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Factors Influencing Investor Share Purchase Behaviour In South Africa

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Factors Influencing Investor Share Purchase Behaviour In South Africa

David Lockley

A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Business Administration

Johannesburg, 2011

ABSTRACT

The recent turmoil in the world's equity markets has led many individuals to be concerned with equities as an investment option. However equities remain an important part of any individuals retirement planning. Despite the importance of individual investment decisions, little is known about the factors that influence them. This study identifies characteristics that are important to individual retail investors using traditional conjoint analysis and ranks them according to their relative importance. Cluster analysis and discriminant analysis are used to identify subgroups with different attitudes and approaches to equity investing. Four groups were identified in the sample each with distinctly different investment approaches and goals. The results have implications for providers of financial services to individual retail investors and also for those involved in educating individual retail investors.

DECLARATION

I, David Lockley, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

David Lockley

Signed at ……

On the …….. day of …… 2011

DEDICATION

This research is dedicated to my wife Nicki for her support over the years it has taken to finally finish this research.

ACKNOWLEDGEMENTS

Thank you to all those who completed the survey and gave valuable feedback as to their investing preferences.

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CHAPTER 1: INTRODUCTION

1.1 Purpose of the study

The purpose of the study was to determine the factors that influence the individual investor share purchase behaviour in the South African equity market.

1.2 Context of the study

Traditional financial theory grew out of economic theory and has as its cornerstone the principle of the rational investor (Statman, 2005). The rational investor will always seek to maximize his/her utility and will price arbitrage by selling overvalued shares and buying undervalued shares (Nagy and Obenberger, 1994; Shiller, 1989).

Founded upon the concept of the rational investor are the three main theories within the body of financial theory that explain the movements of financial markets (Statman, 2005). The first is the Efficient Market Hypothesis (EMH) that states that individual stock prices always reflect the underlying fundamental value accurately. This is because the cumulative effect of all investors acting upon all available information at any point in time results in the market value of an equity being correctly priced (Olsen, 1998).

The second is the Capital Asset Pricing Model (CAPM) that determines the price of an equity based upon expected future cash flows and the inherent risk relative to the rest of the market (measured by beta) in realizing these cash flows (Sharpe, 1964).

Markowitz (1959) developed the Mean-Variance Portfolio Theory that shows how investors diversify their investments across a portfolio in order to maximize the return of the overall portfolio by buying and selling individual investments.

Thus standard financial theory views the investor as behaving rationally, in a market where equities are efficiently priced, risk is measured by beta and where investors build portfolios conforming to the rules of the Mean-Variance Portfolio Theory (Statman, 2005).

However, investment markets have shown price behaviour showing extreme peaks and troughs that have led others to challenge the concept of the rational investor. The bull market in the late 1990's of technology stocks in particular led Alan Greenspan, the then Chairman of the Board of Governors of the Federal Reserve of the United States, to comment in December 1996 on the evidence of "irrational exuberance" in response to what he saw was the "unduly escalating stock prices".

The field of behavioural finance has been developing and challenges the concept of the rational investor with that of the normal investor (Shiller, 2003). This field is borne out of psychology, in particular cognitive psychology and its treatment of individual's decision making, and its application to finance and financial decision making.

Although academic discussion started to focus more on behavioural finance explanations for stock market price volatility only in the 1990's (Shiller, 2005), "irrational exuberance" has been observed in markets and commented on from as far back as 1841 with Charles Mackay's publication of "Extraordinary Popular Delusions and the Madness of Crowds". In it he gives graphic accounts of "The Tulipomania" that gripped Holland in 1635, "The South Sea Bubble" in England

in 1711, “Money-Mania – The Mississippi Scheme” in the United States 1719 to 1720, amongst others.

Each of these instances resulted in rapid price escalations in the underlying commodity or stock driven purely by speculative activity and the expectation of offloading an investment at a price higher than the investor paid with no thought to the value of the underlying asset. The inevitable result was the formation of a price bubble followed shortly thereafter by a crash that resulted in massive losses experienced by those still invested. In none of the accounts is there evidence of investors behaving in a rational manner.

Behavioural finance contends that in addition to the rational decision making process outlined within standard financial theory, individual investors are still emotional human beings that make decisions within the limitations of the human condition (Ackert, Church and Deaves, 2003).

Thus normal investors must contend with the following decision making conditions in addition to those imposed upon the rational investor:

- Feedback models – Rapid increase in price drives further increases
- Cognitive bias – Past price performance is erroneously projected into the future
- Heuristic decision making – Overly simplistic individual decision making models to interpret complex information quickly
- Biased self-attribution – Where past success is attributed to personal ability and failure to external forces
- Overconfidence - Investors have too high an opinion of their own abilities

- Social influences – Investors 'follow the herd' and invest where others are investing and the popular press is focusing
- Cognitive dissonance – Investors sell 'winning' shares too soon and hold onto 'losing' shares too long.

(Shiller, 2003; Baker and Nofsinger, 2202; Bailey, Nofsinger and O'Neil, 2002; Barber and Odean, 1999).

This research shows that the South African retail equity investor considers a range of factors in their share purchase decision and places more importance on some and less on others. Furthermore, preferences for some factors over others differ across individuals, but investors can be grouped and categorised based upon these preferences. This research looks at both the financial and non-financial criteria taken into account by the investor in his/her decision making.

1.3 Problem statement

1.3.1 *Main problem*

The purpose of this research was to rank decision making variables in order of relative importance to the South African individual investor in making a share purchase decision and to determine whether South African equity investors can be grouped according to these preferences.

1.3.2 *Sub-problems*

The first sub-problem was to rank decision making variables in order of relative importance to the South African individual investor.

The second sub-problem is to determine whether retail investors can be grouped according to their preferences for some factors over others in their share purchase decision making.

1.4 Significance of the study

This study fills a gap in the research as this researcher is unaware of any similar research having been conducted on the South African individual investor. This researcher is aware of similar research that has occurred in the United States by Nagy and Odenberger in their research published in 1994, and by Clark-Murphy and Soutar in Australia published in 2005. This research will follow a similar methodology to Clark-Murphy and Soutar's research.

The study will provide guidance to financial institutions for future product development and targeted marketing of existing products by differentiating retail investors based upon their different attitudes and approaches to different investment alternatives.

The study will provide guidance to educational institutions providing investor education programmes by taking into account both positive and negative aspects of investor behaviour and incorporate it into their programmes.

1.5 Delimitations of the study

The study will focus on the individual's decision making and its influence on individual investing behaviour only. The results of this study are not intended to be used to explain the movement of prices of the market as a whole.

The study will focus on investment decisions related to equities listed on the Johannesburg Stock Exchange (JSE). Other classes of investment assets will not be considered. Institutional investors and fund managers are excluded from the study.

The study is aimed at active decision making investors and not passive investors who have decisions made on their behalf in which they have no input.

1.6 Definition of terms

Academic Finance (Standard or Traditional Finance): the current accepted theory of finance at most colleges and universities, based on such topics as modern portfolio theory and the efficient market hypothesis.

Anomaly or Anomalies: something that deviates from the norm or common rule and is usually abnormal, such as the January Effect.

Arbitrage: an attempt to enjoy a risk-less profit by taking advantage of pricing differences in identical securities being traded in different markets or in different forms as a result of mis-pricing of securities.

Behavioral Economics: the foundation of behavioral finance, found especially in the groundbreaking work of Richard Thaler. This field is the alternative to traditional economics since it applies psychology to economics.

Behavioral Finance Theory: the belief that psychological considerations are an essential feature of the security markets. It is a field that attempts to explain and increase understanding of how the emotions and mental mistakes of investors influence the decision making process.

Bias: an inclination of temperament or outlook; unreasoned judgment or prejudice.

Bubble: the phase before a market crash when concerns are expressed that the stock market is overvalued or overly inflated from speculative behavior.

Cognitive Dissonance Theory: states there is a tendency for people to search for regularity among their cognitions (i.e., beliefs, viewpoints). When there is a discrepancy between feelings or behaviors (dissonance), something must transform to eliminate the dissonance.

Correlation: a concept from probability (statistics). It is a measure of the degree to which two random variables track one another, such as stock prices (stock market) and interest rates (bond market).

Crash: a steep and abrupt drop in security market prices.

Efficient Frontier: the line on a risk-reward graph representing a set of all efficient portfolios that maximize expected return at each level of risk.

Efficient Market Hypothesis (EMH): the theory that prices of securities fully reflect all available information and that all market participants receive and act on all relevant information as soon as it becomes available.

Efficient Portfolio: a portfolio that provides the greatest expected return for a given level of risk.

Expected return: the return expected on a risky asset based on a normal probability distribution for all the possible rates of return.

Finance: a discipline concerned with determining value and making decisions. The finance function allocates capital, including acquiring, investing, and managing resources.

Herding or Herd Behavior: herding transpires when a group of investors make investment decisions on a specific piece of information while ignoring other pertinent information such as news or financial reports.

January Effect: the January effect is generally thought to be among the most frequent of the stock market's anomalies. Investors each January expect above average gains for the month, which are most likely caused by the result of a

flood of new money (supply) from retirement contributions, combined with optimism for the New Year.

Loss Aversion: The idea that investors assign more significance to losses than they assign to gains. Loss aversion occurs when investors are less inclined to sell stocks at a loss than they are to sell stocks that have gained in value (even if expected returns are the identical).

Modern Portfolio Theory: An inclusive investment approach that assumes that all investors are risk averse and seeks to create an optimal portfolio in consideration of the relationship between risk and reward as measured by alpha, beta and R-squared.

Overconfidence: The findings that people usually have too much confidence in the accuracy of their judgments; people's judgments are usually not as correct as they think they are.

Panics: Sudden, widespread fear of an economic of market collapse, which usually leads to falling stock prices.

Prospect Theory: can be defined as how investors assess and calculate the chance of a profit or loss in comparison to the perceptible risk of the specific stock or mutual fund.

Psychology: is the scientific study of behavior and mental processes, along with how these processes are affected by a human being's physical, mental state, and external environment.

Regret Theory: The theory of regret states that individuals evaluate their expected reactions to a future event or situation

Sociology: is the systematic study of human social behavior and groups. This field focuses primarily on the influence of social relationships on people's attitudes and behavior.

Standard Deviation: within finance, this statistic is a very important variable for assessing the risk of stocks, bonds, and other types of financial securities.

Time Value of Money: is the process of calculating the value of an asset in the past, present or future. It is based on the notion that the original principal will increase in value over time by interest. This means that a dollar invested today is going to be worth more tomorrow.

Glossary terms taken from Ricciardi and Simon (2000)

1.7 Assumptions

- The respondents to the survey understood the questions correctly.
- The sampling technique ensured a sufficiently large sample to conduct meaningful statistical analysis.

CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

In looking at the factors that influence the behaviour of the individual investor in South Africa, most of the relevant literature is to be found in the field of behavioural finance. As this is still a relatively new field and does not yet have a unified theory base, some time will be spent on reviewing literature on the broader field and its relevance to this research before moving into more specific literature on the two sub-problems.

For sub-problem 1 the literature will be reviewed to see what factors other researchers have deemed important in the decision making of individual investors. The theory base from traditional finance will be looked at before moving to additional insight from the field of behavioural finance. We will then look at specific factors and decision making criteria used in previous research.

For sub-problem 2 the literature will be reviewed to see how previous researchers have grouped the decision making criteria and what those groups look like. Also, the groupings of investors based on preferences and attitudes will be examined.

2.2. Background to the field of Behavioural Finance

Behavioural finance started to emerge as an independent field of study in the 1990's (Ricciardi and Simon, 2000; Schiller, 2003). According to Schiller (2003) this was largely due to the excessive market volatility experienced during the 1980's that saw anomalies that could not be explained by traditional financial

theory such as the efficient markets model. However the origins of behavioural finance can be traced back 150 years (Ricciardi and Simon, 2000).

In defining Behavioural Finance, Ricciardi and Simon (2000), describe it as an attempt '...to explain and increase understanding of the reasoning patterns of investors, including the emotional processes involved and the degree to which they influence the decision-making process." It tries to explain the 'what, how and why' of finance and investing from a human perspective.

Mackay's Extraordinary Popular Delusions and the Madness of Crowds which was originally published in 1841, describes a number of investor panics and schemes (Mackay, 1995). In fact this work can be applied to the stock market today with some of the descriptions of investor crowd behaviour displayed. Schiller (2003) refers to feedback theory (where speculative price action creates further price increases) being evident in the famous tulipmania in Holland in the 1630's. Mackay's original description of this price action in 1841 as quoted below could very easily have been written about the dot.com bubble in the 1990's or indeed the current credit crisis.

"Many individuals grew suddenly rich. A golden bait hung temptingly out before the people, and one after another, they rushed to the tulip marts, like flies around a honey pot ...At last, however, the more prudent began to see that this folly could not last forever. Rich people no longer bought the flowers to keep them in their gardens, but to sell them again at cent per cent profit. It was seen that somebody must lose fearfully in the end. As this conviction spread, prices fell, and never rose again."

(Mackay 1995:118-119)

Ricciardi and Simon (2000), contend that the uniqueness of behavioural finance is its integration of a number of different schools of though and fields into one

with the intention understanding how investors make decisions. The three main fields of thought are psychology, sociology and finance

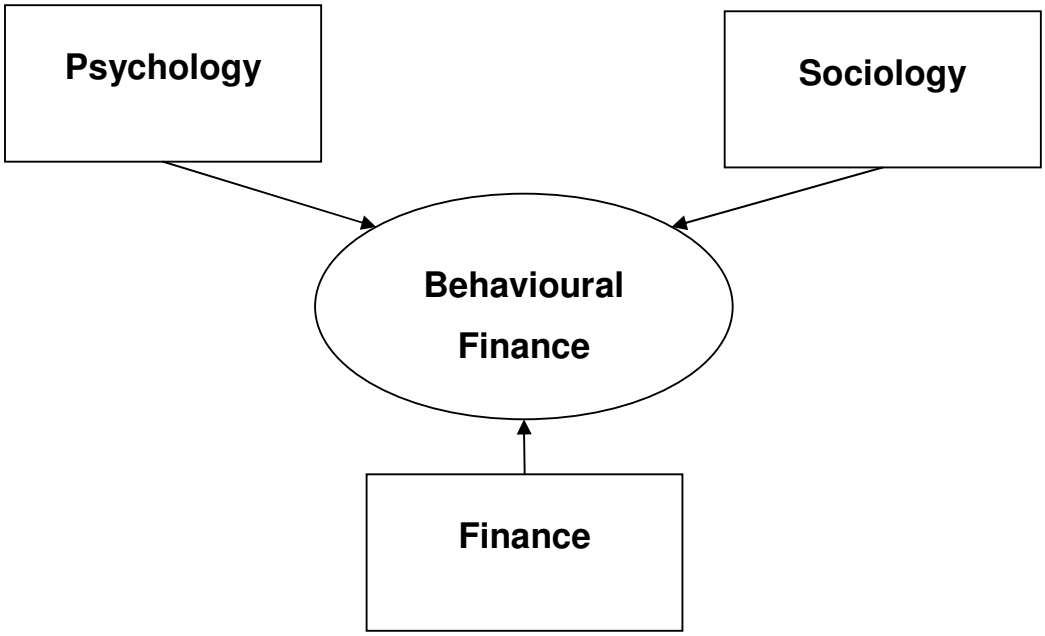


Figure 1: The main disciplines contributing to Behavioural Finance (Ricciardi and Simon, 2000)

Traditional finance is still the centrepiece to understanding behavioural finance, however, the behavioural aspects of psychology and sociology need to be understood and applied (Ricciardi and Simon, 2000)

The Behavioral Finance Decision Makers		
The Individual	**The Group**	**An Organization**
Small investor	*Portfolio of investors (mutual fund)*	*A financial institution*
Portfolio manager	*A Group of shareholders*	*A nonprofit entity (University)*
Board of trustee member		

Figure 2: The Behavioural Finance Decision Makers (Ricciardi and Simon 2000)

The figure above shows the different classifications of decision makers pertaining to finance and investing according to Ricciardi and Simon (2000). This research will be limiting itself to the individual small investor's decision making on the JSE.

Daniel Kahneman and Amos Tversky's work in decision making in the field of psychology have made great contributions to the field of behavioural finance. They discovered that under duress individuals did not always make the most rational or optimal decisions. In addition they found that people were not always good at processing and analysing large quantities of data which led to intellectual shortcuts that resulted in heuristics and biases in decision making. (Kahneman and Tversky, 1974, 1979, 1981, 1992).

Barberis and Thaler (2003) argue that traditional finance in seeking to understand financial markets where the agents are rational is unable to understand the basic facts about individual investor behaviour. They describe rationality as meaning two things; firstly when agents receive new information they update their beliefs correctly, and secondly, given their beliefs, agents make decisions that are normatively acceptable. As a result, behavioural finance has come about in response to some of these difficulties by relaxing the underlying tenets for rationality and creating models where all agents are not always behaving rationally.

Olsen (1998) says that behavioural finance came about as an attempt to replace the behaviourally incomplete standard theory of finance. It is focussed

on the application of psychological and economic principles for the improvement of financial decision making.

Olsen (1998), goes on to say that although finance is considered a social science, before the advent of behavioural finance, it did not consider individual decision making. Rather, finance followed on from economics by relying on deduction and treating the decision making process as a 'black box'.

2.3. Sub-problem 1: Ranking the decision making variables for the individual investor

Although there is some debate in the literature between traditional finance and behavioural finance over how investors react in certain situations, there is agreement that investors use a number of criteria when making their investment decisions. The traditional financial criteria discussed here are also largely accepted within the behavioural finance field. Some of the non-financial criteria discussed have largely been ignored by traditional finance rather than considered and rejected by traditional finance.

This part of the literature review will first look at the traditional financial criteria considered important by the literature and then include some behavioural financial concepts not previously covered.

2.3.1 Traditional Finance Criteria for Decision Making

According to Nagy and Obenberger (1994), economic utility theory contends that the investor's investment decision is a trade off between immediate consumption and deferred consumption. If he defers consumption he will select

the portfolio that will maximise long-term satisfaction. An investor selects a portfolio that minimises risk whilst maximising expected return. Investors show four characteristics in this, they are wealth maximising, completely rational, able to deal with complex choices and risk averse.

The Efficient Market Hypothesis states that the price of an asset reflects the fundamental values of that asset. This means that 'prices are right' and there is no investment strategy that can earn excess risk adjusted average returns. All information is reflected in the security's price and this is therefore its fair value. One cannot consistently beat the market over time. (Ricciardi and Simon, 2000; Shiller 2003).

Markowitz (1959) contends that an investor selects individual securities based upon beliefs of their future performance. Whilst expected return is a desirable outcome, variance to that return is undesirable. Anticipated returns are discounted and the portfolio of underlying securities is diversified across all those securities that give maximum return.

2.3.2 Behavioural Finance Criteria for Decision Making

Barberis and Thaler (2003) refer to a number of psychological factors that influence how investors form expectations which in turn impact their decision making. The first is that people are generally overconfident in their judgements. This is both in the confidence intervals they apply to quantities and being poorly calibrated in estimating probabilities. People also display optimism and wishful thinking by displaying unrealistic views of their prospects and abilities. For example over 90% of people believe they are above average in driving ability. Representativeness also leads to a number of biases such as base rate neglect and sample size neglect (gambler's fallacy or hot hand). Conservatism results in base rates being over emphasised relative to sample evidence.

In addition to the above, Barberis and Thaler (2003) refer to belief perseverance, anchoring and availability biases influencing investors decision making. Belief perseverance states that once an opinion has been formed, it is difficult to change the investor's mind. Anchoring refers to when a person on making estimates, start with an initial often arbitrary value and then adjust away from it. The adjustment is often insufficient and people seem anchored to the initial figure. Availability bias occurs when people refer most readily to easily accessible or recent information in making a decision.

Prospect theory is an alternative explanation of how investors evaluate risky gambles to that proposed by economic utility theory. Experimental work has shown that people consistently violate economic utility theory when choosing among risky gambles. Work in the behavioural finance field contends that the lessons learned from the violations of economic utility theory are central to understanding a number of financial phenomena. (Barberis and Thaler, 2003; Schiller 2003).

Essentially prospect theory is saying that investors do not always behave rationally as per the economic utility theory. Persistent biases such as those mentioned previously persistently influence people's choices under conditions of uncertainty. (Kahneman and Tversky, 1979; Ricciardi and Simon, 2000;).

Financial cognitive dissonance occurs when investors attempt to rationalise contradictory behaviours. For example when investors fail to sell out of underperforming funds so as not to admit they made a poor investment decision in investing in them in the first place. (Kahneman and Tversky, 1992; Barber and Odean, 1999; Ricciardi and Simon, 2000).

2.3.3 Factors from Previous Research

Lewellen et al (1977) conducted research on patterns of investment behaviours and strategies for individual investors by means of a questionnaire sent to the clients of a stock brokerage. Their objectives were to identify the systematic patterns of investment behaviour exhibited, and then to appraise the rationality of those patterns.

In Lewellen et al's (1977) investigation of the investment decision making process they identified 30 variables to investigate. They chose to categorise these variables as follows:

A. Investment goals e.g. Short term, long term, dividend income

B. Decision methods and technique choices e.g. Indication of which common stock evaluation approaches normally used

C. Portfolio composition results such as the number of different companies shares held within the portfolio

D. Portfolio evaluation such as the average annual pretax rate of return realised over the last 5 years

Nagy and Obenberger (1995) looked at the various utility maximising and behavioural variables underlying individual investor behaviour. They believed that the literature on utility theory did not particularly address individual investor decision processes. They identified 34 variables as potentially influencing equity decision making. These variables were both from the traditional sphere (e.g. expected dividends, perceived risk, diversification needs) and more contemporary concerns such as firm ethics, environmental record etc.

Table 1: Ranked variables that significantly influence investors decisions (Nagy and Obenberger, 1995)

1. Expected corporate earnings
2. Diversification needs
3. Feelings for the firms products and services
4. Condition of financial statements
5. Firm status in the industry
6. Reputation of the firm
7. Past performance of the stock
8. Attractiveness of non-stock investments
9. Minimizing risk
10. Time before funds are needed
11. Tax consequences
12. Expected stock market performance
13. Gut feeling on the economy
14. Perceived ethics of the firm
15. Expected dividends
16. Competing financial needs
17. Past performance of the investors portfolio
18. Affordable share price
19. Data in reports and prospectus
20. Current economic indicators
21. Use of valuation equations
22. Stock broker recommendations
23. Investment advisory service recommendation
24. Institutional holdings
25. Recent price movements of the firm's stock
26. Coverage in the financial press
27. Brokerage house recommendation
28. Family member opinions
29. Coverage in the general press
30. Exchange listing
31. Local operations

32. Environmental record
33. Friend or co-worker recommendation
34. International operations

Clark-Murphy and Soutar (2005) in their investigation on individual investor preferences also came up with a list of factors they believed were relevant in determining the decision making of individual investors. They looked at the factors in the following table:

Table 2: Factors influencing the decision making of equity investors (Clark-Murphy and Soutar, 2005)

1. Pays a dividend
2. Dividend yield
3. Management track record
4. Industry sector
5. Knowledge base of the investor
6. Price trend
7. High to low price earnings ratio (P/E)
8. Price volatility
9. Market status (Blue chip vs speculative stock)
10. Source of recommendation (broker, friend etc)
11. Principal place of operation

2.3.4. Proposition 1

The South African individual investor considers a range of variables that can be ranked in order of importance when making share purchase decisions.

2.4. Sub-Problem 2: Determining whether retail investors can be grouped according to their preferences for some factors over others in their share purchase decision making

The literature shows that there does not appear to be firstly, the same ranking of importance of variables for investment decision making, and secondly, not all investors consider the same factors in their investment decision making. Rather there appear to be groupings of factors that different 'sub-sets' of investors consider according to their preferences.

2.4.1 The South African individual investor

When looking to the South African context, Brijlal (2007) conducted research on the current profile and characteristics of the South African individual investor. His findings indicate that investors are close to middle age; many have postgraduate qualifications, are investing for the longer term and are more likely to accept greater financial risk. The advice of stockbrokers is often sought, these investors have greater financial resources than in the past and they enjoy investing on the JSE. Investors also used different types of analysis in making their investment decisions, 62% used fundamental analysis and over 60% used a combination of technical and fundamental analysis. This research indicates the different preferences investors on the JSE have for their decision making process.

2.4.2 Grouping of investors

Clark-Murphy and Soutar (2008) in research conducted in Australia, found that individual share investors fall into a number of groups with distinct preferences for particular share characteristics. These investors largely preferred stable investments and are fairly risk adverse. However, their stockbrokers appeared

to overestimate their clients' appetite for risk and kept recommending riskier speculative stocks. This indicated a lack of understanding of their clients' needs and increased competition of online trading platforms as the traditional stockbroker relationship was not proving fruitful to the individual investor.

In their study, Clark-Murphy and Soutar (2005) were able to group their sample of investors into four distinct groups of investors based upon their preferences for the criteria they looked at when making their investment decisions. They named these groups as follows with the name indicating the overriding characteristics:

1. Risk averse investors (48% of the sample)
2. Traders (21% of the sample)
3. Explorers (20% of the sample)
4. Contrarian investors (11% of the sample)

2.4.2 Grouping of decision making criteria

Nagy and Obenberger (1995) identified 7 summary groups describing the differences amongst investor in their decision making. These are as follows:

1. Neutral information – Unbiased outside source on information
2. Accounting information – Traditional stock valuation
3. Self image/Firm image – The ethical nature of the firm
4. Classic factor – Classic wealth maximization considerations
5. Social relevance – Social and community programmes
6. Advocate recommendation – Recommended by stockbroker

7. Personal financial needs – Diversification and duration of investment.

Table 3: Factors influencing the equity selection process of individual investors (Nagy and Obenberger, 1995)

Label:	Key Variables:
1. Neutral Information	Financial press coverage
	General press coverage
	Recent price movements
	Information from investment advisory services
2. Accounting information	Financial statements
	Annual reports
	Prospectuses
	Valuation techniques
	Expected earnings
3. Self-Image/Firm Image	Firm reputation
	Firm status
	Feelings about products/services
	Perceived ethics of the firm
4. Classic	Expected dividends
	Share price affordability
	Tax consequences
	Risk minimisation
5. Social relevance	Environmental record
	Local operations
	International operations
6. Advocate recommendation	Brokerage house
	Stock broker
	Friends/co-workers
7. Personal financial needs	Competing financial needs
	Time before funds are needed

Diversification needs

Nagy and Obenberger (1995) found that investors employed a diverse set of criteria in making their investment decisions depending on personal preferences. Investors also view the seven groups of criteria differently in terms of relative importance. They recommended that the investment community provide potential investors with information that addresses these seven factors and that they be cognisant of the varying rankings of importance when addressing specific customer requirements.

Clark-Murphy and Soutar (2005) in their work on identifying characteristics that are important to investors for their decision making noted that there was an obvious link between financial investment choices and consumer behaviour. The four subgroups of investors as mentioned earlier showed a distinct preference for different share attributes. In their study they created hypothetical stocks and asked each group to consider investing in them. Each subgroup clearly showed different attitudes and preferences for the hypothetical stock choices. They believe that their results have implications for the marketing of financial services and products and will assist in offering advice to individual investors.

2.4.4. Proposition 2

The variables that are most important to South African individual investors form homogenous groups of similar characteristics which are ranked differently by different investors

2.5. Conclusion of Literature Review

From the review of the literature one can see that the field of finance has traditionally not concerned itself with the decision making of individual investors and made the assumption that the process was wholly rational and in line with deductive reasoning as borrowed from economic theory.

It was only once anomalies within markets were observed that could not be easily explained within existing financial thinking that researchers started to borrow from fields such as psychology and sociology to try to explain this 'anomalous' behaviour. This gave rise to the relatively new field of behavioural finance. It has been important to include some background on behavioural finance in order to show the relevance of this research within the body of literature.

Previous research conducted has identified a number of criteria that are taken into account when individual investors make decisions regarding their investments. Different people favour different factors in their decision making with no really uniform set being favoured by all investors equally. These factors can be grouped into various subsets and have been by different researchers. Also, it has been possible to group investors according to their preferences and attitudes to the various factors looked at in the investment decision making.

For this research it was decided to use the following factors derived from work done by Nagy and Obenberger (1995) and Clark-Murphy and Soutar (2005):

Table 4: The factors influencing investor share purchase behaviour for this research:

Factor:	Description:
Management	Management's track record in the industry, how public their profiles are and whether or not they are known to the respondent personally
Market Status	Whether the stock can be considered to be blue chip, growth or speculative
Price Trend	Whether the price has been rising, falling or steady for the last few months
Source of Recommendation	The stock could be recommended in the financial press, by a stockbroker or a tip or rumour from a friend
Price Earnings Ratio	The price earnings ratio could be high, low or average
Dividend Yield	The dividend yield could be high, low or average
Industry Sector	The industry sector could show slow but steady growth, have periods of growth and contraction or be a new growth industry.

2.5.1 Proposition 1:

The South African individual investor considers a range of variables that can be ranked in order of importance when making investment decisions.

2.5.2 Proposition 2:

The variables that are most important to South African individual investors form homogenous groups of similar characteristics which are ranked differently by different investors.

CHAPTER 3: RESEARCH METHODOLOGY

This section will first describe the research methodology as being quantitative in nature and explain why that is so. It will then describe the research design of an online self administered questionnaire and the advantages and disadvantages thereof. The population, sample and sampling method will then be described. The research instrument and its application in a web based platform will also be described.

The data analysis and interpretation will explain how conjoint analysis was applied to sub-problem 1 and how cluster analysis and discriminant analysis were applied for sub-problem 2.

Finally the limitations of the study and the validity and reliability will be discussed.

3.1 Research methodology /paradigm

The research methodology employed is quantitative in nature. In addressing sub-problems 1 and 2, the variables first needed to be ranked and then grouped. Quantitative techniques are better suited to this than qualitative techniques. The two quantitative techniques employed were conjoint analysis and cluster analysis in a similar manner to that employed by Murphy-Clark and Soutar in their 2005 study of investor preferences.

Where qualitative techniques would have been helpful, would be if there had been no prior research on the factors that impact investor behaviour and these would have to have been determined first. As it is, there is previous research in as per Nagy and Obenberger (1995) and Murphy-Clark and Soutar (2005) and

their findings and approach have been incorporated in this research methodology.

According to Creswell (2003), quantitative research needs to employ strategies of enquiry consisting of surveys and experiments. It also needs to employ methods that consist of close-ended questions, predetermined approaches and numeric data. This research intends to satisfy all these conditions as well as relating variables in questions, employ statistical procedure, use standards of validity and reliability and measure information numerically. This research should thus be considered quantitative in nature.

3.2 Research Design

The research design consisted of a web based self administered questionnaire that was generated by utilising the Sawtooth software for Conjoint Value Analysis also known as traditional conjoint analysis (Curry, 1996).

According to Kalof, Dan and Dietz (2008), a questionnaire is a type of survey that is made up of a number of questions that respondents can read and answer themselves independently of the researcher. The responses to the questions result in data that can then be analysed in a quantitative manner to test the underlying hypothesis. Questionnaires are also effective ways to gather descriptive statistics of the population.

Kalof et al (2008) goes on to say that surveys are also effective instruments to estimate the prevalence of attitudes and behaviours in a population, examining relationships between variables and also determining causal links between variables. The self administered questionnaire also allows for ease in data

collection in that it can be distributed amongst a large sample relatively cost effectively.

These attributes of the self administered questionnaire approach make this research design appropriate for the problem and sub-problems being researched in this study.

Owens (2002), lists the following reasons for doing a survey:

1. Uniqueness – Information can be gathered that is not available from other sources.
2. Probability sampling – there is an unbiased sampling of the population of interest.
3. Standardisation of measurement – the same information is collected from each respondent
4. Analysis needs – Survey data can be used to complement data from secondary sources

Wright (2005) discusses a number of advantages and disadvantages of online survey research. These can be summarised as follows:

Advantages:

1. Access to unique populations – Provides access to groups and individuals who would be difficult to access through other channels. One example of this is online stock traders.
2. Time – Internet based surveys can save time for researchers. A researcher interested in accessing hard to reach populations can quickly access to these individuals by posting invitations to participate to

newsgroups, chat rooms and message board communities. Online surveys also save time by allowing researchers to collect data while working on other tasks.

3. Costs - Online survey researchers can also save money by moving to an electronic medium from a paper format. Paper surveys tend to be costly, even when using a relatively small sample, and the costs of a traditional large-scale survey using mailed questionnaires can be enormous. The use of online surveys circumvents this problem by eliminating the need for paper and other costs, such as those incurred through postage, printing, and data entry.

Disadvantages:

1. Sampling issues – Little may be known about the characteristics of online communities that can impact sampling. There are some web survey companies that offer demographic information and access to certain online populations, but due to the reliance on self reporting this may not be very accurate

2. Response rates – Responses can be very low (less than 30%) in online communities and often an incentive may be required to encourage participation.

3. Access issues - Some researchers access potential participants by posting invitations to participate in a survey on community bulletin boards, discussion groups, and chat rooms. However, members of online communities often find this behavior rude or offensive, or consider this type of posting to be “spam”. A community moderator may delete the unwanted post, or the researcher may be inundated with emails from irate members of the community. Researchers using email invitations to participate in a survey may face similar rejection. An unwanted email advertisement is often considered an invasion of privacy. The invitation

for the survey may be deleted, or the researcher may receive email from participants complaining about it.

This researcher chose to employ a web based close ended questionnaire due to the advantages described here. The design of the questionnaire and the data collection tried to mitigate some of the disadvantages of this research method. These will be described in the appropriate sections.

3.3 Population and sample

3.3.1 Population

The population for the research is considered to be the individual or 'retail' investor on the JSE who is an active investor and makes their own decisions in the purchase of individual shares. This excludes passive investors who invest in unit trusts or other funds and rely on fund managers to pick individual shares.

Due to the nature of the sampling method employed, it seems prudent to further refine the population description to refer specifically to those retail investors who are active online and computer literate. This excludes those retail investors who do not access the internet directly.

3.3.2 Sample and sampling method

The planned sampling method was to approach one or more online stockbrokers and ask them to send the online survey to their existing customer base. Unfortunately those stock broking firms approached whilst initially expressing interest, ultimately were concerned with issues of privacy both in terms of the actual list of customers and also in the segmentation analysis that

would subsequently be done. This led to them not agreeing to participate in the study.

The actual sampling method employed was to construct a covering letter explaining the reasons for the research in the form of an email and embedding the link to the online survey within the email. This email was sent to friends, family and colleagues of this researcher who are active investors on the JSE with the request to forward the email on to family, friends and colleagues who were active investors on the JSE in the hope of creating a 'viral' email campaign. This email was also placed on the blogsite 'Tickertalk.co.za' requesting responses.

In order to ensure that only 'decision making' investors responded to the survey, a 'prequestion' was included in the questionnaire that filtered out those respondents who were not representative of the population under study. The question as well as the possible responses is below:

To what extent do you make active decisions in the purchase of stocks in listed companies on the Johannesburg Stock Exchange?

A. I invest in a fund that makes all the investment decisions

B. I engage a stockbroker that makes all the decisions with no input from me.

C. I engage a stockbroker but make the final decision myself.

D. I utilise and online stockbroker and make all investment decisions myself.

If the respondent answered A or B they were thanked for their time and the survey was terminated. If they answered C or D they continued with the survey questions.

Traditional conjoint analysis or Conjoint Value Analysis (CVA) requires a minimum of 30 responses (Hair, Black, Babin, Anderson and Tatham, 2005) for data analysis. It was hoped that a minimum of 30 responses would be obtained with an expectation of closer to 100 responses for a meaningful study.

3.4 The research instrument

The research instrument was a conjoint questionnaire that was generated by the CVA Sawtooth software. The survey was contained online on a website called surveymonkey.com. An email that served as a covering letter was sent out with a link to the online survey.

Upon accessing the survey online, the first page served as an introduction and explained the reasons for the research, in addition to the covering letter. It also contained the researchers name and contact details should there be any queries or difficulties encountered. One respondent did send additional information by means of an email that they wished to share in terms of their share purchase decision making.

The second page of the survey was labelled a 'prequestion' and served as a sampling tool in that it only allowed respondents to continue with the survey should they correctly identify themselves as belonging to the population being researched. This question was included because of the difficulty of accurately targeting the population to be sampled by using online data gathering techniques as described by Wright (2005). This question was to minimise the instance on sampling error.

The next 31 questions were derived from the questionnaire design function of the Sawtooth CVA software. Seven attributes with three levels each were selected from the literature review. The attributes and levels are in the following table:

Table 5: Attributes and corresponding levels

Attribute	Level
Management	Track record in the industry
	High public profile
	Known to you personally
Market Status	It is a blue chip stock
	It is a growth stock
	It is a speculative stock
Price Trend	Rising in the last few months
	Falling in the last few months
	Steady in the last few months
Source of Recommendation	Your stockbroker
	The financial press
	Tip or rumour from a friend
Price Earnings Ratio	High
	Average
	Low
Earnings Yield	High
	Average
	Low
Industry Sector	History of slow and steady growth
	Periods of growth and contraction
	Emerging industry

A single concept presentation was selected and the conjoint questions were generated. A five point Likert scale was utilised and respondents were asked to rate their likelihood of purchasing each hypothetical case presented. The Likert scale options were:

- Definitely would not buy
- Probably would not buy
- Indifferent
- Probably would buy
- Definitely would buy

According to Hair et al (2005) and Sawtooth Software (2004), selecting the number of tasks or questions is critical to the success of the questionnaire. A limitation of CVA as opposed to adaptive conjoint analysis (ACA), is that there is no strategy for simplifying respondent's tasks. Each question involves consideration of all the conjoint attributes. If there are too many attributes (more than six or seven) the number of questions required results in a longer questionnaire that is too difficult for respondents to complete.

The decision as to how many questions to ask is dependent on the number of separate part worth parameters. The more attributes and levels, the more parameters, and ultimately the more questions. Sawtooth (2004) recommends three times the number of questions as the number of parameters to be estimated.

Hair et al (2005) and Sawtooth Software (2004) calculate the number of parameters by utilising the following formula:

Total number of levels – number of attributes +1

Applying this formula to this research results in the following:

21 levels – 7 attributes +1 = 15 parameters

The recommended number of questions according the Sawtooth would be 45 with an absolute minimum of 22 (1.5 x the number of parameters). However both Sawtooth (2004) and Hair et al (2005) report that going above 30 questions can result in poor data quality.

This researcher was reluctant to go below the seven attributes to be tested, but was mindful of the questionnaire design tradeoffs to be made. In order to assist with these design tradeoffs, the CVA designer in Sawtooth uses a computer search technique to find D-efficient designs for a list of attributes and levels and a requested number of conjoint profiles.

D-efficiency is described in an article by Kuhfeld, Tobias and Garratt (1994). From this article, D-efficiency is a function of the determination of the X'X matrix, given by the formula:

$$\frac{100}{N_D I(X'X)^{-1}1/P}$$

Where N_D = number of tasks

P = number of attributes

X = the design of the matrix using orthogonal coding

A design has optimal efficiency if it is orthogonal and balanced meaning that each level within an attribute is shown an equal number of times.

Garratt et al (1994) explain that the D-efficiency measures the goodness of the design relative to the hypothetical orthogonal design. A perfect design is orthogonal and balanced and has a score of 100. This is not always possible to achieve as it will require too many tasks. A final design of less than 100 is still satisfactory however.

This researcher decided upon 31 questions which gave a D-efficiency of 98.05, which is still an efficient design. The results of the CVA design test report are shown below:

D-Efficiency = 98.054742

Efficiency coefficients for each attribute:

Attribute 1 = 0.971

Attribute 2 = 0.984

Attribute 3 = 0.958

Attribute 4 = 0.978

Attribute 5 = 0.933

Attribute 6 = 0.999

Attribute 7 = 0.985

As can be seen, the overall D-efficiency is high, with the highest scoring attribute being attribute 6 which Earnings Yield and the lowest being attribute 5 which is Price Earnings Ratio. This means that the questionnaire has more questions on Earnings Yield across the three levels than on Price Earnings Ratio across its three levels.

The last 8 questions concerned the respondent's demographic information. The end result was an online survey that consisted of 40 questions in total hosted by SurveyMonkey.net.

3.5 Procedure for data collection

A 40 question survey consisting of 1 sampling question, 31 conjoint questions and 8 demographic questions was created on the website SurveyMonkey.net. An email that served as a covering letter explaining the reasons behind the research, asking for respondents' assistance in completing it and also distributing it was drafted. Embedded within this email was the link to the survey. The email asked potential respondents to click on the link to access the survey and complete the questionnaire.

As previously discussed, the original intention was to collect data from at least one stock broking firm by accessing their client base. Unfortunately this approach was not agreed to by the various firms approached. Instead this researcher relied on his personal and professional network to distribute the email to potential respondents who then completed the survey online. In addition the email and link was posted to the blogsite tickertalk,co.za.

After a period of three weeks the responses were downloaded from SurveyMonkey.net. 40 people had accessed the survey of which 32 had answered all the questions. This resulted in a sample of 32 responses which could be analysed.

3.6 Data analysis and interpretation

Conjoint analysis was utilised to address the first sub-problem concerning the ranking of factors that South African investors consider important in making

their share purchase decision. Cluster analysis was used to see if there were subsets of investors within the sample to address the second sub-problem. This is similar to the methodology employed by Clark-Murphy and Soutar (2005) when they segmented the Australian retail investors according to individual investor preferences.

The methodology employed was to first analyse the responses to the conjoint survey using conjoint analysis and then to perform cluster and discriminant analysis on the part worth utilities generated to determine whether sub-groups could be identified within the sample. The demographic data was mainly used for descriptive purposes of the sample and the clusters. It was not used for the clustering calculations as this was based on respondents' preferences in share purchase decision making.

3.6.1. Conjoint analysis for sub-problem one

Conjoint analysis is a methodology that that portrays consumers' decision choices realistically as trade-offs among multiattribute products or services (Hair et al, 2006). It is widely used in the marketing industry in new product development, segmentation, pricing and advertising. The utilisation of specialised computer software and the increased processing power of personal computers have also contributed to the uptake of this methodology in consumer research. It is possible to integrate the entire process from generating the combinations of independent variables to be evaluated to creating choice simulators for predicting consumer choices.

According to Hair et al (2006), conjoint analysis can be expressed as

$$Y_1 = X_1 + X_2 + X_3 + \ldots + X_N$$

(nonmetric or metric) (nonmetric)

Due to the use of nonmetric independent variables, conjoint analysis closely resembles analysis of variance (ANOVA) which has a foundation in the analysis of experiments. This leads to conjoint analysis closely resembling traditional experimentation. (Hair et al, 2006).

Conjoint analysis is a grouping of methods and techniques developed to understand individual preferences that share a theoretical foundation based upon models of information integration and functional measurement. It is designed for understanding consumers' reactions to and evaluations of predetermined attribute combinations that represent potential products or services. The flexibility and uniqueness of conjoint analysis are due to the following:

- An ability to accommodate a nonmetric or metric dependent variable
- The use of only categorical predictor variables
- Rather general assumptions about the relationship of independent variables with the dependent variable.
- Maintains a high degree of realism.

(Hair et al, 2006)

Conjoint analysis is based on the premise that consumers evaluate the value of an object by combining the separate amounts of value provided by each attribute. Consumers can best provide their estimates of preference by judging objects formed by combinations of attributes.

The most fundamental concept in conjoint analysis is utility. This is the conceptual basis for measuring value. Utility encompasses all aspects of an object and is seen as a measure of the individual's overall preference. It is assumed to be based on the value placed on the each of the levels of the attributes. Respondents thus react to varying combinations of attributes (such

as features, prices or brands) with varying levels of preference. The utility values associated with each feature of a product are summed to arrive at the overall utility. Products or services with a higher utility are preferred to those with a lower utility. (Hair et al, 2006).

In defining utility the researcher must be able to describe the object in terms of both its attributes and all the relevant values for each attribute. This is done by addressing the following three issues:

1. A factor represents a specific attribute of the product or service. The researcher must identify all the important attributes that could affect preference.
2. The possible values for the factor are its levels. These values enable the researcher to describe the object in terms of its levels of the factors that describe it. For example a brand and price may be two factors in a conjoint analysis. Brand name may have two levels (brand A and brand B) while where price might have three levels (R5, R7 and R10).
3. A researcher selects the factors and levels to describe an object according to a specific plan. This combination is known as a treatment or stimulus. To use the previous example, one stimulus could be brand A at R5.

(Hair et al, 2006)

In conjoint analysis the researcher creates a set of real or hypothetical objects by combining selected levels of each attribute. This results in a design which is a set of stimuli presented to the respondent. The respondent provides their overall evaluations in a process called the conjoint task. The researcher is thus asking the respondent to perform a realistic task by choosing amongst a set of objects. The hypothetical objects are constructed in such a manner that the influence of each attribute and each value of each attribute on the utility judgement of a respondent can be determined from the respondents overall ratings. (Hair et al, 2006).

Please refer to table 5 for the attributes and levels used in this research. The seven attributes with three levels each resulted in a conjoint design consisting of 21 stimuli or conjoint tasks. The Sawtooth software was utilised to create the research instrument as previously described.

After downloading the responses from the online survey engine, the Sawtooth software was utilised to estimate the part worths and determine the utilities across the attributes in order to rank the factors in order of importance for the share purchasing decisions of the sampled retail investors.

In estimating the part worth utilities, the software first estimates a unique set of part worths for each respondent which is saved and run through the market simulator to determine the average of the preferences across the sample. The monotone regression method was selected due to the ordinal nature of the data and the utilities for the 32 respondents were calculated. These utilities were then run through the market simulator to obtain the rankings of the factors to address the first sub-problem, and were also exported to NCSS to perform the cluster and discriminant analysis required for sub-problem two.

3.6.2. Cluster analysis for sub-problem two

Cluster analysis groups individuals into clusters so that individuals in the same cluster are more similar to one another than they are to individuals in another cluster. It is a group of multivariate techniques that group objects based on the characteristics that they possess. There are a number of methods, but they have a common dimension of clustering according to the relationships amongst the variables. Cluster analysis differs from factor analysis in that it groups objects and not variables. (Hair et al, 2006).

Cluster analysis classifies the respondents so that each respondent is similar to others in the cluster based upon a set of characteristics. If the classification is successful the respondents within clusters will be close together when plotted geometrically and different clusters will be far apart. (Hair et al, 2006).

The cluster variate is the set of variables representing the characteristics used to compare the objects in the cluster analysis. As the cluster variate includes only the variables used to compare objects, it determines the character of the objects. The variables utilised to perform the cluster analysis were the 21 stimuli made up of the 7 attributes each consisting of 3 levels.

Cluster analysis is the only multivariate technique that does not estimate the variate empirically but instead uses that defined by the researcher. The focus is thus on the comparison of object based on the variate and not on the estimation of the variate itself. Because of this the researcher's definition of the variate is a critical step in the cluster analysis.

The NCSS software was used to perform the cluster analysis on the raw data from the conjoint analysis. This consisted of clustering 32 respondents across 21 variables. More than one clustering technique was used for the cluster analysis.

3.6.2.1. Hierarchical cluster analysis

The agglomerative hierarchical clustering algorithms available within NCSS build a cluster hierarchy that is commonly displayed as a tree diagram called a dendrogram. It starts with each object in separate cluster. At each step the two clusters most similar are joined together to form a single cluster. The resultant dendrogram was then used to determine the number of groups to form.

The hierarchical clustering method selected was the default setting being the group average or the unweighted pair-group method. The distance between two groups is defined as the average distance between each of their members. The coefficients of the distance equation are: $\propto_i = \frac{n_i}{n_k}$, $\propto_j = \frac{n_i}{n_k}, \beta = 0, \gamma = 0$.

The dendrogram was thus created by utilising the group average linkage with the Euclidian distance method. The Alpha, Beta and Gamma were left at the default settings of 0.50, 0.50 and 0.90 respectively. Upon viewing the dendrogram this researcher decided to use 4 groups in a K-means cluster analysis.

3.6.2.2. K-Means cluster analysis

The objective of K-means cluster analysis is to divide *N* observations with *P* dimensions (variables) into *K* clusters so that the within-cluster sum of squares is minimized. This algorithm finds a "local" optimum. This is a solution in which no movement of an observation from one cluster to another will reduce the within-cluster sum of squares. The algorithm may be repeated several times with different starting configurations. The optimum of these cluster solutions is then selected. (Hair et al, 2006).

The method of initializing the clusters influences the final cluster solution. For each trial, NCSS randomly assigns each point to a cluster. This configuration is optimized using the k-means algorithm. Trying several random starting configurations will greatly increase the probability of finding the global optimum solution for a particular number of clusters.

The goodness-of-fit criterion used to compare various cluster configurations is based on the within-cluster sum of squares, WSS_K, where

$$WSS_K = \left(\frac{NP}{NP-m}\right)\sum_{k=1}^{K}\sum_{i=1}^{P}\sum_{j=1}^{n_k}(1-\delta_{ijk})(z_{ij}-c_{ik})^2$$

The NCSS software was instructed to group the 32 respondents into 4 groups using all 21 of the variable from the conjoint analysis. The maximum of 100 random starts and 1000 iterations were selected. The resultant clustering created 2 groups of 10 each, one group of 8 and one group of 4.

3.6.3. Discriminant analysis for sub-problem two

In order to better understand the groupings of the respondents from the cluster analysis discriminant analysis was applied to the groups. This was to determine which of the 21 independent variables were more influential in grouping the respondents. From this one can determine if there are specific themes which can explain the main differences between the 4 groups.

This is possible because discriminant analysis finds a set of prediction equations based on independent variables that are used to classify individuals into groups. There are two possible objectives in a discriminant analysis; the first is to find a predictive equation for classifying new individuals and the second is to interpret the predictive equation to better understand the relationships that may exist among the variables. (Hair et al, 2006).

There are many similarities between discriminant analysis and multiple regression. The main difference between these two techniques is that regression analysis deals with a continuous dependent variable, while discriminant analysis must have a discrete dependent variable. The methodology used to complete a discriminant analysis is similar to regression

analysis. Each independent variable is plotted versus the group variable. Then variable selection is conducted to determine which independent variables are beneficial. Finally a residual analysis is conducted to determine the accuracy of the discriminant equations. (Hair et al, 2006).

The mathematics of discriminant analysis are related very closely to the one-way MANOVA. In fact, the roles of the variables are simply reversed. The classification (factor) variable in the MANOVA becomes the dependent variable in discriminant analysis. The dependent variables in the MANOVA become the independent variables in the discriminant analysis. (Hair et al, 2006).

A discriminant function is a weighted average of the values of the independent variables. The weights are selected so that the resulting weighted average separates the observations into the groups. High values of the average come from one group; low values of the average come from another group. The problem reduces to one of finding the weights which, when applied to the data, best discriminate among groups according to some criterion. The solution reduces to finding the eigenvectors, *V*, of$S_W^{-1}S_A$. The canonical coefficients are the elements of these eigenvectors. (Hair et al, 2006).

Wilks' lambda is a goodness of fir parameter and is defined as follows:

$$\Lambda = \frac{|S_W|}{|S_T|} = \prod_{j=1}^{m} \frac{1}{1+\lambda_j}$$

Where λ_j is the *jth* eigenvalue corresponding to the eigenvector described above and *m* is the minimum of *K-1* and *p*. (Hair et al, 2006).

The NCSS software was used to conduct the discriminant analysis. The dependent Y variable was the group each respondent had been placed in from the K-means cluster analysis. All 21 of the independent variables making up the stimuli from the conjoint analysis were used in the discriminant analysis. The estimation method selected was the linear discriminant function. No prior probabilities were specified. A stepwise variable function was specified and a maximum of 2500 iterations was selected. The analysis was run and the original 21 independent variables were reduced to 7 that explained the differences across the 4 groups.

3.7 Limitations of the study

The small sample size may have led to sampling bias and does limit the extent to which the results can be applied to the larger population. The self selection sampling method may also have led to some sampling bias.

The conjoint method used did limit the number of attributes that could be used due to the limitations of the methodology.

The attributes that were used were not exhaustive and it cannot be assumed that they are the only factors that are considered when investors make their share purchase decisions.

3.8 Validity and reliability

In looking at issues of validity and reliability, we need to first explain what each term means. According to Kalof et al (2008), validity is concerned with the 'goodness of fit' between the research, the evidence from the study and the conclusions drawn. Internal and external validity is normally considered. Reliability is concerned with consistency of results in that similar findings are revealed with the repeated applications of the research.

3.8.1 External validity

Kalof et al (2008) consider external validity is the ability to generalize from the study to the general population. The small size and demographic make up of the sample does not lend itself easily to extrapolation to the broader South African investor community. Some sampling bias may have occurred. This will be discussed further in the discussion of the results.

3.8.2 Internal validity

According to Kalof et al (2008), internal validity means that the study is drawing appropriate conclusions from the data at hand. By drawing on the learnings of previous research and attempting to replicate Clark-Murphy and Soutar's (2005) methodology in their investigation on individual investor preferences internal validity should be reasonable.

Two other actions undertaken by this researcher should also have improved internal validity. Firstly, the initial question of the online survey determined whether or not the potential respondent was a member of the population of retail investors that made their own share purchase decisions. If they indicated that they were not by their answer they were not permitted to continue with the survey. In this way only respondents sufficiently knowledgeable could complete the survey.

Secondly, any respondents that did not complete the survey in its entirety were excluded from the data analysis and interpretation.

Conjoint analysis, cluster and discriminant analysis each have their own 'goodness of fit' criteria as previously discussed. These were considered in the

data analysis and are referred to in the resultant discussion and interpretation of the results.

3.8.3 Reliability

Kalof et al (2008) consider reliability to be concerned with consistency in that similar findings are revealed with the repeated applications of the research. Reliability should have been improved by utilising a similar methodology to that used by Clark-Murphy and Soutar in their 2005 study on investor preferences.

CHAPTER 4: PRESENTATION OF RESULTS

4.1 Introduction

This chapter will first present the demographic breakdown of the sample as a whole and will then show the demographics of each of the clusters.

The results pertaining to proposition 1 will then be shown. These results include the utility values of the attributes, the ranking to the factors according to their importance to the respondents and the conclusions of the results pertaining to proposition 1.

The results to proposition 2 will be shown. These will include the results of the hierarchical cluster analysis, the results of the K-means cluster analysis and also the results of the discriminant analysis. The conclusion to the results pertaining to proposition 2 will then be shown, followed by a summary of the results chapter.

4.2 Demographic profile of respondents

Demographic information was collected from the respondents by means of the same online survey that posed the conjoint questions. Information across each of the following categories was collected:

a. Sex
b. Age
c. Race
d. Education level
e. Marital status
f. Number of dependents

g. Employment status
h. Income level

First the demographic information for all 32 of the respondents will be displayed and then the demographic information for each of the 4 clusters developed to address sub-problem 2.

4.2.1. Demographics for the Total Sample

a. ***Sex***

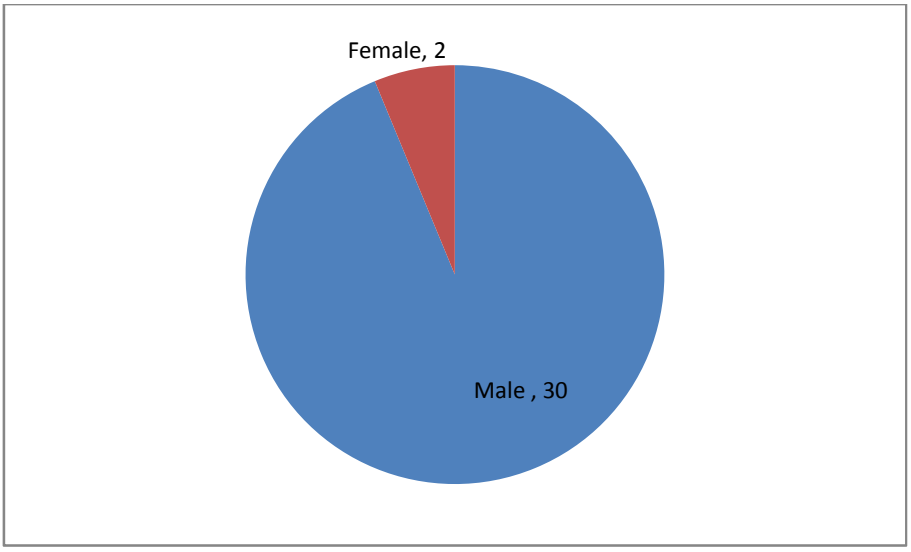


Figure 3: The proportion of male and female respondents

Table 6: The number of male and female respondents

	Respondents	**Percentage**
Male	30	94%
Female	2	6%
Total	32	100%

As can be seen from the above data, the majority of respondents were male.

b. ***Age***

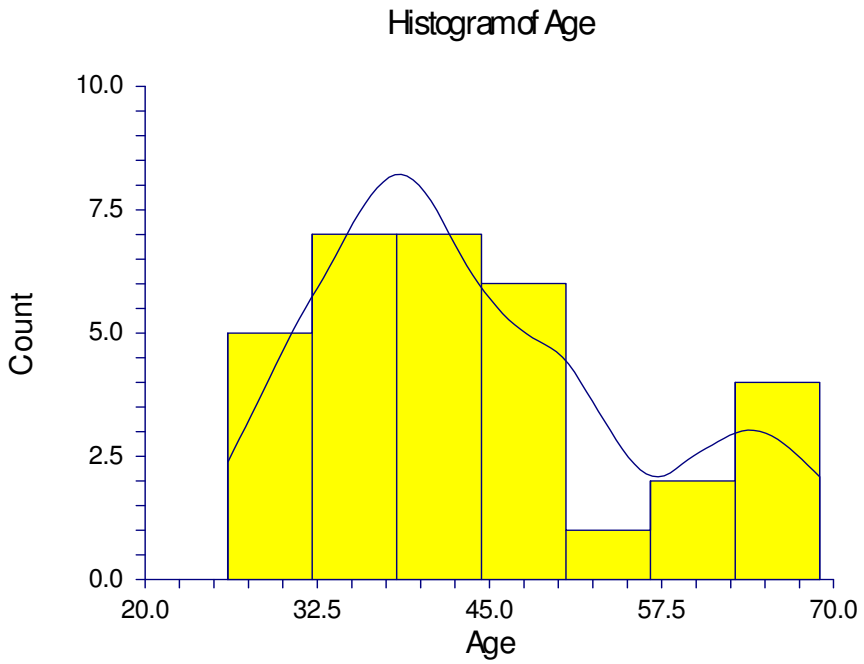


Figure 4: The distribution of age across the sample

Table 7: Summary statistics of age across the sample

Count	Mean	Standard Deviation	Standard Error	Minimum	Maximum	Range	Median	Mode
32	44.34375	11.93155	2.10922	26	69	43	41	50

There was quite a range of responses from the youngest of 26 to the oldest of 69. The average age was 44, but half the sample was under 41 as can be seen from the median.

c. ***Race***

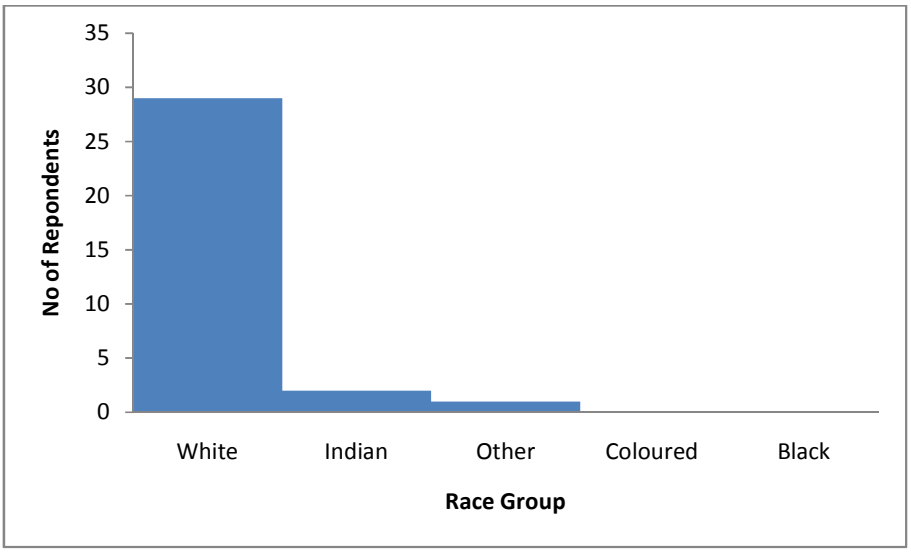


Figure 5: The spread of respondents across racial groups

Table 8: The Racial makeup of respondents

	Respondents	Percentage
White	29	91%
Indian	2	6%
Other	1	3%
Coloured	0	0%
Black	0	0%
Total	32	100%

The respondents were predominantly white. No coloureds or blacks responded to the survey.

d. ***Education Level***

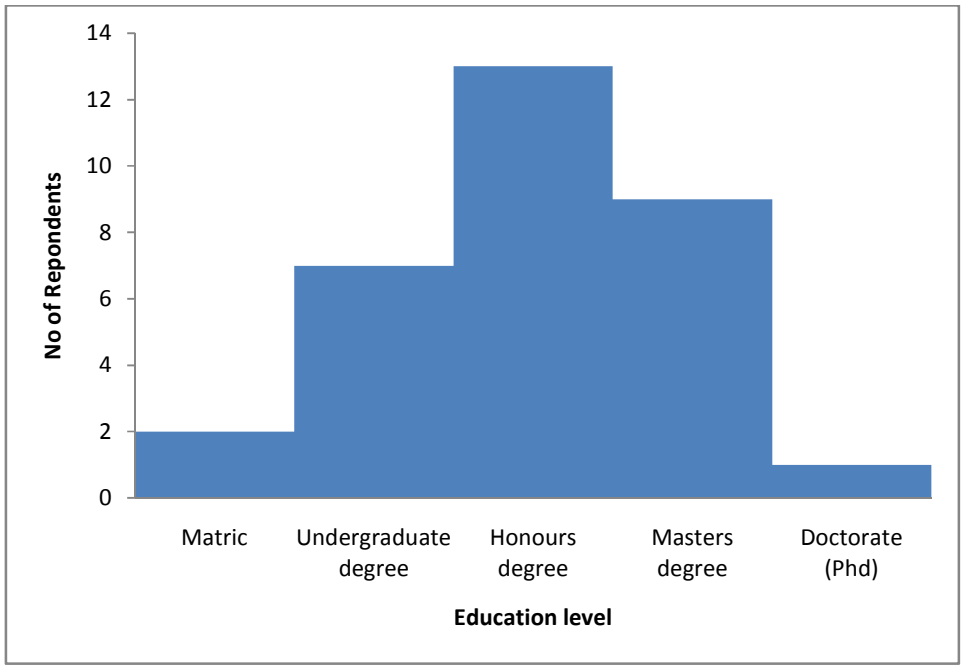


Figure 6: The education levels of respondents

Table 9: The education levels of respondents

	Respondents	Percentage
Matric	2	6%
Undergraduate degree	7	22%
Honours degree	13	41%
Masters degree	9	28%
Doctorate (Phd)	1	3%
Total	32	100%

The respondents were generally well educated with 72% of them having obtained academic qualifications beyond an undergraduate degree.

e. ***Marital Status***

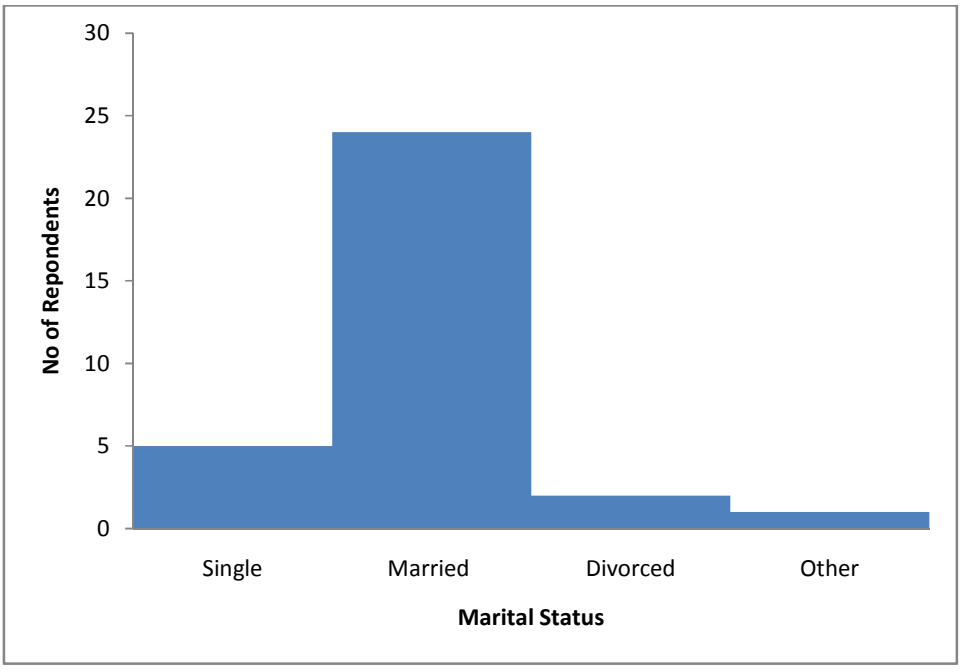


Figure 7: The marital status of respondents

Table 10: The marital status of respondents

	Respondents	Percentage
Single	5	16%
Married	24	75%
Divorced	2	6%
Other	1	3%
Total	32	100%

75% of respondents were married at the time of taking the survey.

f. ***Number of dependents***

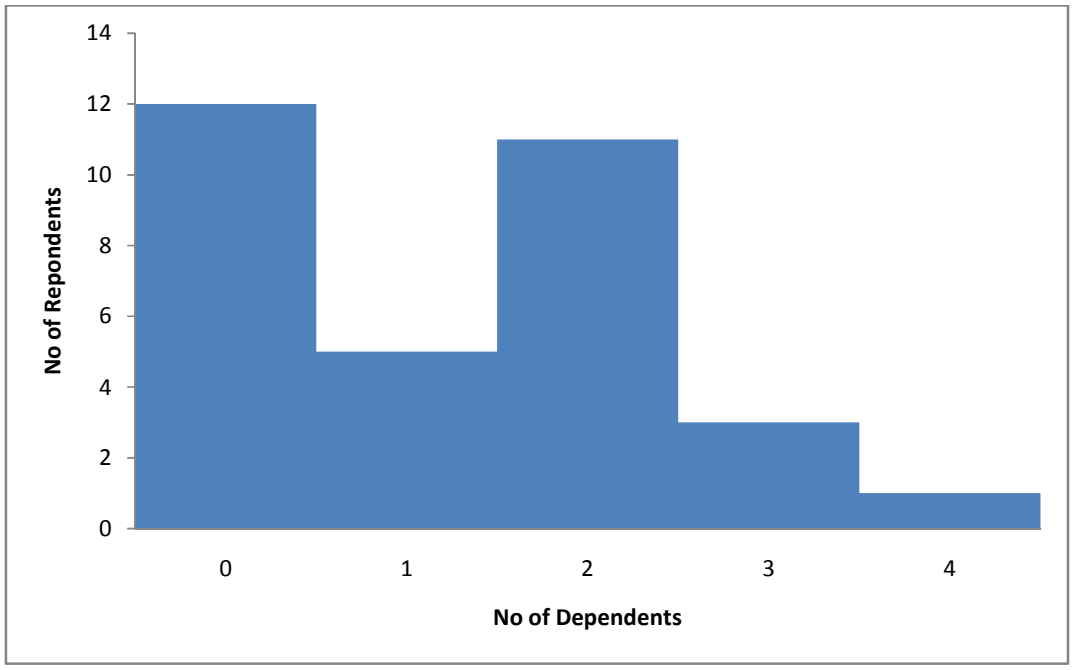


Figure 8: The number of dependents per respondent

Table 11: The number of dependents per respondent

	Respondents	Percentage
0 Dependents	12	38%
1 Dependents	5	16%
2 Dependents	11	34%
3 Dependents	3	9%
4 Dependents	1	3%
Total	32	100%

The two most common occurrences were to either have 2 dependents or to have none. Many respondents with no dependents were older whose children had left home.

g. ***Employment Status***

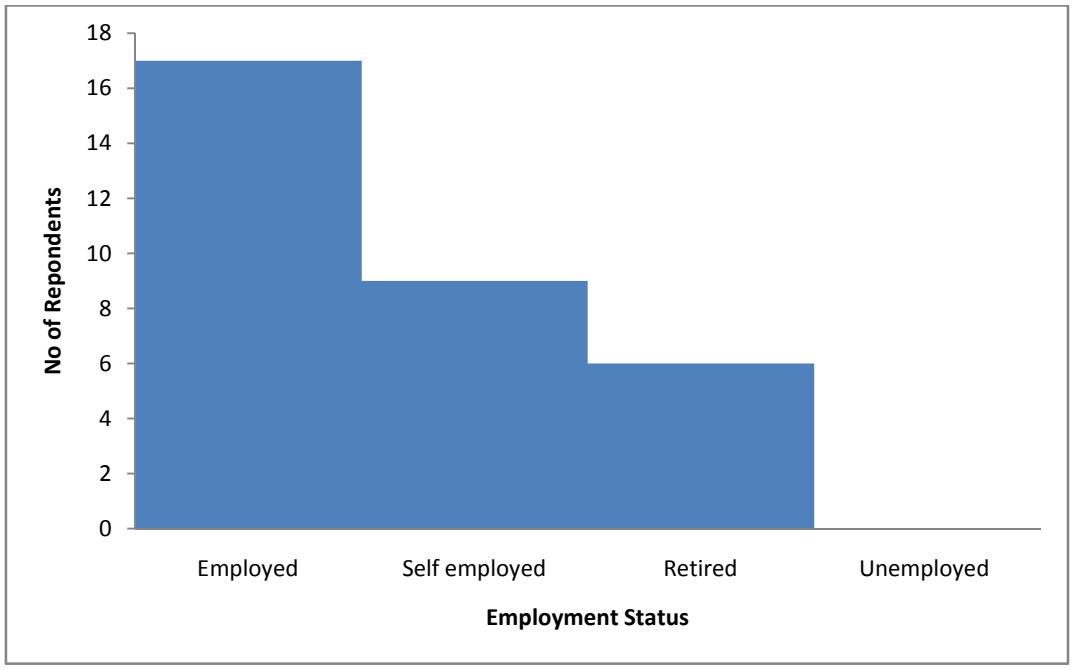


Figure 9: The employment status of each respondent

Table 12: The employment status of each respondent

	Respondents	Percentage
Employed	17	53%
Self employed	9	28%
Retired	6	19%
Unemployed	0	0%
Total	32	100%

81% of the respondents were still working, and 19% were retired. Of those still working over a quarter of them were self employed. None of the respondents were unemployed.

h. ***Monthly Household Income Level***

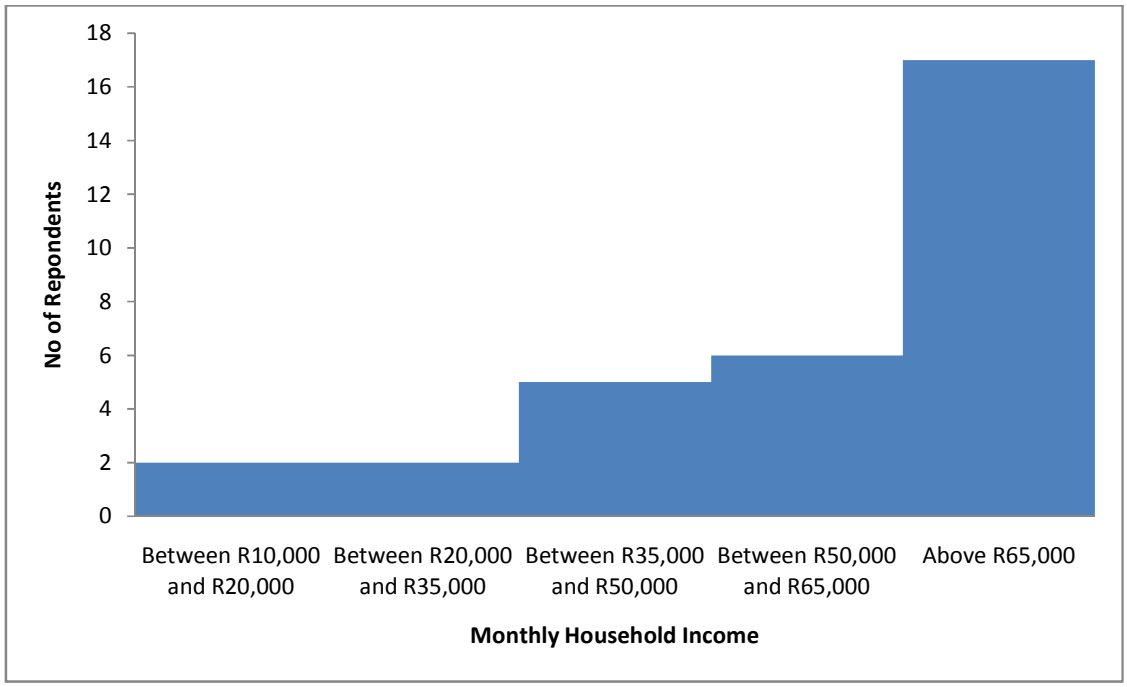


Figure 10: The monthly household income of each respondent

Table 13: The monthly household income of each respondent

	Respondents	Percentage
Between R10,000 and R20,000	2	6%
Between R20,000 and R35,000	2	6%
Between R35,000 and R50,000	5	16%
Between R50,000 and R65,000	6	19%
Above R65,000	17	53%
Total	32	100%

Just over half the respondents reported that they had a monthly household income in excess of R65,000.

4.2.2. Demographics for the Clusters

a. ***Cluster 1***

Table 14: The Demographic Information for Cluster 1

	Respondents	Percentage
Male	8	100%
Female	0	0%
White	8	100%
Indian	0	0%
Other	0	0%
Coloured	0	0%
Black	0	0%
Matric	0	0%
Undergraduate degree	1	13%
Honours degree	4	50%
Masters degree	2	25%
Doctorate (Phd)	1	13%
Single	1	13%
Married	5	63%
Divorced	1	13%
Other	1	13%
0 Dependents	3	38%
1 Dependents	1	13%
2 Dependents	3	38%
3 Dependents	1	13%
4 Dependents	0	0%
Employed	6	75%
Self employed	0	0%
Retired	2	25%
Unemployed	0	0%
Between R10,000 and R20,000	0	0%
Between R20,000 and R35,000	1	13%
Between R35,000 and R50,000	1	13%
Between R50,000 and R65,000	2	25%
Above R65,000	4	50%
Total	8	100%

Summary Section of Age when Cluster=1

Count	Mean	Standard Deviation	Standard Error	Minimum	Maximum	Range	Median	Mode
8	43.125	11.9336	4.219163	29	63	34	39	38

b. ***Cluster 2***

Table 15: The Demographic Information for Cluster 2

	Respondents	Percentage
Male	4	100%
Female	0	0%
White	4	100%
Indian	0	0%
Other	0	0%
Coloured	0	0%
Black	0	0%
Matric	0	0%
Undergraduate degree	1	25%
Honours degree	3	75%
Masters degree	0	0%
Doctorate (Phd)	0	0%
Single	2	50%
Married	2	50%
Divorced	0	0%
Other	0	0%
0 Dependents	2	50%
1 Dependents	0	0%
2 Dependents	1	25%
3 Dependents	1	25%
4 Dependents	0	0%
Employed	3	75%
Self employed	1	25%
Retired	0	0%
Unemployed	0	0%
Between R10,000 and R20,000	0	0%
Between R20,000 and R35,000	0	0%
Between R35,000 and R50,000	0	0%
Between R50,000 and R65,000	2	50%
Above R65,000	2	50%
Total	4	100%

Summary Section of Age when Cluster=2

Count	Mean	Standard Deviation	Standard Error	Minimum	Maximum	Range	Median	Mode
4	38.5	10.24695	5.123476	28	50	22	38	

c. ***Cluster 3***

Table 16: The Demographic Information for Cluster 3

	Respondents	Percentage
Male	10	100%
Female	0	0%
White	8	80%
Indian	1	10%
Other	1	10%
Coloured	0	0%
Black	0	0%
Matric	1	10%
Undergraduate degree	5	50%
Honours degree	3	30%
Masters degree	1	10%
Doctorate (Phd)	0	0%
Single	0	0%
Married	10	100%
Divorced	0	0%
Other	0	0%
0 Dependents	2	20%
1 Dependents	2	20%
2 Dependents	4	40%
3 Dependents	1	10%
4 Dependents	1	10%
Employed	4	40%
Self employed	4	40%
Retired	2	20%
Unemployed	0	0%
Between R10,000 and R20,000	0	0%
Between R20,000 and R35,000	0	0%
Between R35,000 and R50,000	4	40%
Between R50,000 and R65,000	0	0%
Above R65,000	6	60%
Total	10	100%

Summary Section of Age when Cluster=3

Count	Mean	Standard Deviation	Standard Error	Minimum	Maximum	Range	Median	Mode
10	**46.7**	**13.89684**	**4.394567**	**32**	**69**	**37**	**45.5**	**50**

d. ***Cluster 4***

Table 17: The Demographic Information for Cluster 4

	Respondents	Percentage
Male	8	80%
Female	2	20%
White	9	90%
Indian	1	10%
Other	0	0%
Coloured	0	0%
Black	0	0%
Matric	1	10%
Undergraduate degree	0	0%
Honours degree	3	30%
Masters degree	6	60%
Doctorate (Phd)	0	0%
Single	2	20%
Married	7	70%
Divorced	1	10%
Other	0	0%
0 Dependents	5	50%
1 Dependents	2	20%
2 Dependents	3	30%
3 Dependents	0	0%
4 Dependents	0	0%
Employed	4	40%
Self employed	4	40%
Retired	2	20%
Unemployed	0	0%
Between R10,000 and R20,000	2	20%
Between R20,000 and R35,000	1	10%
Between R35,000 and R50,000	2	20%
Between R50,000 and R65,000	5	50%
Above R65,000	0	0%
Total	10	100%

Summary Section of Age when Cluster=4

		Standard	Standard					
Count	Mean	Deviation	Error	Minimum	Maximum	Range	Mean	Mode
10	45.3	11.30437	3.574757	26	65	39	45.3	

4.3 Results pertaining to Proposition 1

4.3.1. Average Utility Values from the Conjoint Analysis

Table 18: Average utility values across the sample

Utility Run: CVA Monotone Regression Run
Total Respondents Total Respondents 32
Average Utility Values

Rescaling Method: Zero-Centered Diffs	**Total**
The management has a track record in the industry	39.74
Some managers have a high public profile	-21.66
Management are known to you personally	-18.09
It is a blue chip stock	-1.67
It is a growth stock	-0.36
It is a speculative stock	2.03
The share price has been rising in the last few months	21.3
The share price has been falling in the last few months	-9.63
The share price has been steady in the last few months	-11.74
Recommended by your stockbroker	-1.46
Recommended in the financial press	1.04
A tip or rumor from a friend	0.41
This stock has a high price earnings ratio	27.99
This stock has an average price earnings ratio	-34.33
This stock has a low price earnings ratio	6.34
The yield is high	8.09
The yield is average	-12.87
The yield is low	4.77
The industry sector has a history of slow but steady growth	21.40
The industry sector has periods of growth and contraction	-34.90
Stock is in an emerging industry sector	13.50

Average Tau = 0.59812
Median Tau = 0.63387

The above table shows the results of the utility values across the sample of 32 respondents. The more important utilities in determining the outcome are typically those with the greater ranges. The Tau scores indicate the goodness

of fit of the model. The median Tau measure is higher than the average indicating that there are a few low scoring respondents that show a poorer goodness of fit. It was decided not to exclude these respondents as due to the small sample size and the minimal impact on the results. Overall the goodness of fit is fair and indicates a predictive model.

4.3.2. Average Importance Values from the Conjoint Analysis

Table 19: Average importance across attributes

Management	16.52
Market Status	12.20
Price Trend	13.50
Source of Recommendation	13.15
Price Earnings Ratio	14.13
Yield	14.97
Industry Sector	15.52

The above table shows the importance of each attribute across the sample of 32 respondents. Based on these average importances across the attributes, it is possible to rank the attributes in order of importance to the respondents as per the chart below:

4.3.3. Ranking the factors according to importance

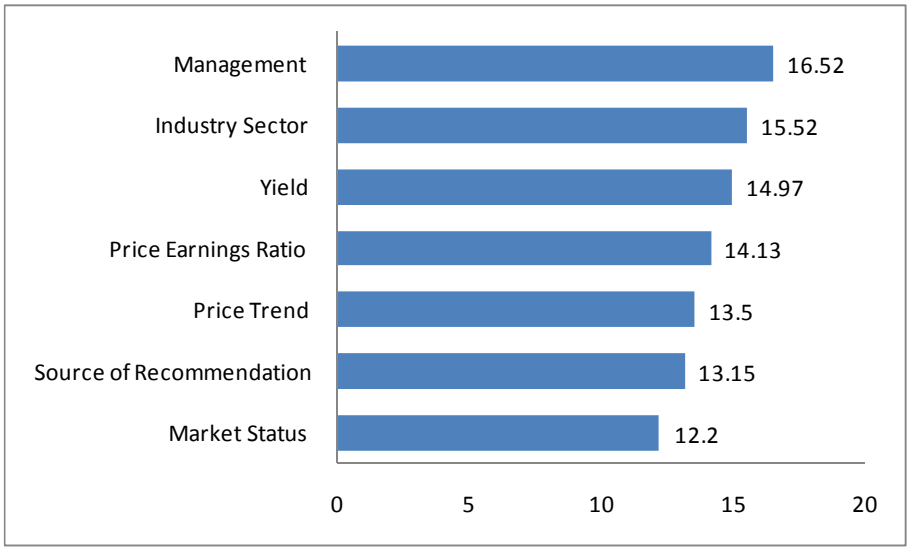


Figure 11: The ranking of the factors in order of importance for the decision making of whether to purchase the share

This chart shows that the most important factor in the purchase decision for the respondents was the management team of the firm and the least important was the market status of the firm. It ranks the attributes of the hypothetical companies from the conjoint survey and in doing so reveals the order of importance for the sample of the factors they consider important in determining whether or not to purchase a share.

4.3.4. Conclusion to results pertaining to Proposition 1:

These results support proposition 1 in that they show that the South African individual investor considers a range of variables that can be ranked in order of importance when making the share purchase decision.

Most important to the sample was their views on the management of the company while least important was the market status of the share. The industry sector and dividend yield of the company were also considered important.

4.4 Results pertaining to Proposition 2

Throughout this section the independent variables will be referred to in terms of their abbreviated name. Please refer to Table 20 for the variable description.

Table 20: The independent variables' descriptions

Variable Name	Variable Description
MRec	The management has a track record in the industry
MPub	Some managers have a high public profile
MKnown	Management are known to you personally
Blue	It is a blue chip stock
Grow	It is a growth stock
Spec	It is a speculative stock
PUp	The share price has been rising in the last few months
PDown	The share price has been falling in the last few months
PSteady	The share price has been steady in the last few months
RecBrok	Recommended by your stockbroker
RecPress	Recommended in the financial press
RecTip	A tip or rumor from a friend
PEHi	This stock has a high price earnings ratio
PEAve	This stock has an average price earnings ratio
PELo	This stock has a low price earnings ratio
YHi	The yield is high
YAve	The yield is average
YLo	The yield is low
IndSGrow	The industry sector has a history of slow but steady growth
IndGC	The industry sector has periods of growth and contraction
Ind_Em	Stock is in an emerging industry sector

4.4.1. Results of the Hierarchical Cluster Analysis

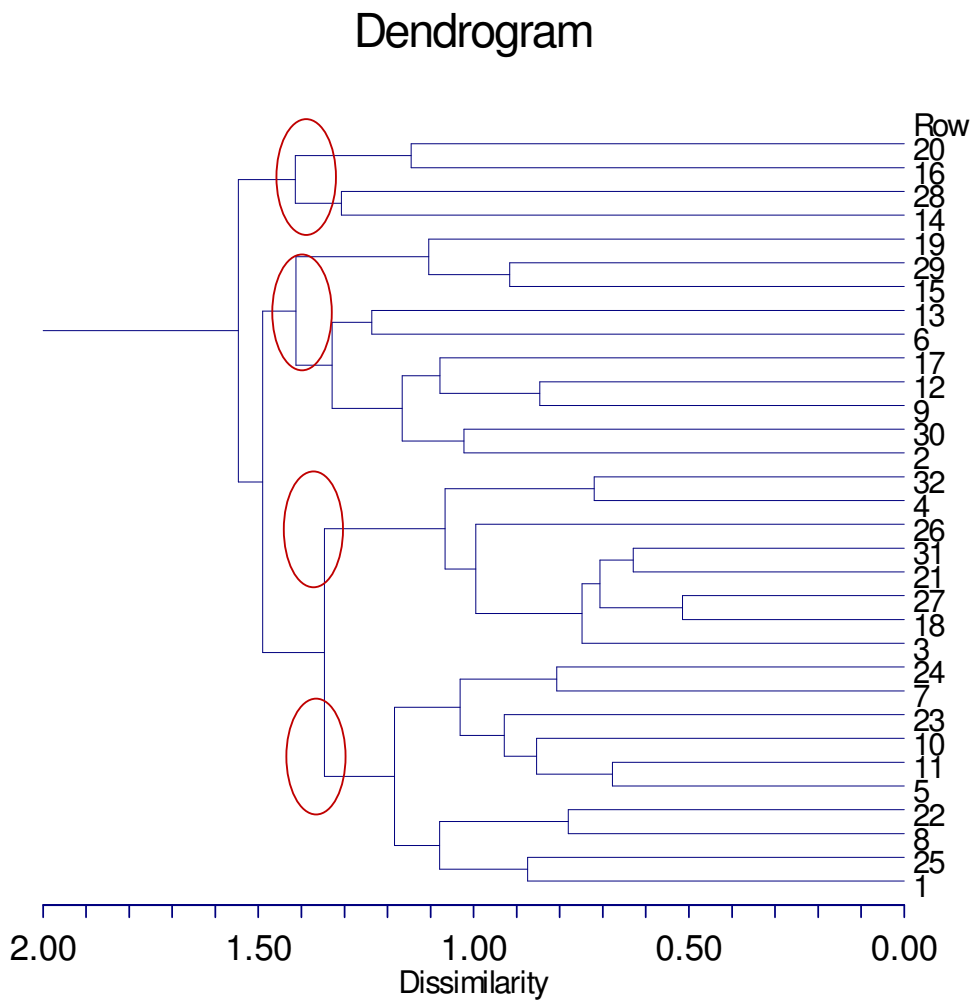


Figure 12: The hierarchical dendrogram of the clusters

As was described in the methodology earlier, an hierarchical clustering methodology was first used to develop the dendrogram seen above. The four clusters at a similar level of dissimilarity are shown above. The hierarchical clustering methodology was used to determine the number of clusters to use in the K-Means clustering analysis.

4.4.2. Results of the K-Means Cluster Analysis

Table 21: The means of the variables across the 4 clusters

Variables	Cluster1	Cluster2	Cluster3	Cluster4
MRec	39.45913	-4.31063	25.08798	72.24009
MPub	-4.430421	45.26529	-30.16899	-53.69092
MKnown	-35.02871	-40.95465	5.081009	-18.54917
Blue	-25.05516	15.47812	28.79936	-20.27861
Grow	46.24551	-34.22208	-1.274104	-23.18617
Spec	-21.19036	18.74396	-27.52526	43.46478
PUp	51.65447	-2.008418	18.7431	9.128711
PDown	-18.46178	-6.432238	6.664733	-20.15362
PSteady	-33.19269	8.440655	-25.40784	11.02491
RecBrok	42.47007	-22.74389	-3.131639	-26.40376
RecPress	-5.347794	37.94743	-32.45111	24.88409
RecTip	-37.12228	-15.20354	35.58275	1.519673
PEHi	39.74875	-22.67331	3.145861	63.70546
PEAve	-30.07631	-11.0584	-21.70143	-59.67288
PELo	-9.672441	33.73171	18.55556	-4.032581
YHi	-54.53288	7.699048	63.34536	3.097037
YAve	51.22408	-30.93687	-33.32196	-36.45774
YLo	3.308796	23.23783	-30.0234	33.3607
IndSGrow	38.32327	-65.9138	35.39727	28.7956
IndGC	-76.88485	24.34173	-16.83729	-43.07188
Ind_Em	38.56158	41.57207	-18.55998	14.27629
Count	**8**	**4**	**10**	**10**

The result of the K-Means cluster analysis was to group the responses into the four clusters specified from observing the dendrogram. The four clusters consist of 8,4,10 and 10 respondents respectively. It can be seen from the above table that the means for many of the variables do appear to differ significantly across the clusters. However it is difficult to determine which variables are mainly responsible for the clustering from looking at the means alone.

Table 22: The standard deviations of the variables across the 4 clusters

Variables	Cluster1	Cluster2	Cluster3	Cluster4
MRec	26.58419	66.16267	48.68486	23.61316
MPub	28.48943	46.8361	72.08676	19.03282
MKnown	28.38346	46.0459	40.72735	23.23116
Blue	32.72537	22.80135	29.13368	22.3963
Grow	33.48983	38.17417	36.52486	31.1546
Spec	11.0614	25.75889	23.94183	41.61627
PUp	28.86263	66.55894	53.83203	32.73173
PDown	26.80077	4.650838	37.88746	32.5956
PSteady	43.10324	62.03115	32.0946	42.72506
RecBrok	19.881	36.71976	36.02238	31.15321
Variables	**Cluster1**	**Cluster2**	**Cluster3**	**Cluster4**
RecTip	29.06055	46.85917	39.717	32.854
PEHi	22.55988	34.11035	40.49492	36.29454
PEAve	15.80523	23.46832	32.66165	31.56089
PELo	23.6883	36.51515	36.87628	45.62717
YHi	22.71706	34.41323	36.16853	30.09917
YAve	31.21519	35.92701	42.86472	35.41785
YLo	33.67497	42.82819	27.8536	26.1145
IndSGrow	33.95403	28.07067	40.42347	40.47406
IndGC	29.5017	45.41195	33.22157	32.79865
Ind_Em	19.19439	58.92583	37.33265	31.33413
Count	8	4	10	10

The standard deviations show to what extent the members of each group differ from one another per variable. Those variables showing the least amount of variance are probably more influential in determining the common characteristics within the clusters.

Table 23: The F-ratios of the variables across the 4 clusters

Variables	DF1	DF2	Between Mean Square	Within Mean Square	F-Ratio	Prob Level
MRec	3	28	6823.946	1586.775	4.3	0.012907
MPub	3	28	10424.89	2224.684	4.69	0.008948
MKnown	3	28	3252.531	1135.202	2.87	0.05443
Blue	3	28	6099.26	757.4872	8.05	0.000505
Grow	3	28	9060.615	1177.316	7.7	0.000668
Spec	3	28	10444.82	842.6131	12.4	0.000024
PUp	3	28	3696.964	1958.747	1.89	0.154635
PDown	3	28	1475.851	984.7948	1.5	0.236498

PSteady	3	28	4120.43	1794.581	2.3	0.099418
RecBrok	3	28	7833.56	972.3218	8.06	0.000504
RecPress	3	28	7559.007	1270.674	5.95	0.002852
RecTip	3	28	8209.349	1300.371	6.31	0.002082
PEHi	3	28	10100.49	1202.406	8.4	0.000387
PEAve	3	28	3442.814	784.528	4.39	0.011864
PELo	3	28	2540.171	1389.404	1.83	0.16493
YHi	3	28	20718.15	967.5847	21.41	0
YAve	3	28	14638.9	1375.687	10.64	0.000077
YLo	3	28	7220.47	948.6036	7.61	0.000714
IndSGrow	3	28	11764.05	1424.424	8.26	0.000431
IndGC	3	28	10690.19	1139.071	9.39	0.000186
Ind_Em	3	28	6153.759	1227.704	5.01	0.006604

The F-ratios above show the whether the cluster means for the variables are significantly different across the clusters. A few variables stand out; such as YHi (High dividend yield), Spec (a speculative stock) and YAve (Average yield) to name the 3 variables with the highest F-ratios. These three variables have the most different means across the clusters. The implication is that they are responsible for most of the differences across the clusters.

4.4.3. Results of the Discriminant Analysis

In order to better understand the differences across the clusters in terms of which variables are predominantly responsible for the differences, discriminant analysis was performed.

Table 24: Variable selection from the discriminant analysis

Status	Independent Variable	Pct Chg In Lambda	F-Value	Prob Level	R-Squared Other X's
In	MPub	40.37	4.74	0.011194	0.250564
In	Blue	41.22	4.91	0.009709	0.504164
In	Spec	63.70	12.29	0.000074	0.424235
In	PSteady	39.05	4.49	0.013899	0.273455
In	RecBrok	40.60	4.78	0.010787	0.401339
In	PEHi	38.73	4.42	0.014652	0.348218
In	YHi	65.83	13.49	0.000040	0.268703
In	IndSGrow	62.86	11.85	0.000094	0.106525
Out	MRec	8.75	0.64	0.598339	0.694225

Out	MKnown	8.75	0.64	0.598339	0.522299
Out	Grow	5.56	0.39	0.759858	1.000000
Out	PUp	12.56	0.96	0.431842	0.671296
Out	PDown	12.56	0.96	0.431842	0.322746
Out	RecPress	3.92	0.27	0.844836	0.565264
Out	RecTip	3.92	0.27	0.844836	0.585083
Out	PEAve	8.86	0.65	0.593281	0.401552
Out	PELo	8.86	0.65	0.593281	0.584578
Out	YAve	22.21	1.90	0.161563	0.766854
Out	YLo	22.21	1.90	0.161563	0.601438
Out	IndGC	19.99	1.67	0.206418	0.639083
Out	Ind_Em	19.99	1.67	0.206418	0.563074

From the first step of the discriminant analysis one can see which of the variables have means that differ significantly across the groups. Those variables with means that did not appear to differ significantly were excluded from the next step in the discriminant analysis. The first column of the table labelled 'Status' shows whether the variable is 'In' or excluded ('Out') from further analysis. The NCSS software made the decision based on the F-Value and resultant probability level. Those with a low F-Value were considered by the software not to influence the grouping of the clusters. 8 variables were selected for further analysis based on their higher F-Values.

Table 25: Discriminant variable selection summary

Action Iteration	Independent This Step	Variable	Pct Chg In Lambda	F-Value	Prob Level	Wilks' Lambda
0	None					1.000000
1	Entered	YHi	69.64	21.41	0.000000	0.303567
2	Entered	Spec	57.08	11.97	0.000036	0.130279
3	Entered	IndSGrow	55.64	10.87	0.000083	0.057795
4	Entered	PEHi	51.19	8.74	0.000388	0.028209
5	Entered	RecBrok	42.06	5.81	0.003928	0.016344
6	Entered	PSteady	39.05	4.49	0.013899	0.004251
7	Entered	Blue	36.69	4.25	0.016384	0.006975
8	Entered	MPub	32.59	3.71	0.026065	0.011018

The discriminant analysis revealed that the 8 variables displayed in table 20 showed the most variation in means across the 4 clusters. Table 20 also ranks them from the most influence to the least influence in explaining the differences

between the clusters. This means that YHi or 'The yield is high' had the most influence and MPub or 'Some managers have a high public profile' had the least influence in the clustering. But all 8 of these variables did influence the clustering.

Table 26: Group means of the discriminant variables

Variable	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Overall
MPub	-4.430421	45.26529	-30.16899	-53.69092	-21.65566
Blue	-25.05516	15.47812	28.79936	-20.27861	-1.66629
Spec	-21.19036	18.74396	-27.52526	43.46478	2.026507
PSteady	-33.19269	8.440655	-25.40784	11.02491	-11.73776
RecBrok	42.47007	-22.74389	-3.131639	-26.40376	-1.455283
PEHi	39.74875	-22.67331	3.145861	63.70546	27.99406
YHi	-54.53288	7.699048	63.34536	3.097037	8.09241
IndSGrow	38.32327	-65.9138	35.39727	28.7956	21.40186
Count	**8**	**4**	**10**	**10**	**32**

Table 22 shows the means of the discriminant variables across the clusters. By removing those variables which did not contribute to the differences across the clusters it is easier to describe the differences across the clusters.

Table 27: Canonical variate analysis of the discriminant functions

Fn	Inv(W)B Eigenvalue	Ind'l Pcnt	Total Pcnt	Canon Corr	F-Value	Numer DF	Prob Level	Wilks' Lambda
1	8.46242	50.9	50.9	0.9457	14.3	24	0	0.004251
2	5.04485	30.4	81.3	0.9135	12.5	14	0	0.040227
3	3.112443	18.7	100	0.87	11.9	6	0	0.243164

Canonical Coefficients

	Canonical Variate		
Variable	**Variate1**	**Variate2**	**Variate3**
Constant	-0.255500	0.761747	-1.369139
MPub	0.001076	0.009872	-0.015760
Blue	0.026117	0.020339	-0.007898
Spec	-0.036366	0.021030	-0.001695

PSteady	-0.019469	0.004557	-0.007094
RecBrok	0.018255	-0.007395	-0.019455
PEHi	-0.011105	-0.013889	0.014224
YHi	0.012233	0.022640	0.018715
IndSGrow	0.018968	-0.014408	0.016675

Std. Canonical Coefficients

	Canonical Variate		
Variable	**Variate1**	**Variate2**	**Variate3**
MPub	0.050745	0.465639	-0.743364
Blue	0.718815	0.559791	-0.217360
Spec	-1.055613	0.610457	-0.049191
PSteady	-0.824768	0.193039	-0.300504
RecBrok	0.569215	-0.230584	-0.606637
PEHi	-0.385091	-0.481614	0.493245
YHi	0.380517	0.704237	0.582155
IndSGrow	0.715874	-0.543779	0.629354

Variable-Variate Correlations

	Canonical Variate		
Variable	**Variate1**	**Variate2**	**Variate3**
MPub	0.031639	0.076229	-0.386227
Blue	0.200995	0.319869	0.038727
Spec	-0.381127	0.079821	0.146431
PSteady	-0.149831	0.097006	0.052430
RecBrok	0.167293	-0.302114	-0.230877
PEHi	-0.182406	-0.287957	0.253586
YHi	0.209947	0.506633	0.448569
IndSGrow	0.115468	-0.281098	0.346377

Table 23 shows the 3 functions which were developed from the discriminant analysis. These 3 functions explain the variance across the 4 clusters.

The first function, or Variate 1, is responsible for 50.9% of the variance explained by the 3 functions, is positively related to blue chip stocks, negative towards speculative stocks, negative towards a steady price history, positive towards broker recommendations, negative towards a high price earnings ratio, positive towards high dividend yield and positive towards slow and steady industry growth.

Variate 2, the second function, is responsible for 30.4% of the variance across the 4 clusters, is slightly positive towards management being in the public eye, is positive towards blue chip stocks, is positive towards speculative stocks, is

slightly positive towards steady price performance, is slightly negative towards broker recommendations, is negative towards a high price earnings ratio, positive towards a high dividend yield and negative towards industry slow and steady growth.

The final function, Variate 3, explains the remaining 18.7% of the variance explained by the 3 functions across the 4 clusters. This variate is characterised by a negative relationship with management in the public eye, blue chip firms, speculative shares, steady price performance over the last few months and recommendations from brokers. It has a positive relationship with a high price earnings ratio, a high dividend yield and industries showing slow and steady growth.

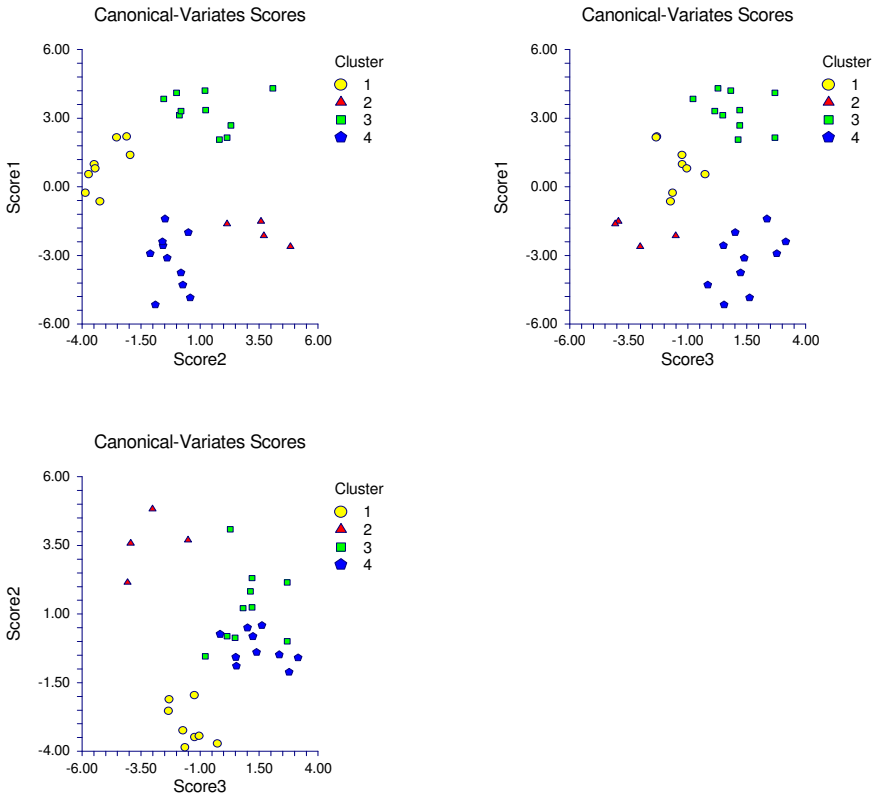


Figure 13: Plotting the Canonical Variates Scores

The 3 functions when plotted against one another show clearly show the clusters as per figure 13. The best depiction of the 4 clusters is from plotting the scores from function 1 against those from function 2 as can be seen from the first of the 3 scatter plots in figure 13.

4.4.4. Conclusion to results pertaining to Proposition 2

These results seem to support proposition 2 in that the sample can be grouped into clusters that differ in which factors they consider important in making their share purchase decision.

4.5 Summary of the results

This results chapter started with the demographics of the overall sample and then summarised the demographic information of the clusters. Of the 32 respondents, 30 were male and only 2 were female. The average age was 44 and 29 of the 32 were white. 72% of the respondents had studied beyond undergraduate level and 75% were married. 81% of the respondents were working and 19% were retired with none being unemployed. 53% of the respondents had a household income over R65, 000 per month.

The results pertaining to proposition 1 determined the average utilities across the sample in order to rank the factors influencing share purchase decisions in the order of importance to the sample. The results supported proposition 1 in that the sample had ranked the attributes from most to least important. Views of the management of a company were determined to be the most important factor followed by the industry sector of the company and the dividend yield of the share. The market status of the share was seen to be the least important attribute when making the share purchase decision.

The results pertaining to proposition 2 consisted of first drawing a dendrogram through hierarchical cluster analysis to determine the number of clusters and then doing a K-Means cluster analysis. The dendrogram indicated that 4 clusters existed and the K-Means cluster analysis grouped the clusters into consisting of 8, 4, 10 and 10 of the original respondents along the 21 independent variables from the conjoint analysis.

Discriminant analysis was then performed to determine which of the 21 independent variables were most influential in clustering the respondents. It was found that the 8 variables in Table 21 showed the most variability across the clusters and could be seen to be the most influential in determining the clusters.

The discriminant analysis produced 3 functions across which the respondents were clustered. The first responsible for 50.9% of the variance was positively related to blue chip stocks, broker recommendations, high dividend yields and slow and steady growth and negative towards speculative stocks, a steady price history and a high price earnings ratio.

The second function, responsible for 30.4% of the variance was positive towards management in the public eye, blue chip stocks, speculative stocks, a steady price performance and a high dividend yield. It is negative towards broker recommendations, a high price earnings ratio and industry slow and steady growth.

The third and final function responsible for the remaining 18.7% of the variance is positive towards a high price earnings ratio, a high dividend yield and industries showing slow and steady growth. It is negative towards management

in the public eye, blue chip firms, speculative shares, steady price performance and recommendations from brokers.

The results supported the second proposition that the sample could be grouped into different clusters according to what respondents considered important when making their share purchase decision.

CHAPTER 5: DISCUSSION OF THE RESULTS

5.1 Introduction

This chapter will first discuss the demographic profile of the respondents and compare this to previous research both within and outside of South Africa. The discussion around proposition 1 will look at the rankings of the different factors and the implications thereof. Similarities and differences with previous research will be explored.

The discussion will move to proposition 2 where first the discriminant functions will be described. Thereafter each of the clusters will be described and the characteristics of each group's decision making will be explained based on their stated preferences for certain factors in their share purchase decision making.

5.2 Demographic profile of respondents

The demographics of the sample showed that 94% were male with an average age of 44. 91% were white and 72% had at least an honours degree. 75% were married and 53% had a monthly household income of R 65,000 or more. 38% had no dependents which may be explained by some of the older respondents who had children that were now independent. Thus the picture emerges of the typical retail investor sampled being a well educated white, middle aged married man with a high household income.

This is similar to that found by Brijlal in his study published in 2007. Brijlal found 89% of respondents to be male, 79% married, the majority in the age bracket of 36 to 55 and 64% had a minimum of a bachelor's degree. He did not report on race or income, but did say they enjoyed reputable positions in their careers.

Clark-Murphy and Soutar (2005) report that their sample was also predominantly older males. Nagy and Obenberger (1995) although not specific in the report of demographics, do imply a similar profile to the sample of his research.

5.2.1. Conclusions of the Demographics of the sample

One can conclude that the demographics of the sample are consistent with that from previous research done in South Africa, Australia and the United States. Although it is difficult to extrapolate the results of this research to the broader South African retail investor population due to the small sample size, the consistencies with the findings of Brijlal's 2007 study do imply a representative sample of the broader retail investor population. This is for demographic information that is common in both pieces of research (such as sex, age, marital status etc) and assuming that Brijlal's study is representative of the broader South African retail investor population.

5.3 Discussion pertaining to Proposition1

The results of the conjoint analysis showed that all the attributes had relevance to the respondents for their share purchase decision making. However the most important attribute was found to be company management. This is consistent with Clark-Murphy and Soutar's 2005 finding in Australia. It is also consistent with Nagy and Obenberger's findings in 1994 in the United States who found that a company's reputation and status, which are closely related to company management, was a major influence on investor decision making.

The second most important attribute was the industry sector. This attribute looks at whether the industry has slow and steady growth, periods of contraction and growth or is in an emerging sector. This was inconsistent with

Clark-Murphy and Soutar's 2005 study which found industry sector to be one of the least important attributes across their sample. However they did find it emerging as a theme for their cluster analysis. The high ranking of this attribute could be as a result of sample bias due to the small sample size or it could be as a result of a the recent bear market which could cause investors to pay more attention to the industry dynamics than at the time of the previous bull market. Many industries have been severely impacted by the global recession and choosing the correct industry whether in a defensive or aggressive investor strategy may be more important now than in the past. Shiller (2003) contends that investors pay too much attention to recent history and too readily extrapolate recent events into the future.

The third most important attribute was dividend yield. This is consistent with conventional wisdom. Nagy and Obenberger (1994) referred to this attribute as one of the 'Classic' factors and it achieved a similar ranking of importance in their study. Clark-Murphy and Soutar (2005) found dividend, whilst important, was ranked 6th out of the 11 attributes they tested. They found this surprising as they expected it to be more important. It should be expected that this attribute would score highly, particularly in the South African context with a history of high interest rates.

The price earnings ratio was fourth and midway in the list of 7 attributes. This is also a 'Classic' measure as termed by Nagy and Obenberger in 1994. Clark-Murphy and Soutar's 2005 research and Nagy and Obenberger's 1994 research both had the price earnings ratio ranked slightly below dividend yield and falling midway in terms of ranking of importance.

The recent price trend of the share ranked 5th in the study. This was inconsistent with the findings of Clark-Murphy and Soutar (2005) where price trend was ranked 3rd most important. It was consistent with Nagy and

Obenberger's (1994) rankings where price trend was ranked 25th out of 34 variables.

The source of recommendation was the second to last most important factor for the share purchase decision making. This was consistent with Nagy and Obenberger (1994) but inconsistent with Clark-Murphy and Soutar (2005) where this attribute ranked fourth in order of importance.

The least important attribute according to the sample was the market status (that is whether it is a blue chip, growth or speculative stock). This was inconsistent with Clark-Murphy and Soutar (2005) where this attribute ranked 2nd in importance.

5.3.1. Conclusions pertaining to Proposition 1

The results clearly support proposition 1 that proposes that the South African individual investor considers a range of variables that can be ranked in order of importance when making share purchase decisions.

That management quality was the most important attribute in the share purchase decision was consistent with previous research. Previous research did not always agree in its rankings of some of the other attributes though. So where some rankings appeared inconsistent with say Clark-Murphy and Soutar's 2005 Australian findings, they found support with Nagy and Obenberger's 1994 American findings. However these two studies did not agree across all the attributes.

Due to the 'selective agreement' these three studies have with one another, there may be a case for the rankings of the factors or attributes of shares being more dynamic and less static than implied, depending on the state of investor confidence at a particular point in time. Many authors (Shiller, 2003; Baker and Nofsinger, 2002; Bailey, Nofsinger and O'Neil, 2002; Barber and Odean, 1999), have attested to the recency effect, availability heuristic, self attribution bias and other similar heuristics where recent events are afforded more importance in decision making than is warranted. Perhaps this may change the rankings of factors in investment decision making based on recent events in the broader macro market. Specifically in relation to a recent bear or bull market and the strength thereof. It could be argued that different factors become more or less fashionable in decision making depending on overall market performance at the time the decision is being made. This could be an interesting topic for further research.

5.4 Discussion pertaining to Proposition 2

The results from the cluster analysis and the discriminant analysis showed that the sample could be grouped into 4 clusters. Within each cluster the respondents shared the same views in terms of which share attributes were important for making the share purchase decision. Each cluster was also shown to differ significantly from one another across these views.

In order to understand the characteristics of each cluster better, both a cluster and discriminant analysis was conducted. The discriminant analysis focussed on the describing the differences between the groups by identifying those variables that were most different across the groups and describing 3 functions across which the differences occurred. The cluster focussed on the homogeneity within each group. Utilising both methodologies assisted in gaining the necessary understanding to describe the groups adequately.

5.4.1. The discriminant functions

Three significant functions were found that suggest that the differences between the groups was strong. This is to be expected as the groups had been derived by means of cluster analysis. The first function was strongly related to blue chip stocks that pay dividends in an industry sector that experiences slow but steady growth and negatively correlated to speculative stocks. This function is called the 'quality and income' function. This function is similar to that found by Clark-Murphy and Soutar (2005).

The second function was strongly correlated to a low price earnings ratio. This function is called the 'low PE' function. The third function is positively related to a high dividend yield, a high price earnings ratio and an industry with slow and steady growth. This function is called the 'growth and income' function.

5.4.2. Cluster 1 – The momentum traders

This group consists of 25% of the sample and did not differ significantly from the overall sample's demographics. They like a positive, strong price movement over the last few months (more so than any of the other groups) and do not care for blue chip stocks or a high yield. They like growth stocks and are unconcerned by a high price earnings ratio. They like emerging industries and industries with slow and steady growth, but dislike industries with periods of growth and contraction. They value a good management track record and dislike speculative stocks. They also place more reliance on broker recommendations than any of the other groups.

It would appear from these characteristics that their main focus is on capital gains over income. They prefer smaller growth stocks that have the potential for rapid price advancement and large increases in market capitalisation and

will look for these in industry sectors that are predisposed towards growth. They prefer companies to reinvest their earnings than pay them out in dividends and are in fact quite negatively predisposed towards a high dividend yield.

They are comfortable with a moderate level of risk and do not consider themselves reckless or gambling. This is evidenced by their negative views towards speculative stocks and industries that are more volatile in growth and contraction. They further mitigate their risks by investing where management has a good track record and by following the advice of a trusted broker.

Due to their strong preference for a rising share price and their disregard for a high dividend yield or low price earnings ratio they probably rely more on technical than fundamental analysis in their decision making. Due to this their investment time horizon is probably shorter and they could be classified more as a trader than an investor. This focus on rising price trend and potential shorter investment time horizon has earned them the label of 'The momentum traders'.

5.4.3. Cluster 2 – The contrarian recovery plays

Only 4 respondents of the total sample or 12.5% fall into this group. The only real difference demographically is that they are the only group with no retirees and only 50% are married. They seem to be positive towards a management team that has members with a high public profile, whilst all the other groups are negative towards this. They like blue chip and speculative stocks and dislike growth stocks. They do not have strong feelings over price movements, but seem to prefer a steady price over the last few months. They like a press tip but distrust the brokers. They have the strongest preference for a low price earnings ratio out of all of the groups. They appear to disregard yield and are strongly negative towards industry sectors with slow and steady growth, the only group that feels this way. They are the only group that is positive towards

industry sectors with periods of growth and contraction and are the most positive group towards emerging industries.

These characteristics indicate that they also prefer capital gains over income. Their main criterion appears to be a low price earnings ratio which indicates a case for value. Their disregard for dividend yield and their preference for industry sectors with periodic growth and contraction and negative views towards industry sectors with slow and steady growth suggest they look to shares that have either fallen on hard times or have yet to prove themselves. Either way they are unloved by the market hence their low price earnings ratio. This group likes to look for opportunities in industry sectors other investors are ignoring, but does like the financial press to confirm it. Their preference for a management team that has members in the public eye may be due to a very public falling from grace of the company itself.

This group does appear to rely on first move advantage in that they select shares that have been low for some time (as evidenced by the preference for a steady share price), but may soon embark upon an upward trajectory which some public statements and comments in the press imply. They like to move before the broker community and before the broader investment community is convinced of the case for change. This is a high risk strategy that will derive substantial capital gains should it come off. This group is therefore called 'The contrarian recovery plays'.

5.4.4. Cluster 3 – The risk averse networked investors

31.25% of the sample was grouped into this cluster. The only difference in the demographics for the overall sample and this group was that the group was slightly less well educated in that only 40% had qualified beyond an undergraduate degree and all 10 members of this group were married.

Members of this group were seen to have the highest affinity for blue chip shares and were the most negative towards speculative shares. They considered the track record of the management team to be important, preferred a rising share price in the preceding months and did not like recommendations in the financial press. They like a low price earnings ratio and scored the highest of any of the groups in terms of a preference for a high dividend yield. They also preferred an industry sector with slow and steady growth and had a negative view on emerging industry sectors or those that showed alternating periods of growth and contraction.

This group appears to prefer traditional valuation techniques in that it prefers a low price earnings ratio combined with a high dividend yield. This would also imply a preference for fundamental analysis over technical although it does not ignore price trends in that it does show a preference for rising share prices to a steady or downward price trend. Members of this group appear to be predominantly concerned with income hence the strong preference for a high dividend yield. They appear very risk adverse in that they are only interested in blue chip stocks in an industry sector that has slow and steady growth. They distrust brokers and the financial press but appear well networked in that they are slightly positive towards management teams personally known to them and are very much inclined to purchase on a tip or rumour from a friend. For these reasons this group is called 'The risk averse networked investors'.

5.4.5. Cluster 4 – The management team speculators

This group had 10 of the original respondents or 31.25% of the sample. The only difference between this group and the overall sample demographically was that the only two females were part of this group and it had the lowest reported monthly household income.

In terms of the preferences for this group it appears that it had the highest dislike of members of the management team being in the public eye and also did not like blue chip or growth shares. It had the strongest preference of all the groups for a management team with a track record in the industry and also the strongest preference for speculative shares. They are strongly adverse to a falling share price and prefer a steady if not rising share price. They do not listen to brokers but do pay attention to the financial press. They have the highest tolerance of a high price earnings ratio out of all the groups and seem to prefer a low dividend yield. They like an industry with slow and steady growth or an emerging industry and dislike industries that show systematic growth and contraction.

This group seems to follow a winning management team and is prepared to back their new endeavours no matter how speculative. They appear to favour this to following traditional valuation techniques that rely on a combination of low price earnings ratios and high dividend yields. This is evidenced by their tolerance of a high price earnings ratio beyond any of the other groups. Although they prefer a rising price to a falling one, the price trend of the share did not appear to feature in the purchase decision. For these reasons this group is termed 'The management team speculators'.

5.4.6. Conclusions pertaining to Proposition 2

From the results and the subsequent discussion it is clear that sub sets exist within the original sample that can be grouped according to their similarities and differences in terms of the attributes or factors of a share that they find important in the share purchasing decision. These results thus support proposition 2 in that homogenous groups exist that rank different variables differently across the groups in terms of their share purchase decision.

These 4 groups have been identified described and given a unique descriptive name based on the characteristics of each group as per the table below:

Table 28: The four groups of investors

1. The momentum traders
2. The contrarian recovery plays
3. The risk adverse networked investors
4. The management team speculators

5.5 Conclusion

The demographic profile of the 32 respondents showed that they were mainly married white males with high (over R65,000 per month) income and were well educated with few dependents and had an average age of 44. This demographic profile was consistent with the findings of Brijlal (2007) on the demographics of the JSE. For this reason this sample could be considered representative of the retail investor population at least for the categories of age, sex marital status, education and possibly income.

The results support proposition 1 that the South African individual investor considers a range of variable that can be ranked in order of importance when making share purchase decisions.

The most important attribute of the quality of management was found to be consistent with previous research done by Clark-Murphy and Soutar (2005) and Nagy and Obenberger (1994). Some of the other rankings of the attributes were consistent across the studies whilst others were not.

The results also supported proposition 2 that states that homogenous groups exist that rank different variables differently across the groups in terms of their share purchase decision.

4 different groups of investors were found and described based upon their preferences of attributes they considered important when making their share purchase decision. These groups were named:

1. The momentum traders
2. The contrarian recovery plays
3. The risk adverse networked investors
4. The management team speculators

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter will summarise some of the key points of this research by first summarising some key points from the literature that are relevant to the results. It will then briefly summarise the methodology employed. It will restate the findings and discuss some of the implications of the groups of investors found. Finally it will make recommendations to the stakeholders identified earlier and make suggestions for further research.

6.2 Conclusions of the study

Behavioural finance is a field that can give additional insight to investors' decision making by looking beyond the traditional financial theory and considering psychological and social influences on the investor's decision making. By considering these additional elements one can attempt to understand decision making that appears irrational and contrary to the best interests of the investor seeking to maximise future returns.

The literature review has shown that individuals attempt to process and analyse information in an efficient manner to draw conclusions on expectations of future share performance. Investors have developed a number of intellectual shortcuts to help process these vast amounts of information. These shortcuts or heuristics have resulted in biases that are influenced by individual's belief systems and emotional states. Different investors can thus draw very different conclusions from the same information.

This research borrowed on the methodology used by Clark-Murphy and Soutar (2005) in their research on Australian investors called *"Individual Investor Preferences: A Segmentation Analysis".* Some of the share attributes used in their study were used in this study. An online survey was created and 32 useable responses were obtained. Conjoint analysis was used to rank the factors considered to be important to the respondents. Then cluster analysis was performed to see if subgroups with different preferences for factors existed within the overall sample. Finally discriminant analysis was performed to understand these subgroups better and to describe them based on their stated preferences.

This research found that investors did consider some factors more important than others when making their share purchase decision. The most important factor was seen to be the quality of the management team. This was consistent with research conducted in Australia by Clark-Murphy and Soutar (2005) and research done in the United States by Nagy and Obenberger (1994).

It is interesting that management ranked higher than the dividend yield or the price earnings ratio which are more traditional financial indicators of value. This shows that the sample considered financial and non-financial factors and actually considered their subjective opinion of the management to be more important than the financial indicators when making their share purchase decision.

It was possible to group the respondents based upon their different preferences for a share's attributes. 4 subgroups were identified that had very different preferences. They ranged from '*The risk adverse networked investors'* who paid particular attention to the dividend yield and price earnings ratio and would only invest in blue chips to *'The momentum traders'* who showed scant regard for price earnings ratios and dividend yields and traded purely on price trends.

These two groups actually show the characteristics of two often opposing methods of share price valuation of fundamental analysis (*The risk adverse networked investors*) and technical analysis *(The momentum traders).* These are both well known investment strategies (Damodaran, 2004).

Another small group was also present *'The contrarian recovery plays'*. This group showed characteristics that are consistent with the contrarian investment strategy described by Damodaran (2004) amongst others.

The fourth group termed *'The management team speculators'* is probably the most interesting one in that it does not appear to conform to the better known investment strategies. It scored the highest of the groups for both the management track record and for its preference for speculative shares. The implication is that this group of investors will follow a winning management team into new ventures and place a high degree of trust in this management team's abilities. They appear to be making decisions like venture capitalists.

In conclusion this research has found that the South African retail investor does consider a number of different factors in making their share purchase decision and that these factors can be ranked in order of preference. It was also found that these retail investors can be grouped according their preferences for the factors they pay attention to when making their share purchase decisions.

6.3 Recommendations

The first recommendation would be to listed companies to ensure that they include well written and relevant biopsies of their senior management team's qualifications and experiences in financial statements and other sources of investor information. Whilst many of the larger corporate do this, many of the

smaller firms should also follow this practise as this research has shown that this is a major consideration in the share purchase consideration.

In addition to listed companies providing this management information, analysts and fund managers should also include their views on management's abilities in their decisions regarding a share purchase or disposal and on their views of a company's future prospects.

There is also an argument for specialist funds or unit trusts being setup according to the segmentation data of investors' preferences for some attributes over others. For instance, funds could be set up where stocks are selected based upon the preferences described by the four subgroups of investors identified by this research. It would be recommended that further market research is done beforehand though.

Courses on the stock market should also focus on the different preferences investors have for different factors when making their investment decisions.

Finally, there is also an argument for the publication of financial information to cater for the needs identified by some of the groups in this research. For instance there could be more articles and opinion on the activities of winning management teams and their new ventures.

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6.4 Suggestions for further research

Further research could be conducted on whether preferences for certain factors over others for share purchase decision making change depending on different levels of investor confidence or in a bull or bear market.

Further research should also be done on *'The management team speculators'* to see how predominant this group of investors is in the broader investment community.

REFERENCES

Ackert, L.F.; Church B.K. and Deaves, R. (2003) Emotion and Financial Markets, *Economic Review – Federal Reserve Bank of Atlanta,* 88(2), p. 33

Barberis, N,C., and R H. Thaler, 2003. A survey of behavioral finance. *In* Constantides M.H., Harris M., and Stulz R.M., eds. *Handbook of the Economics of Finance: Volume 1B, Financial Markets and Asset Pricing.* Elsevier North Holland, Chapter 18, pp. 1053–1128.

Bailey, J.J.; Nofsinger, J.R. and O'Neil, M. (2003) A Review of Major Influences on Employee Retirement Investment Decisions, *Journal of Financial Services Research,* 23(2), p. 149

Baker, H.K. and Nofsinger, J.R. (2002) Psychological Biases on Investors, *Financial Services Review*, 11(2), p. 97-117.

Barber, B.M. and Odean, T. (1999) The Courage of Misguided Convictions, *Financial Analysts Review*, 55(6), p. 41-56.

Brijlal, P. (2007) Key changes in profile and characteristics of individual investors on the Johannesburg Securities exchange (JSE) over the past two decades, *African Journal of Business Management,* 1(6), p.136-141

Clark-Murphy, M. and Soutar, G. (2005) Individual Investor Preferences: A Segmentation Analysis, *The Journal of Behavioural Finance,* Vol. 6, No. 1, p. 6-14

Clark-Murphy, M. and Soutar, G. (2008) Do retail stockbrokers understand clients' investment preferences?, *Journal of Financial Services Marketing,* 13(2), p. 135-149.

Creswell, J.W. (2003) *Research Design: Qualitative and Quantitative and Mixed Methods Approaches, 2*nd ed, SAGE Publications, Thousand Oaks, pp 18-23.

Damodaran, A. (2004) *Investment Fables,* Financial Times Prentice Hall, New Jesrsey

Hair, J.F.; Black, W.C.; Babin, B.J.; Anderson, R.E. and Tatham, R.L. (2006) *Multivariate Data Analysis,* 6th ed., Pearson Prentice Hall, New Jersey.

Hanke, J.E. and Reitsch, A.G. (1994) 'Chapter 19 – Nonparametric Statistics', In *Understanding Business Statistics,* 2nd ed., Irwin, Burr Ridge, pp. 889-911.

Kahneman, D. And Tversky, A. (1974) Judgement under uncertainty: Heuristics and biases, *Science,*185(4157), p. 1124-1131.

Kahneman, D. And Tversky, A. (1979) Prospect theory: An analysis of decision under risk, *Econometrica,*47(2), p. 263-292..

Kahneman, D. And Tversky, A. (1981) The framing of decisions and the psychology of choice, *Science,* 211(4481), p. 453-458..

Kahneman, D. And Tversky, A. (1992) Advances in prospect theory: Cumulative representation of uncertainty, *Journal of Risk and Uncertainty,5(4)*, p. 297-323.

Kalof, L., Dan, A. And Dietz, T. (2008) *Essentials of Social Research,* Open University Press, Maidenhead, pp 119-137 and 156-164.

Kuhfeld, Tobias and Garratt (1994), Efficient Experimental Design with Marketing Research Applications, *Journal of Marketing Research,* 31 (November).545-557.

Lewellen, W.G., Lease R.C., and Schlarbaum, G.G., Patterns of Investment Strategy and Behavior Among Individual Investors, *The Journal of Business*, Volume 50, Issue 3 (Jul., 1977), p. 296-333

Mackay, C. (1995) *Memoirs of Extraordinary Popular Delusions,* 1841, in Extraordinary Popular Delusions and the Madness of Crowds, Mackays of Chatham, Kent

Malhotra, N.K. (1996) 'Chapter 19: Factor Analysis', In *Marketing Research: An Applied Orientation, 2*nd ed., Prentice Hall, Upper Saddle River, pp. 643-669.

Markowitz, H.M. (1959) Portfolio Selection, *Journal of Finance,* 7(1), p. 77-91

Nagy, R.A. and Obenberger R.W. (1994) Factors Influencing Individual Investor Behavior, *Financial Analysts Journal,* 50(4), p. 63.

Olsen, A.O. (1998) Behavioral Finance and its Implications for Stock-Price Volatility, *Financial Analysts Journal,* 54(2), p. 10-19

Ricciardi, V.A. and Simon, H.K., (2000), What is Behavioral Finance?. *Business, Education & Technology Journal*, Vol. 2, No. 2, Fall 2000, 1-9.

Sharpe, W.E. (1964) Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk, *Journal of Finance,* 19(3), p. 425-442.

Shiller, R.J. (1989) *Market Volatility,* MIT Press, Cambridge, Mass:.

Shiller R.J. (2003) From Efficient Market Theory to Behavioral Finance, *The Journal of Economic Perspectives,* 17(1), p. 83.

Statman, M. (2005) Normal Investors, Then and Now, *Financial Analysts Journal,* 61(2), p.31

The Economist (October 15-21, 2005 issue) page 29, "After Alan"

APPENDIX A

THE RESEARCH INSTRUMENT

Preferences for share purchase decisions

Introduction

Thank you for agreeing to participate in this study!

I am asking active investors on the JSE to give their opinions on what share characteristics are important to them when making a share purchase decision.

This type of study has not been done before in South Africa and is very exploratory in nature. I am hoping to uncover certain preferences in the nature and source of information people consider important when deciding to purchase a share. I am also looking to see if factors such as age, sex, occupation etc influence these preferences.

This study is part of my MBA thesis at the Wits Business School and is being supervised by the Business School. All information is submitted anonymously.

The survey should take 15 minutes to complete.

Thank you again for agreeing to participate.

Dave Lockley
davelock@iafrica.com
083 616 1050

Prequestion

*** To what extent to you make active decisions in the purchase of stocks in listed companies on the Johannesburg Stock Exchange?**

- I invest in a fund that makes all the investment decisions
- I engage a stockbroker that makes all the decisions with no input from myself
- I engage a stockbroker but make the final decision myself
- I utilise an online stockbroker and make all investment decisions myself

Instructions

During this survey I am going to ask you to consider certain characteristics of hypothetical companies and their shares listed on the JSE.

These characteristics include: company management, market status, the share price trend, the source of the share recommendation, the price earnings (PE) ratio, the dividend yield and the industry sector within which the company operates.

Based on these characteristics I would like you to consider a sequence of hypothetical shares with different features for each characteristic. Upon reading the characteristics for each hypothetical share please indicate your likelihood of buying the share by ticking the appropriate bubble.

How likely would you be to buy the following share?

Preferences for share purchase decisions

* **Some managers have a high public profile**

It is a blue chip stock

The share price has been falling in the last few months

Recommended in the financial press

This stock has a high price earnings ratio

The yield is high

The industry sector has a history of slow but steady growth

Definitely would not buy | Probably would not buy | Indifferent | Probably would buy | Definitely would buy

How likely would you be to buy the following share?

* **The management has a track record in the industry**

It is a blue chip stock

The share price has been rising in the last few months

Recommended by your stockbroker

This stock has a low price earnings ratio

The yield is high

The industry sector has periods of growth and contraction

Definitely would not buy | Probably would not buy | Indifferent | Probably would buy | Definitely would buy

How likely would you be to buy the following share?

Preferences for share purchase decisions

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It is a blue chip stock

The share price has been rising in the last few months

Recommended by your stockbroker

This stock has an average price earnings ratio

The yield is high

Stock is in an emerging industry sector

Definitely would not buy | Probably would not buy | Indifferent | Probably would buy | Definitely would buy

How likely would you be to buy the following share?

* **Management are known to you personally**

It is a growth stock

The share price has been rising in the last few months

A tip or rumor from a friend

This stock has a high price earnings ratio

The yield is low

The industry sector has periods of growth and contraction

Definitely would not buy | Probably would not buy | Indifferent | Probably would buy | Definitely would buy

How likely would you be to buy the following share?

Preferences for share purchase decisions

* **Some managers have a high public profile**

It is a blue chip stock

The share price has been steady in the last few months

Recommended in the financial press

This stock has a low price earnings ratio

The yield is average

The industry sector has periods of growth and contraction

Definitely would not buy | Probably would not buy | Indifferent | Probably would buy | Definitely would buy

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How likely would you be to buy the following share?

* **The management has a track record in the industry**

It is a speculative stock

The share price has been falling in the last few months

A tip or rumor from a friend

This stock has an average price earnings ratio

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Definitely would not buy | Probably would not buy | Indifferent | Probably would buy | Definitely would buy

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A bit about you...

* **Are you...**

Male?

Female?

* **What is your age?**

* **What is your ethnic group?**

Black

Indian

Coloured

White

Other

* **What is your highest education qualification?**

6

* **What is your marital status?**

6

Preferences for share purchase decisions

* **How many dependents do you have?**

6

* **What is your employment status?**

6

What is your gross household monthly income?

6

Thank you

Thank you for your time. Please do have a pleasant day further.