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What factors drive analyst forecasts in South Africa?

Research Report submitted by Sameera Dada

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Declaration

I hereby declare that this research report is my own unaided work. It is submitted in partial fulfilment of the degree of Master of Commerce by Coursework and Research Report at the University of the Witwatersrand, Johannesburg. It has not been submitted elsewhere for the purpose of being awarded another degree or for examination purposes at any other university.

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Sameera Dada
13 October 2017

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I. Abstract

This research examines through the use of survey data which key factors around a companies' industry positioning, strategic decisions and internal qualitative capabilities, are considered by financial analysts when preparing their financial forecasts. The research covered buy-side and sell-side analysts in South Africa. The results were however found to be non-conclusive and did not align to previous research on this matter.

Comparisons between analysts covering the same company were performed with consistencies found on average across all variables. It is interesting to note that when a detailed analysis and comparison was performed by individual variable for analysts covering the same company, different views on some of the variables were identified between buy-side and sell-side analysts, therefore supporting the research obtained during the literature review.

It was found based on the tests performed that the factors which have an impact on forecasted financials relate to superior product/service strategy, innovation and ability to execute strategy. These variables were however noted not to be consistent across all the financial forecast factors and are contradictory to the research highlighted in the literature review as well as the outcomes of the original study, ie. There are additional factors which are considered important.

Further research is recommended on analyst behaviour in South Africa.

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1 Introduction

1.1 Purpose of the study

The purpose of this research study is to determine what are the key factors financial analysts consider when arriving at their investment proposals of whether to buy, hold or sell a particular equity share in South Africa. The research report will establish how important each factor is to the financial forecasts made, therefore highlighting the strongest determinants considered by financial analysts.

1.2 Context of the study

The research problem of this study is to determine what factors South African financial analysts (both buy-side and sell-side analysts) take into account in their earnings forecasts and ultimately their recommendation. Globally extensive research has been conducted on analysts' earnings forecasts and recommendations however there has been limited research about the factors that underlie the end results (Groysberg, Healy, Nohria and Serafeim, 2011). This is highlighted as a potential problem for researchers who wish to understand the actual analysis process which is commonly referred to as the 'black box' (Bradshaw, 2011). In order to circumvent this problem researchers review the inputs and outputs as well as looking at various correlations between variables in order to understand the analysis process (Bradshaw, 2011). Inputs refer to share price movements, financial information, industry factors and qualitative considerations and the outputs are the earnings forecasts and recommendations. This procedure is followed as it is difficult to directly observe the analysts' decision making process (Bradshaw, 2011). Based on these studies conclusions are drawn on what information analysts use, how they use the information and whether analysts fully use the information (Bradshaw, 2011). Therefore in order for research to evolve in relation to the analyst decision making process, the 'black box' needs to be better understood.

This research report is intended to demonstrate a study which penetrates this 'black box'. The research is a replication of a Harvard Business School study performed by Groysberg, Healy, Nohria and Serafeim (2011) on analysts in the United States,

Europe, Asia and Latin America. The research will now be extended to obtain a view of factors which South African analysts consider.

Prior research as reviewed by Groysberg et al (2011) suggests that the primary factors that drive company performance are industry, company and leadership characteristics. Therefore when analysts forecast a company's performance, they will consider factors such as growth and competitiveness of the industry, its strategic positioning, execution of strategy, innovation, leadership, management quality, company culture and financial resources (Groysberg et al., 2011).

The research to be conducted will examine which industry, leadership and company factors are related to analysts' forecasts of financial and equity share performance. It will also be determined whether analysts covering the same company make consistent assessments of its industry, leadership and company capabilities. A comparison will be performed between the South African results and results found in the original study in order to determine similarities and differences in the use of information.

1.3 Problem statement

Determine the factors which South African financial analysts consider when forming their earnings forecasts and ultimate investment recommendation. The identified factors will be ranked according to importance placed by the analysts. The results will be compared to the results concluded in the original study which covers analyst behaviour in Asia, Europe, Latin America and the USA.

1.4 Significance of the study

The results of this research can assist leadership and management in highlighting what is important in managing their companies and what information is required by analysts including how to illustrate and communicate the information (Groysberg et al., 2011). Understanding analysts' behaviour is beneficial to academics interested in determining how the capital markets function, as well as investment practitioners who operate in these markets (Bradshaw, 2011). Investors can also benefit from this research as they rely on analyst reports due to limited ability or time to analyse individual shares (Bradshaw, 2011). The study is also relevant to other analysts who

wish to benchmark their practices and research against a broad set of peers (Brown, Call, Clement and Sharp, 2013).

Based on a review of existing empirical evidence relating to financial analysts, it has been identified that there is limited research available on analysts who operate in South Africa, therefore this study can contribute to enriching the current research landscape.

1.5 Delimitations of the study

In looking at the analyst forecast and recommendation process, the research study will focus on the factors which an analyst considers and does not cover the entire analysis process.

The main concern which will affect the outcome of this research relates to the response rate from the sell-side and buy-side analysts, this will be addressed through continuous communication as well as utilising industry networks.

Based on the literature review performed there is limited academic research which has been carried out on analyst activity in South Africa, this is potentially as a result of the market being relatively new. The major impact of this on the research study is the lack of available information relating to analysts' activity in South Africa and research performed to date on these activities. In addition unlike in the USA, South Africa does not maintain a database of sell-side analysts or reports prepared by them. Institutional Investors who employ brokerage houses/investment banks for their research capabilities would receive reports and therefore the information is not readily available to the general public.

1.6 Definitions of terms

Financial analyst – An analyst studies publicly traded companies and analyse periodic financial statements and management disclosures to develop investment references (Groysberg, Healy and Chapman, 2008). Analysts most commonly provide retail and institutional investors with buy, hold or sell recommendations and forecasts of companies' short-term earnings (Hutton, 2002). Analyst recommendations and forecasts are based on detailed and independent analysis

that assesses a company's current performance, strategic objectives, competitive positioning and future prospects (Hutton, 2002).

Sell-side analyst – A sell-side analyst works for a brokerage firm or an investment bank and provides their recommendations to institutional and retail investors (Groysberg, Healy, Chapman and Gui, 2007).

Buy-side analyst – Buy-side analysts work for Asset Managers and provide research and recommendations exclusively for the benefit of the companies own fund managers (Groysberg et al., 2007).

1.7 Assumptions

The key assumption made regarding the research study is that the sample participants will have the required information and experience and will be willing to share it, through the completion of the designed survey.

2 Literature Review

2.1 Introduction

This section contains a literature review on the key themes of relevance to the study. The first area is to discuss the differences between buy and sell side analysts. The second area discusses the academic research performed to date on analysts and the analysis process. The third area covered in this section relates to company performance. The fourth section covers earnings forecast errors and bias. The section concludes with an overview of the key learning's.

2.2 Buy and sell side analysts

The process followed by financial analysts is to collect information from numerous sources, assess the current performance of the companies which are followed, make forecasts and assumptions about their future performance and prospects and provide buy, hold or sell recommendations to existing and future investors (He and Tian, 2013). There are two types of analysts which exist, namely buy-side and sell-side analysts.

For this research report it is important to differentiate between buy-side analysts and sell-side analysts. At a fundamental level, buy-side and sell-side analysts perform similar functions, as both study companies in order to make investment recommendations on whether to buy, sell, or hold specific equity shares (Groysberg et al., 2008). However the research component differs significantly due to the scale and scope of coverage, sources of information used, private versus public distribution of reports, the target audience and the ways in which analysts performance is measured and how they are compensated (Groysberg et al., 2008).

Sell-side research predominantly resides in brokerage houses and investment banks and research information is distributed to institutional and retail clients. Sell-side analysts are rewarded by their clients through the utilisation of the trading desk of the brokerage house, which enables the set off of research costs against commission income. Sell-side analysts also create value for companies issuing shares in that they reduce the information costs for investors as well as contributing to a liquid market for shares (Cowen, Groysberg and Healy, 2006).

Buy-side research is privately created and funded within asset management firms and distributed solely to internal fund managers for portfolio construction purposes (Groysberg et al., 2008). Buy-side analysts add value to the fund managers by filtering and summarising, the large volume of sell-side research and company news, into key matters. As well as providing a different view on share recommendations compared to the sell-side information provided (Groysberg et al., 2008).

The research business units of asset management firms are significantly smaller than those of sell-side research departments (Cowen et al, 2006). A typical buy-side analyst will cover an entire sector/industry while a sell side analyst will cover a segment of a sector/industry (Cowen et al., 2006), this indicates the extensive coverage which a sell-side analyst will obtain during their reviews as well as detailed outputs that will be generated.

In terms of information sources, sell-side analysts have access to the distribution and trading teams at their company as well as interactions with the management team of the company and equity share which is being reviewed (Groysberg et al., 2008). Reliance on direct information from management is considered a key component to the analysis process by sell-side analysts (Williams, Moyes and Park, 1996). Buy-side analysts' access to this information is limited and therefore prevents them from obtaining diverse commentary and insights. Information for buy-side analysts is obtained from other analysts' forecasts, share price movements and reactions, audited financial statements and company announcements (Williams et al.,1996).

Compensation differs between sell-side and buy-side analysts. Buy-side analysts are measured on performance of buy share recommendations as well as the value of the research to fund managers (Irvine, Simko and Nathan, 2004). Career progression for buy-side analysts is normally to a fund manager level with an increase in compensation and is typically considered a fund manager in training or an entry level position (Irvine et al, 2004). Sell-side analyst compensation is linked to factors such as commissions, revenue related to their company/share analysis, public ranking and demand creation for the company/share which was reviewed (Irvine et al, 2004). Public rankings of sell-side analysts are widely viewed as a measure of an analyst's reputation in the market and are used as an input into the compensation for the analyst (Leone and Wu, 2007).

It has been found that buy-side analysts combine their independent analysis with information from sell-side analyst reports as inputs into portfolio construction and investment decisions (Bouwman, Frishkoff and Frishkoff, 1995). This suggests that buy-side analysts value the reports of sell-side analysts.

Based on the study performed by Groysberg et al (2008) it was noted that buy-side analysts produced more optimistic and less accurate forecasts than the sell-side analysts for the same shares. In addition, another study informed that buy-side analysts make less optimistic share recommendations than sell-side analysts due to their being a reduced conflict of interest situation (Groysberg, Healy, Chapman, Shanthikumar and Gui, 2007). The research performed by Groysberg et al (2007) indicates that the sell-side analyst recommendations are seen to be superior to that of the buy-side research, due to the conflicting nature of the buy-side analysts' forecasts and recommendations. A contributor to this is the retention rate of low-quality analysts in buy-side companies and a lack of comparison to sell-side counterparts (Irvine et al, 2004). There is increased competitiveness in the sell-side companies due to the public ranking exercise.

Buy-side firms do not attempt to benchmark its analysts to their sell-side counterparts while sell-side analysts are benchmarked to other analysts within the specific industry sector (Groysberg et al., 2008).

In South Africa this is evident through the Financial Mail Ranking the Analyst report which is prepared on an annual basis (Financial Mail, 2015). The process to obtain these rankings is based on confidential online questionnaires which are completed by South African institutional clients of stockbroker companies (Financial Mail, 2015). The results are obtained and analysed by the Intellidex team in order to determine the ratings and rankings (Financial Mail, 2015). The purpose of the survey is to obtain each institutional house view of the services received rather than individual's views (Financial Mail, 2015). External auditors are utilised to verify the rankings and ratings to ensure validity, accuracy and completeness (Financial Mail, 2015).

Based on research performed by Leone and Wu (2007), an analysts ranking is likely to increase with an improvement in forecast accuracy, share recommendation returns, forecast frequency, extent of share coverage and brokerage firm size. An

“innate talent” relating to sell-side analysts is favoured over “experience” for the ranking of analysts (Leone and Wu, 2007). The study also highlights that public rankings serve the purpose of identifying high quality sell-side analysts in the market and are considered as a determinant in an analysts’ career progression (Leone and Wu, 2007).

2.3 The analysis process

As buy-side research is not publicly available and is the proprietary of the asset management company which funds the research, there is limited information and research around the buy-side analysis process as well as a review of the integrity and quality of buy-side analysts outputs (Groysberg et al.,2007). Therefore the coverage of this section will mainly relate to empirical evidence around the sell-side analysis process.

Sell-side analysts have been of interest to academic researchers for a while, mainly due to their prominent role in analysing, interpreting and disseminating information to capital market participants (Brown et al., 2013). Extensive research has been performed on the work which sell-side analysts perform and produce, mainly relating to earnings forecasts and recommendations (Bradshaw, 2011; Ramnath, Rock and Shane, 2008). The research has evolved from descriptions of the statistical properties of analysts’ earnings forecasts to investigations of the incentives and decision making processes that result in the statistical properties (Ramnath et al., 2008). Much of the analysts’ decision processes remain in the ‘black box’ with limited research penetrating this box. The main challenge experienced by researchers is that analysts have a context-specific task that is difficult to model (Ramnath et al., 2008).

Analysts produce company earnings forecasts, assess and write reports on individual companies, produce industry and sector analysis and issue equity share recommendations to either buy/hold/sell the respective equity share (Jegadeesh, Kim, Krische and Lee, 2004). Studies have therefore concluded that the information which analysts produce encourage market efficiency by helping investors accurately value companies (Jegadeesh et al., 2004). In producing the relevant reports,

analysts develop expertise in obtaining and analysing information from various sources, including:

1. Earnings and other information from listing databases and periodic financial statements;
2. Industry and macroeconomic conditions, and
3. Conference calls and other management communications (Ramnath et al., 2008).

From this information, analysts would produce earnings forecasts, target price forecasts and equity share recommendations (Ramnath et al., 2008). Qualitative reports describing a firms prospects would also be generated (Ramnath et al., 2008).

It has been found that only two thirds of all analysts' reports in the USA include target prices, and that reports containing a buy or a strong buy recommendation are more likely to contain target price forecasts (Brav and Lehavy, 2003). This is supported by Bradshaw (2002) who notes that analysts frequently justify recommendations with target prices. Target prices are identified as a function of earnings forecasts and projected long-term earnings growth (Bradshaw, 2002).

The decision processes and analysts research outputs would also depend on regulatory and institutional factors, which vary over time and which are different between countries, as well as analysts' economic incentives and behavioural biases (Ramnath et al., 2008).

Schipper (1991) in his research paper calls for more research into how analysts actually use accounting information and their own earnings forecasts in making decisions including what factors are considered in the decision making process. Brown (1993) attempted to better understand the decision processes of analysts and the roles of earnings forecasts, macroeconomic and industry factors as well as other information which analysts consider in formulating equity share forecasts and recommendations, and requested additional research on this.

Intangibles such as quality of management are also often cited as a determinant in the analysts' assessments (Bradshaw, 2002). Bradshaw (2002) also notes that skilful financial analysts incorporate such non-financial information into their estimates and ultimate investment recommendations. As highlighted by Amir and Lev (1996)

financial information alone is insufficient for equity share valuations and non-financial indicators such as growth and market penetration are required to be considered. This is supported by Orens and Lybaert (2010), who highlight that taking into account the current trends (Globalisation, new technologies, disruptive innovation, etc), this decreases the value of purely looking at financial statement information. Therefore both financial and non-financial information is required to be taken into account during the analysis process (Amir and Lev, 1996). The financial analysis process therefore entails the gathering of appropriate information and then the evaluation of the information (Bouwman, Frishkoff and Frishkoff, 1987). The recommendations and earnings forecasts are based on detailed and independent analysis that look at a firm's current performance, strategic objectives, competitive positioning and future prospects (Proimos, 2005).

A study performed by Previts, Bricker, Robinson and Young (1994) involved the review of a number of sell-side analyst company reports in order to determine the information needs of these analysts. The findings of this study were as follows, "Analysts:

- Base their recommendations primarily on an evaluation of company income, relative to balance sheet or cash flow evaluations;
- Disaggregate company performance into a greater number of operating units than required under Generally Accepted Accounting Principles (GAAP);
- Emphasize company core earnings, including earnings per share, and earnings variability;
- Prefer conservative earnings management that establishes or adjusts discretionary reserves, allowances, and off-balance-sheet assets;
- Give attention to earnings momentum;
- Commonly evaluate assets and liabilities on a cost, not market value, basis;
- Develop non-GAAP cash flow schedules, including per-share calculations; and
- Extensively consider non-financial information, including company risks and concerns, anticipated changes, competitive position, management and strategy." (Previts et al.,1994)

In the Financial Mail Ranking the Analyst report, ratings are allocated to the content of the equity reports, aspects which are covered relate to business description, industry overview and competitive positioning, investment summary, valuation, financial analysis and investments risks (Financial Mail, 2015). This is aligned to international standards and is expected as majority of the big investment banks and brokerage houses in South Africa have parents companies in the USA and Europe.

Analyst processes and behaviour in the USA is heavily regulated and altered by securities laws and regulations over time (He and Tian, 2013). This came about as analysts were believed to be motivated to produce research reports that were unrealistically optimistic and not a true reflection of the analysts' opinion (Hovakimian and Saenyasiri, 2010). Studies find that there are two possible reasons for this. Firstly, analysts felt obliged to favour certain company management in order to access privileged information (Lim, 2001). Secondly, although analysts are required to provide a research report which is valid, accurate and complete, they find themselves in a conflict of interest situation as their compensation is linked to profits generated by the investments banks and brokerage houses which they work for (Lin and McNichols, 1998; and Carleton, Chen and Steiner, 1998). In order to address the analyst bias, Regulations were introduced in the USA to prevent private communication between companies and analysts in order to ensure a consistent and fair flow of information as well as to reduce the conflict of interest predicament which faces many sell-side analysts. Based on the research performed by Hovakimian and Saenyasiri (2010) on whether the legislation introduced by the USA had an impact on the accuracy and truthfulness of the analyst outcomes, it was found that the regulations significantly reduced the analyst bias and conflict of interest situation.

Corporate access is another element which has received attention from regulators, this relates to the role investment banks, research and brokerage houses play in the connecting of asset managers with the executives of companies listed on the respective exchanges (Financial Mail, 2015). A conflict of interest scenario is created where brokerage is used to cover sell-side research which is issued to asset managers (Financial Mail, 2015). In the USA and UK, asset managers are required to differentiate and disclose to clients the split between brokerage for research and brokerage for trade execution (Financial Mail, 2015). No such regulations currently

exist in South Africa. In addition there are no specific South African regulations that cover analyst behaviour and activities. Buy-side analysts who belong to asset managers would fall under the Financial Services Board licencing and regulatory requirements with sell-side research houses having no specific regulator. Unless they are part of a banking group, the Banks Act requirements would need to be adhered to where applicable. In South Africa, majority of the financial analysts (both buy-side and sell-side) are either CFA charter holders or hold a CA(SA) qualification. With these professional qualifications and memberships there are specific code of ethics and conduct standards which are required to be adhered to.

It is clear from the increase in international regulations to govern the analyst activities, that the role of an analyst and their outputs, is an important factor in maintaining investor confidence in financial markets (Hovakimian and Saenyasiri, 2010). However the quality of their outputs has raised much review and debate (Beckers, Steliaros and Thomson, 2004).

There has been limited studies of analyst activity outside the USA, especially in emerging markets as highlighted by Chang, Khanna and Palepu (2000). This is evident based on the limited research availably on analyst behaviour in South Africa. Chang et al. (2000) notes that the analysis of factors that drive analyst activity can be useful given the established links between capital market development and the overall development of economies.

Based on the research performed by Groysberg et al (2011), tests were conducted to determine which key factors affect analysts' forecasts. Based on these tests the most significant variable across all the models related to forecasted industry growth. The next variables which followed were quality of top management and the ability to execute the company strategy. The other variables followed thereafter with some differences in importance between the financial forecasts. Overall it was found that analyst forecasts are consistently aligned to their assessment of industry growth and competitiveness, leadership quality, performance driven standards, strategy execution, innovation and price competitiveness (Groysberg et al, 2011).

2.4 Company performance

In the research study performed by Groysberg et al (2011), the following primary factors were identified which drive company performance: industry characteristics, company characteristics, and leadership characteristics. Wasserman, Nohria and Anand (2010) in their study analysed the performance of more than 500 listed USA companies across various industries in order to determine the factors which contribute to business performance. They found that leadership, industry and company history explain a greater part of the variance in company performance over time (Wasserman et al., 2010).

Industry characteristics are described as the growth and structure of its industry (Groysberg et al., 2011). Company characteristics as identified by Groysberg et al (2011) are competitive advantage, strategy, strategy execution, strategy communication, organisational culture and innovation. Joyce, Nohria and Robertson (2003) performed a study of 160 listed companies in the USA in order to determine common management practices which led to company success. The four primary practices identified were strategy, execution, culture and structure (Joyce et al., 2003). It was also found that there is a direct relationship between performance and innovation (Hult, Hurley and Knight, 2004). Leadership quality is also identified as a key component of company performance; this was frequently cited in many research reports as highlighted by the work of Groysberg et al (2011) and Wasserman et al (2010).

Justification of innovation is a challenge for most companies, as it involves a lengthy process that is uncertain, heavily challenged and has a high probability for failure (He and Tian, 2013; and Holmstrom, 1989). Companies who do engage in innovation initiatives normally provide minimum disclosure on these activities and therefore create a distortion in information distribution (Bhattacharya and Ritter, 1983). Stein (1988) noted that due to this distortion these companies are more likely to be undervalued by investors and have a higher exposure to hostile takeovers. Therefore companies invest a reduced amount in innovation and invest in their routine business that guarantees the required returns. It is believed that analysts can assist in reducing this behaviour by accurately relaying information around the

company's innovation activities and assist in the understanding of the value of these initiatives (He and Tian, 2013).

2.5 Earnings forecast errors and bias

There has been extensive work performed on earnings forecast errors which fall into two categories, namely optimism and herding. The difference between analysts earnings forecast and the actual realisation or outcome is referred to as the forecast bias (Beckers et al, 2004). Evidence of optimistic bias was prevalent in both USA and Europe. The root cause of this optimism is believed to be due to the analysts over reaction to new positive information which becomes available and an under reaction to negative news relating to the company being reviewed (Beckers, et al, 2004). This is supported by research performed by Easterwood and Nutt (1999) who highlighted the same conclusion and that this result is consistent with optimism in response to favourable information. Another factor which contributes to optimistic forecasts is the compensation, conflict of interest and career implications (Hong and Kubic, 2003).

Numerous research has been performed around herding behaviour of analysts. Herding is evident when earnings forecasts and recommendations are less dispersed than one would expect, whereby there is a tendency to not deviate extensively from the common view (Beckers et al, 2004).

Research performed on herding has provided the following insight:

- The likelihood to herd to the common view increases with the number of estimates which are close to this view as well as the inaccuracy of the analysts previous forecasts (Stickel 1990, Graham 1999);
- Older experienced analysts are more likely to prepare outputs that deviate from the consensus, with younger analysts engaging more in herd mentality (Hong, Kubic and Solomon, 2000);
- The accuracy of the consensus forecast has no implications in the decision to herd to this forecast (Welch, 2000);
- When there in uncertainty or unpredictability relating to a company's earnings, this results in increased herding behaviour (Olsen, 1996).

Welch (2000) performed a study on herding and noted that the current consensus forecast, and the two most recent revisions, has an influence on an analysts forecast and recommendation. It was also found that herding towards the consensus was more prevalent in market upturns than in downturns (Welch, 2000). Public rankings and the public distribution of information by sell side analysts also contributes to herding behaviour as there is an incentive to follow the consensus (Groysberg et al., 2008).

There are various factors which are considered when assessing an analysts forecast, these are: forecast timeliness, the information environment, analyst incentives, analyst quality/reputation, analyst experience and the size of the brokerage firm (Mozes, 2003). In the paper prepared by Mozes (2003), he discusses the forecast immediacy which is the speed in which analysts respond to new information relating to a company. He notes that forecast immediacy is positively related to the increase in accuracy of an analysts forecast as it contains the most up to date information however due to the quick response by analysts, the risk exists that the full implications of the new information was not considered (Mozes, 2003). The study introduces another classification for analysts in that the forecasts can be categorised according to accurate-orientated or useful-orientated (Mozes, 2003).

Based on work performed by Chopra (1998), it was noted that sell-side analysts forecasts appear to be overly optimistic for the financial year, however these forecasts/estimates are revised downwards during the year as the business year unfolds. Acceleration or deceleration in economic growth tends to catch analysts off guard, as it was found that forecasts are more accurate in an environment with consistent strong growth (Chopra, 1998).

The investment recommendations provided by analysts are of interest to individual investors, asset managers and academic research. Stickel (1995) highlights that these recommendations have an influence on the share price of a company however the magnitude is dependent on other factors which are considered, these are: “The strength of the recommendation, the magnitude of the change in recommendation, the reputation of the analyst issuing the recommendation, the size of the brokerage house, the size of the recommended firm, and contemporaneous earnings forecasts revisions” (Stickel, 1995). Based on the outcome of the study performed by Stickel

(1995), it is clear that analyst earnings estimates and recommendations have an influence on share prices, this is also supported by Tamura (2002).

2.6 Conclusion on Literature Review

The literature review described the function of analysts as well as the differences between buy-side and sell-side analysts. The analysis process and outputs were briefly discussed highlighting that further research is required in penetrating the 'black box' which depicts the analyst decision making process both in the South African and International contexts. The factors which analysts consider in coming to their final recommendations of companies are one of the means in which to understand the 'black box' process. The literature review also covered the factors which drive business performance and success. Based on the review of empirical studies on analysts and their process, it is clear that there has been limited research performed on analysts in South Africa. The aim of this research study is therefore to fill the research gap in identifying which business performance factors are related to analysts' forecasts and ultimate equity share recommendation in the South African environment.

3 Research Methodology

This section outlines the methodology used to conduct this research. Firstly, the literature around quantitative research shall be discussed, followed by a review of the research design and research instrument used. Issues of data collection and analysis in relation to this study will be provided, followed by a discussion on the validity and reliability of this study.

3.1 Research methodology

This study used a descriptive quantitative methodology in order to gather the appropriate data to answer the research question. Descriptive research is used to identify and describe characteristics of a population or phenomenon being studied, it is not aimed to address the how/when/why questions of the specific occurrence (Leedy and Ormrod, 2010). As this study is focused on obtaining what are the factors that most influence the decisions of analysts, the most appropriate method to gather information was therefore a descriptive quantitative approach. This approach is consistent with the studies identified in Ramnath et al. (2008) and Brown et al. (2013).

This methodology yielded quantitative information that was summarised through statistical analysis. Inferential statistics was used in order to make extrapolations about the buy-side and sell-side analyst population in South Africa based on the selected sample (Leedy and Ormrod, 2010). Where inferential statistics tests were not possible, descriptive statistics were used. The statistical analysis attempted to follow the same process as identified in the original study by Groysberg et al (2011). Inferential statistics is a common method used by researchers to identify characteristics about a population (Jegadeesh et al., 2004; Mozes, 2003; Bandyopadhyay, Brown and Richardson, 1995; Block, 1999; Groysberg et al, 2011).

3.2 Research design

A current shortcoming of the literature on financial analysts is the lack of understanding around the ‘black box’, which is what an analyst actually does (Brown et al., 2013). Alternative approaches to understanding analysts’ activities include

surveys and interviews, experiments and rigorous content analysis approaches (Bradshaw, 2011).

Researchers have used surveys to plainly ask analysts how they process information, content analysis is used to infer the information which analysts rely on in making recommendations and experimental studies are used to determine how analysts use information (Ramnath et al., 2008). Work performed by Brown et al. (2013) notes that the best way to penetrate the 'black box' is by surveying analysts in order to gain insights into the inputs they use in their decisions.

The research design for this exercise was in the form of a survey study. This involved the participants in the study answering questions administered through a questionnaire, refer to annexure A for the survey extract. The ultimate goal was to learn about a large population by selecting a sample of that population to survey (Leedy and Ormrod, 2010). Once the questions were completed the responses were reviewed and described. The results of the survey were summarised with percentages, frequency counts and more sophisticated indexes.

The design of the questions incorporated mainly rating scale questions as this is most useful when evaluating the factors most considered by sell-side analysts (Brown et al., 2013). A Likert scale of 1 to 5 was adopted and was customised depending on the question. This rating scale mechanism is commonly used and widely recommended for rating beliefs and attitudes (Leedy and Ormrod, 2010). The questions were incorporated on an online survey through the use of the Survey Monkey software. This eased the questionnaire design and assisted with communication to the participants. Participants' responses will remain confidential with no specific mention of any participant in the results section of this research report (Brown et al., 2013).

The advantages of utilising a survey approach is that they are relatively easy to administer, one is capable of collecting data from a large number of respondents, its cost-effective, conducted remotely which prevents geographic dependence and can be developed in less time compared to other data collection methods (Ramnath et al., 2008). Surveys also enable the platform for asking direct questions (Brown et al., 2013). The disadvantages are confidentiality concerns of respondents, the possibility

of differing interpretations of questions and data errors due to non-response bias (Leedy and Ormrod, 2010).

The questionnaire design was based on the Harvard Business School study survey that asked analysts to provide forecasts of revenue and earnings growth, gross margin, and share price appreciation, as well as ratings on the industry, leadership and company factors for the selected companies (Groysberg et al., 2011).

The survey was piloted with several analysts and academics in order to assist with the reasonableness and presentation of the questions, recommendations on any additional questions and assess the time required to complete the survey (Brown et al., 2013). The feedback assisted in ensuring that no fundamental questions were omitted or that the survey did not take too long to complete.

Refer to **Annexure A** for the survey questions presented.

3.3 Population and sampling

3.3.1 Population

The population is the sell-side analysts whom operate in investment banks, research boutiques and brokerage houses/firms within South Africa, as well as buy-side analysts who work in asset management firms in South Africa.

3.3.2 Sample and sampling method

Sell-side analysts:

The sample analysts were obtained from the analysts recognised in the Financial Mail Ranking the Analyst Report for 2015 and from the Bloomberg terminal where the local analysts who track the top 40 JSE shares were identified. Email addresses were obtained from the Bloomberg terminal or where not available, were contacted via LinkedIn.

Buy-side analysts:

The sample analysts were obtained from an internally generated list of asset management companies (including contacts and email addresses) utilised in Momentum Outcome-based Solutions and Ashburton Fund Managers. Emails were sent to these companies to assist with the completion of the exercise.

The sample type was a judgement sample method as the sample participants are considered good prospects for accurate information. A judgement sample is a type of non-random sampling that is selected based on the opinion of an expert (Leedy and Ormrod, 2010). This approach is appropriate due to top ranked and publicly published analysts being more knowledgeable and experienced on the research topic, as well as on the buy-side, the list identifies interactions with asset management houses which are utilised or been considered in multi manager solutions.

The identified analysts were required to select three companies from their identified industry area which they are most familiar with or covered during the period 2012 to 2016 (five year period). They were then required to complete the survey for each company. Only companies listed on the Johannesburg Stock Exchange were included in the study.

3.4 Procedure for data collection

Contact details and email addresses were obtained for the identified sell-side and buy-side analysts who were included in the survey (Brown et al., 2013). An email was sent to the analysts explaining the background to the study with a link to the survey, follow up emails were also sent to remind the respondents to complete the survey. Survey Monkey was used for creating the questionnaires and collecting the responses. The results were downloaded and exported into Microsoft Excel for further testing.

3.5 Data analysis and interpretation

The data from Survey Monkey was loaded in Microsoft Excel in a logical format that could be easily understood and analysed. Each participant's response was assigned a unique participant ID and responses were organised by survey question. This process was performed through the Survey Monkey software tool and as well as the use of SPSS Statistics, therefore ensuring that the data remains 'clean'.

The data analysis procedures followed the system prescribed in the original study by Groysberg et al (2011). Firstly, the survey responses were reviewed and the response rate percentage calculated. Thereafter, the responses were categorised

according to the industry which they specialise in, in order to identify the key covered industries. The information was tabulated according to the number of observations received per industry.

The survey disclosed in Annexure A contains 27 questions, the first 5 are descriptive fields about the analyst and company reviewed, and the next 20 questions required a response from a scale of 1 to 5 depending on the question. An example of this would be for the next 12 months, how likely is the following in each company's business environment: demand growth to be greater than GDP growth? 1 signifies a rating of "highly unlikely", 2 "somewhat unlikely", 3 "neither likely not unlikely", 4 "somewhat likely" and 5 "highly likely". The variables used in the study are defined as per **Table 1** below.

Table 1: Variables used in the study

Variable	Code	Relevant Question in survey
Forecasted industry growth	IG	6
Industry competitiveness	ICOMP	Average rating for questions 7-10
Forecasted revenue growth	FRG	11
Forecasted gross margin	FGM	12
Forecasted earnings growth	FEG	13
Forecasted stock appreciation	FSG	14
Clear, well communicated strategy	SCLR	15
Low-price strategy	LPR	16
Superior product/service strategy	DIFF	Maximum rating for Questions 17 and 18
Ability to execute strategy	STRATEX	19
Innovation leader	INNOV	20
Quality of top management	MGT	21
Governance strength	GOV	22
Understands competitors	COMP	23
High performance standards	PSTD	24
Balance sheet strength	FSTR	25

These variables are consistent with the ones used in the original study by Groysberg et al (2011). They have been adopted in this study for consistency in order to compare the results in the South African context to the International results. The variables cover the primary factors noted earlier in this report relating to industry, company and leadership characteristics.

The response frequencies for the above variables were reviewed, calculated and reported on. Commentary is provided on the variables with high and low selection frequencies. The mean and standard deviation for each variable was determined and commented on.

Two additional questions were included in this survey which did not appear in the original questionnaire, these relate to the analysts providing the investment recommendation made by themselves for the respective company which was reviewed as well as to identify additional factors, which are considered when assessing the company, that have not already been included in the survey questions. With regards to the investment recommendation selected by the analysts, the response frequency for each option was reviewed, calculated and reported on. The feedback relating to additional factors were identified, reviewed and summarised with a conclusion included on the most prevalent factors noted. This highlights some of the measures that are considered in the South African context when it comes to company assessments.

It is beneficial to determine whether two or more variables identified above are related to each other, this is called correlation (Leedy and Ormrod, 2010). The most commonly used statistic for determining correlation is the Pearson correlation, however there are various other correlation statistics (Leedy and Ormrod, 2010). It is important to note that the nature of the data governs the correlation statistic to apply. The scale of measurement in this research is referred to as ordinal data as this type allows for ranking but does not allow for a relative degree of difference between the rankings (Leedy and Ormrod, 2010). In this study non-dichotomous data would result in a spectrum of values (Leedy and Ormrod, 2010).

Therefore in determining whether a parametric statistic such as the Person correlation be used, the following criteria needs to be met: The data reflects an

interval or ratio scale and the data can be plotted in a normal distribution (Leedy and Ormrod, 2010). If these criteria are not met a nonparametric statistic will apply such as the Spearman rank correlation (Leedy and Ormrod, 2010). In the original study both the Pearson and Spearman correlations were calculated with the results being virtually identical. Between the survey variables simple pairwise Pearson and Spearman rank correlation statistics were calculated and commented on.

Tests were also conducted to assess which factors affect analyst forecasts, an estimation of how important each factor is to the ultimate recommendation and whether factor ratings are consistent across analysts who cover the same company.

The first test was in relation to the factors associated with analyst forecasts and estimated the relationship between analysts' ratings of company revenue growth, gross margin, earnings growth and stock price appreciation forecasts and their ratings of the industry, strategy, leadership and financial resource variables. The relationship between forecasted performance (dependent variables) and the industry, strategy, leadership and financial resource variables (independent variables) were initially attempted using an ordered probit model. This model is suitable due to the ordinal nature of the dependent variables (Groysberg et al., 2011). The results however were not considered accurate due to the limited number of respondents. The Chi- square automatic interaction detection (CHAID) classification tree procedure was then used as the outputs would provide insight into the relationship between the dependent and independent variables.

Based on research performed, it is noted that CHAID analysis is appropriate for categorical data analysis (Babinec, 1990). CHAID is useful in identifying non-linearities as well as revealing interactions in the explanatory variables (Babinec, 1990). CHAID analysis is based on criterion variables with two or more categories which allows the researcher to determine the segmentation with respect to that variable and in accordance with the range of independent variables (Diaz-Perez and Bethencourt-Cejas, 2016). Therefore to apply the CHAID analysis, dependent and independent variables are required to be identified which is the case in this study. The outcome of CHAID analysis is a classification tree where the user can identify variables that are statistically distinct in response (Babinec, 1990). In the classification tree, the most significant independent variable appears in the first node

of the classification (Diaz-Perez and Bethencourt-Cejas, 2016). When there is no longer a significant relationship between the dependent and independent variables, the node formation ends (Diaz-Perez and Bethencourt-Cejas, 2016). CHAID analysis is limited in terms of the size of the sample as evident in this study, as reliable analysis becomes compromised.

The aim of this test is to determine whether the analysts' forecasts of corporate performance were consistently related to their assessments of industry growth and competitiveness, leadership characteristics and company capabilities. Each dependent variable was tested separately against the independent variables in order to identify the most prevalent relationships. The results were reviewed and commented on.

The next test that was performed was to assess whether analysts covering the same company have common perceptions of its future performance, core qualitative capabilities, and industry dynamics. This was attempted to be assessed through the use of estimated intraclass correlation statistics for each question by using a company class variable (Groysberg et al., 2011). Due to there being a large variance in the analysts which covered the identified companies (Limited overlap in analysts), this test could not be performed. A descriptive review was then performed per factor in order to ascertain whether common views were held by analysts in relation to the different company variables. This was aided through the use of dot plot graphs.

In order to carry out the statistical tests, a statistical expert was consulted in order to ensure that the calculations are valid, accurate and complete. SPSS Statistics software was used for conducting the tests. SPSS Statistics capabilities include data management, statistical analysis, graphics, simulations and custom programming.

The results for this study were compared to the results of the original study in order to identify consistency or differences in analyst's processes between the different countries.

3.6 Limitations of the study

The study is reliant on the responses from buy-side and sell-side analysts to the questionnaire, therefore non-responses is a concern that could affect the results.

Every effort was made to ensure that participants will respond through continuous communications.

3.7 Validity and reliability

3.7.1 Validity

External Validity refers to the generalisation of research findings based on a sample and extrapolating them to the population, therefore indicting that the sample results are a true reflection of the full population (Ryan, Scapens and Theobald, 2002). External validity was assessed through comparing the findings to the original study by Groysberg et al (2011). External validity was also achieved by the participants in the study being a representative sample of the population.

Internal validity ensures that the data collection process is uniform throughout the research study. Internal validity was therefore ensured by the same survey being distributed to all participants and the same tests were performed on all observations.

3.7.2 Reliability

Reliability refers to the extent to which the findings are independent of the person utilising them (Ryan et al, 2002). In order for the survey to be reliable it is important that the questions were constructed properly, that is that they are clear and easy to understand. Reliability was assured with the questionnaire being tested on pilot respondents prior to the questionnaires being distributed to the selected sample pool. Refinements and clarifications were made to produce appropriate responses from the respondents as well as to identify additional information requirements. The research and survey was based on a previously performed study therefore ensuring reliability. By using survey monkey, this will maintain and safeguard the results database and prevent data corruption. As variable correlations are being tested, multicollinarity is a concern and has been assessed.

4 Analysis of Results

4.1 Results outline

This section of the research report covers the analysis of the sample data which was received as well as reporting the results of tests conducted in order to determine which factors affect analyst forecasts and whether factor ratings are consistent across analysts who cover the same entity.

4.2 Response rate and industry analysis

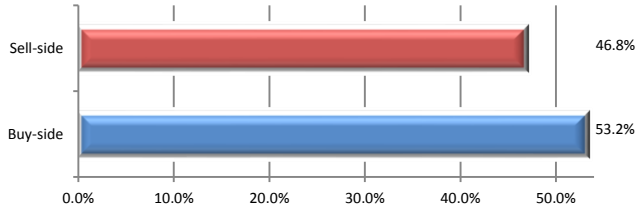
The survey was sent to 92 buy-side analysts and 113 sell-side analysts, which results in a total coverage of 205 analysts. With each analyst requiring completing the survey three times for three different companies, this would result in an anticipated total of 615 completed questionnaires. The sample size was smaller than the Harvard Business School study (5,090 analysts), however this is expected due to the different maturities of the analyst markets as well as access to the analyst databases.

There were 79 valid responses which were received which represent a 13% response rate. It was noted that not all analysts who completed the survey, completed it for all three companies and that some submissions were either for one or two companies. The response rate in the original study was 19%, with the difference due to the survey being run for a longer period in the original study as compared to this research. The sample included 42 observations from buy-side analysts and 37 observations from sell-side analysts. **Table 2** and **Figure 1** below illustrate the split between buy and sell side analysts. Based on the results, more buy-side analysts than sell-side analysts participated in the study.

Table 2: Valid responses split per type of analyst

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Buy-side	42	53.2	53.2	53.2
	Sell-side	37	46.8	46.8	100.0
	Total	79	100.0	100.0	

Figure 1: Graphical illustration of valid responses split per type of analyst



The responses were categorised according to the industry which they specialise in, in order to identify the key covered industries, refer to **Table 3** below.

Table 3: Summary of survey responses by Industry

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Asset Management	2	2.5	2.5	2.5
	Autoparts	1	1.3	1.3	3.8
	Banking	7	8.9	8.9	12.7
	Basic Materials	4	5.1	5.1	17.7
	Business support system	2	2.5	2.5	20.3
	Clothing Retailer	1	1.3	1.3	21.5
	Coal & Base Metals	1	1.3	1.3	22.8
	Construction	2	2.5	2.5	25.3
	Diversified Industrials	1	1.3	1.3	26.6
	Financial Services	6	7.6	7.6	34.2
	Food and Drug Retail	3	3.8	3.8	38.0
	Food Retail	7	9.0	9.0	46.8
	Forestry & Paper	1	1.3	1.3	48.1
	General mining	1	1.3	1.3	49.4
	General retail	2	2.5	2.5	51.9
	Healthcare	3	3.8	3.8	55.7
	Hotel	1	1.3	1.3	57.0
	Industrial	2	2.5	2.5	59.5
	Insurance	4	5.1	5.1	64.6
	Listed Property	1	1.3	1.3	65.8
	Luxury Goods	1	1.3	1.3	67.1
	Media	1	1.3	1.3	68.4
	Mining	2	2.5	2.5	70.9
	Oil, gas, petchem	1	1.3	1.3	72.2
	Paper	1	1.3	1.3	73.4
	Pharmaceuticals	3	3.8	3.8	77.2
	Platinum and precious metals	1	1.3	1.3	78.5
	Property	2	2.5	2.5	81.0
	Real Estate	4	5.1	5.1	86.1
	Real Estate Investment Trust	2	2.5	2.5	88.6
	Retail	3	3.8	3.8	92.4
	Storage	1	1.3	1.3	93.7
	Technology	1	1.3	1.3	94.9
	Telco services	1	1.3	1.3	96.2
	Telecommunication	1	1.3	1.3	97.5
	telecoms	1	1.3	1.3	98.7
	Tobacco	1	1.3	1.3	100.0
	Total	79	100.0	100.0	

Based on the above, the industries with the most responses were Banking (9 percent), Basic Materials (5.1 percent), Financial Services (7.6 percent), Retail Food (9 percent) and Life Insurance (5.1 percent). The Key covered industries from the original study were Finance (22 percent), Non-cyclical consumer goods (14 percent), cyclical services (13 percent), and information technology (11 percent) (Groysberg et al, 2011). The industry categorisations are different between the two studies as a result of the different jurisdictions which were covered, namely United States, Europe, Asia Pacific and Latin America in the original study and South Africa in the current study (Groysberg et al, 2011).

4.3 Survey data integrity

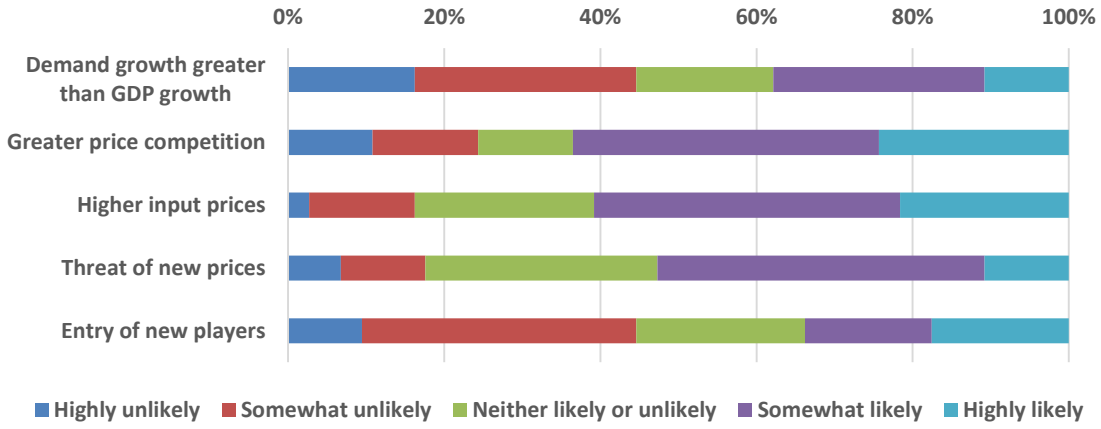
In order to assess the integrity of the survey data, the Likert summated rating test was used, this is consistent with the original study. This test is used to determine whether analysts methodically selected companies for which they had either negative or positive views on (Groysberg et al, 2011). The rating score works as such: if an analyst responded 1 for all the 20 questions relating to the analysis factors, the summated rating score was 20, a response of 5 for every question would result in a summated rating score of 100 (5 X 20). The average summated score for this sample was 66, indicating that analysts tended to select companies that they expected to perform well. This is consistent with the original study and prior research (Groysberg et al, 2011). Per the original study the calculated average summated score was 69 (Groysberg et al, 2011).

4.4 Response frequencies

The response frequencies for each of the variables were reviewed (per question), calculated and reported on. Please refer below for analysis per question.

Questions 6 to 10 relate to Industry performance, when treating the variables as categorical in measurement, **Figure 2** below illustrates the allocation of responses. It is noted that demand growth and entry of new players appear to be unlikely to occur in the next 12 months, while greater price competition, higher input prices and the threat of new prices are likely to occur as rated by the respondents.

Figure 2: Questions 6 – 10 Industry Performance – Treating the variables as categorical in measurement



When treating a variable measured on an ordinal scale as numeric instead of categorical, it is important to keep in mind that a statistic such as the mean is also a relative value on the scale and should not be seen as an absolute measure of, for example, the likeliness of an event. The mean should be interpreted relative to the middle value of the scale, i.e., if the mean is larger than the middle value (3 in this case) then it is an indication that the proportion of respondents that considered the event to be likely is larger than those who considered the event not (or less) likely. **Table 4** below highlights the mean for each of the responses for questions 6 – 10.

Table 4: Questions 6 – 10 Industry Performance – Treating the variables as scale in measurement – Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
Q6_Demand growth greater than GDP growth	1	5	2.88	1.282
Q7_Greater price competition	1	5	3.53	1.295
Q8_Higher input prices	1	5	3.64	1.054
Q9_Threat of new prices	1	5	3.39	1.044
Q10_Entry of new players	1	5	2.97	1.271

It appears, on average, that *Demand growth greater than GDP growth* is the event that seems most unlikely to occur by the respondents while *Higher input prices* is the event that seems most likely to occur by the respondents. For *Higher input prices* and *Threat of new prices*, there is the most agreement among the responses since they have the lowest variation (standard deviation) while *Greater price competition* event elicited the least agreement among the respondents.

Questions 11 to 14 relate to Financial performance and Investment prospects, when treating the variables as categorical in measurement, **Figure 3** below illustrates the allocation of responses. It is noted that performance of the company during the next 12 months on all of the listed dimensions are expected to increase according to the perceptions of the respondents.

Figure 3: Questions 11 – 14 Financial Performance and Investment Prospects – Treating the variables as categorical in measurement

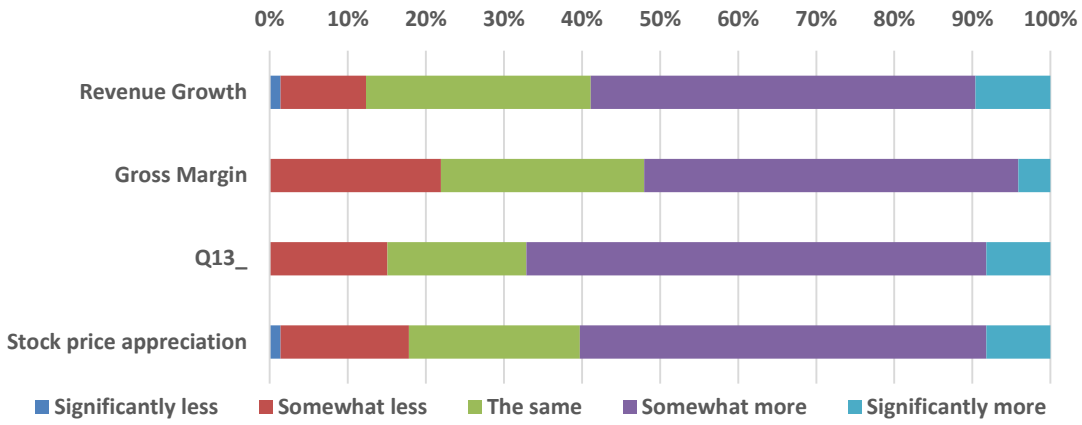


Table 5 below highlights the mean for each of the responses for questions 11 – 14.

Table 5: Questions 11 – 14 Financial Performance and Investment Prospects – Treating the variables as scale in measurement – Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
Q11_Revenue Growth	1	5	3.55	.867
Q12_Gross Margin	2	5	3.34	.870
Q13_Earnings growth	2	5	3.60	.846
Q14_Stock price appreciation	1	5	3.49	.915

Based on the above, it is expected that performance regarding *Earnings growth* will display the largest improvement over the next 12 months.

Questions 15 to 18 relate to Company Strategy, when treating the variables as categorical in measurement, **Figure 4** below illustrates the allocation of responses. It is noted that as compared to staying the same, the respondents rated all company strategies to be at a higher level than that of its peers.

Figure 4: Questions 15 – 18 Company Strategy – Treating the variables as categorical in measurement

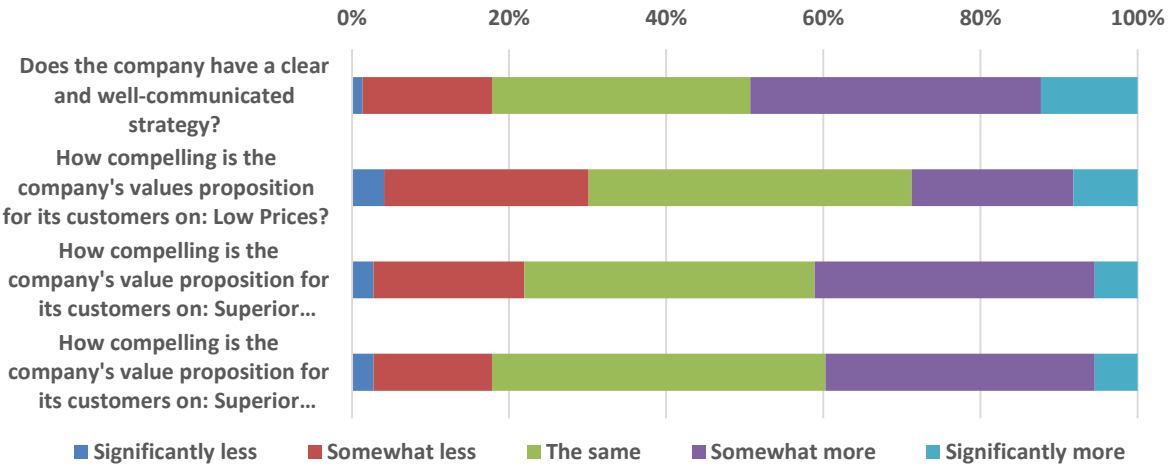


Table 6 below highlights the mean for each of the responses for questions 15 – 18.

Table 6: Questions 15 – 18 Company Strategy – Treating the variables as scale in measurement – Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
Q15_Relative to its peers, does the company have a clear and well-communicated strategy?	1	5	3.42	.956
Q16_Relative to its peers, how compelling is the company's values proposition for its customers on: Low Prices?	1	5	3.03	.986
Q17_Relative to its peers, how compelling is the company's value proposition for its customers on: Superior Products?	1	5	3.22	.917
Q18_Relative to its peers, how compelling is the company's value proposition for its customers on: Superior Services?	1	5	3.25	.878

Based on the above, relative to the company's peers, the strategy that is the highest is *Having a clear and well-communicated strategy* while the strategy rated closest to that of its peers is *How compelling the company's values proposition for its customers is on Low prices*.

Questions 19 to 24 relate to Qualitative Capabilities, when treating the variables as categorical in measurement, **Figure 5** below illustrates the allocation of responses. It is noted that All qualitative capabilities are rated by the respondents to be better than the company's peers. The capability rated closest to the peers is how often the company is at the leading edge of innovation in its industry.

Figure 5: Questions 19 – 24 Qualitative Capabilities – Treating the variables as categorical in measurement

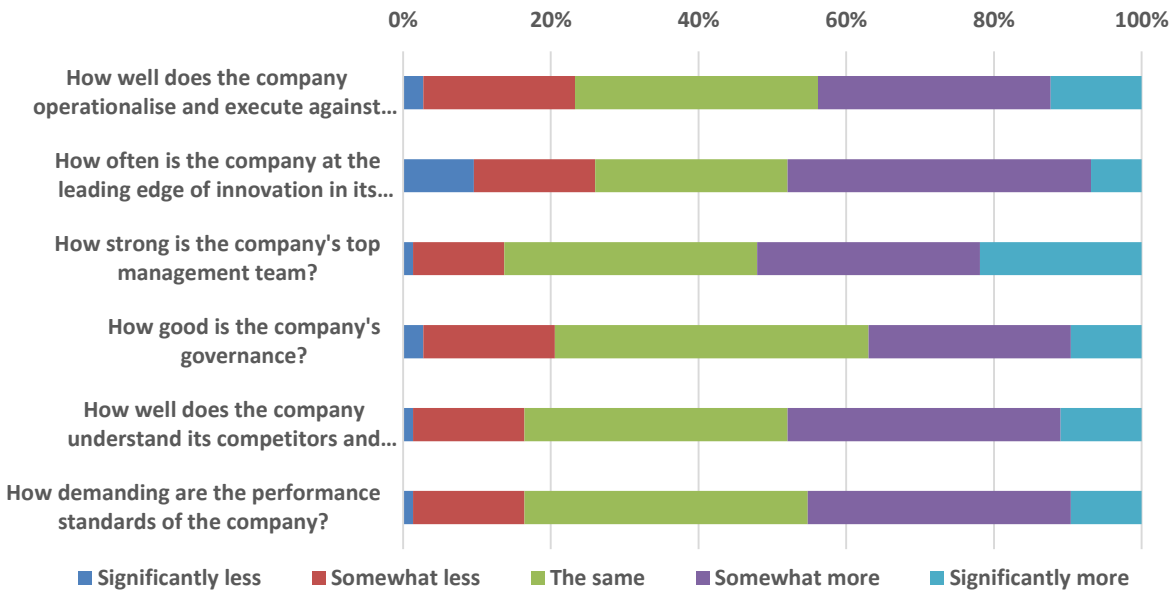


Table 7 below highlights the mean for each of the responses for questions 19 – 24.

Table 7: Questions 19 – 24 Qualitative Capabilities – Treating the variables as scale in measurement – Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
Q19_Relative to its peers, how well does the company operationalise and execute against its strategy?	1	5	3.30	1.023
Q20_Relative to its peers, how often is the company at the leading edge of innovation in its industry?	1	5	3.19	1.101
Q21_Relative to its peers, how strong is the company's top management team?	1	5	3.59	1.012
Q22_Relative to its peers, how good is the company's governance?	1	5	3.23	.950
Q23_Relative to its peers, how well does the company understand its competitors and their relative strengths and weaknesses?	1	5	3.41	.925
Q24_Relative to its peers, how demanding are the performance standards of the company?	1	5	3.37	.905

Based on the above, the strength of its management team is rated by the respondents to be at a higher level than that of its peers.

Question 25 relates to Financial Resources, when treating the variables as categorical in measurement, **Figure 6** below illustrates the allocation of responses. It is noted that the distribution is negatively skewed, indicating that the respondents tended towards indicating that the company's Balance sheet is stronger than that of their peers.

Figure 6: Question 25 Financial Resources – Treating the variables as categorical in measurement

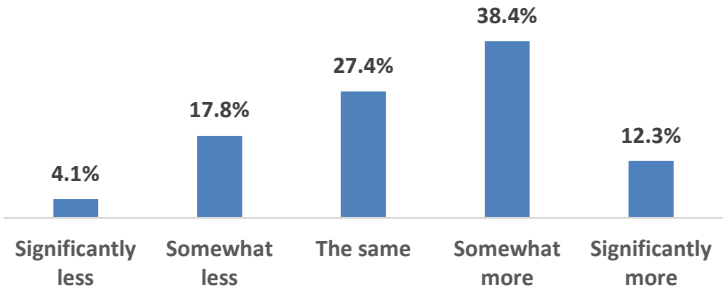


Table 8 below highlights the mean for each of the responses for question 25.

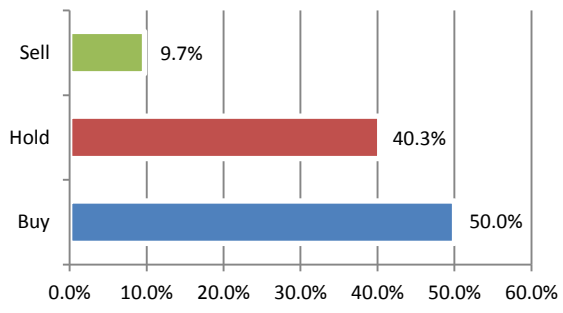
Table 8: Question 25 Financial Resources – Treating the variables as scale in measurement – Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
Q25_Relative to its peers, how strong is the company's balance sheet?	1	5	3.37	1.048

The findings highlighted above are consistent with the results of the original study which showed high frequency allocations for the three top ratings (3 – The same, 4 – Somewhat more and 5 – Significantly more) for majority of the questions (Groysberg et al, 2011). High frequency for 4 and 5 allocations per the original study were allocated to the following factors: strategy communication, strategy execution, management quality, understanding of competitors, forecasted industry growth, superior product / service strategy and balance sheet strength.

Question 26 relates to the Investment recommendation of either buy/hold/sell made by the analysts post their research. **Figure 7** below illustrates the allocation of responses between these 3 investments options.

Figure 7: Question 26 - Investment Recommendation

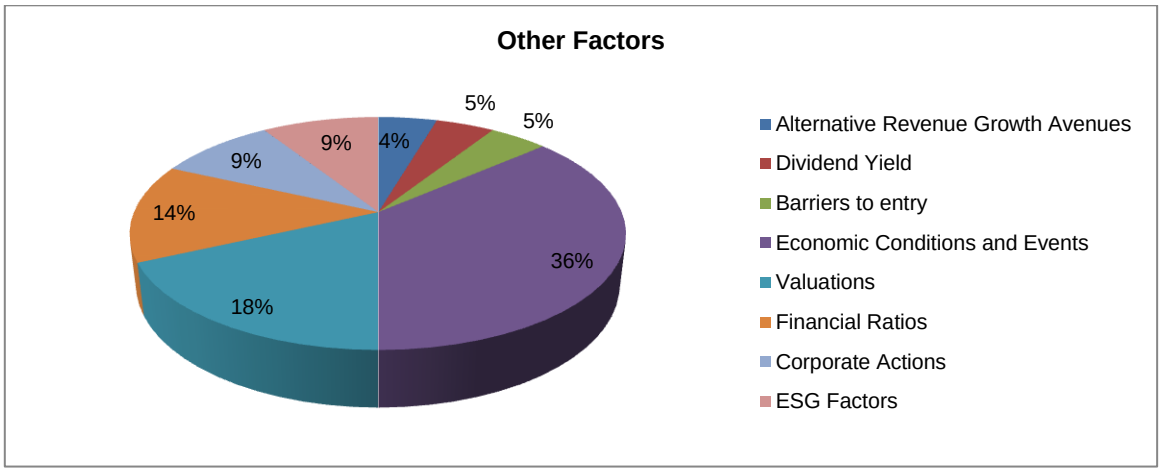


Question 27 relates to other factors which were considered by analysts when performing the analysis process. The factors are summarised below:

- Alternative avenues for revenue growth;
- Dividend yield relative to peers;
- Barriers to entry;
- Economic conditions and events;
- Valuations;
- Financial ratios;
- Company/Group Corporate Actions; and
- ESG factors.

Based on the graph below **(Figure 8)** the most prevalent factors considered relate to Economic conditions and events as well as the company valuation.

Figure 8: Question 27 - Other Factors



The above identified factors provide insight into the aspects which South African analysts consider as important and are relevant to the state of the country as highlighted by the most prevalent factor being the economic conditions and events of the country. These findings also support the research identified in the literature review which notes that analysts collect information from numerous sources for their reviews, as well as that analysts consider more than the company's quantitative qualities and consider qualitative matters such as the industry and macro-economic conditions which the company operates within.

4.5 Tests of Normality

Tests of Normality are utilised to determine if the sample data is well modelled by a normal distribution as well as to determine how likely it is for an underlying variable to be normally distributed (Ryan et al, 2002). The common statistical tests relating to sample means and variances contain normality assumptions included in their structures (Ryan et al, 2002). Therefore when such statistical tools are utilised in a study it is important to assess the appropriateness of the normality assumptions. Where a distribution is identified but is however considered to be non-normal, further testing on the specific distribution is to be performed (Ryan et al, 2002).

For the sample relative to this study both the Kolmogorov-Smirnov and Shapiro-Wilk tests of normality were performed and found that the distribution of the two analyst type groups do not have similar distributions and that the ones group's distribution deviates significantly from normality. Therefore, non-parametric tests were used to see if there is a significant difference in the average summed score. **Table 9** below highlights the results from the Kolmogorov-Smirnov and Shapiro-Wilk tests of normality.

Table 9: Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Type of analyst	Statistic	df	Sig.	Statistic	df	Sig.
Likert summated rating test	Buy-side	.111	39	.200*	.959	39	.161
	Sell-side	.120	35	.200*	.907	35	.006

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

A non-parametric test namely Mann-Whitney was run and found that there is no significant difference in the average mean rank between buy-side and sell-side analysts. **Table 10** below illustrates the scores.

Table 10: Non-parametric test results

Test Statistics[a]

	Likert summated rating test
Mann-Whitney U	553.000
Wilcoxon W	1183.000
Z	-1.404
Asymp. Sig. (2-tailed)	.160

a. Grouping Variable: Type of analyst

This finding is contradictory to the research identified in the literature review which highlights significant differences in the quality and accuracy of the two analyst group's outcomes due to the following factors:

1. Scale and scope of coverage;
2. Sources of information used;
3. Private versus public distribution of reports;
4. The target audience; and
5. The ways in which analysts' performance is measures and how they are compensated (Groysberg et al., 2008).

It is interesting to note that when a detailed analysis and comparison was performed by individual variable for analysts covering the same company, different views on some of the variables were identified between buy-side and sell-side analysts, therefore supporting the research obtained during the literature review.

4.6 Correlations

It is beneficial to determine whether two or more variables identified above are related to each other, this is called correlation (Leedy and Ormrod, 2010). The most commonly used statistic for determining correlation is the Pearson correlation model.

In the original study both the Pearson and Spearman correlations were calculated with the results being virtually identical. However based on the results from this research, there were significant differences identified in the correlations. It was therefore necessary to use the Spearman correlation coefficient as based on the tests of normality; the underlying variables do not result in a normal distribution and

are therefore non-parametric, resulting in the Pearson correlation assumptions being compromised.

Table 11 illustrates the Pearson correlations and **Table 12** the Spearman correlations.

Based on the outputs of the spearman correlation test, the correlations are sizeable and significant across various variables. Ratings related to forecasted revenue growth, forecasted earnings growth and forecasted stock appreciation have a strong positive correlation to each other. This is consistent with the original study which found the same strong correlations between the forecasted financial variables.

Qualitative variables such as a clear, well communicated strategy, superior product/ service, strategy execution, innovation, quality of management, understanding the competitor landscape and high performance standards were also noted as having strong positive correlations. These findings are also aligned to the original study performed.

Correlation ratings related to forecasted industry growth and industry competitiveness were identified across all variables as being weak. Low price strategy, balance sheet strength and governance also demonstrated weak or moderate correlations across the surveyed variables.

Table 11: Pearson Correlations

Parametric Pearson's Correlations																	
		Q1_IG	Q2to5_ICOMP_cat	Q6_FRG	Q7_FGM	Q8_FEG	Q9_FSG	Q10_SCLR	Q11_LPR	Q12to13_DIFF	Q14_STRATEX	Q15_INNOV	Q16_MGT	Q17_GOV	Q18_COMP	Q19_PSTD	Q20_FSTR
Q1_IG	Pearson Correlation	1	-.003	.389**	.332**	.365**	.197	.194	.213	.063	.236*	.152	.250*	.076	.176	.176	.319**
Q2to5_ICOMP_cat	Pearson Correlation	-.003	1	-.062	-.025	-.066	-.197	.058	.015	.101	-.090	.022	.048	-.001	.121	.134	-.006
Q6_FRG	Pearson Correlation	.389**	-.062	1	.448**	.604**	.425**	.268*	.242*	.334**	.469**	.412**	.498**	-.005	.460**	.322**	.263*
Q7_FGM	Pearson Correlation	.332**	-.025	.448**	1	.584**	.570**	.257*	.281*	.340**	.320**	.366**	.431**	.070	.444**	.313**	.240*
Q8_FEG	Pearson Correlation	.365**	-.066	.604**	.584**	1	.670**	.160	.113	.272*	.285*	.307**	.359**	-.108	.371**	.285*	.027
Q9_FSG	Pearson Correlation	.197	-.197	.425**	.570**	.670**	1	.218	.277*	.329**	.255*	.208	.267*	-.070	.282*	.246*	.111
Q10_SCLR	Pearson Correlation	.194	.058	.268*	.257*	.160	.218	1	.297*	.518**	.577**	.462**	.341**	.455**	.491**	.426**	.326**
Q11_LPR	Pearson Correlation	.213	.015	.242*	.281*	.113	.277*	.297*	1	.296*	.419**	.289*	.290*	.067	.368**	.409**	.273*
Q12to13_DIFF	Pearson Correlation	.063	.101	.334**	.340**	.272*	.329**	.518**	.296*	1	.418**	.453**	.361**	.284*	.490**	.453**	.346**
Q14_STRATEX	Pearson Correlation	.236*	-.090	.469**	.320**	.285*	.255*	.577**	.419**	.418**	1	.626**	.658**	.227	.586**	.583**	.296*
Q15_INNOV	Pearson Correlation	.152	.022	.412**	.366**	.307**	.208	.462**	.289*	.453**	.626**	1	.608**	.342**	.644**	.513**	.227
Q16_MGT	Pearson Correlation	.250*	.048	.498**	.431**	.359**	.267*	.341**	.290*	.361**	.658**	.608**	1	.318**	.613**	.638**	.368**
Q17_GOV	Pearson Correlation	.076	-.001	-.005	.070	-.108	-.070	.455**	.067	.284*	.227	.342**	.318**	1	.300**	.302**	.387**
Q18_COMP	Pearson Correlation	.176	.121	.460**	.444**	.371**	.282*	.491**	.368**	.490**	.586**	.644**	.613**	.300**	1	.777**	.256*
Q19_PSTD	Pearson Correlation	.176	.134	.322**	.313**	.285*	.246*	.426**	.409**	.453**	.583**	.513**	.638**	.302**	.777**	1	.366**
Q20_FSTR	Pearson Correlation	.319**	-.006	.263*	.240*	.027	.111	.326**	.273*	.346**	.296*	.227	.368**	.387**	.256*	.366**	1
**. Correlation is significant at the 0.01 level (2-tailed).																	
*. Correlation is significant at the 0.05 level (2-tailed).																	

Table 12: Spearman Correlations

Non-parametric Spearman Correlations																		
			Q1_IG	Q2to5_ICOMP_cat	Q6_FRG	Q7_FGM	Q8_FEG	Q9_FSG	Q10_SCLR	Q11_LPR	Q12to13_DIFF	Q14_STRATEX	Q15_INNOV	Q16_MGT	Q17_GOV	Q18_COMP	Q19_PSTD	Q20_FSTR
Spearman's rho	Q1_IG	Correlation Coefficient	1.000	.006	.393**	.323**	.364**	.182	.188	.201	.063	.251*	.176	.235*	.085	.190	.198	.327**
	Q2to5_ICOMP_cat	Correlation Coefficient	.006	1.000	-.043	-.036	-.073	-.222	.088	-.007	.129	-.068	.016	.019	-.015	.095	.109	.014
	Q6_FRG	Correlation Coefficient	.393**	-.043	1.000	.458**	.630**	.456**	.233*	.247*	.267*	.444**	.394**	.498**	-.014	.448**	.336**	.222
	Q7_FGM	Correlation Coefficient	.323**	-.036	.458**	1.000	.574**	.558**	.219	.288*	.316**	.330**	.391**	.442**	.033	.427**	.317**	.242*
	Q8_FEG	Correlation Coefficient	.364**	-.073	.630**	.574**	1.000	.655**	.100	.086	.222	.262*	.346**	.331**	-.129	.325**	.239*	.001
	Q9_FSG	Correlation Coefficient	.182	-.222	.456**	.558**	.655**	1.000	.184	.262*	.294*	.263*	.251*	.283*	-.104	.247*	.220	.067
	Q10_SCLR	Correlation Coefficient	.188	.088	.233*	.219	.100	.184	1.000	.291*	.532**	.575**	.458**	.336**	.428**	.488**	.417**	.317**
	Q11_LPR	Correlation Coefficient	.201	-.007	.247*	.288*	.086	.262*	.291*	1.000	.294*	.399**	.331**	.282*	.081	.350**	.387**	.285*
	Q12to13_DIFF	Correlation Coefficient	.063	.129	.267*	.316**	.222	.294*	.532**	.294*	1.000	.408**	.476**	.371**	.273*	.471**	.429**	.312**
	Q14_STRATEX	Correlation Coefficient	.251*	-.068	.444**	.330**	.262*	.263*	.575**	.399**	.408**	1.000	.615**	.648**	.243*	.596**	.619**	.311**
	Q15_INNOV	Correlation Coefficient	.176	.016	.394**	.391**	.346**	.251*	.458**	.331**	.476**	.615**	1.000	.595**	.308**	.628**	.504**	.187
	Q16_MGT	Correlation Coefficient	.235*	.019	.498**	.442**	.331**	.283*	.336**	.282*	.371**	.648**	.595**	1.000	.329**	.627**	.677**	.361**
	Q17_GOV	Correlation Coefficient	.085	-.015	-.014	.033	-.129	-.104	.428**	.081	.273*	.243*	.308**	.329**	1.000	.269*	.297*	.362**
	Q18_COMP	Correlation Coefficient	.190	.095	.448**	.427**	.325**	.247*	.488**	.350**	.471**	.596**	.628**	.627**	.269*	1.000	.776**	.254*
	Q19_PSTD	Correlation Coefficient	.198	.109	.336**	.317**	.239*	.220	.417**	.387**	.429**	.619**	.504**	.677**	.297*	.776**	1.000	.368**
	Q20_FSTR	Correlation Coefficient	.327**	.014	.222	.242*	.001	.067	.317**	.285*	.312**	.311**	.187	.361**	.362**	.254*	.368**	1.000

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

4.7 Factors associated with analysts' forecasts

In the original study, the ordered probit model was used to estimate the relationship between the forecasted financial variables and the other qualitative variables. However for this study this test could not be used due to the limited number of responses. The concern was that some of the groupings were very small which resulted in some of the cells in the crosstabs being empty in the SPSS software. With the five rating scale, there were 80% of cells with zero frequencies and with a three rating scale, this reduced to 67%. This would result in limited statistical power to support the outcomes and therefore the ordered probit model could not be utilised for this research.

Alternative tests were considered which would provide similar outcomes in order to support this research. The binary logistic regression or discriminant analysis tests were selected and run, however due to the limited number of responses the results were considered unstable and would not add value to this research.

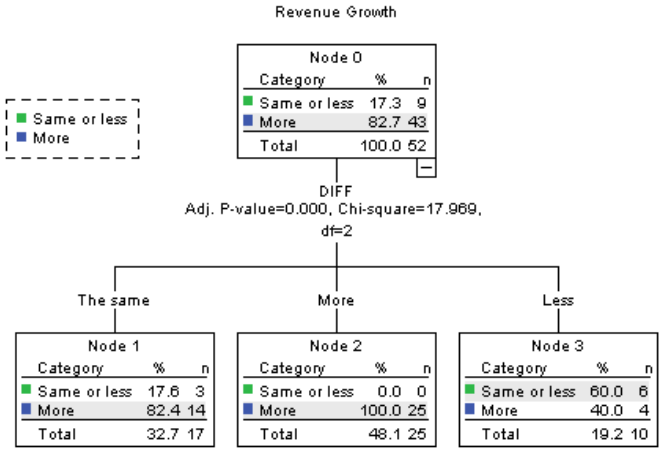
Due to the relatively small sample size, the Chi- square automatic interaction detection (CHAID) classification tree procedure was selected to be used to assess which of the independent variables have a significant effect on the dependent variables. Therefore estimating the relationship between the analysts' ratings of forecasted revenue growth, forecasted gross margin, forecasted earnings growth and forecasted stock appreciation (dependent variables) and their ratings of the industry, strategy, leadership and financial resource variables (independent variables). The independent variables used in this study relate to the following: forecasted industry growth, industry competitiveness, clear-well communicated strategy, low-price strategy, superior product/service strategy, ability to execute strategy, innovation leader, quality of top management, governance strength, understands competitors, high performance standards and balance sheet strength. This test was considered suitable as it assesses one variable at a time as opposed to the entire data set simultaneously. The only shortcoming is that it is not considered an inferential test as the originally intended ordered probit model.

In order to obtain the most accurate results, the five rating scale was reduced to two for the dependent variables being "same or less" and "more" and three for the independent variables being "less", "same" and "more".

Forecasted Revenue Growth

Figure 9 below highlights the CHAID tree results for forecasted revenue growth, with the outcome being that superior product/service strategy is the only variable that had a significant effect on the forecasted revenue growth.

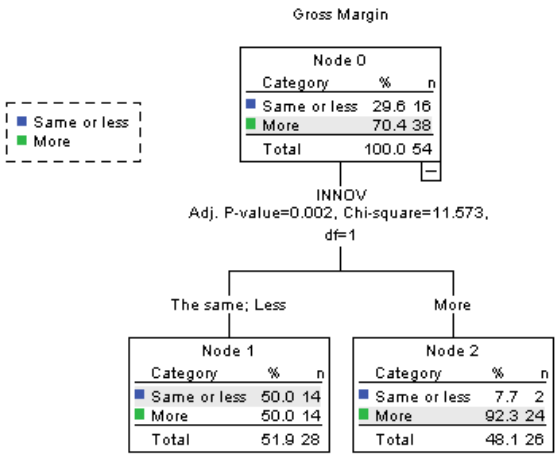
Figure 9: CHAID classification for Revenue Growth



Forecasted Gross Margin

Figure 10 below highlights the CHAID tree results for forecasted gross margin, with the outcome being that Innovation Leader is the only variable that had a significant effect on forecasted gross margin.

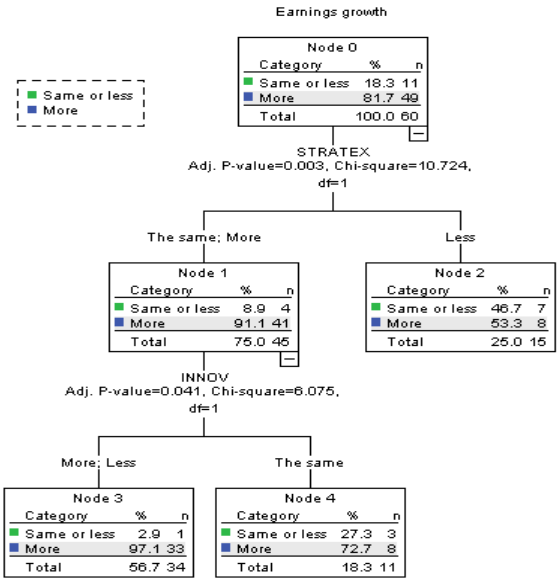
Figure 10: CHAID classification for Gross Margin



Forecasted Earnings Growth

Figure 11 below highlights the CHAID tree results for forecasted earnings growth, with the outcome being that Innovation Leader and ability to execute strategy are the only variables that had a significant effect on forecasted earnings growth.

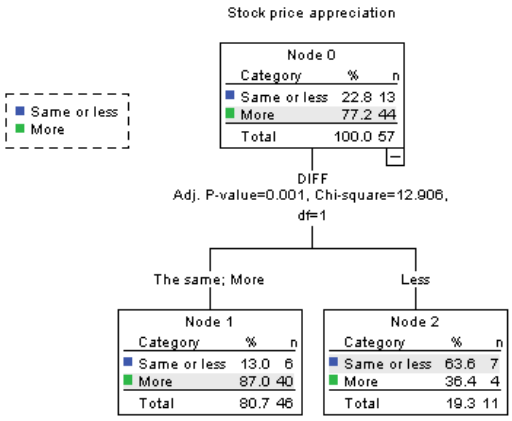
Figure 11: CHAID classification for Earnings Growth



Forecasted Stock Growth

Figure 12 below highlights the CHAID tree results for forecasted stock growth, with the outcome being that superior product/service strategy is the only variable that had a significant effect on forecasted stock growth.

Figure 12: CHAID classification for Stock Growth



Based on the outcomes of the CHAID classifications, the factors which have an impact on forecasted financials relate to superior product/service strategy, innovation and ability to execute strategy. These variables are not consistent across all the financial forecast factors and are contradictory to the research highlighted in the literature review as well as the outcomes of the original study.

The outcomes of the tests performed in the original study indicated that the most significant variable across all the company performance dependent variables related to forecasted industry growth. The next variables which followed were quality of top management and the ability to execute the company strategy. The other variables followed thereafter with some differences in importance between the financial forecasts. Overall it was found that analyst forecasts are consistently aligned to their assessment of industry growth and competitiveness, leadership quality, performance driven standards/ culture, strategy execution, innovation and price competitiveness (Groysberg et al, 2011).

One of the main reasons for the difference in outcomes and test/model used to determine the relationship between variables, is the sample size. The sample size in this research was limited to 79 valid cases while in the original study they had a sample size of 2,179 valid cases. The difference in samples sizes is due to two main reasons, these are highlighted below:

- Analyst databases exist in the United States, Europe, Asia and Latin America. These databases contain the names and contact details of analysts who work at Investment Banks, Brokerage and Research houses and asset managers. In South Africa these databases do not exist and therefore in order to obtain a complete list of buy-side and sell-side analysts who operate in South Africa is difficult. A potential recommendation is for the JSE/Intellidex or other appropriate institution to commence setting up such a database for the analyst landscape in South Africa; and
- In the original study the duration of the survey ran over 1,5 years, from December 2004 to July 2006. Whereas for this study the duration of the survey ran over 2 months.

4.8 Consistency of analysts' ratings within companies

The next analysis which was performed related to a comparison of analyst ratings that cover the same company, in order to determine whether there are common views on future financial performance, key qualitative competencies and industry forces. Based on the literature review performed there are various reasons for analysts to obtain alignment in forecasts. These are:

- Availability of public related information which is processed in a specific way;
- Benchmarking of forecasts against other publicly available forecasts; and
- Incentives around analyst herding.

In the original survey, an intra-class correlation statistic was calculated for each question by using a company class variable. However in this study, due to there being a large variance in the analysts which covered the identified companies (Limited overlap in analysts) and therefore a very sparsely populated matrix, this test could not be performed on the SPSS software.

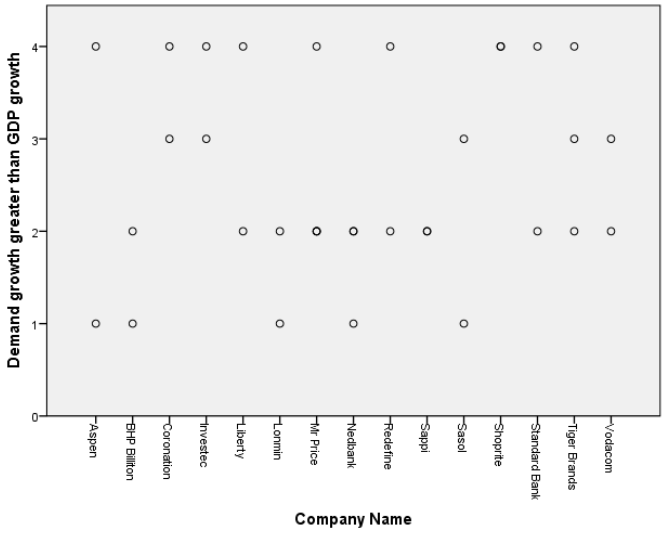
A descriptive review was then performed per factor in order to ascertain whether common views were held by analysts in relation to the different company variables. This was aided through the use of dot plot graphs. For this review, companies with responses from at least two analysts were included.

The sample size included 24 analysts (both buy and sell side), with coverage across 15 companies listed on the JSE. Dot Plot graphs were then prepared for each variable from SPSS. These graphs were reviewed and commentary provided.

Industry Growth

The below plot graph (**Figure 13**) illustrates the various responses to the survey question relating to industry growth. The darker dots on the graph indicate alignment between analysts on their ratings for the respective company. For almost half of the companies there are differences in ratings between the analysts on their views around industry growth.

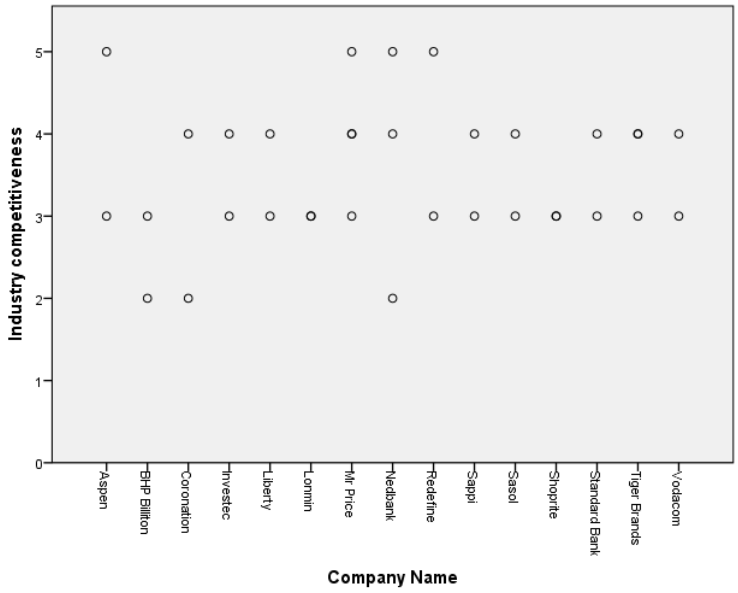
Figure 13: Industry Growth Dot Plot Graph



Industry Competitiveness

Figure 14 below shows the different responses to industry competitiveness per the various analysts. Based on these results, there is more conformity of ratings compared to industry growth indicating a greater understanding of competitors amongst analysts. This also supports the view that company strategies and the competitor landscape within the industry is available and clear to all analysts (Groysberg et al., 2011). Only three companies show varied responses to this variable, namely Aspen, Coronation and Nedbank.

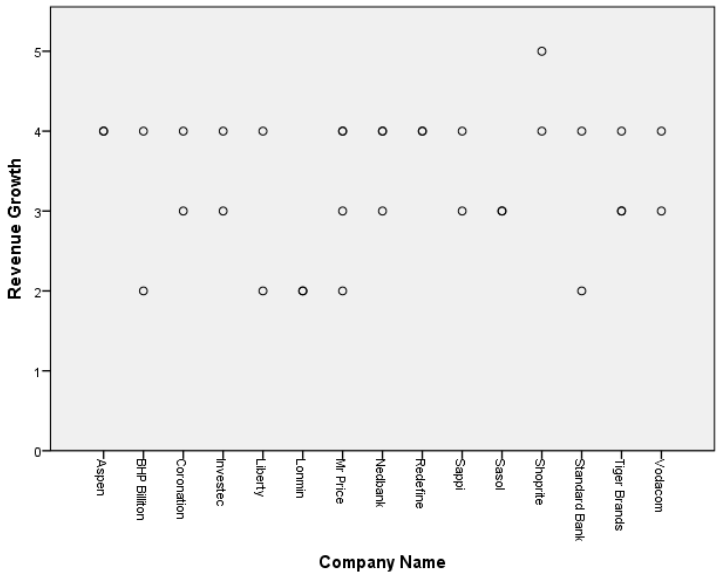
Figure 14: Industry Competitiveness Dot Plot Graph



Forecasted Revenue Growth

The ratings for forecasted revenue growth are mostly aligned amongst analysts except for four companies, namely BHP Billiton, Liberty, Mr Price and Standard Bank. This is evident as per **Figure 15** below. This finding is consistent with the original study where a high correlation was noted for forecasted revenue growth.

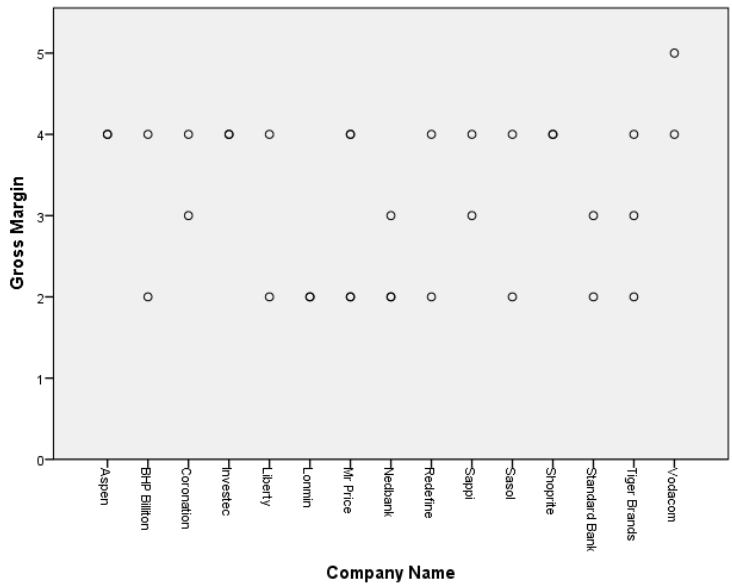
Figure 15: Forecasted Revenue Growth Dot Plot Graph



Forecasted Gross Margin

Per the graph in **Figure 16** below, six companies are highlighted as showing varying rating responses to forecasted gross margin. However majority of the companies showed a consistency in analyst rating for this variable.

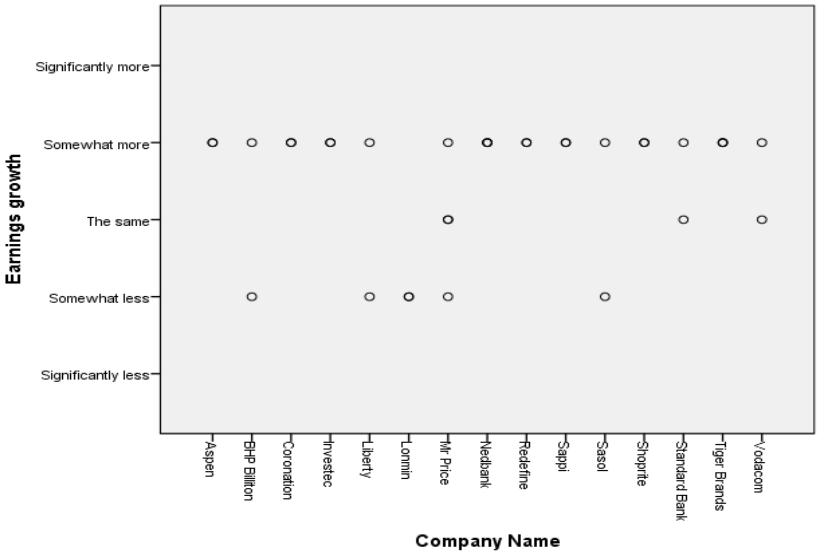
Figure 16: Forecasted Gross Margin Dot Plot Graph



Forecasted Earnings Growth

The ratings for forecasted earnings growth are mostly aligned amongst analysts except for four companies, namely BHP Billiton, Liberty, Mr Price and Sasol. This is evident as per **Figure 17** below. The outcome of this variable is consistent with that reported for forecasted revenue growth. The only unusual matter is that Standard Bank showed different analyst ratings for forecasted revenue growth however for this question relating to forecasted earnings growth there is increased consistency. Sasol for forecasted earnings growth is identified as an outlier while for forecasted revenue there was perfect alignment between the analysts. The reasons for these differences are unclear.

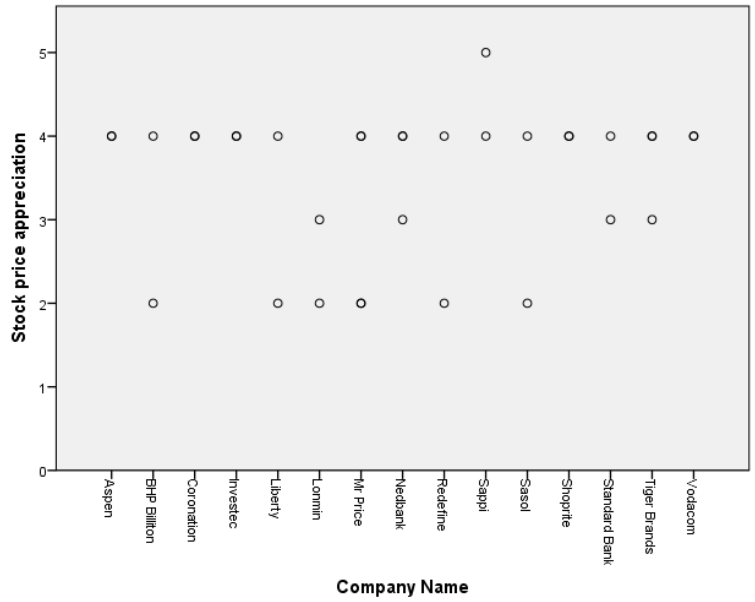
Figure 17: Forecasted Earnings Growth Dot Plot Graph



Forecasted Stock Price Appreciation

Majority of analysts' views on stock price appreciation were consistent except for 5 companies where analysts showed different views on this variable, these are BHP Billiton, Liberty, Mr Price, Redefine and Sasol. Refer to **Figure 18** below. It is interesting to note that there is a direct split between buy-side and sell side analysts for these companies, with the sell-side analysts taking the more conservative view while the buy-side analysts were more optimistic in their ratings. This is consistent with the literature review where buy-side analysts appear to be more optimistic in their forecasts when compared to their sell-side counterparts.

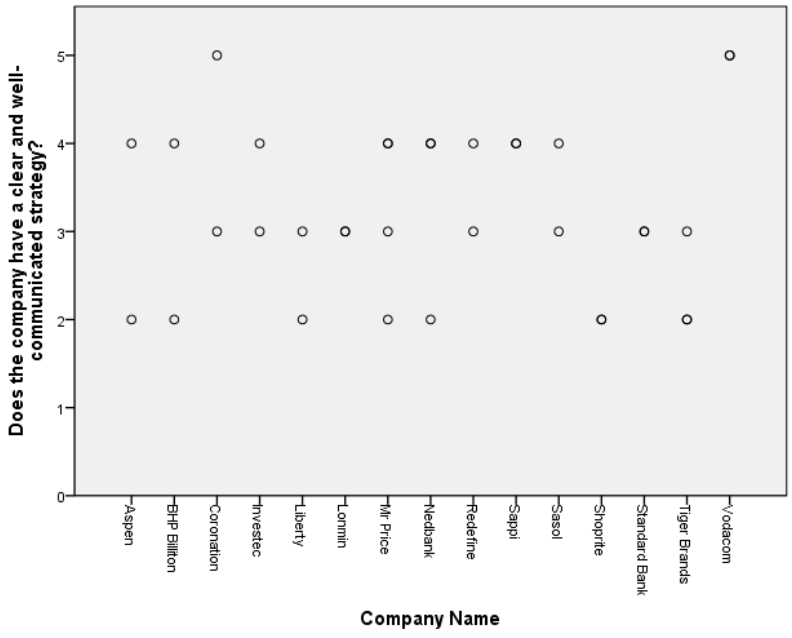
Figure 18: Forecasted stock price appreciation Growth Dot Plot Graph



Clear, Well Communicated Strategy

Per **Figure 19** below there is consistency in rating for majority of the companies, except for four, namely Aspen, BHP Billiton, Mr. Price and Nedbank. The common ratings are consistent with the original study where a high correlation was noted for this variable. The outcome also makes sense as this factor is based on publicly available information.

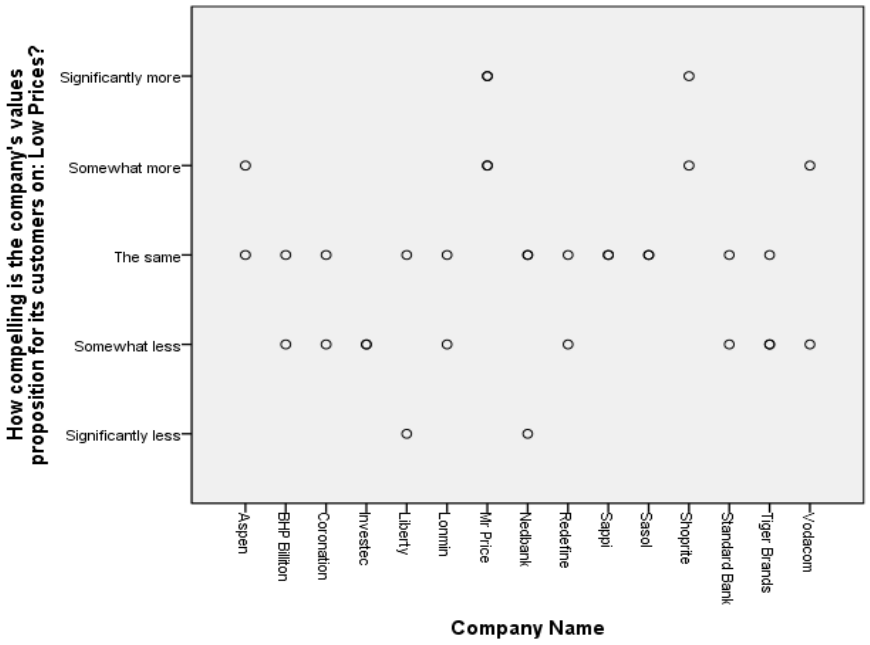
Figure 19: Clear, Well Communicated Strategy Dot Plot Graph



Low Price Strategy

Figure 20 below shows the different responses to low price strategy per the various analysts. Based on these results, there is conformity of ratings across majority of the companies. This supports the view that company strategies and the competitor landscape within the industry is available and clear to all analysts (Groysberg et al., 2011). Only three companies show varied responses to this variable, namely Liberty, Nedbank and Vodacom.

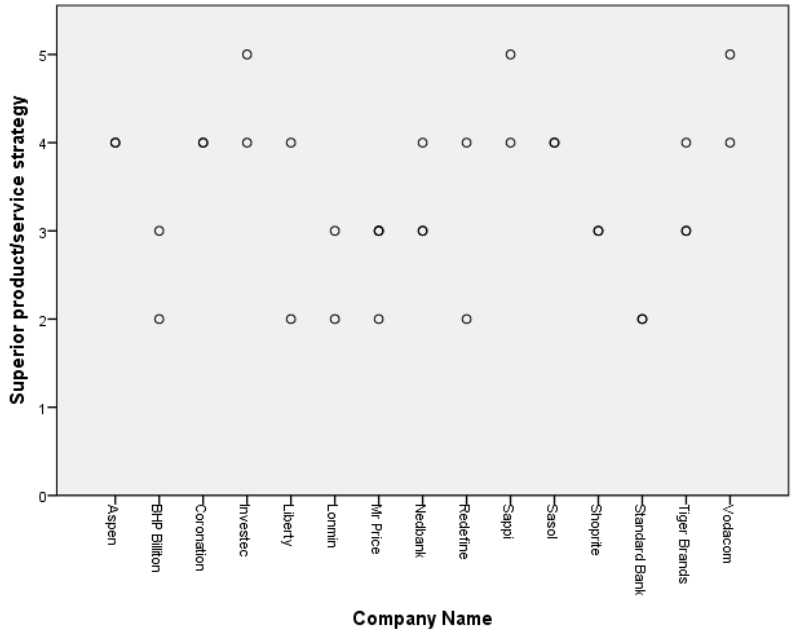
Figure 20: Low Price Strategy Dot Plot Graph



Superior Product/Service Strategy

Figure 21 below shows the different responses to superior product/ service strategy per the various analysts. Based on these results, there is conformity of ratings across majority of the companies. This supports the view that company strategies and the competitor landscape within the industry is available and clear to all analysts (Groysberg et al., 2011). Only two companies show varied responses to this variable, namely Liberty and Redefine.

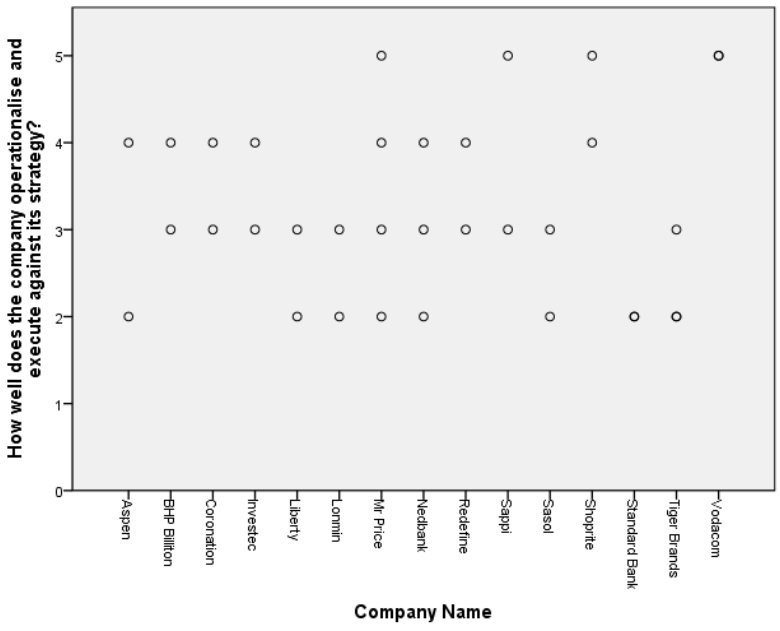
Figure 21: Low Price Strategy Dot Plot Graph



Strategy Execution

Per **Figure 22** below there is consistency in rating for majority of the companies, except for four, namely Aspen, Mr. Price, Nedbank and Sappi. The common ratings are consistent with the original study where a high correlation was noted for this variable. The outcome also makes sense as this factor is based on publicly available information as strategy execution is a function of current performance.

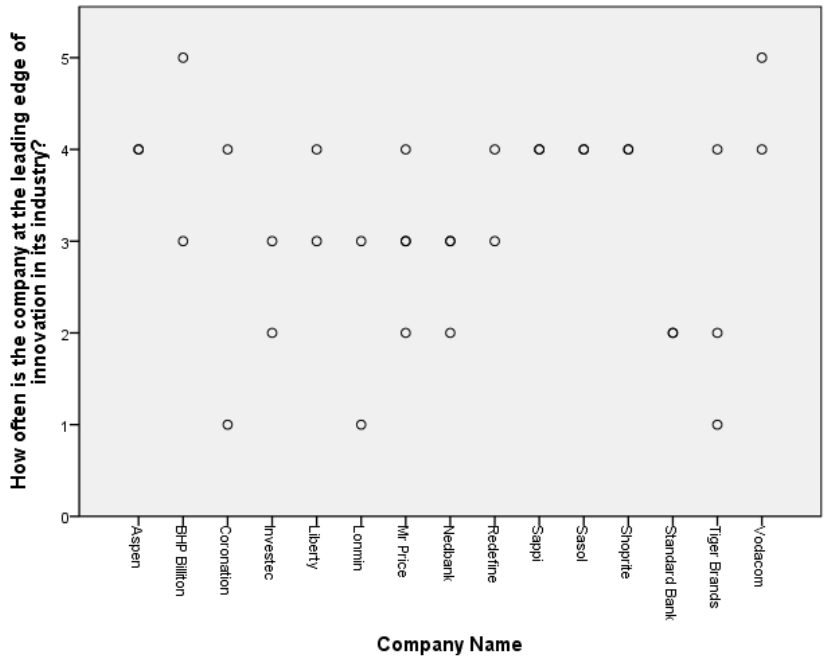
Figure 22: Strategy Execution Dot Plot Graph



Innovation Leader

Per the graph below (**Figure 23**) there are five companies who have inconsistent ratings for the company being an innovation leader, namely BHP Billiton, Coronation, Lonmin, Mr. Price and Tiger Brands. For majority of these companies it was noted that the buy-side analysts provided a more optimistic rating except for Tiger Brands where the sell-side analyst rating was more optimistic.

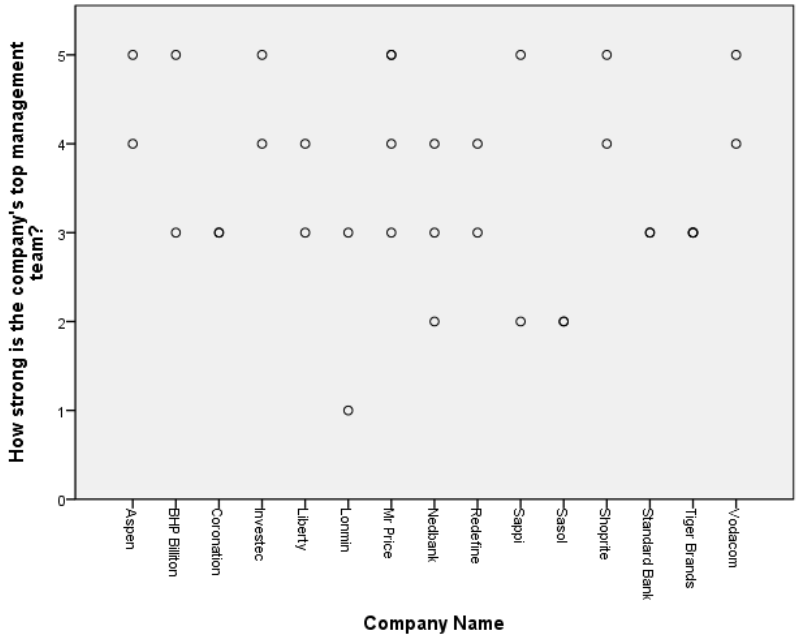
Figure 23: Innovation Leader Dot Plot Graph



Management Quality

Per the graph below (**Figure 24**) there are five companies who have inconsistent ratings for the company having the appropriate quality of top management, namely BHP Billiton, Lonmin, Mr. Price, Nedbank and Sappi. Therefore majority of the companies have consistency in ratings for top management quality. This makes sense as both buy-side and sell-side analysts have access to key management of the listed companies.

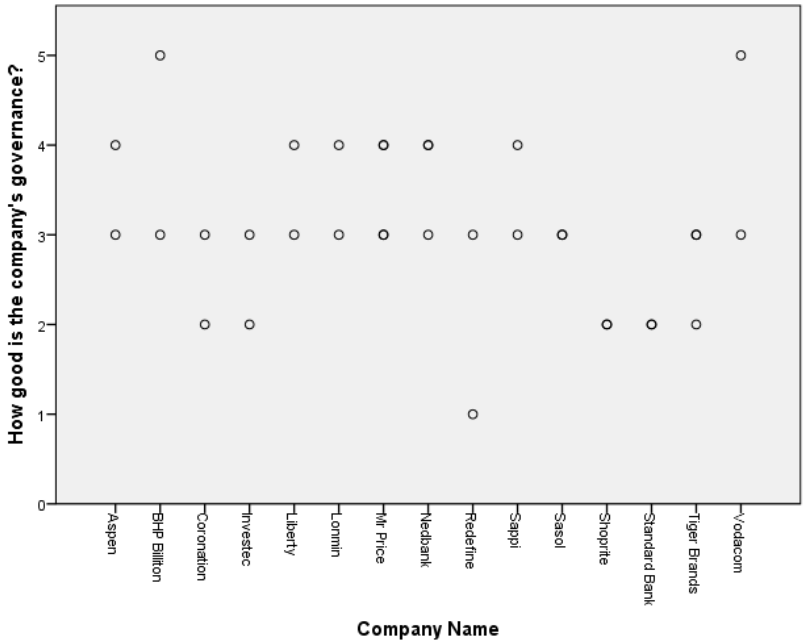
Figure 24: Management Quality Dot Plot Graph



Governance

Per the graph in **Figure 25** below, three companies are highlighted as showing varying rating responses to governance, namely BHP Billiton, Redefine and Vodacom. However majority of the companies showed a consistency in analyst rating for this variable.

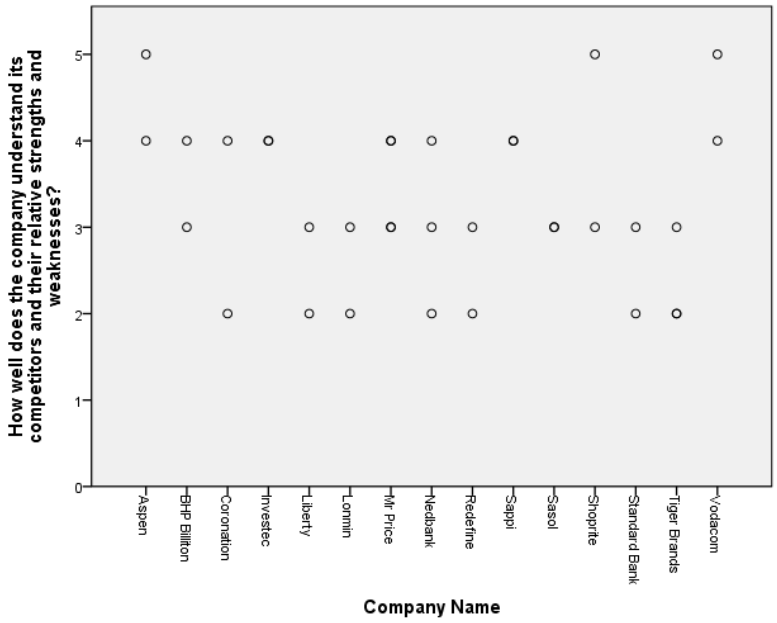
Figure 25: Governance Dot Plot Graph



Competitor Understanding

Figure 26 below shows the different responses the companies' competitor understanding per the various analysts. Based on these results, there is conformity of ratings indicating a consistent view that the companies understand their competitors. This makes sense as both buy-side and sell-side analysts have access to key management in order to interview them on their competitor landscape. Only three companies show varied responses to this variable, namely Coronation, Nedbank and Shoprite.

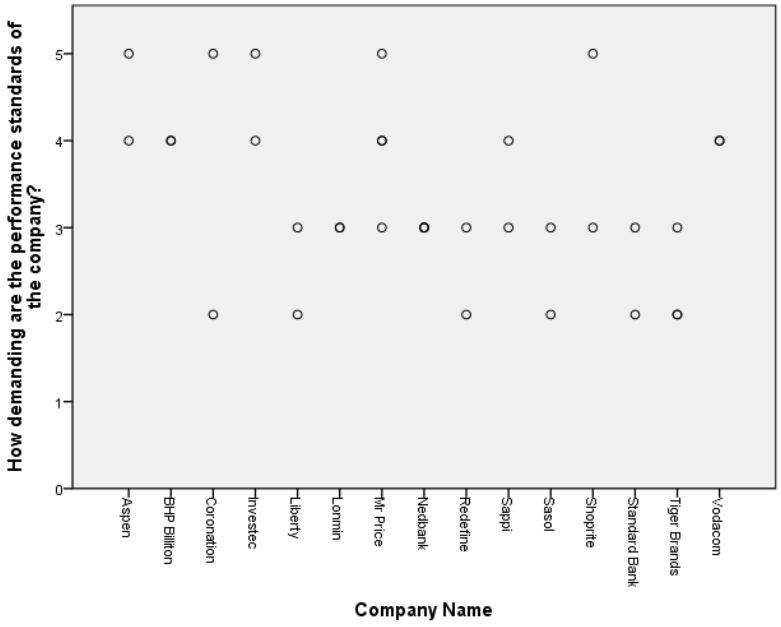
Figure 26: Competitor Understanding Dot Plot Graph



High Performance Standards

Per the graph below (**Figure 27**) there are two companies who have inconsistent ratings for the company having high performance standards, namely Coronation and Shoprite. Therefore majority of the companies have consistency in ratings for high performance standards and an excellence culture. This makes sense as both buy-side and sell-side analysts have access to key management in order to interview them as well as access to information around values and the culture relating to the company.

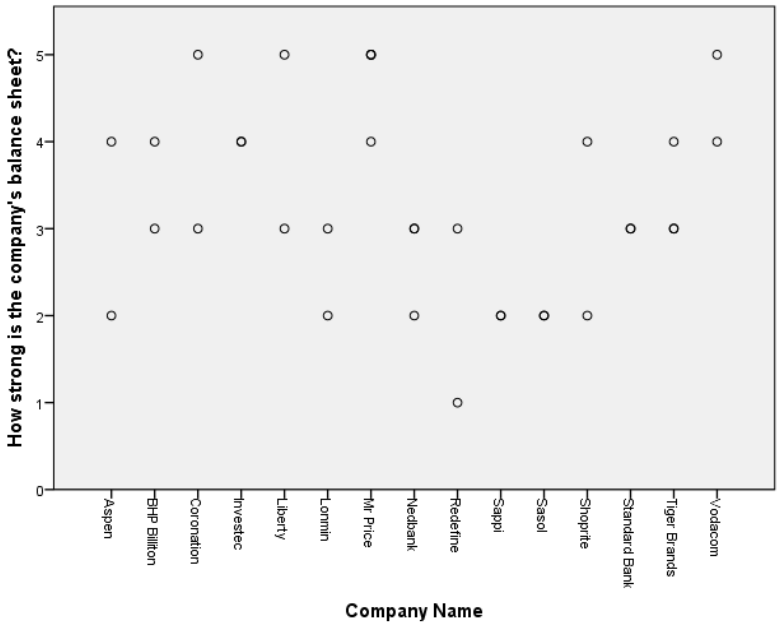
Figure 27: High Performance Standards Dot Plot Graph



Balance Sheet Strength

Per the graph in **Figure 28** below, five companies are highlighted as showing varying rating responses to balance sheet strength, namely BHP Billiton, Coronation, Mr. Price, Nedbank and Sappi. This is unusual as balance sheet strength is based on financial information which is publicly available. Majority of the companies assessed did show a consistency in analyst rating for this variable.

Figure 28: Balance Sheet Strength Dot Plot Graph



Based on the above findings, it is noted that majority of the companies have aligned analyst views across the various variables, with a few exceptions which have been noted. These consistencies make sense in relation to the information and management access which is available to both buy-side and sell-side analysts. It is interesting to note that where the exceptions or inconsistencies were identified, this related to some common companies across the variables, eg. BHP Billiton and Mr. Price. This could potentially indicate the different ways the companies deal with both Buy-side and Sell-side analysts.

These findings are based on a descriptive review. In order to obtain a more statistically supported view, the sample size will need to be reviewed and expanded on and further analysis can be obtained from the results.

5 Conclusions and Recommendations

The purpose of this research report was to identify the key factors that analysts consider in their company forecasts and investment recommendations of whether to buy, hold or sell a particular equity share in South Africa. The research report aimed to establish how important each factor is to the financial forecasts, therefore highlighting the strongest determinants considered by financial analysts.

5.1 Summary of findings

In order to achieve the required outcomes of the research, data obtained from surveys completed by both buy-side and sell-side analysts were utilised. The data was used to determine what are the key industry, company and internal qualitative capability factors as well as where analysts covered the same companies, was there a consistency in rating of these factors.

It was found based on the tests performed that the factors which have an impact on forecasted financials relate to superior product/service strategy, innovation and ability to execute strategy. These variables were however noted not to be consistent across all the financial forecast factors and are contradictory to the research highlighted in the literature review as well as the outcomes of the original study, ie. There are additional factors which are considered important.

It is therefore determined that these results are not conclusive and that further testing and research are required. The main contributor to this outcome related to the limited number of valid responses received, this was due to restricted access to analyst details (lack of an analysts universe or database) as well as the short duration of the study. Even though the response rate was similar to that of the original study, the number of responses varied significantly and this had an impact on the statistical models which were needed to be run. Alternative tests were identified in order to achieve similar outcomes as discussed in the research methodology section.

Rating consistency was also assessed across the variables for analysts who covered the same company. It was noted that there is general alignment due to the public availability of information as well as access to management in order to obtain evidence on internal qualitative capabilities of the company. This also supports the

concept of herding amongst financial analysts, which has been the topic of many research studies.

Based on the review it was also identified that buy-side and sell-side analysts had different views on some of the variables. Inconsistencies in ratings were identified and generally related to the same companies across the variables, therefore potentially highlighting that information and management interaction differs between analysts, this is consistent with research obtained during the literature review which highlights the different scopes of research performed by buy-side and sell-side analysts as well as the conflict of interest situations which sell-side analysts find themselves in around forecast bias.

There was no evidence to support the notion that analysts were more consistent with regards to the financial forecast variables as opposed to the industry and internal qualitative capability. With financial forecasts there is historical financial information which is available as well as forecasts prepared by other analysts, however with internal qualitative capabilities there are limited benchmarks to compare against.

Based on the literature review performed and the outcomes of the tests, it is evident that a lot more research is required around financial analysts in South Africa in order to enrich the research landscape. The lack of information and research can be attributed to the lack of maturity when compared to other analyst markets in the developed countries such as the USA and UK.

5.2 Areas for future research

One of the key outcomes relating to this report is the lack of empirical evidence and research performed on analyst behaviour in South Africa. The following list provides recommendations for future research in this field specifically for South Africa:

- A re-performance of this test across an extensive time period in order to obtain as many responses as possible. This can also contribute to the setting up of an analyst database in South Africa;
- The impact of conflict of interest situations for sell-side analysts on their forecasts and the role that regulation plays in limiting conflict of interest circumstances;

- Analysts' earnings forecast bias and the contributors to this for sell-side analysts;
- Sell-side analysts characteristics and experience, and the impact this has on forecast errors;
- An assessment on the accuracy and value add of analysts' forecasts;
- Herding behaviour amongst financial analysts;
- A study to determine the performance differentials between local analysts and foreign analysts covering local equities; and
- Content review of analysts' forecasts and reports across buy side and sell side analysts in order to determine the extent of detail and content components which are included.

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Annexure A – Survey Extract

1. Welcome to my Research Survey - Key Analyst Factors

Thank you for participating in my survey. Your responses are appreciated.

Kind Regards
Sameera Dada
MCom student (WITS University)

* 1. Unique Analyst Identifier (This field can be any name, the main purpose is to be able to track how many analysts responded):

* 2. Type of analyst?

- ◯ Sell-side
- ◯ Buy-side

* 3. Company Name? (Name of company on which analyst review was performed)

* 4. Industry? (Industry in which the above company belongs)

* 5. Date when the last analyst review of the above company was completed?

2. Industry Performance

In the next 12 months, how likely are the following in the company's business environment:

* 6. Demand growth greater than GDP growth?

- 1. Highly unlikely
- 2. Somewhat unlikely
- 3. Neither likely or unlikely
- 4. Somewhat likely
- 5. Highly likely

* 7. Greater price competition?

- 1. Highly unlikely
- 2. Somewhat unlikely
- 3. Neither likely or unlikely
- 4. Somewhat likely
- 5. Highly likely

* 8. Higher input prices?

- 1. Highly unlikely
- 2. Somewhat unlikely
- 3. Neither likely or unlikely
- 4. Somewhat likely
- 5. Highly likely

* 9. Threat of new prices?

- 1. Highly unlikely
- 2. Somewhat unlikely
- 3. Neither likely or unlikely
- 4. Somewhat likely
- 5. Highly likely

* 10. Entry of new players?

- ◯ 1. Highly unlikely
- ◯ 2. Somewhat unlikely
- ◯ 3. Neither likely or unlikely
- ◯ 4. Somewhat likely
- ◯ 5. Highly likely

3. Financial Performance and Investment Prospects

Relative to its peers, how do you expect the company to perform during the next 12 months on the following dimensions:

* 11. Revenue Growth?

- 1. Significantly less
- 2. Somewhat less
- 3. The same
- 4. Somewhat more
- 5. Significantly more

* 12. Gross Margin?

- 1. Significantly less
- 2. Somewhat less
- 3. The same
- 4. Somewhat more
- 5. Significantly more

* 13. Earnings growth?

- 1. Significantly less
- 2. Somewhat less
- 3. The same
- 4. Somewhat more
- 5. Significantly more

* 14. Stock price appreciation?

- 1. Significantly less
- 2. Somewhat less
- 3. The same
- 4. Somewhat more
- 5. Significantly more

4. Company Strategy

* 15. Relative to its peers, does the company have a clear and well-communicated strategy?

- ◯ 1. Significantly less
- ◯ 2. Somewhat less
- ◯ 3. The same
- ◯ 4. Somewhat more
- ◯ 5. Significantly more

* 16. Relative to its peers, how compelling is the company's values proposition for its customers on**Low Prices?**

- ◯ 1. Significantly less
- ◯ 2. Somewhat less
- ◯ 3. The same
- ◯ 4. Somewhat more
- ◯ 5. Significantly more

* 17. Relative to its peers, how compelling is the company's value proposition for its customers on: **Superior Products**?

- ◯ 1. Significantly less
- ◯ 2. Somewhat less
- ◯ 3. The same
- ◯ 4. Somewhat more
- ◯ 5. Significantly more

* 18. Relative to its peers, how compelling is the company's value proposition for its customers on: **Superior Services?**

- ◯ 1. Significantly less
- ◯ 2. Somewhat less
- ◯ 3. The same
- ◯ 4. Somewhat more
- ◯ 5. Significantly more

5. Qualitative Capabilities

* 19. Relative to its peers, how well does the company operationalise and execute against its strategy?

- ◯ 1. Significantly less
- ◯ 2. Somewhat less
- ◯ 3. The same
- ◯ 4. Somewhat more
- ◯ 5. Significantly more

* 20. Relative to its peers, how often is the company at the leading edge of innovation in its industry?

- ◯ 1. Significantly less
- ◯ 2. Somewhat less
- ◯ 3. The same
- ◯ 4. Somewhat more
- ◯ 5. Significantly more

* 21. Relative to its peers, how strong is the company's top management team?

- ◯ 1. Significantly less
- ◯ 2. Somewhat less
- ◯ 3. The same
- ◯ 4. Somewhat more
- ◯ 5. Significantly more

* 22. Relative to its peers, how good is the company's governance?

- ◯ 1. Significantly less
- ◯ 2. Somewhat less
- ◯ 3. The same
- ◯ 4. Somewhat more
- ◯ 5. Significantly more

* 23. Relative to its peers, how well does the company understand its competitors and their relative strengths and weaknesses?

- 1. Significantly less
- 2. Somewhat less
- 3. The same
- 4. Somewhat more
- 5. Significantly more

* 24. Relative to its peers, how demanding are the performance standards of the company?

- 1. Significantly less
- 2. Somewhat less
- 3. The same
- 4. Somewhat more
- 5. Significantly more

6. Financial Resources

* 25. Relative to its peers, how strong is the company's balance sheet?

- ◯ 1. Significantly less
- ◯ 2. Somewhat less
- ◯ 3. The same
- ◯ 4. Somewhat more
- ◯ 5. Significantly more

7. Analysis Outcome

* 26. Investment Recommendation?

- ◯ 1. Buy
- ◯ 2. Hold
- ◯ 3. Sell

27. Are there other factors considered when assessing a company for an investment proposition?