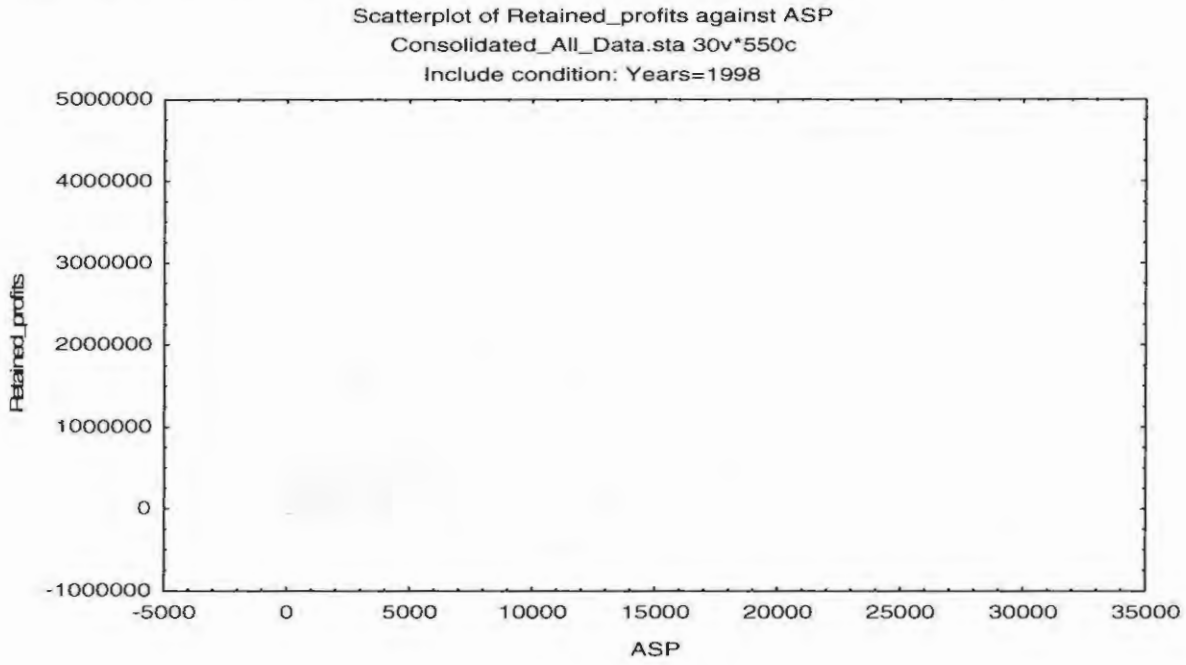


Figure 53 below, indicates a scatterplot of the values for ASP and retained profits for the years 1998.

Figure 53: Scatterplot of the values for ASP and retained profits for the year 1998



From Table 6 it can be seen that the coefficient of correlation between retained profits and the ASP had increased from 0.11797 in 1998 to 0.50209 in 2007. The mean retained profits value of the companies in the sample had increased with 309%, compared to an increase of 150% in the mean ASP from 1998 to 2007, as indicated in Table 2.

The minimum coefficient of correlation for the period 1998 to 2007 was 0.11797 in the year 1998 and the maximum coefficient of correlation 0.50209 in 2007. The mean coefficient of correlation for the 10-year period was 0.30138 as depicted by graph 13 on the next page. The standard deviation in ASP had increased from R56.96 in 1998 to R153.31 in 2007, an increase of 169%, compared to an increase in standard deviation of retained profits in 1998 of R0.8 billion to R4.0 billion in 2007, an increase of 400%. This fact indicates that although there was a significant increase in the coefficient of correlation between ASP and retained profits, the retained profits value of the companies in the sample has a larger spread in 2007 than in 1998.

Graph 13: Coefficient of correlation of ASP and retained profits for the period 1998 to 2007

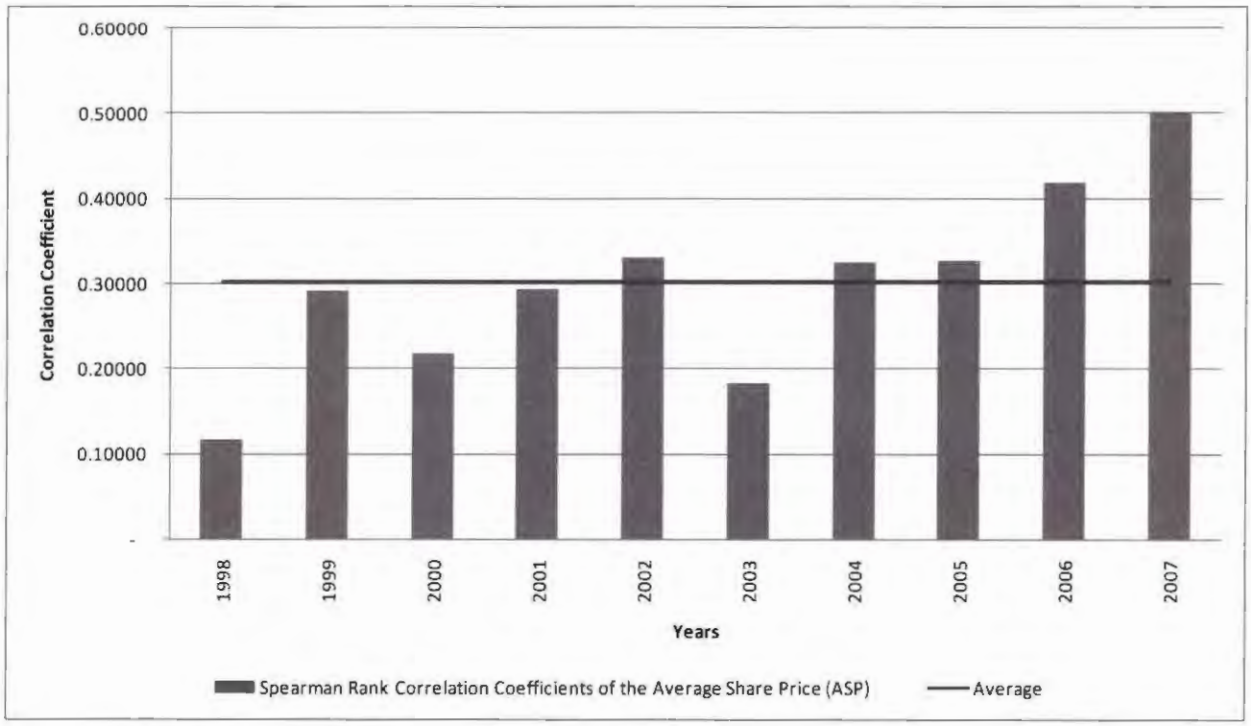
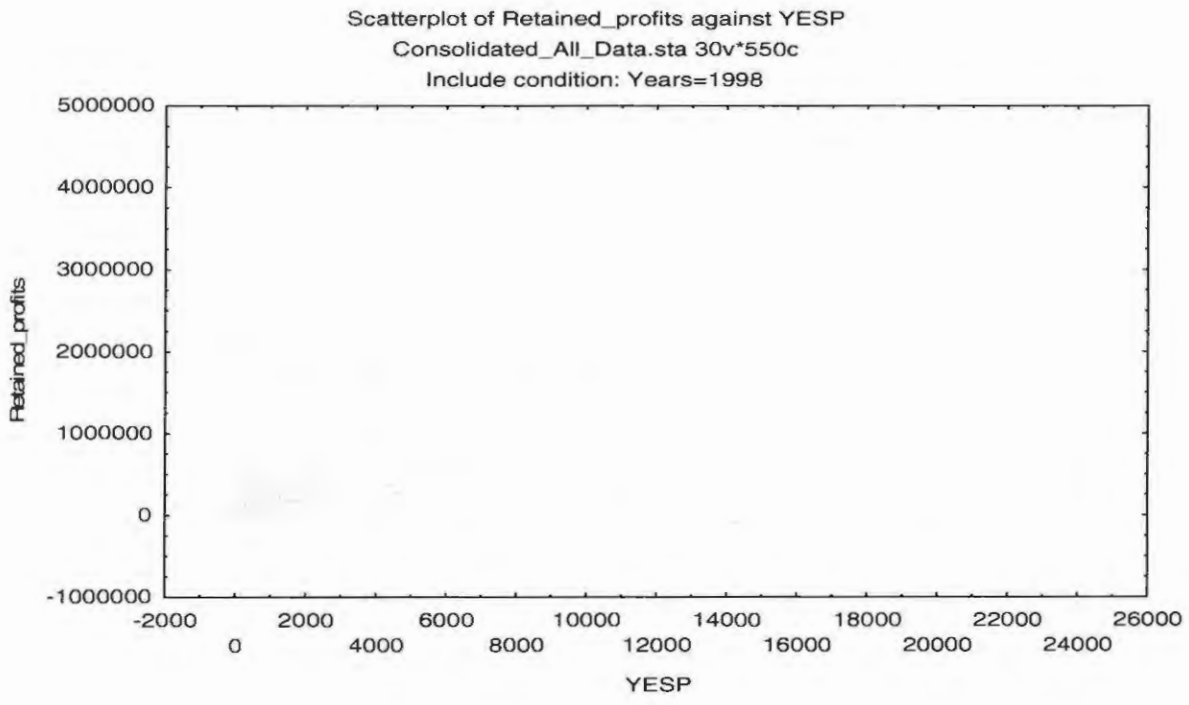


Figure 54 below, indicates a scatterplot of the values for YESP and retained profits for the years 1998.

Figure 54: Scatterplot of the values for YESP and retained profits for the year 1998



From Table 7 it can be seen that the coefficient of correlation between retained profits and the YESP had increased from 0.14935 in 1998 to 0.50094 in 2007. The mean retained profits value of the companies in the sample had increased with 309%, compared to an increase of 197% in the mean YESP from 1998 to 2007, as indicated in Table 2.

The minimum coefficient of correlation for the period 1998 to 2007 was 0.14935 in the year 2000 and the maximum coefficient of correlation 0.50094 in 2007, as indicated in Table 7. The mean coefficient of correlation for the 10-year period was 0.31071, as depicted by Graph 14. Graph 14 indicates that there are multiple years with fairly large fluctuations in the increase of the coefficient of correlation.

Graph 14: Coefficient of correlation of YESP and retained profits for the period 1998 to 2007

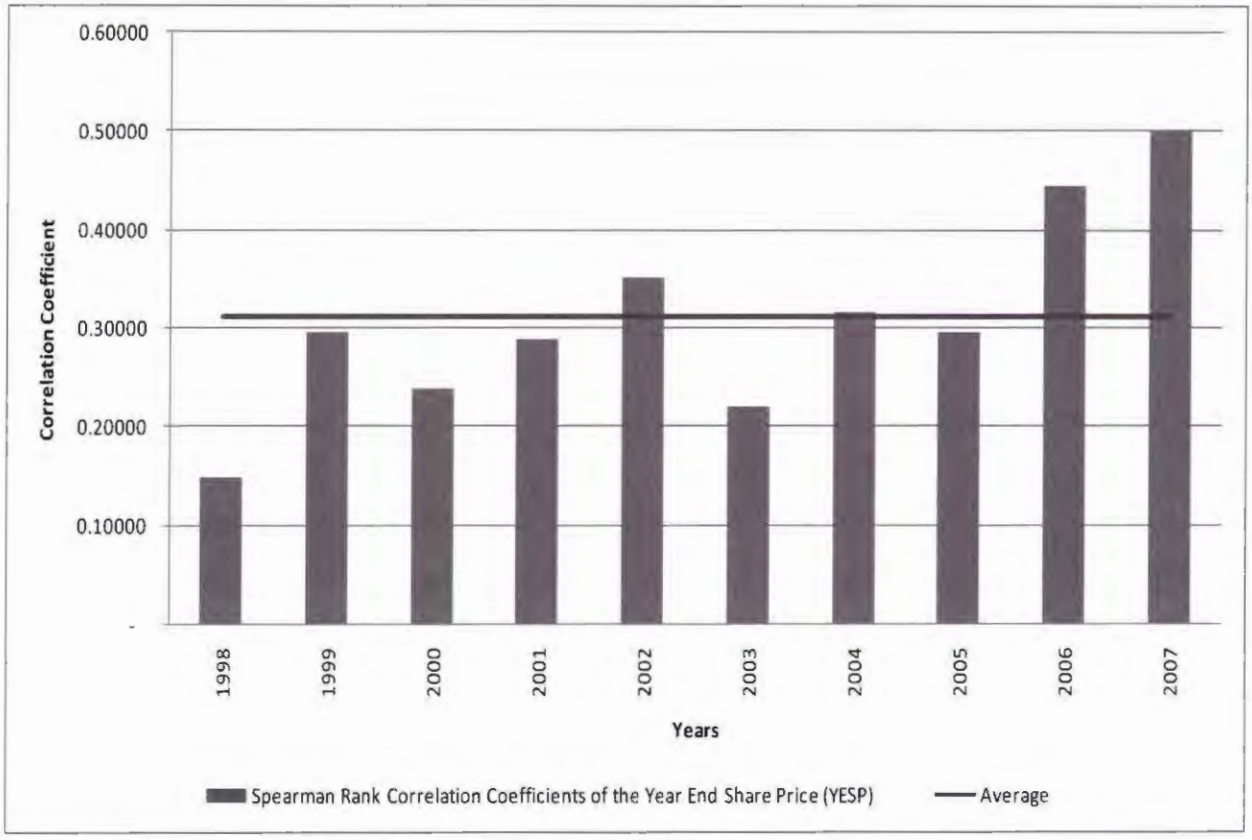
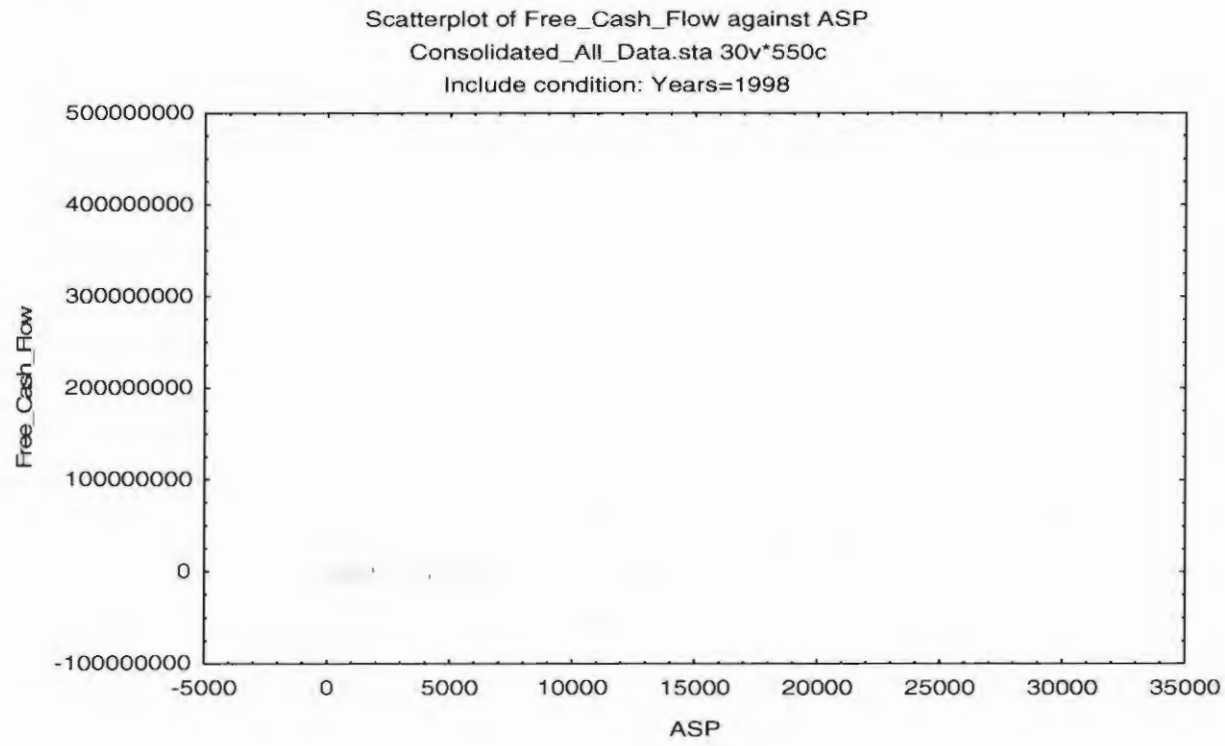


Figure 55 below, indicates a scatterplot of the values for ASP and Free Cash Flow (FCF) for the years 1998.

Figure 55: Scatterplot of the values for ASP and Free Cash Flow (FCF) for the year 1998



From Table 6 it can be seen that the coefficient of correlation between Free Cash Flow (FCF) and the ASP has increased from 0.24452 in 1998 to 0.36898 in 2007. This fact is confirmed when analysing the scatter-plots, as depicted in figures 69 and 70. It can clearly be seen that the scatter-plot for 2007 indicates a higher correlation of ASP with the FCF values of the sample of companies. The mean FCF value of the companies in the sample had decreased with 123%, compared to an increase of 150% in the mean ASP from 1998 to 2007, as indicated in Table 2.

The minimum coefficient of correlation for the period 1998 to 2007 was 0.24452 in the year 1998 and the maximum coefficient of correlation 0.36898 in 2007. The mean coefficient of correlation for the 10-year period was 0.25829 as depicted by Graph 15 on the next page. Graph 15 clearly indicates that the coefficient of correlation decreased for the years 1999 to 2003, but then significantly increased for 2004, 2005 and 2006 with a decrease in 2007. The standard deviation in ASP had increased from R56.96 in

1998 to R153.31 in 2007, an increase of 169%, compared to a decrease in standard deviation of FCF in 1998 of R80.8 billion to R49.5 billion in 2007, a decrease of 39%. This fact indicates that, although there was a significant increase in the coefficient of correlation between ASP and FCF, the FCF value of the companies in the sample has a smaller spread in 2007 than in 1998. A very important observation to note, is that although there is a positive coefficient of correlation between ASP and FCF per year, the absolute values of FCF dropped from R19.9 billion in 1998 to (R4.6) billion in 2007, a decrease of 533%, whereas the average share price per share over the 10-year period, increased from R44.45 to R110.93, therefore on a 10 year period there is a negative coefficient of correlation between ASP and FCF.

Graph 15: Coefficient of correlation of ASP and FCF for the period 1998 to 2007

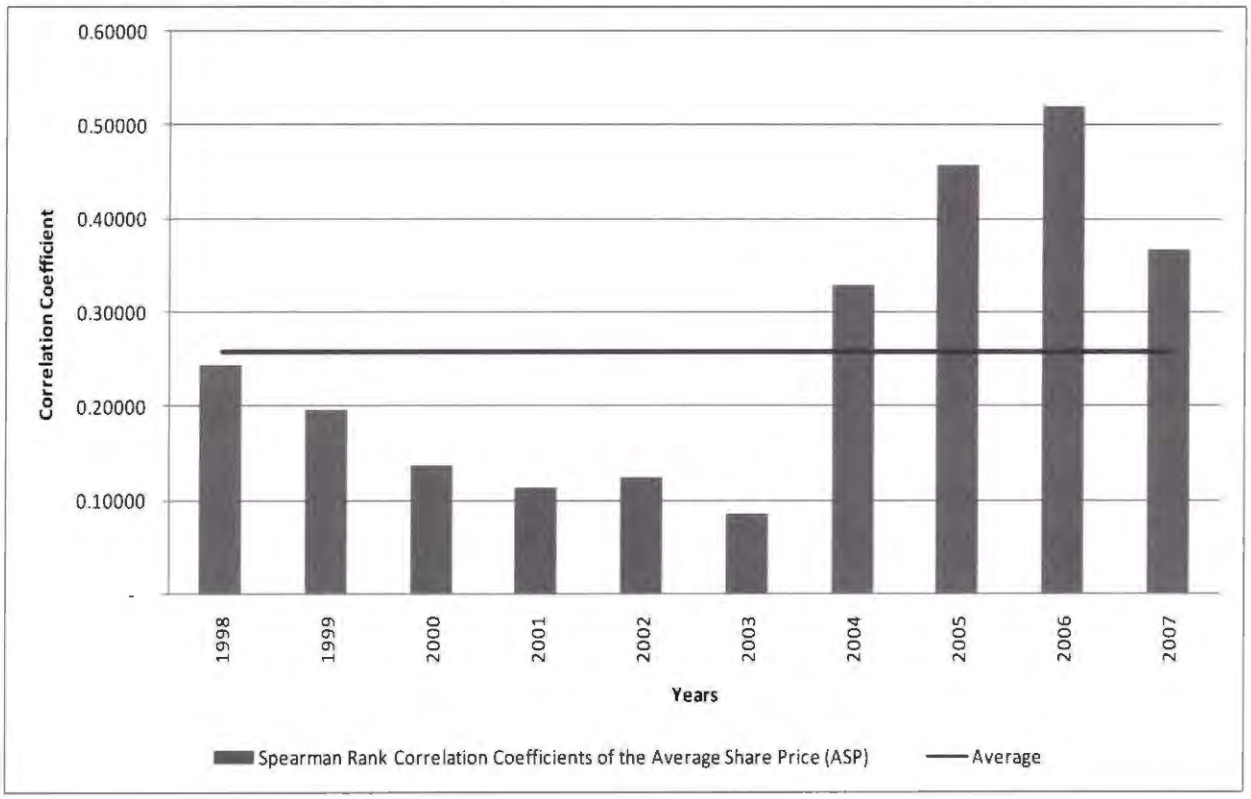
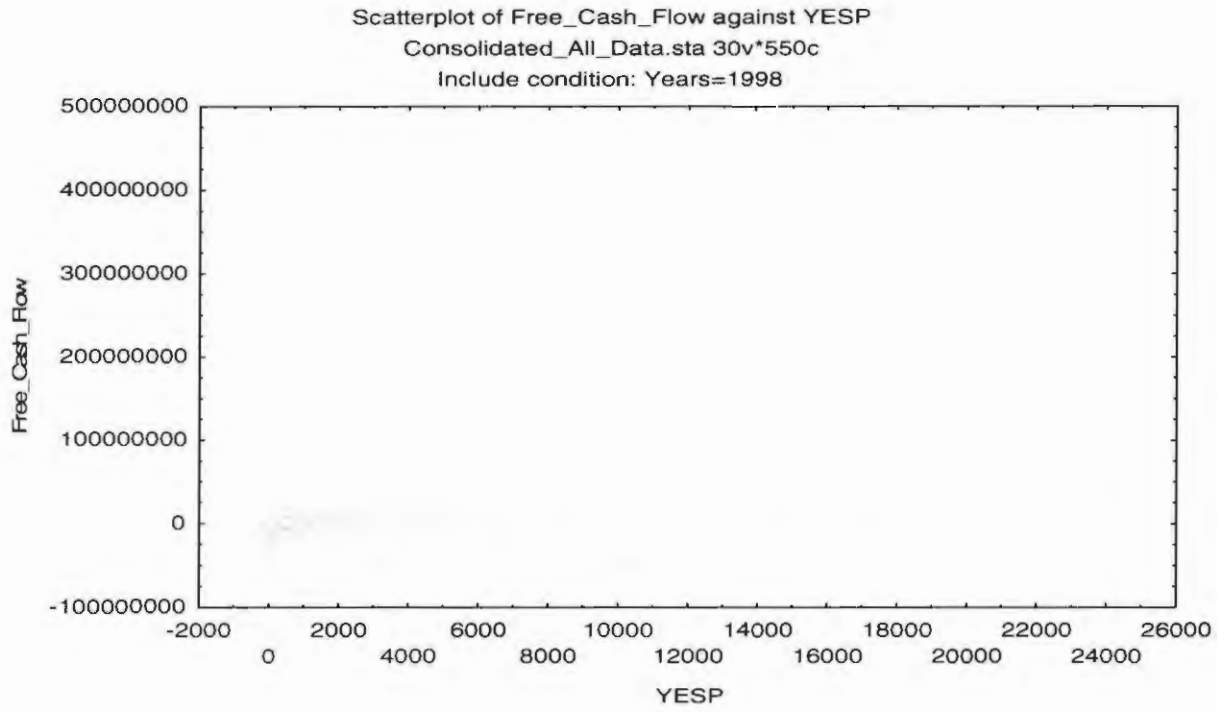


Figure 56 below, indicates a scatterplot of the values for YESP and Free Cash Flow (FCF) for the years 1998.

Figure 56: Scatterplot of the values for YESP and Free Cash Flow (FCF) for the year 1998



From Table 7 it can be seen that the coefficient of correlation between FCF and the YESP had increased from 0.21068 in 1998 to 0.38918 in 2007. The mean FCF value of the companies in the sample had decreased with 123%, compared to an increase of 197% in the mean YESP from 1998 to 2007, as indicated in Table 2. Again, it should be noted that although the yearly coefficient of correlation between YESP and FCF is positive, there is a negative correlation between these variables over the 10-year period, 1998 to 2007.

The minimum coefficient of correlation for the period 1998 to 2007 was 0.08597 in the year 2002 and the maximum coefficient of correlation 0.53131 in 2006, as indicated in Table 7. The mean coefficient of correlation for the 10-year period was 0.24923 as depicted in Graph 16 on the next page, with only the years 2004, 2005 and 2006 indicating a significant increase in the coefficient of correlation

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Graph 16: Coefficient of correlation of YESP and FCF for the period 1998 to 2007

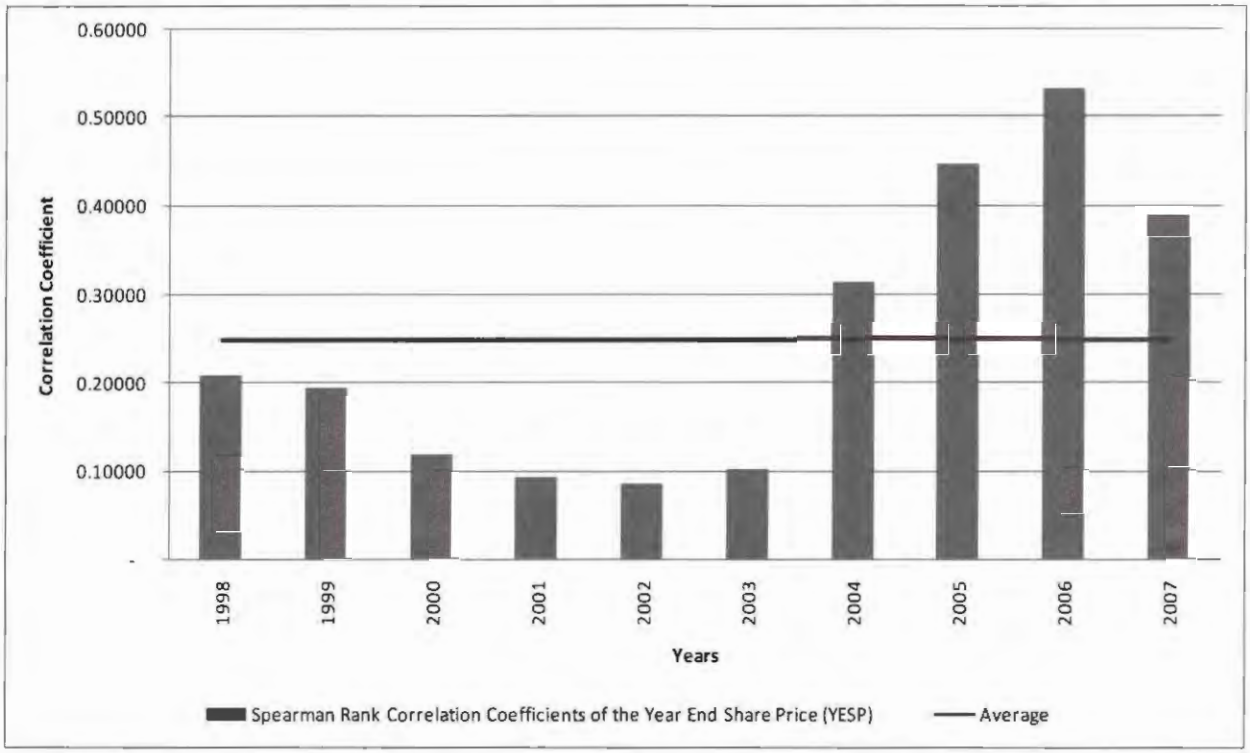
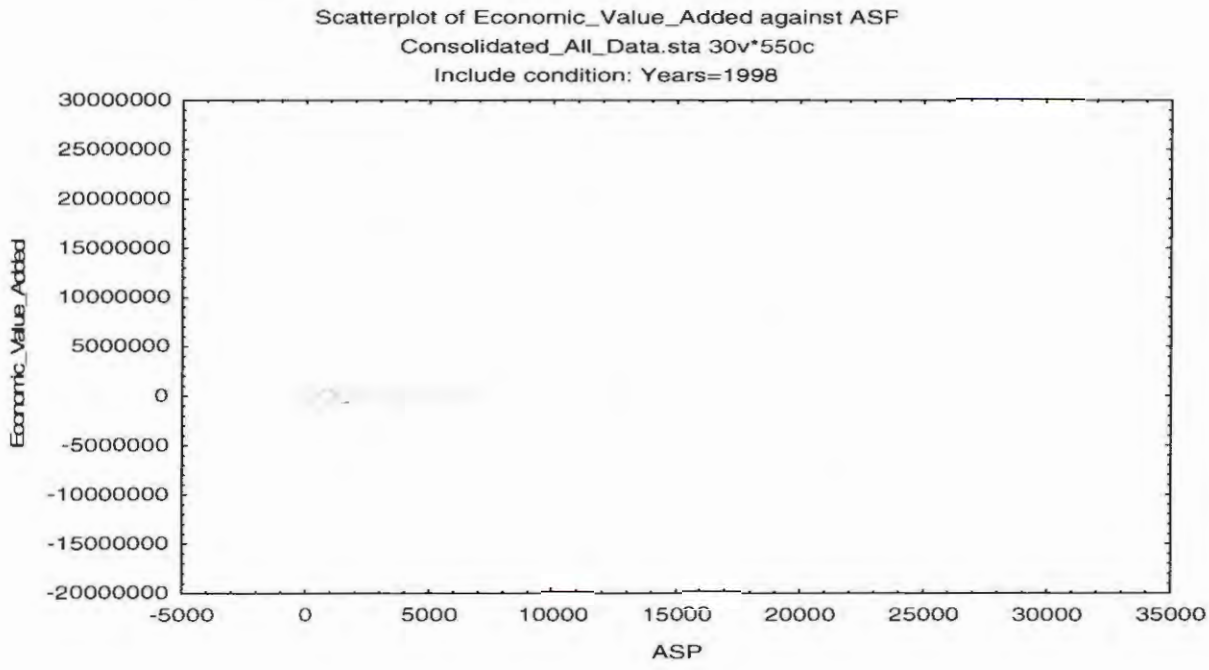


Figure 57 below, indicates a scatterplot of the values for ASP and Economic Value Added (EVA) for the years 1998.

Figure 57: Scatterplot of the values for ASP and Economic Value Added (EVA) for the year 1998



From Table 6 it can be seen that the coefficient of correlation between Economic Value Added (EVA) and the ASP had increased from 0.03478 in 1998 to 0.47244 in 2007. The mean EVA value of the companies in the sample had increased with 2 112%, compared to an increase of 150% in the mean ASP from 1998 to 2007, as indicated in Table 2.

The minimum coefficient of correlation for the period 1998 to 2007 was 0.03478 in the year 1998 and the maximum coefficient of correlation 0.47244 in 2007. The mean coefficient of correlation for the 10-year period was 0.29377 as depicted by Graph 17. There is a fairly constant increase in the coefficient of correlation except for the years 2003, 2004 and 2005. The standard deviation in ASP had increased from R56.96 in 1998 to R153.31 in 2007, an increase of 169%, compared to an increase in the standard deviation of EVA in 1998 of R6.7 billion to R12.1 billion in 2007, an increase of 81%. This fact indicates that although there was a significant increase in the coefficient of correlation between ASP and EVA, the EVA value of the companies in the sample has a larger spread in 2007 than in 1998.

Graph 17: Coefficient of correlation of ASP and EVA for the period 1998 to 2007

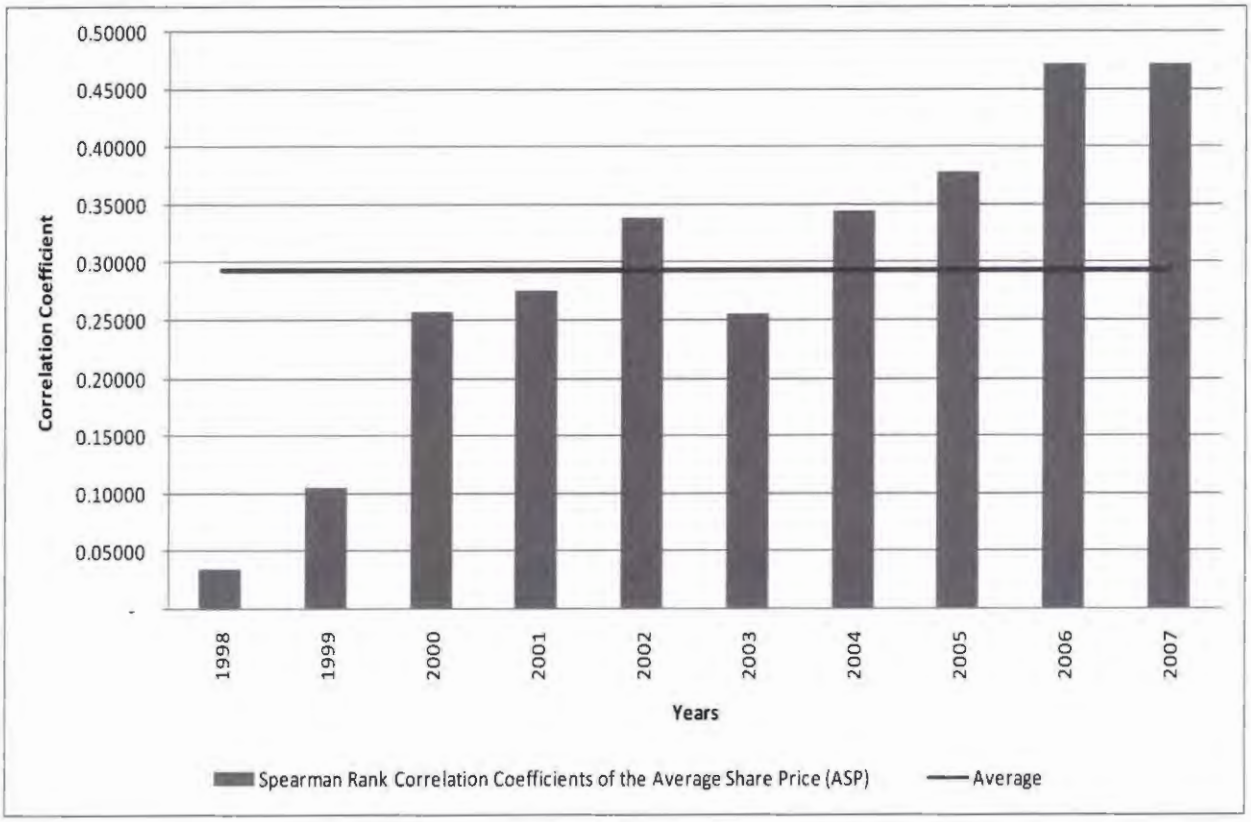
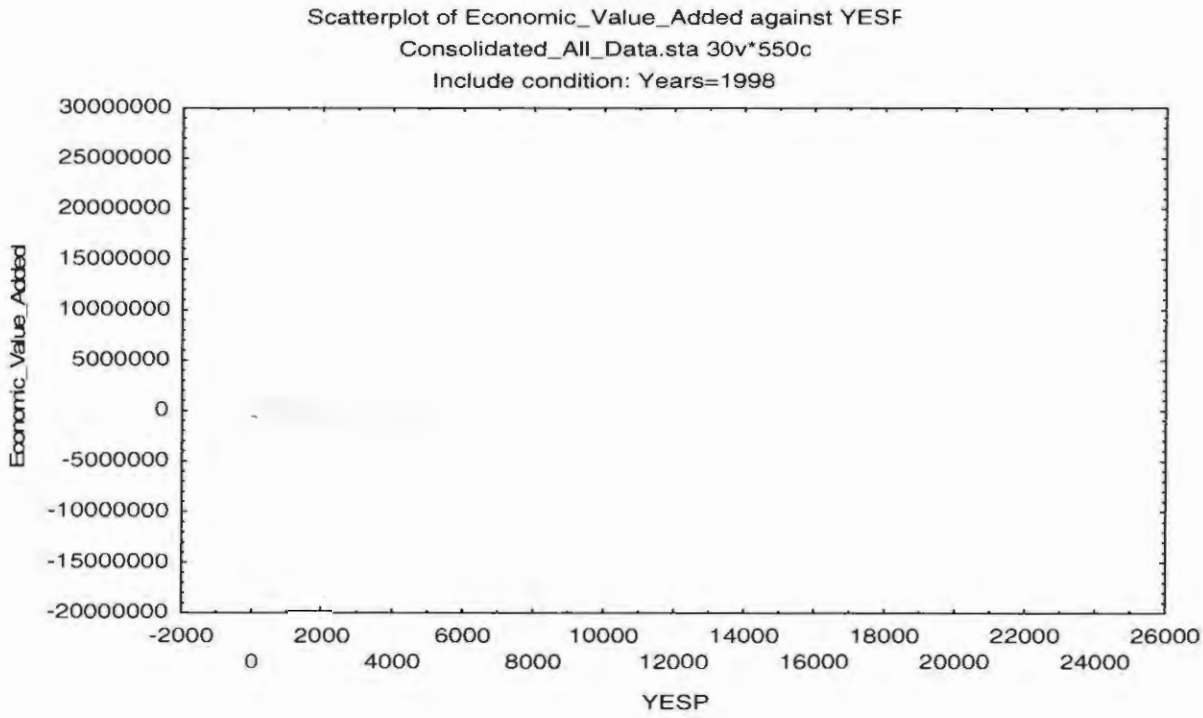


Figure 58 below, indicates a scatterplot of the values for YESP and economic value added (EVA) for the years 1998.

Figure 58: Scatterplot of the values for YESP and Economic Value Added (EVA) for the year 1998



From Table 7 it can be seen that the coefficient of correlation between EVA and the YESP had increased from 0.01068 in 1998 to 0.46861 in 2007. The mean EVA value of the companies in the sample had increased with 2 112%, compared to an increase of 197% in the mean YESP from 1998 to 2007, as indicated in Table 2.

The minimum coefficient of correlation for the period 1998 to 2007 was 0.01068 in the year 2002 and the maximum coefficient of correlation 0.46861 in 2007, as indicated in Table 7.. The mean coefficient of correlation for the 10-year period was 0.28842, as depicted in Graph 18 on the next page.

Graph 18: Coefficient of correlation of YESP and EVA for the period 1998 to 2007

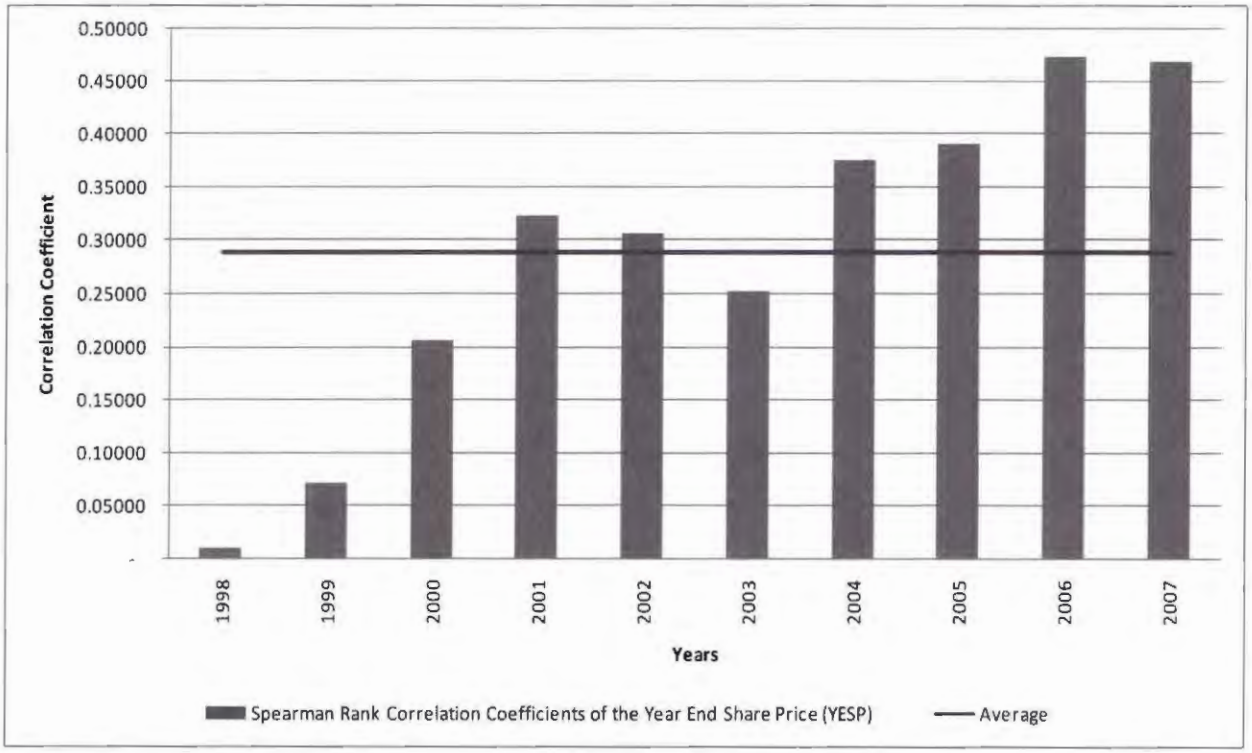
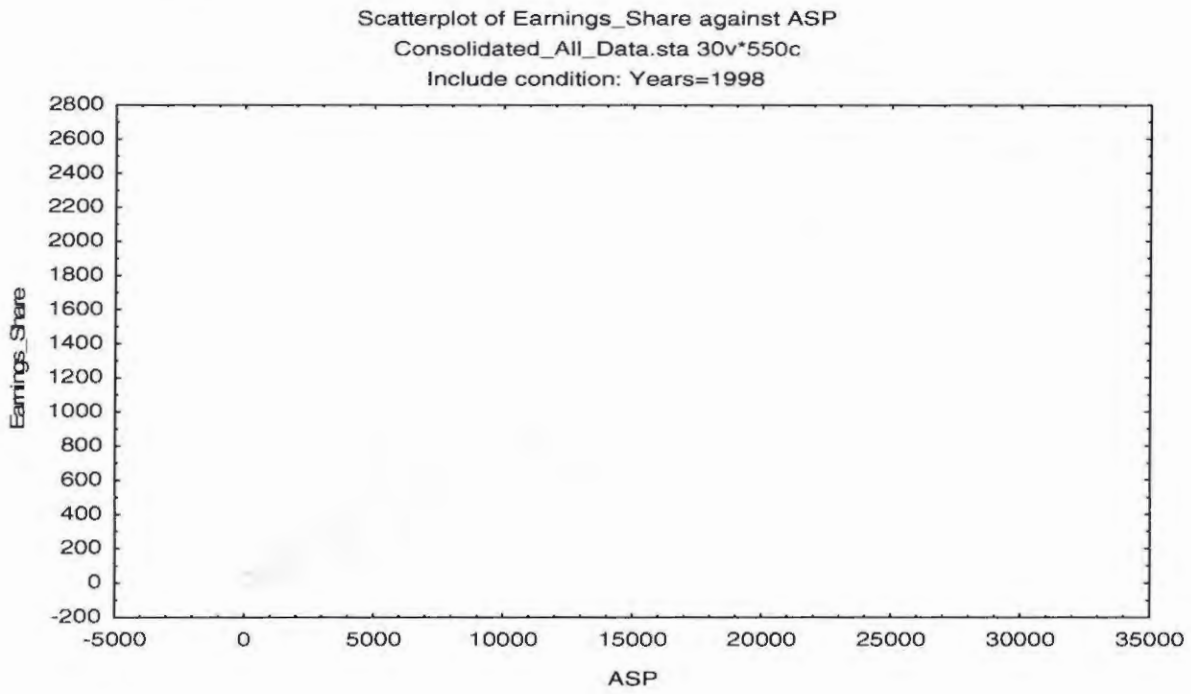


Figure 59 below, indicates a scatterplot of the values for ASP and Earnings Per Share (EPS) for the years 1998.

Figure 59: Scatterplot of the values for ASP and Earnings Per Share (EPS) for the year 1998



From Table 6 it can be seen that the coefficient of correlation between Earnings Per Share (EPS) and the ASP had increased from 0.82496 in 1998 to 0.92237 in 2007. The mean EPS value of the companies in the sample had increased with 142%, compared to an increase of 150% in the mean ASP from 1998 to 2007, as indicated in Table 2.

The minimum coefficient of correlation for the period 1998 to 2007 was 0.71580 in the year 1998 and the maximum coefficient of correlation 0.92237 in 2007. The mean coefficient of correlation for the 10-year period was 0.83852 as depicted in graph 19. It can be seen that the coefficient of correlation had remained fairly constant over the 10-year period. The standard deviation in ASP had increased from R56.96 in 1998 to R153.31 in 2007, an increase of 169%, compared to an increase in the standard deviation of EPS in 1998 of R4.62 to R9.64 in 2007, an increase of 109%. This fact indicates that although there was a significant increase in the coefficient of correlation between ASP and EPS, the EPS value of the companies in the sample has a larger spread in 2007 than in 1998.

Graph 19: Coefficient of correlation of ASP and EPS for the period 1998 to 2007

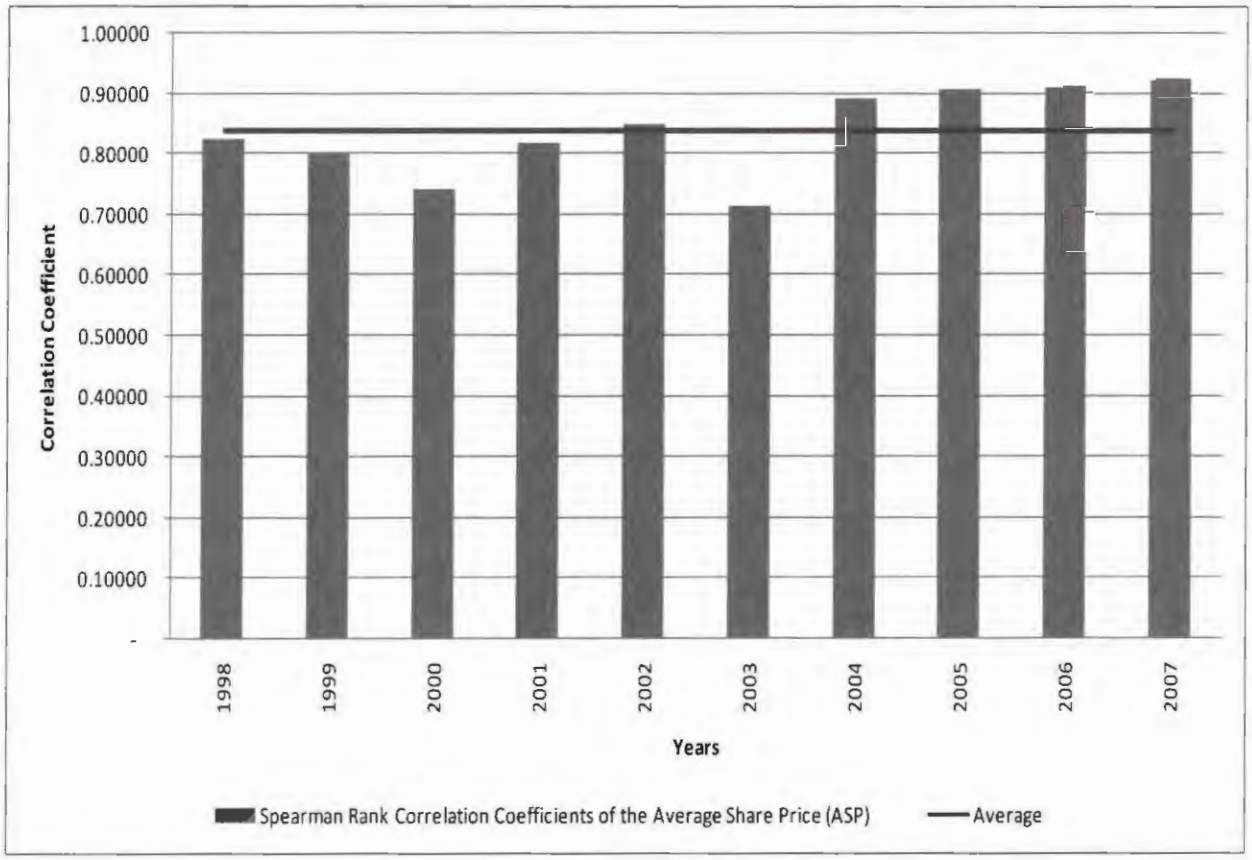
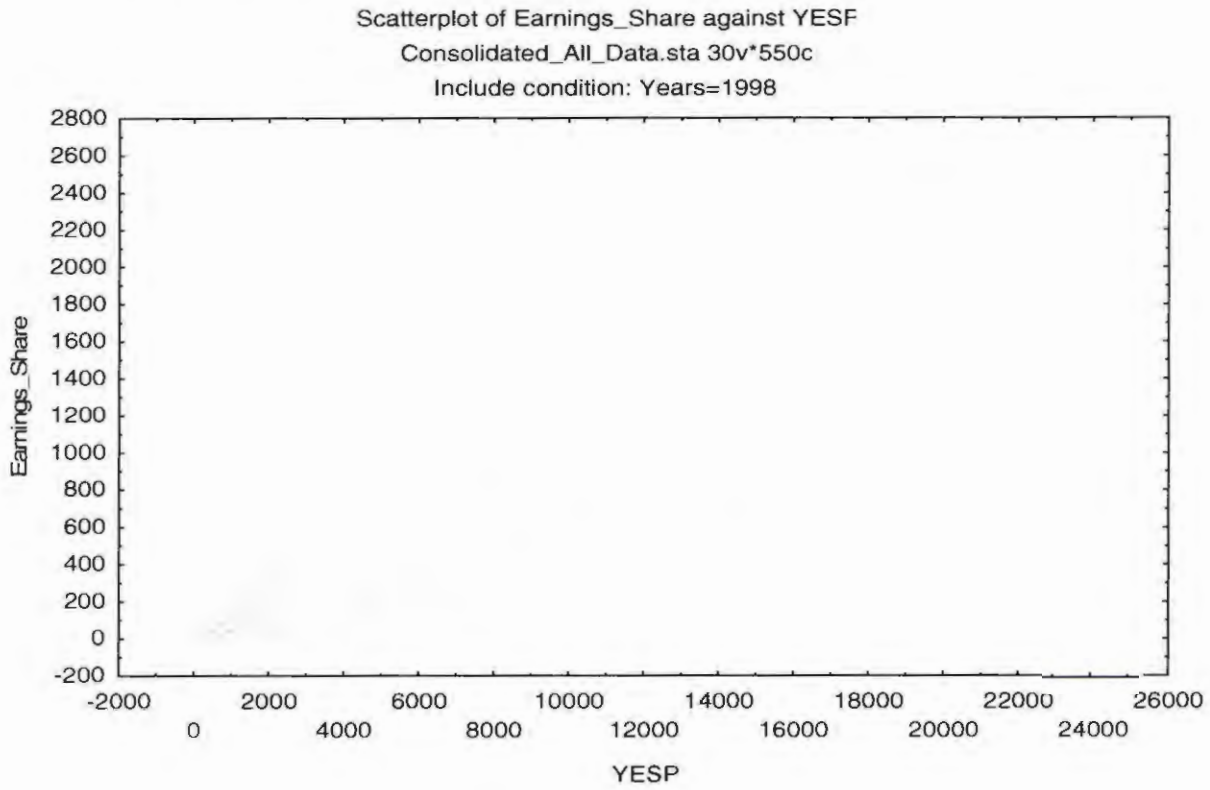


Figure 60 below, indicates a scatterplot of the values for YESP and Earnings Per Share (EPS) for the years 1998.

Figure 60: Scatterplot of the values for YESP and Earnings Per Share (EPS) for the year 1998



From Table 7 it can be seen that the coefficient of correlation between EPS and the YESP had increased from 0.78687 in 1998 to 0.93016 in 2007. The mean EPS value of the companies in the sample had increased with 142%, compared to an increase of 197% in the mean YESP from 1998 to 2007, as indicated in Table 2.

The minimum coefficient of correlation for the period 1998 to 2007 was 0.68831 in the year 2000 and the maximum coefficient of correlation 0.93016 in 2007, as indicated in Table 7. The mean coefficient of correlation for the 10-year period was 0.84637, as depicted by Graph 20 on the next page

Graph 20: Coefficient of correlation of YESP and EPS for the period 1998 to 2007

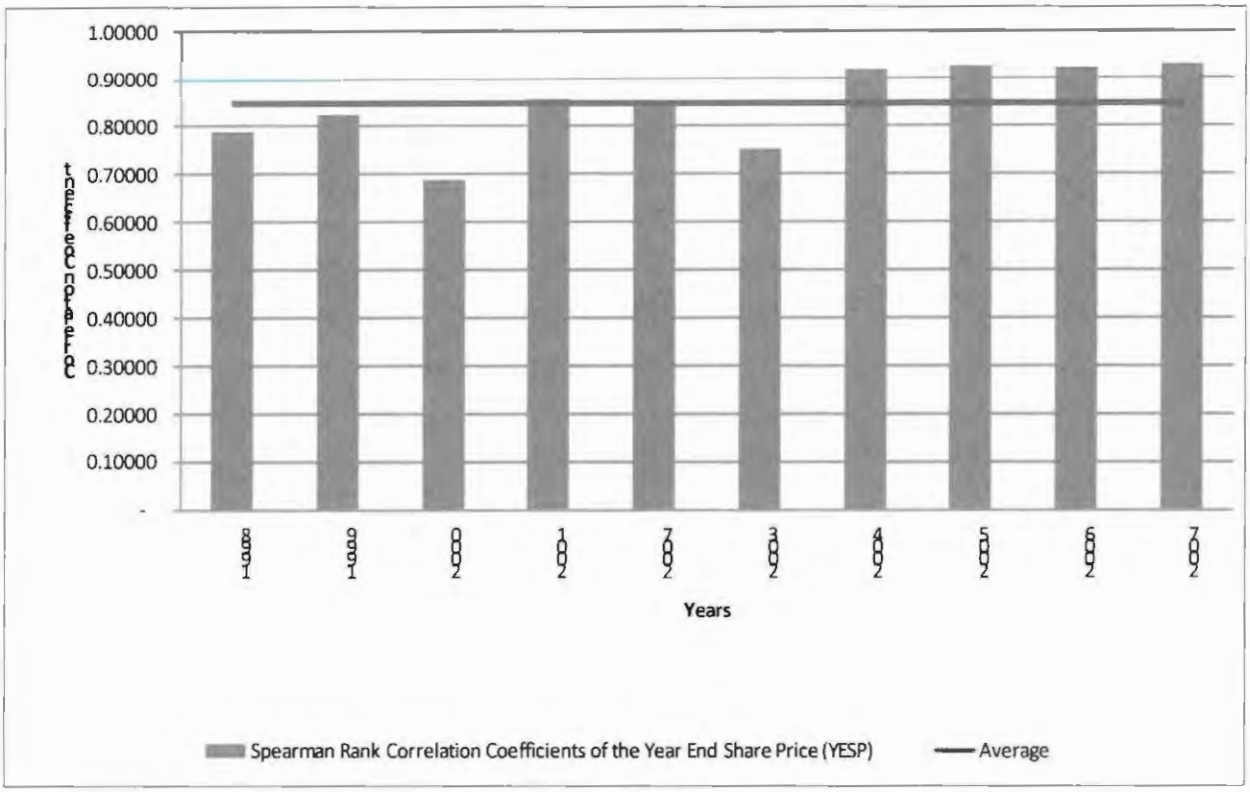
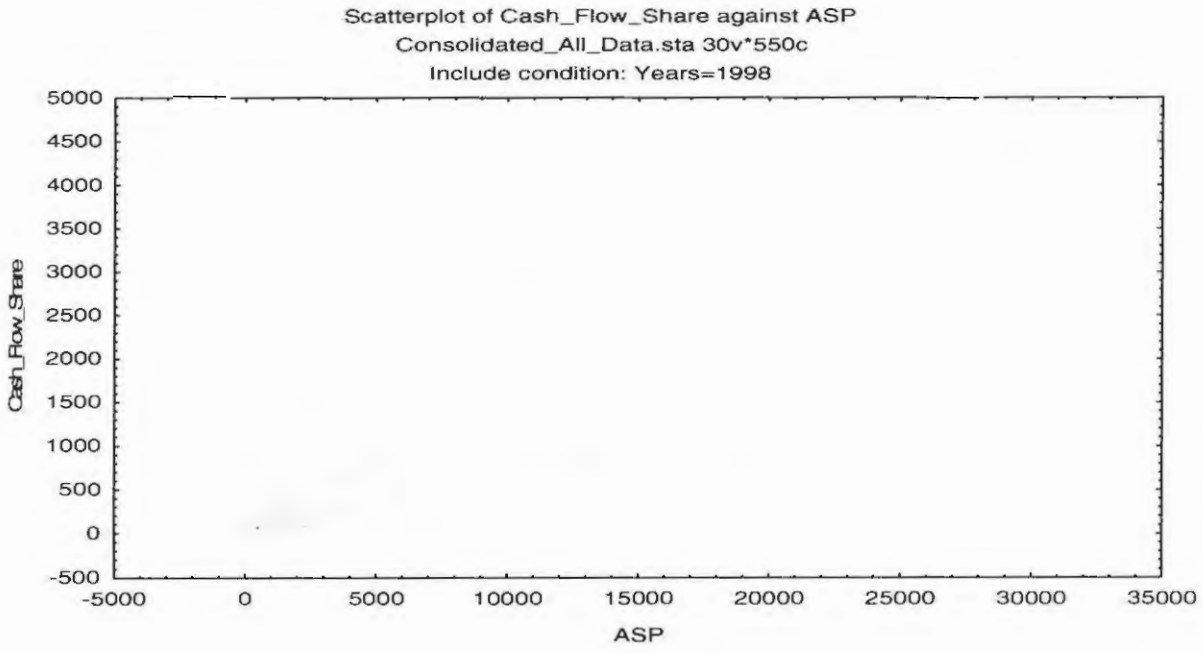


Figure 61 below, indicates a scatterplot of the values for ASP and Cash Flow Per Share (CFPS) for the years 1998.

Figure 61: Scatterplot of the values for ASP and Cash Flow Per Share (CFPS) for the year 1998



From Table 6 it can be seen that the coefficient of correlation between Cash Flow Per Share (CFPS) and the ASP had increased from 0.71941 in 1998 to 0.78167 in 2007. This fact is confirmed when analysing the scatter-plots, as depicted in Figures 81 and 82. It can clearly be seen that the scatter-plot for 2007 indicates a higher correlation of ASP with the CFPS values of the sample of companies. The mean CFPS value of the companies in the sample had increased with 87%, compared to an increase of 150% in the mean ASP from 1998 to 2007, as indicated in Table 2.

The minimum coefficient of correlation for the period 1998 to 2007 was 0.62648 in the year 2000 and the maximum coefficient of correlation 0.78167 in 2007. The mean coefficient of correlation for the 10-year period was 0.71248 as depicted in Graph 21. The standard deviation in ASP had increased from R56.96 in 1998 to R153.31 in 2007, an increase of 169%, compared to an increase in the standard deviation of CFPS in 1998 of R9.21 to R17.52 in 2007, an increase of 90%. This fact indicates that although there was a significant increase in the coefficient of correlation between ASP and CFPS, the CFPS value of the companies in the sample has a larger spread in 2007 than in 1998.

Graph 21: Coefficient of correlation of ASP and CFPS for the period 1998 to 2007

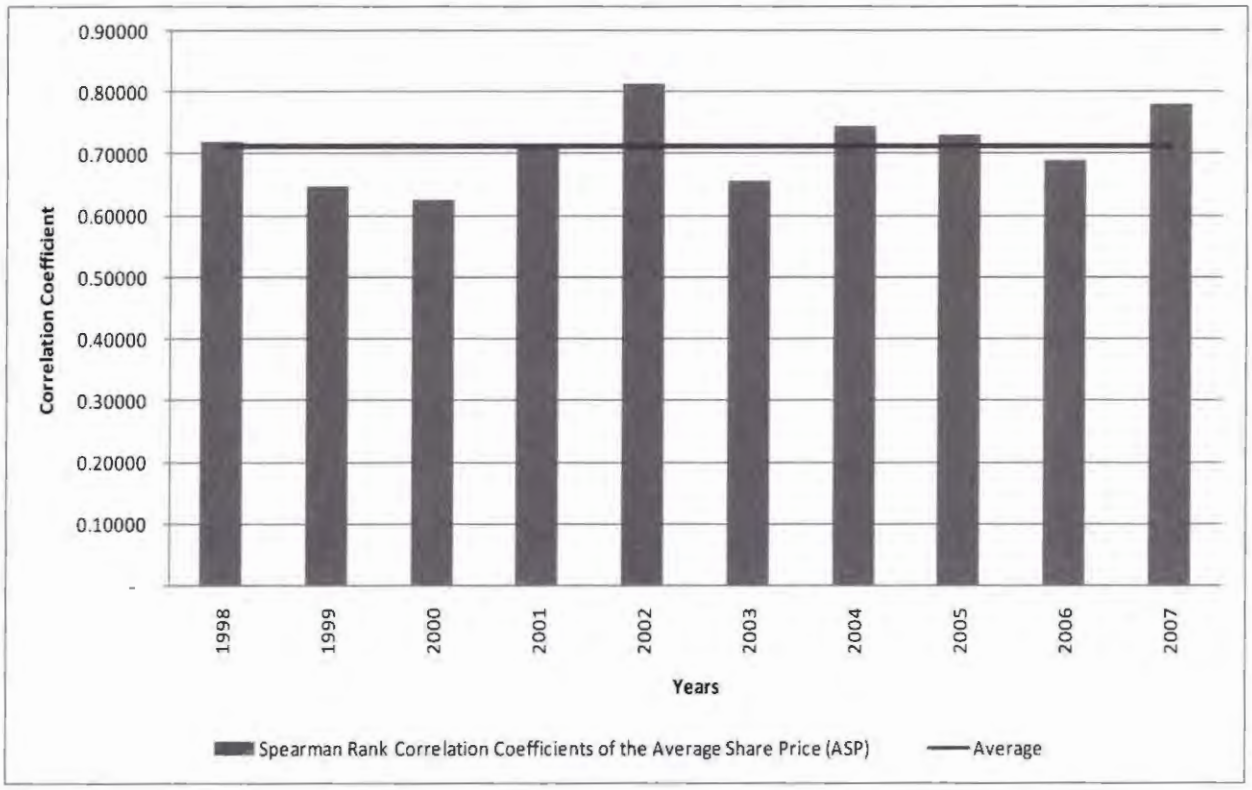
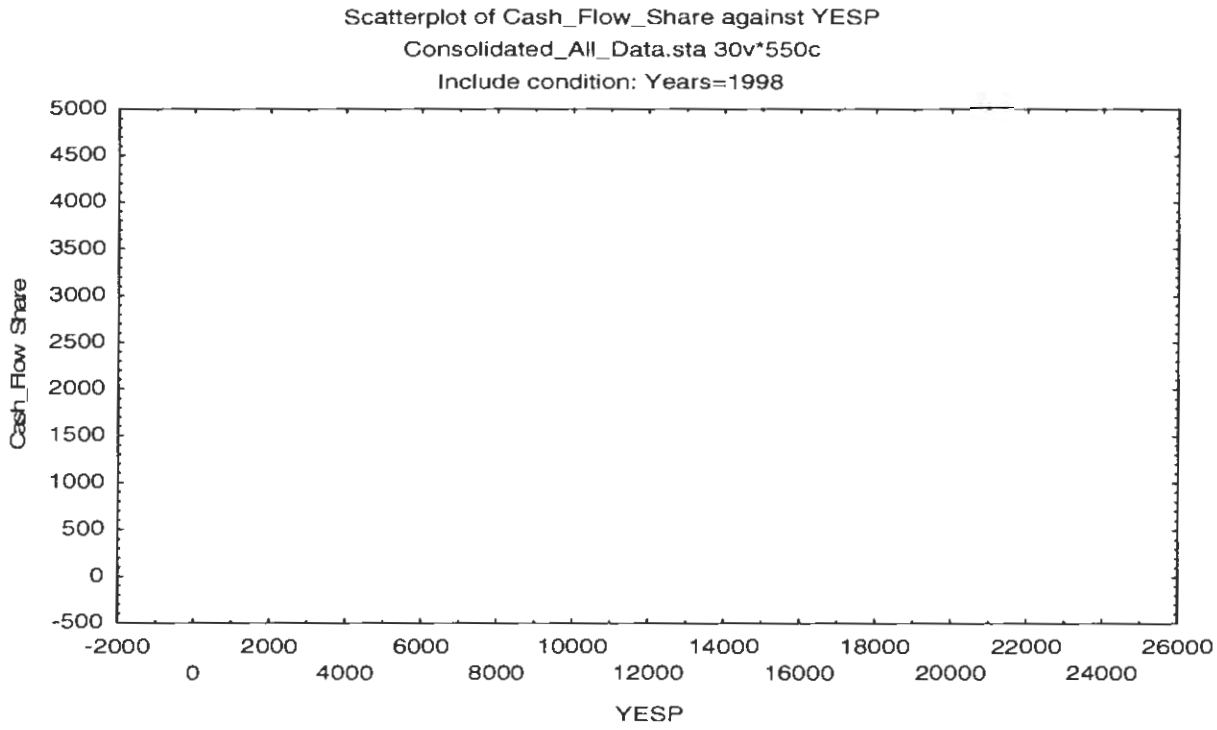


Figure 62 below, indicates a scatterplot of the values for YESP and Cash Flow Per Share (CFPS) for the years 1998.

Figure 62: Scatterplot of the values for YESP and Cash Flow per Share (CFPS) for the year 1998



From table 7 it can be seen that the coefficient of correlation between CFPS and the YESP had increased from 0.66955 in 1998 to 0.78059 in 2007. The mean CFPS value of the companies in the sample had increased with 87%, compared to an increase of 197% in the mean YESP from 1998 to 2007, as indicated in Table 2.

The minimum coefficient of correlation for the period 1998 to 2007 was 0.61349 in the year 2000 and the maximum coefficient of correlation 0.78059 in 2007, as indicated in Table 7. The mean coefficient of correlation for the 10-year period was 0.71282, as depicted in Graph 22 on the next page.

Graph 22: Coefficient of correlation of YESP and CFPS for the period 1998 to 2007

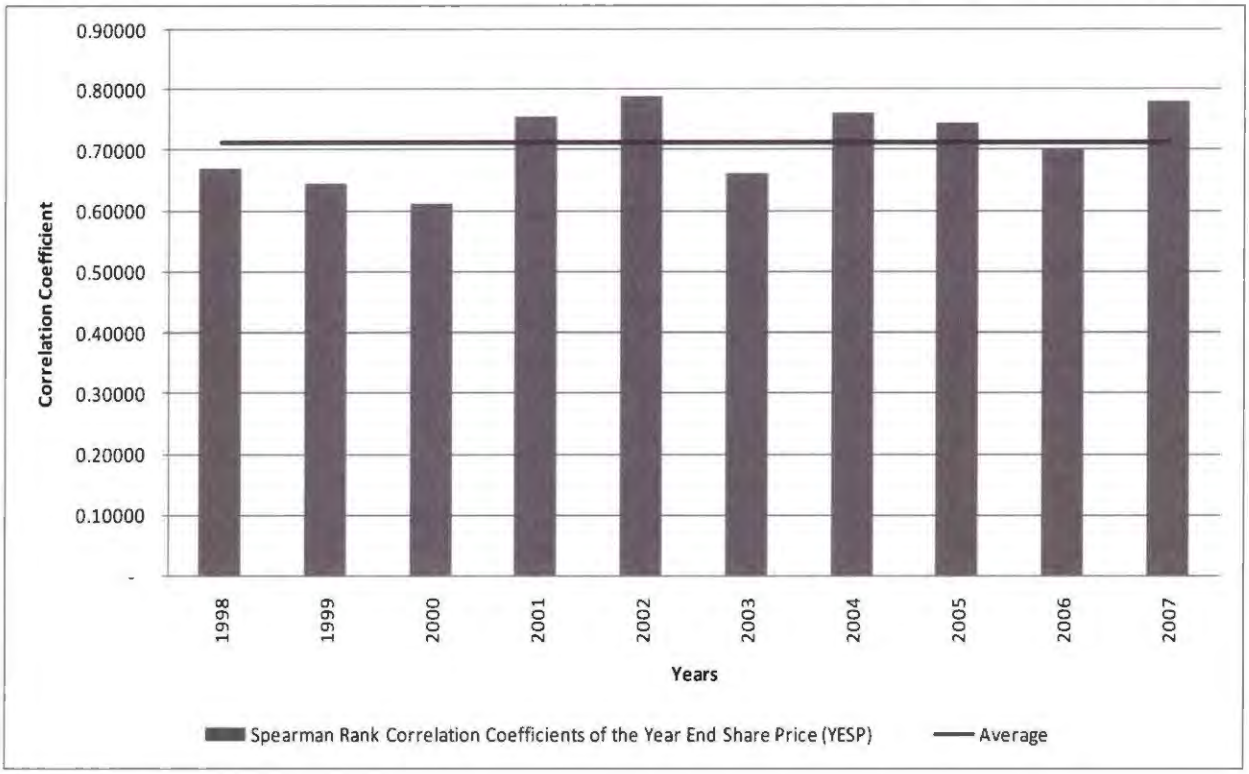
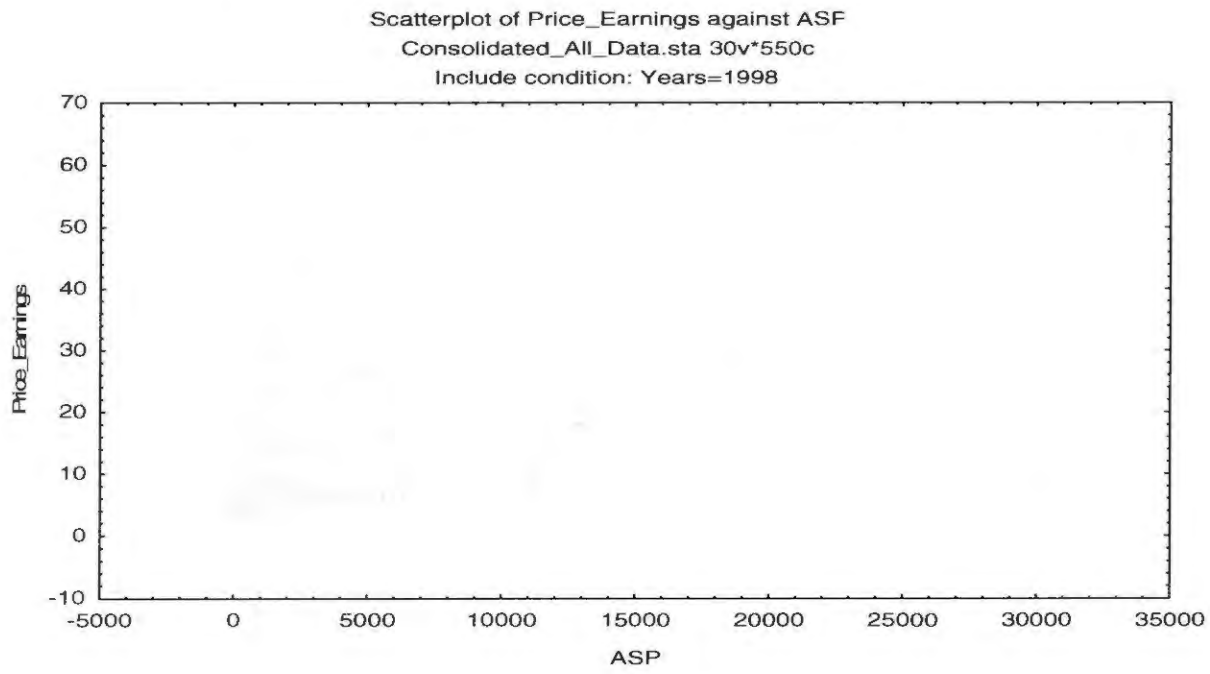


Figure 63 below, indicates a scatterplot of the values for ASP and Price Earnings ratio (PE) for the years 1998.

Figure 63: Scatterplot of the values for ASP and Price Earnings ratio (PE) for the year 1998



From Table 6 it can be seen that the coefficient of correlation between Price Earnings ratio (PE) and the ASP had decreased from 0.20671 in 1998 to (0.25022) in 2007. The mean PE value of the companies in the sample had increased with 71%, compared to an increase of 150% in the mean ASP from 1998 to 2007, as indicated in Table 2.

The minimum coefficient of correlation for the period 1998 to 2007 was (0.25022) in the year 2007 and the maximum coefficient of correlation 0.44103 in 2003. The mean coefficient of correlation for the 10-year period was 0.16174 as depicted in Graph 23. Graph 23 clearly indicates that the coefficient of correlation had decreased from 1998 to 2005, with a negative coefficient of correlation for the years 2006 and 2007. The standard deviation in ASP had increased from R56.96 in 1998 to R153.31 in 2007, an increase of 169%, compared to an increase in the standard deviation of PE in 1998 of 12 to 44 in 2007, an increase of 267%. This fact indicates that although there was a significant increase in the coefficient of correlation between ASP and PE, the PE value of the companies in the sample has a larger spread in 2007 than in 1998.

Graph 23: Coefficient of correlation of ASP and PE for the period 1998 to 2007

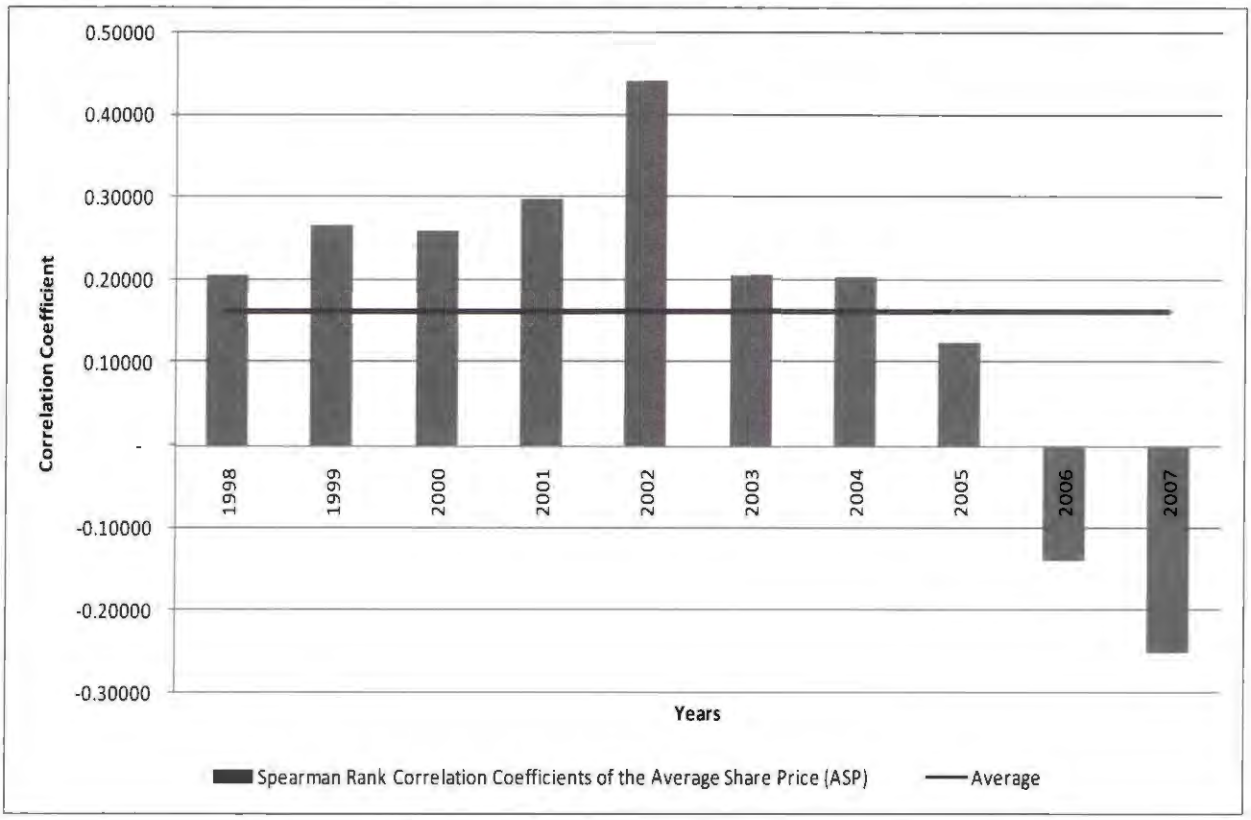
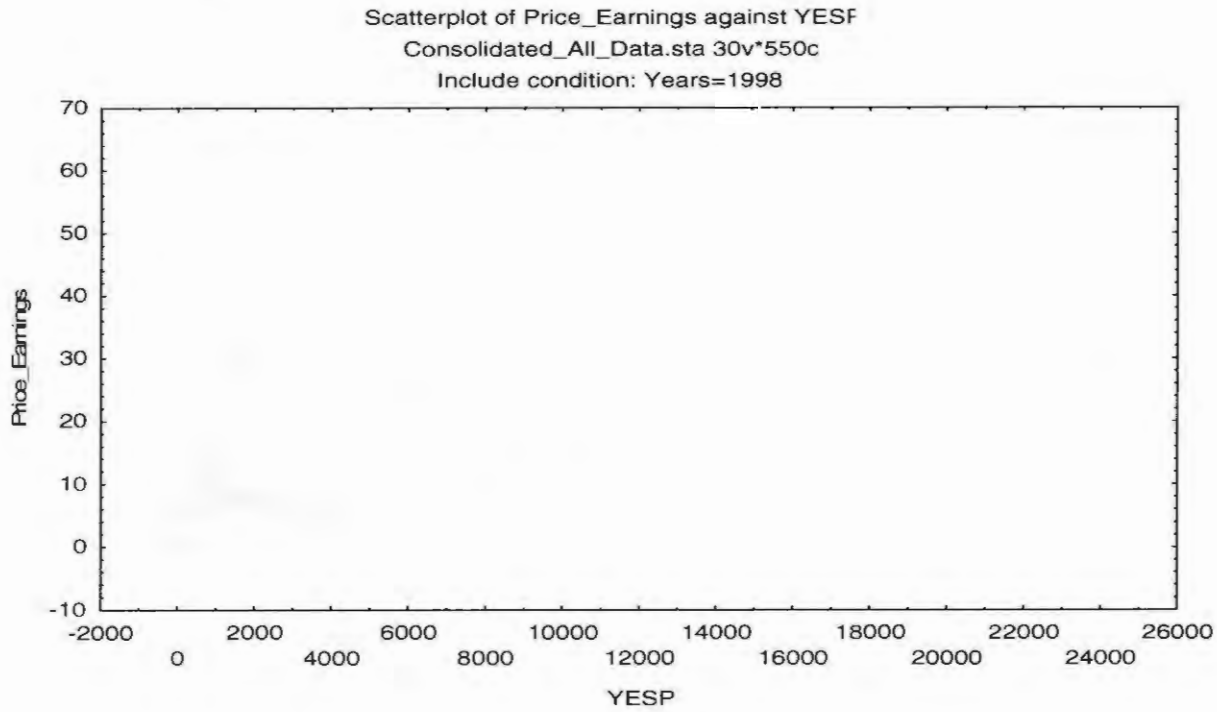


Figure 64 below, indicates a scatterplot of the values for YESP and Price Earnings (PE) for the years 1998.

Figure 64: Scatterplot of the values for YESP and Price Earnings ratio (PE) for the year 1998



From Table 7 it can be seen that the coefficient of correlation between PE and the YESP had decreased from 0.32056 in 1998 to (0.21652) in 2007. This fact is confirmed when analysing the scatter-plots as depicted in Figures 87 and 88. It can clearly be seen that the scatter-plot for 2007 indicates a lower correlation of YESP with the PE values of the sample of companies. The mean PE value of the companies in the sample had increased with 71%, compared to an increase of 197% in the mean YESP from 1998 to 2007 as indicated in Table 2.

The minimum coefficient of correlation for the period 1998 to 2007 was (0.21652) in the year 2007 and the maximum coefficient of correlation 0.49998 in 2002, as indicated in Table 7. The mean coefficient of correlation for the 10 year period was 0.18584 as depicted by Graph 24, with a negative coefficient of correlation for the years 2006 and 2007.

Graph 24: Coefficient of correlation of YESP and PE for the period 1998 to 2007

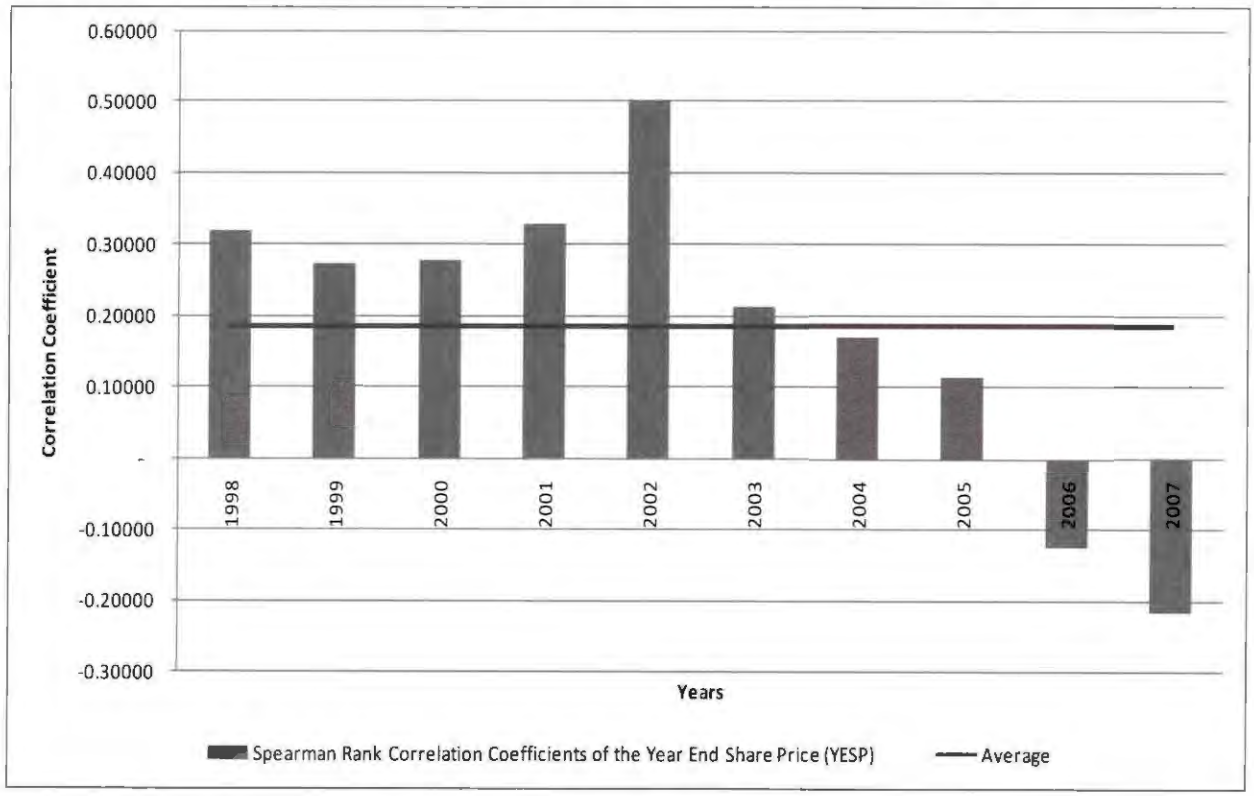
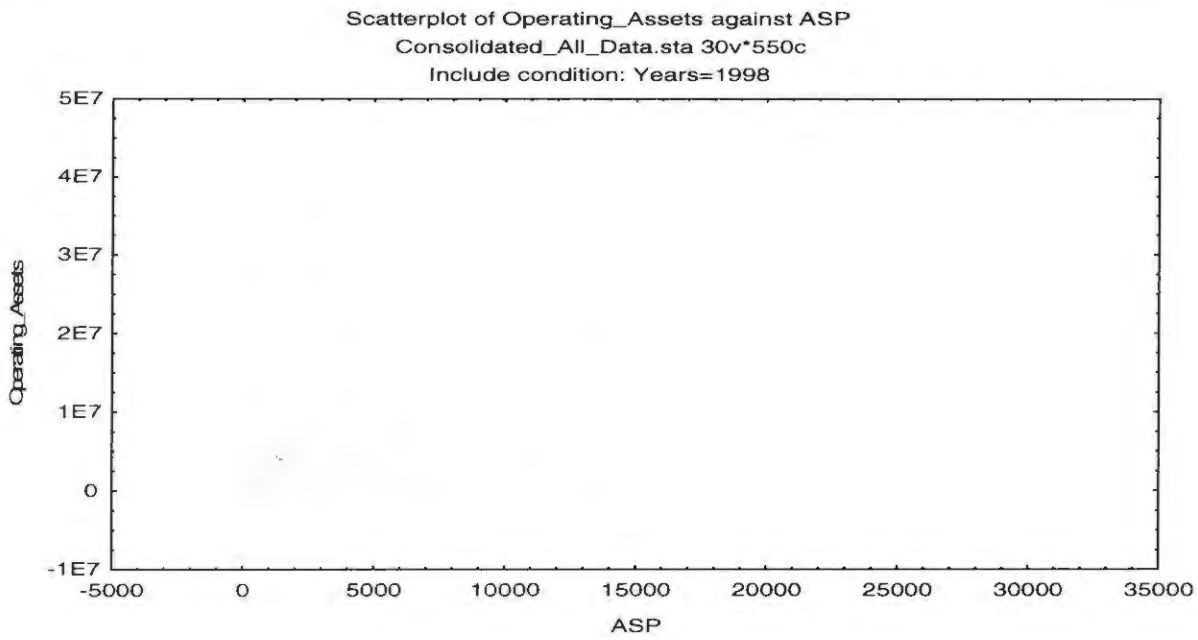


Figure 65 below, indicates a scatterplot of the values for ASP and operating assets for the years 1998.

Figure 65: Scatterplot of the values for ASP and operating assets for the year 1998



From Table 6 it can be seen that the coefficient of correlation between operating assets and the ASP had increased from 0.19906 in 1998 to 0.44531 in 2007. The mean operating asset value of the companies in the sample had increased with 84%, compared to an increase of 150% in the mean ASP from 1998 to 2007, as indicated in Table 2.

The minimum coefficient of correlation for the operating assets 1998 to 2007 was 0.17597 in the year 1999 and the maximum coefficient of correlation 0.44531 in 2007. The mean coefficient of correlation for the 10-year operating assets was 0.33416 as depicted in Graph 25. The standard deviation in ASP had increased from R56.96 in 1998 to R153.31 in 2007, an increase of 169%, compared to an increase in the standard deviation of operating assets in 1998 of R12.2 billion to R22.5 billion in 2007, an increase of 84%. This fact indicates that although there was a significant increase in the coefficient of correlation between ASP and operating assets, the operating asset value of the companies in the sample has a larger spread in 2007 than in 1998.

Graph 25: Coefficient of correlation of ASP and operating assets for the period 1998 to 2007

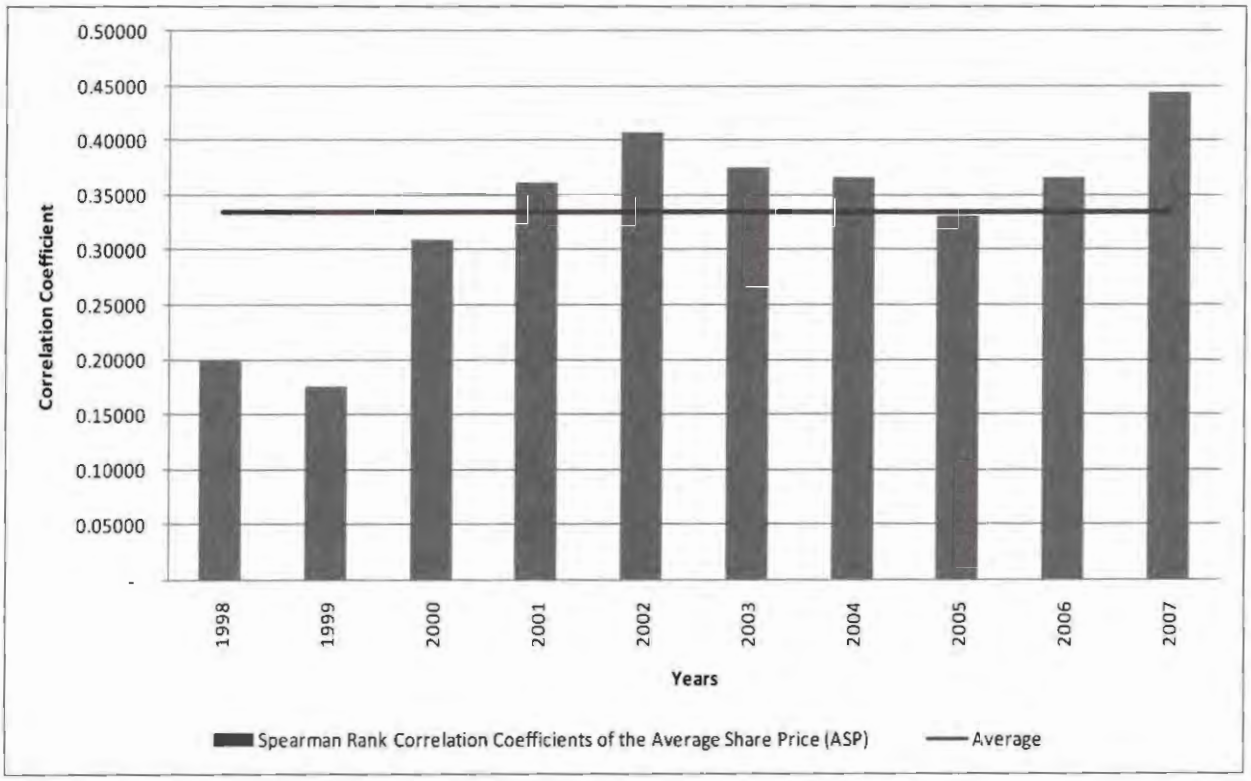
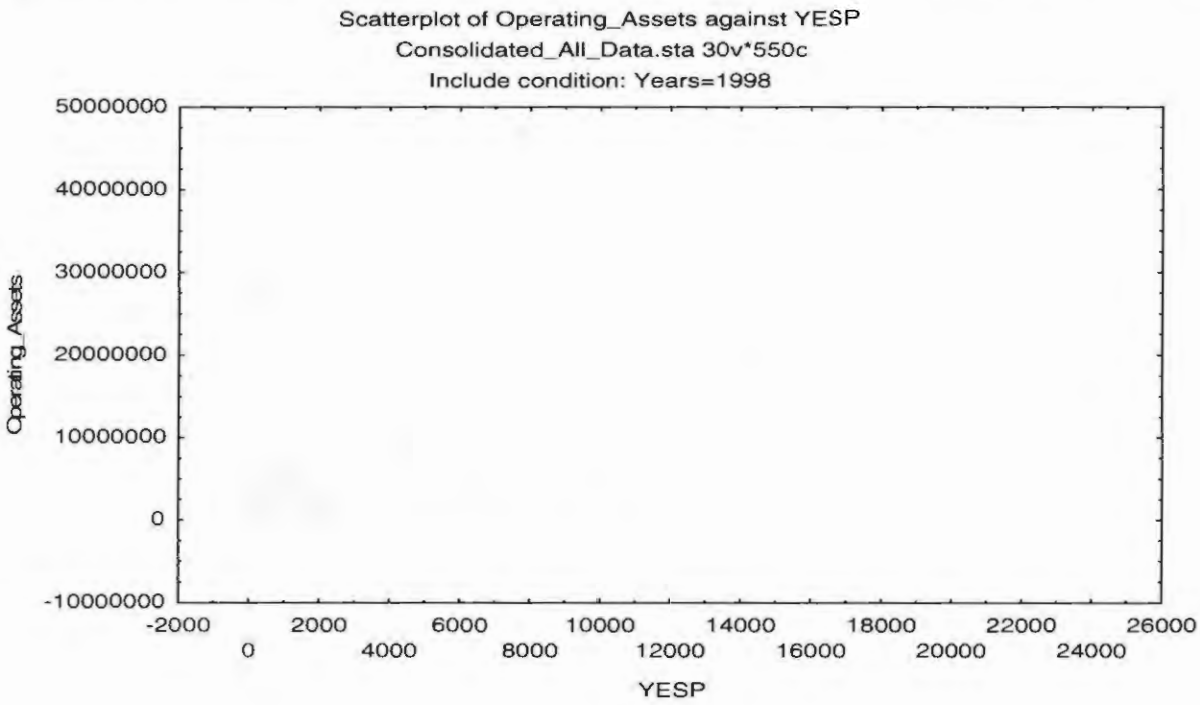


Figure 66 below, indicates a scatterplot of the values for YESP and operating assets for the years 1998.

Figure 66: Scatterplot of the values for YESP and operating assets for the year 1998



From Table 7 it can be seen that the coefficient of correlation between operating assets and the YESP had increased from 0.16299 in 1998 to 0.42316 in 2007. The mean operating asset value of the companies in the sample had increased with 84%, compared to an increase of 197% in the mean YESP from 1998 to 2007 as indicated in Table 2.

The minimum coefficient of correlation for the operating assets for 1998 to 2007 was 0.16299 in the year 1998 and the maximum coefficient of correlation 0.42316 in 2007, as indicated in Table 7. The mean coefficient of correlation for the 10-year period for operating assets was 0.33556 as depicted in Graph 26 on the next page. It can be seen from Graph 26 that the year 2002 had the highest coefficient of correlation, with a slight decrease in the following years.

Graph 26: Coefficient of correlation of YESP and operating assets for the period 1998 to 2007

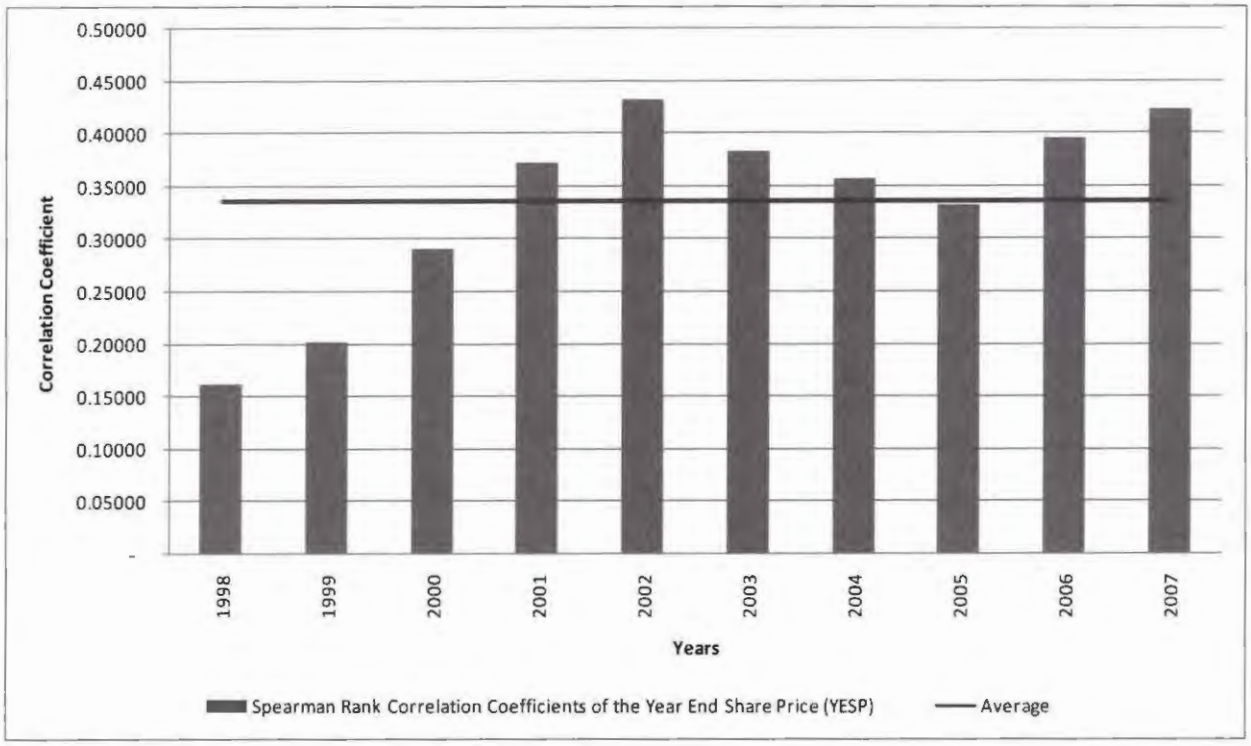
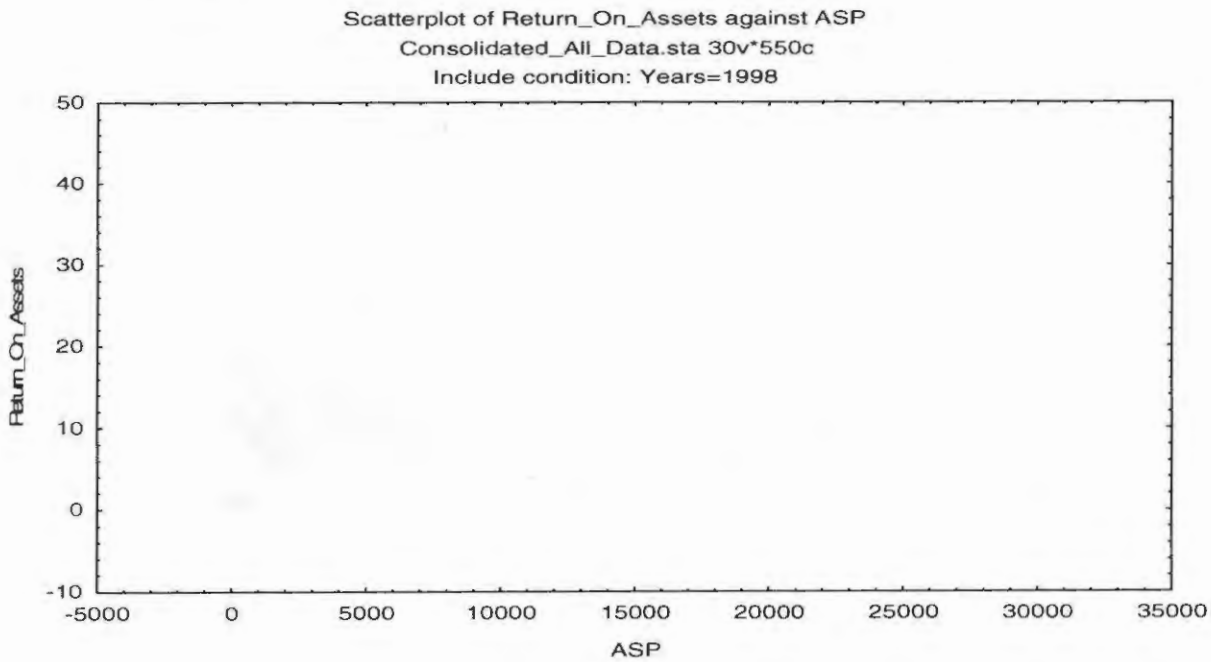


Figure 67 below, indicates a scatterplot of the values for ASP and Return On Assets (ROA) for the years 1998.

Figure 67: Scatterplot of the values for ASP and Return On Assets (ROA) for the year 1998



From Table 6 it can be seen that the coefficient of correlation between Return On Assets (ROA) and the ASP had increased from 0.00065 in 1998 to 0.33773 in 2007. The mean ROA value of the companies in the sample had increased with 22%, compared to an increase of 150% in the mean ASP from 1998 to 2007, as indicated in Table 2.

The minimum coefficient of correlation for the ROA 1998 to 2007 was 0.00065 in the year 1998 and the maximum coefficient of correlation 0.33773 in 2007. The mean coefficient of correlation for the 10-year operating assets was 0.17466 as depicted by Graph 27. Graph 27 indicates a constant increase in the coefficient of correlation, except for the years 2002, 2003 and 2004. The standard deviation in ASP had increased from R56.96 in 1998 to R153.31 in 2007, an increase of 169%, compared to an increase in the standard deviation of ROA in 1998 of 7 to 16 in 2007, an increase of 129%. This fact indicates that although there was a significant increase in the coefficient of correlation between ASP and operating assets, the operating asset value of the companies in the sample has a larger spread in 2007 than in 1998.

Graph 27: Coefficient of correlation of ASP and ROA for the period 1998 to 2007

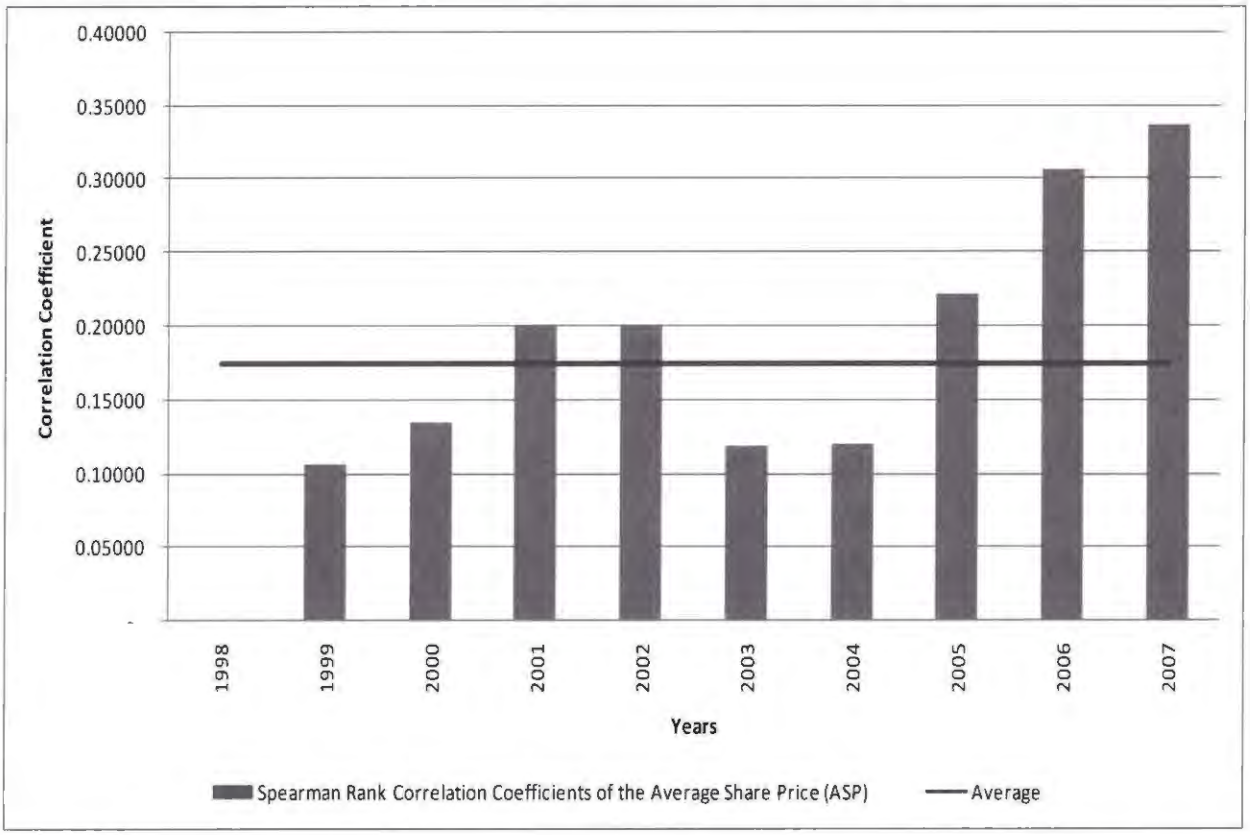
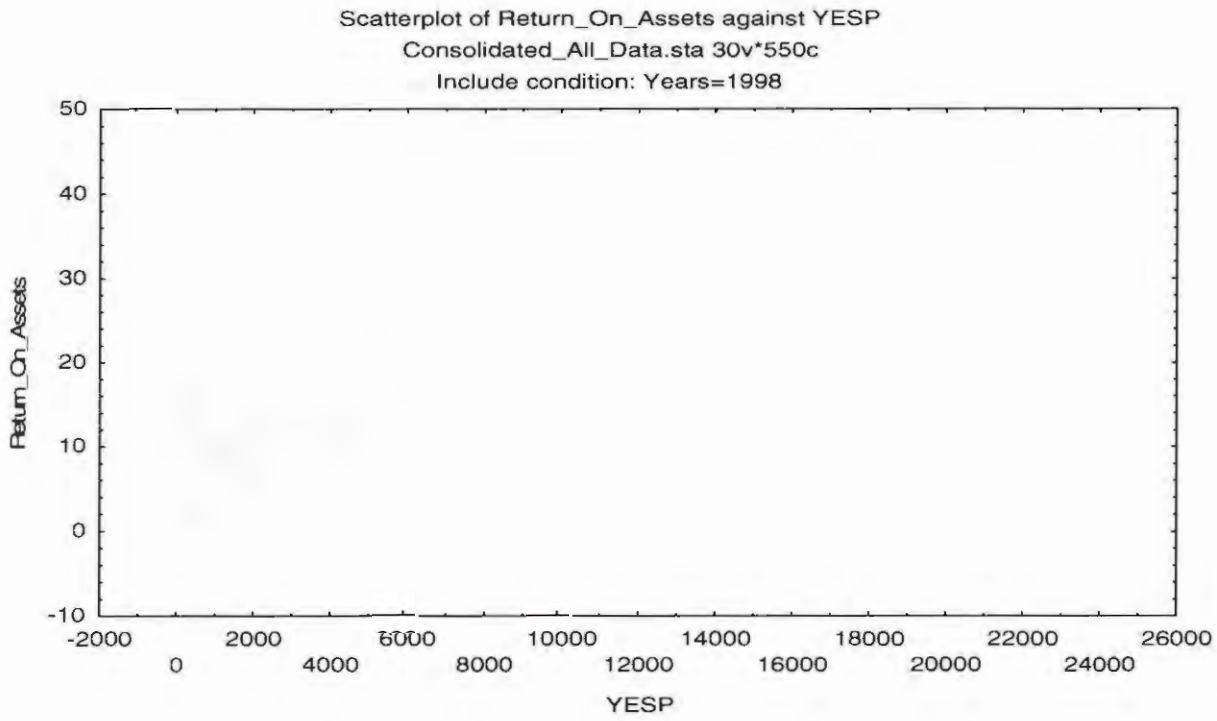


Figure 68 below, indicates a scatterplot of the values for YESP and Return On Assets (ROA) for the years 1998.

Figure 68: Scatterplot of the values for YESP and Return On Assets (ROA) for the year 1998



From Table 7 it can be seen that the coefficient of correlation between ROA and the YESP had increased from (0.02042) in 1998 to 0.36472 in 2007. This fact is confirmed when analysing the scatter-plots as depicted in Figures 95 and 96. It can clearly be seen that the scatter-plot for 2007 indicates a higher correlation of YESP with the operating asset values of the sample of companies. The mean ROA value of the companies in the sample had increased with 22%, compared to an increase of 197% in the mean YESP from 1998 to 2007, as indicated in Table 2.

The minimum coefficient of correlation for the operating assets for 1998 to 2007 was (0.02042) in the year 1998 and the maximum coefficient of correlation 0.36472 in 2007, as indicated in Table 7. The mean coefficient of correlation for the 10-year period for operating assets was 0.18743, as depicted by Graph 28 on the next page. Graph 28 indicates that there was a negative coefficient of correlation in 1998 between the YESP and ROA.

Graph 28: Coefficient of correlation of YESP and ROA for the period 1998 to 2007

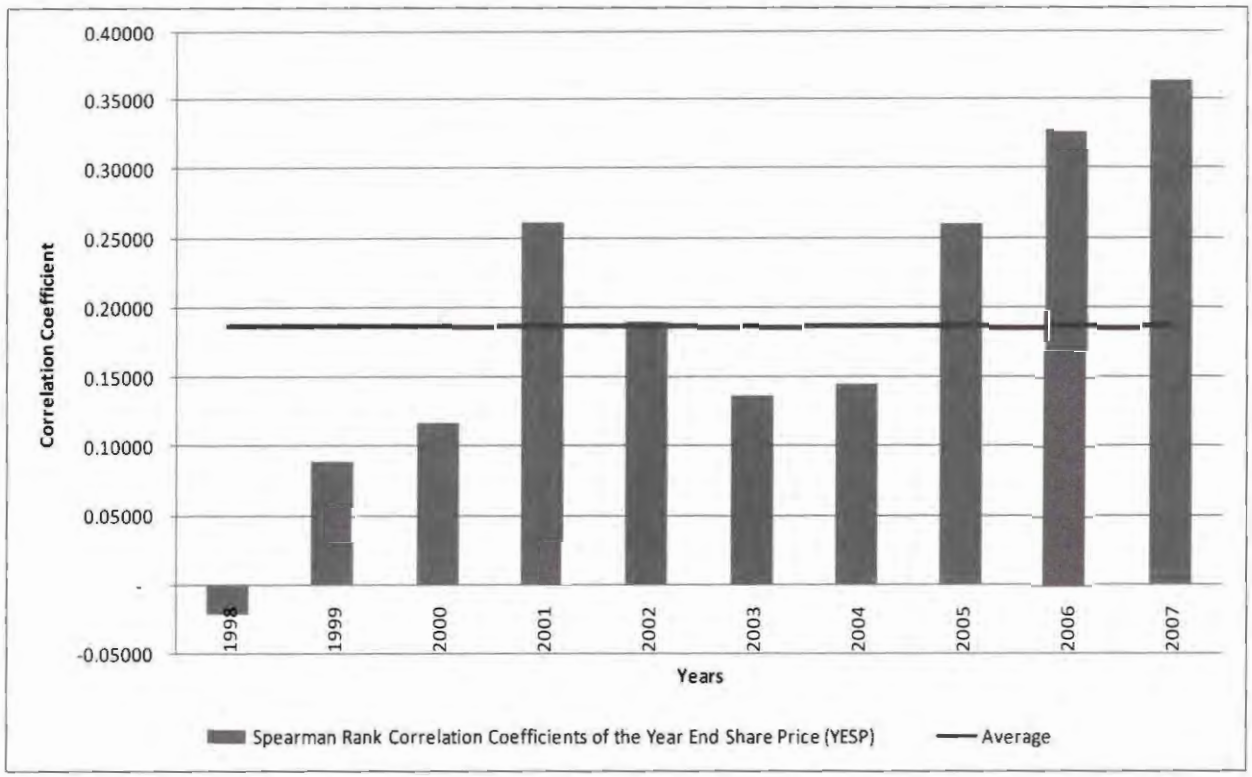
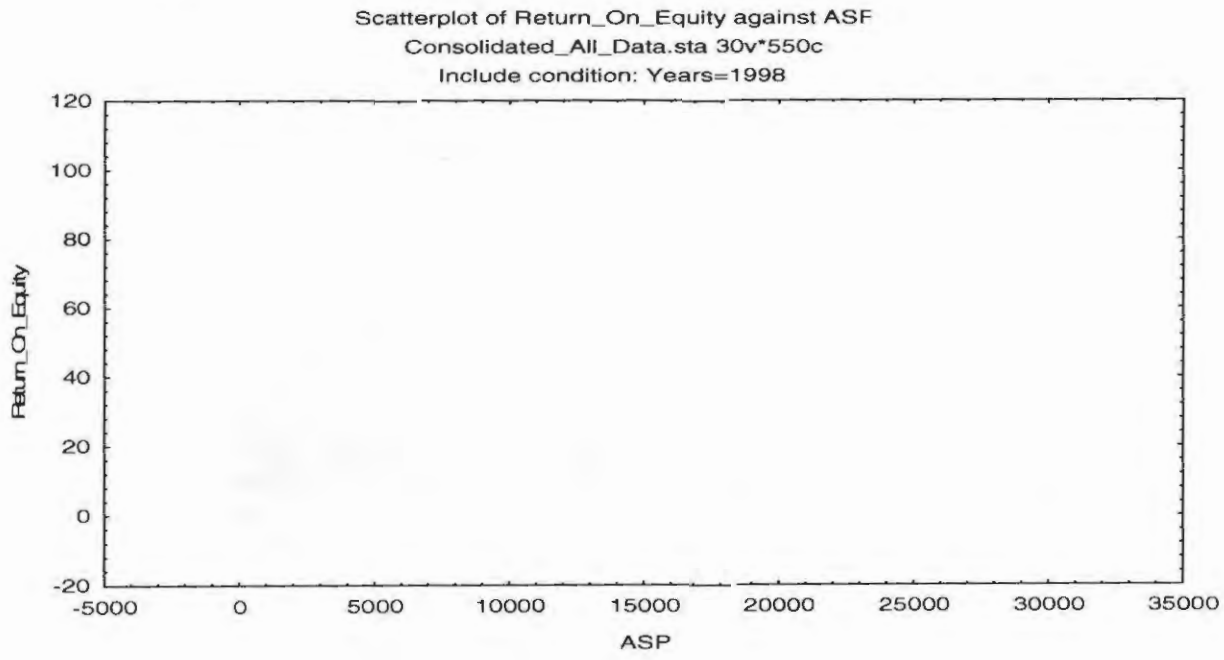


Figure 69 below, indicates a scatterplot of the values for ASP and Return On Equity (ROE) for the years 1998.

Figure 69: Scatterplot of the values for ASP and Return On Equity (ROE) for the year 1998



From Table 6 it can be seen that the coefficient of correlation between Return On Equity (ROE) and the ASP had increased from 0.01912 in 1998 to 0.28167 in 2007. The mean ROA value of the companies in the sample had decreased with (1)% compared to an Increase of 150% in the mean ASP from 1998 to 2007, as indicated in Table 2.

The minimum coefficient of correlation for the ROA 1998 to 2007 was 0.01912 in the year 1998 and the maximum coefficient of correlation 0.46667 in 2001. The mean coefficient of correlation for the 10-year operating assets was 0.24829 as depicted by Graph 29. Graph 29 indicates that highest coefficient of correlation was in the year 2001, with a decline to 2007. The standard deviation in ASP has increased from R56.96 in 1998 to R153.31 in 2007, an increase of 169%, compared to an increase in the standard deviation of ROA in 1998 of 15 to 67 in 2007, an increase of 347%. This fact indicates that although there was a significant increase in the coefficient of correlation between ASP and operating assets, the operating asset value of the companies in the sample has a larger spread in 2007 than in 1998.

Graph 29: Coefficient of correlation of ASP and ROE for the period 1998 to 2007

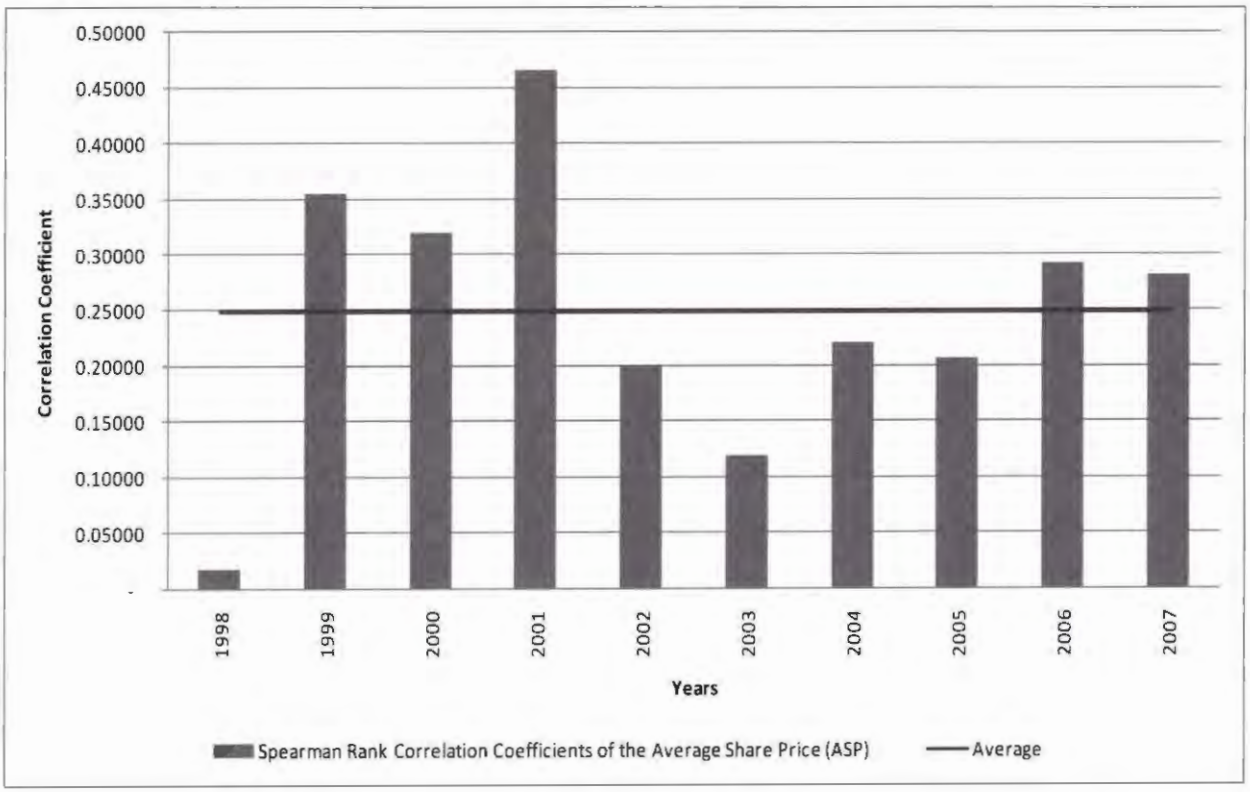
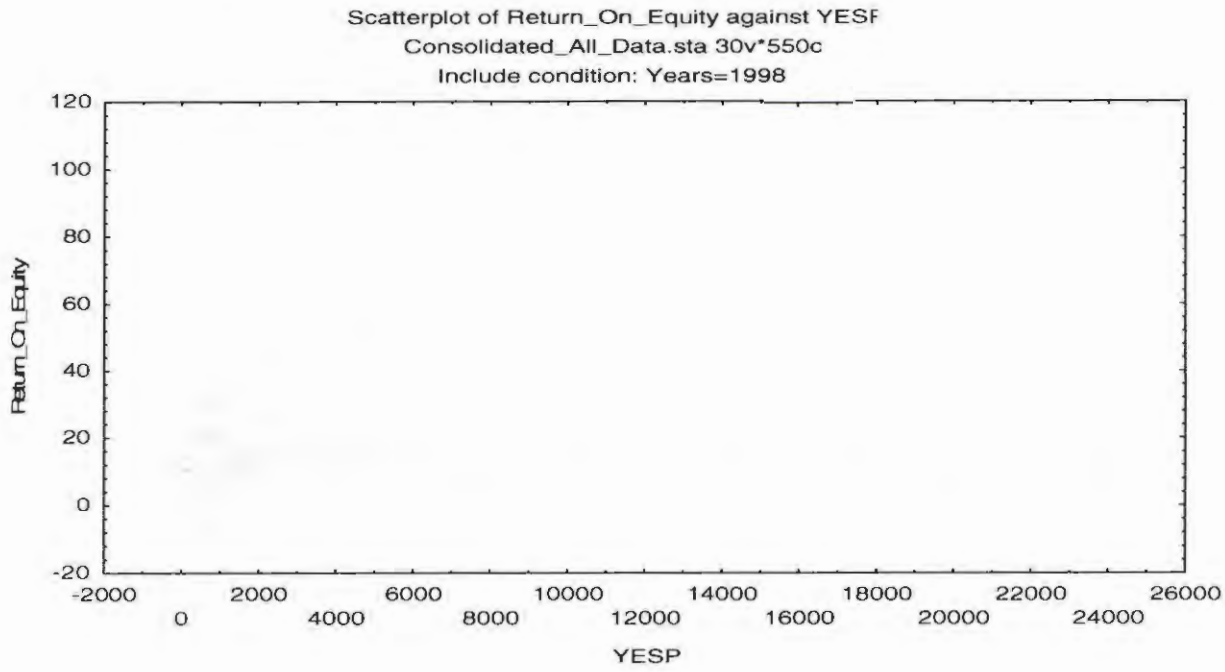


Figure 70 below, indicates a scatterplot of the values for YESP and Return On Equity (ROE) for the years 1998.

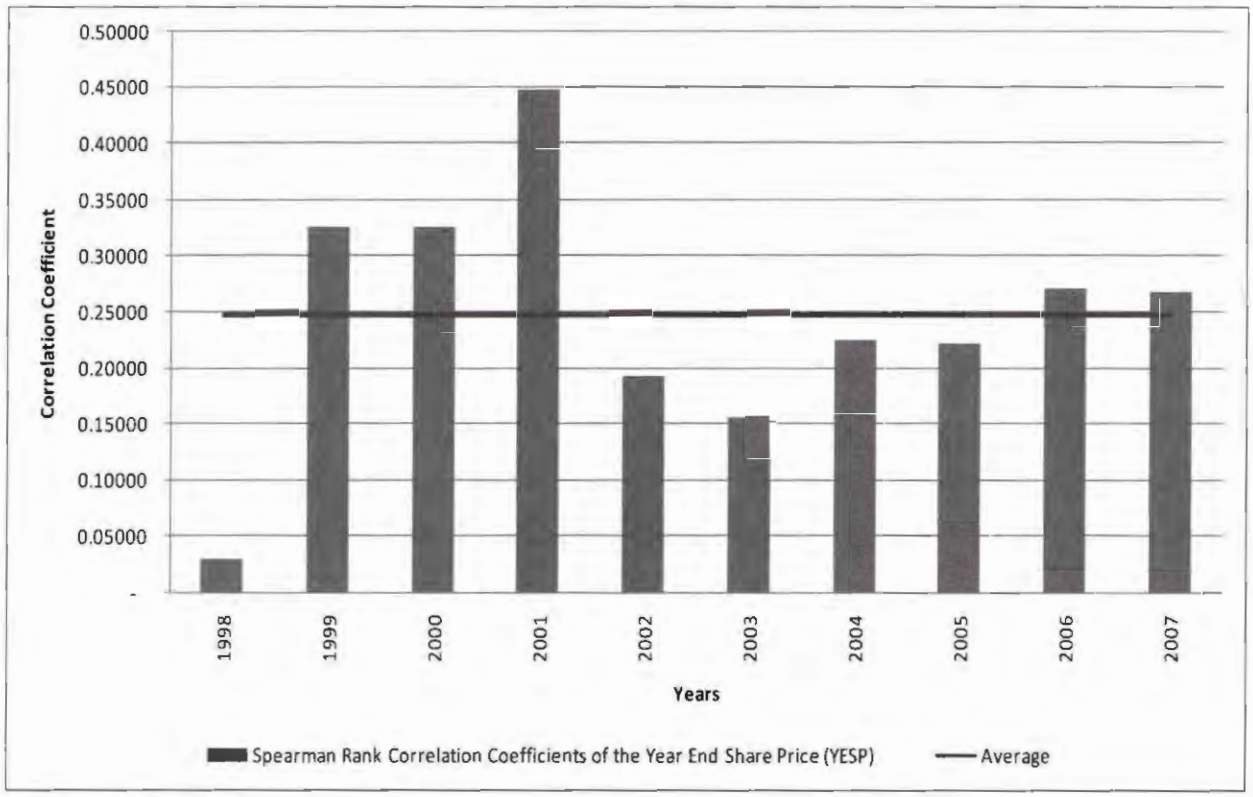
Figure 70: Scatterplot of the values for YESP and Return On Equity (ROE) for the year 1998



From Table 7 it can be seen that the coefficient of correlation between ROE and the YESP had increased from 0.03059 in 1998 to 0.26775 in 2007. The mean ROE value of the companies in the sample had decreased with (1)% compared to an increase of 197% in the mean YESP from 1998 to 2007, as indicated in Table 2.

The minimum coefficient of correlation for the ROE for 1998 to 2007 was 0.03059 in the year 1998 and the maximum coefficient of correlation 0.44848 in 2001, as indicated in Table 7. The mean coefficient of correlation for the 10-year period for operating assets was 0.24695, as depicted by Graph 30 on the next page.

Graph 30: Coefficient of correlation of YESP and ROE for the period 1998 to 2007



3.6 CONCLUSION

From the empirical study, it can be seen that significant changes took place in the variables over the 10-year period. Most of the variables increased over the time horizon of the study. The coefficient of correlation between the independent and dependent variables increased in most of the instances, indicating that the value created within companies are stronger reflected in the ASP and YESP in 2007 than in 1998. Although there are some fluctuations visible in the yearly coefficients of correlation, the overall trend is an increase.

The independent variables of Earnings Per Share (EPS) and Cash Flow Per Share (CFPS) have constantly shown the strongest correlation with the dependent variables ASP and YESP. The coefficient of correlation for EPS and CFPS was consistently significantly higher than that of the other independent variables. Although there was a significant increase in EVA, this was not reflected in the correlation with ASP and YESP of the sample of companies.

CHAPTER 4: CONCLUSIONS

4.1 INTRODUCTION 131

4.2 CONCLUSIONS 132

4.2.1 Conclusions on primary objectives *132*

4.2.2 Conclusions on secondary objectives *133*

4.3 RECOMMENDATIONS 135

CHAPTER 4

CONCLUSIONS

4.1 INTRODUCTION

The objective of Chapter 4 is to formulate clear conclusions on the indicators that are most appropriate for indicating the correlation that exists between share-prices as reflected by the stock market and key financial indicators as measured over the 10-year period of the empirical study in Chapter 3.

In Chapter 4, the conclusions formulated, will be reflected in a structure that consists of a combination between the findings in the literature study as presented in Chapter 2 and the observations of the empirical study as discussed in Chapter 3. The conclusions discussed in Chapter 4, should be utilised to contextualise the problem statement, primary and secondary objectives of this study as formulated in Chapter 1.

The problem statement that was formulated in Chapter 1 suggests that there should be a strong correlation between the value that companies create and the share price of these companies. The problem statement therefore, suggests that the value that companies create should be directly reflected in their share-price.

The secondary objective of this study was to evaluate how companies utilise available resources in the creation of value to their shareholders. The ratios and correlations that were calculated in Chapter 3 through the empirical study, will be used to formulate conclusions on the efficiencies that were exhibited by the sample of companies in the utilisation of available resources in the creation of shareholder value. The conclusions and recommendations formulated and discussed in this chapter, will be based on assessing the interrelationships that exist between the interdependent variables as indentified in Chapter 3, as well as the interrelationships that exist between the dependent and independent variables from Chapter 4.

4.2 CONCLUSIONS

4.2.1 Conclusions on primary objectives

From Chapter 3 it can be concluded that Earnings Per Share (EPS) and Cash Flow Per Share (CFPS) have consistently the highest mean coefficient of correlation over the 10-year period of the empirical study, with both the Average Share-Price (ASP) and the Year-End Share-Price (YESP) of the sample of companies in the sample analysed. These coefficients of correlations are presented in Table 8 below.

Table 8: Highest mean coefficient of correlation between the dependent variables ASP and YESP and the independent variables EPS and CFPS

	Spearman Rank Correlation Coefficients of the Average Share Price (ASP)	Spearman Rank Correlation Coefficients of the Year End Share Price (YESP)
EARNINGS PER SHARE	83.85%	84.64%
CASH FLOW PER SHARE	71.25%	71.28%

The coefficient of correlation of EPS and CFPS are significantly higher than the rest of the dependent variables analysed. The coefficient of correlation for the other dependent variables and the independent variables range from only 0.16174 to 0.46358 for the ASP and from 0.18584 to 0.46316 for the YESP.

Although there were consistent increases in the coefficients of correlation for all the variables, except for the price earnings ratio, the yearly and 10-year average coefficients of correlation of these variables were consistently significantly lower than that of EPS and CFPS.

In the literature study conducted in Chapter 2, it was clearly indicated by various sources that value creation measurement should move towards more adequate measures of value like EVA, MVA and FCF, instead of the traditional measures like EPS, ROA and ROE. From the empirical study it is therefore, interesting to note that EPS is still the most correlated indicator to the share price of companies and therefore, the perceived value of investors, as reflected in the share-price. The fact that CFPS has a high correlation with the share price is an indication that cash flow is becoming a

more prevalent indicator for the reflection of value-creation and the perceived value of companies, as reflected in the stock prices of companies on the stock market. Table 9 below indicates the mean coefficient of correlation for FCF and EVA for the 10-year period with ASP and YESP.

Table 9: The 10-year mean coefficient of correlation between the dependent variables ASP and YESP and the independent variables FCF and EVA

	Spearman Rank Correlation Coefficients of the Average Share Price (ASP)	Spearman Rank Correlation Coefficients of the Year End Share Price (YESP)
FREE CASH FLOW	25.83%	24.92%
ECONOMIC VALUE ADDED	29.38%	28.84%

From Table 9 it can clearly be concluded that FCF and EVA indicated in the literature study, should reflect value-creation, have significant lower coefficients of correlation with ASP and YESP than that of EPS and CFPS. The conclusion that can be drawn from this information, is that the stock market and the investor community still regard EPS as the most indicative indicator for reflecting value-creation, and that contrary to the views held by literature, fairly newly developed value-creation indicators like EVA and FCF, are not perceived as adequate indicators of value-creation as reflected in share-prices and the JSE stock market for companies with a nett asset value of R1 billion or more.

4.2.2 Conclusions on secondary objectives

The secondary objectives of this study were to assess the degree to which companies utilise available resources in the creation of shareholder value. The mean turnover from 1998 to 2007 of the sample of companies in the study has increased with 119% from R8.6 billion to R18.9 billion compared to an increase of 163% in the trading profit from R1.1 billion to R2.8 billion. This information indicates that the companies in the sample have generated 163% more trading profits through only increasing turnover by 119%, a clear indication of more efficient trading profit generation. The mean operating profit has increased by 156% from R1.0 billion to R2.5 billion again an indication that the companies have been effective in generating operating profit in a more efficient way. The conclusion that can be made, is that operating activities were executed at lower cost and in a more efficient manner. The mean profit before interest and tax that

includes operating and other expenses, has increased with 208% through only increasing turnover by 119%. The conclusion that can be drawn from this, is that the companies in the sample have utilised both operational and other resources in a more cost-effective manner over the 10-year period by generating more profit before interests and tax, with a lower cost-base.

Although the mean profit before interest and tax has increased by 208%, the NOPAT of the sample of companies has increased by only 179%. The conclusion that can be drawn from this, is that proportionately higher interest and tax expenses were incurred by the companies in the period 1998 to 2007. The higher interest expenses can be explained to a certain degree through the increase in mean net asset value of the companies of 49% and the mean increase in operating assets of 84%. If these increases in assets were financed through the acquisition of debt, the impact would inevitably be higher financing and interest expenses. Another possible indication of investment in assets is the fact that FCF has decreased with 123% over the 10-year period from 1998 to 2007, indicating that the companies have utilised their cash in investment activities. More information will however, have to be analysed in order to determine the exact degree of the investment activities. ROA has increased by only 22%, again an indication that companies have generated profits from a larger asset-base when comparing the increases in turnover, operating profit, profit before interest and tax and NOPAT to the increase in ROA.

What is alarming to observe, is the fact that the mean ROE for the 10-year period has decreased with 1% from 1998 to 2007. This fact indicates that the companies in the sample were unable to become more efficient in the utilisation of shareholder funds over the 10-year period.

4.3 RECOMMENDATIONS

From the study it can clearly be concluded that EPS and CFPS have the largest coefficient of correlation with ASP and YESP. This fact is clearly illustrated through the use of the Spearman Rank Correlation Coefficient. The large coefficient of correlation that exists between the independent variables EPS and CFPS and the dependent variables ASP and YESP clearly indicates that investors regard EPS and CFPS as effective indicators for anticipating stock market performance.

It should however be noted that the coefficient of correlation between the independent variable EVA and the dependent variables ASP and YESP has consistently increased during the 10 year-period. It is therefore recommended that EVA, as an indicator for stock market performance, be utilised more in the analysis of stock market performance and investment decisions.

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