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# Sell-side equity analysts' decision process in varying business climates

This study examines what information that sell-side equity analysts base their decisions on regarding forecasts, valuations and stock recommendations. We also examine if varying business climates affects analysts' selection of information. The methodology is based on content analysis of sell-side equity analyst reports and we run both univariate and multivariate statistical tests on the output. Our results show that certain information is given more attention in analysts' decisions and that uncertainty in the market has an influence. As sell-side equity analysts have a central role in capital markets, managers of listed companies, investors and regulators should have an interest in these findings (Schipper, 1991; Bradshaw, 2011).

**References:** Sell-side equity analysts' decision process, Sell-side equity analysts' reports, Analysts' decision process, Sell-side equity analysts, Content analysis

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# 1. INTRODUCTION

Sell-side equity analysts and the profession have been well-debated and heavily criticised in media the recent years. Nonetheless, newspapers still publish and communicate the analysts' recommendations on a daily basis. Analysts have not only caught the media's interest but there is also extensive literature and research on the subject. This stems from the fact that analysts have a central role in the capital markets (Schipper, 1991). Research has proven that sell-side equity analysts' reports and revised recommendations have impact on share prices, not only when reports are published but also in the following months after the publication (Ryan and Taffler, 2006).

Equity analysts' main purpose is to analyse and interpret data on listed stocks and provide investment advice. A common distinction is made between buy-side equity analysts and sell-side equity analysts. Buy-side equity analysts are typically employed by asset managers where they provide internal investment recommendations to portfolio managers. Sell-side equity analysts are typically employed by brokerage firms to provide research internally to sales and trading as well as the brokerage firms' external clients. (Cheng, Liu and Qian, 2006) The external client base consists of institutional investors such as portfolio managers and buy-side equity analysts employed at pension funds, insurance companies and hedge funds among others. Sell-side equity analysts are dependent on their external clients for performance ratings and trading commissions (Ljungqvist, Marston, Starks, Wei and Yan, 2007). Portfolio managers use research from both sell-side and buy-side equity analysts but tend to put greater weight on the research provided by the buy-side. (Cheng et al., 2006) Since buy-side equity analysts' research is only used internally they do not face the same incentives as sell-side equity analysts. Sell-side equity analysts face pressure to maintain investment banking relationships, generate trading commission and receive performance rating from external clients. (Ljungqvist et al., 2007) Typically, sell-side equity analysts cover stocks in a specific sector whereas buy-side equity analysts tend to be generalists (Dunn and Nathan, 2005). The sell-side equity profession can be described as *"Sell side analysts conduct company research, searching and gathering financial and non-financial information on a company from both private and public channels, analyse and interpret this information using models and heuristics, forecast firms future earnings, cash flows and growth rates while also issuing reports on companies with a recommendation to buy, hold or sell the stock." (Pinho, Madaleno and Santos, 2013, p. 631)* The sell-side equity reports, which often are similar in format[1], are assumed to contain the most relevant information and arguments which justify the stock recommendations (Breton and Taffler, 2001; Orens and Lybaert, 2007).

There are at least three market participants that should have an interest in understanding sell-side equity analysts' decision process. First, managers of listed companies should be aware of the

[1] See exhibit I in appendix for an example.

information that sell-side equity analysts use and process in order to understand what information they should provide and how to communicate it. Secondly, as investors consume sell-side equity analysts' research as an input to their investment decision, they should be aware of how the analysts reason and underpin their recommendations. Finally, as sell-side equity analysts are one of the primary users of financial reporting information, regulators should be interested in understanding what information analysts' use and request more of. (Bradshaw, 2011)

Although years have been spent on research of analysts much of the analysts' decision process still remains largely unknown (Schipper, 1991; Brown, 1993; Bradshaw, 2011; Ramnath, Rock and Shane, 2008). To be able to capture analysts' decision process, i.e. what information that analysts base their forecasts, valuations and stock recommendations on, researchers have gone from using archival methods to more contextual and experimental methods (Ramnath et al., 2008). As a result, researchers have made several important findings of analysts' decision process through the use of content analyses (Previts, Bricker, Robinson and Young, 1994; Rogers and Grant, 1997; Breton and Taffler, 2001; Demirakos, Strong and Walker, 2004; Imam, Barker and Clubb, 2008). Content-analysis methodology is based on the idea of classifying words into common meaning categories to determine their importance, in terms of frequency of occurrence in texts (Weber, 1990). For example, through the use of content-analysis Previts et al. (1994) and Breton and Taffler (2001) got insights into what factors that influence sell-side equity analysts' decisions. More specifically, they found consistent results that information related to the income statement is the most important factor that influences sell-side equity analysts' decisions whereas information related to the balance sheet appeared far less important.

## 1.1 AIM AND RESEARCH QUESTIONS

Sell-side equity analysts have a central role in the capital markets and there are at least three market participants that ought to have an interest in understanding sell-side equity analysts (Schipper, 1991; Bradshaw, 2011). Similar to Previts et al. (1994) and Breton and Taffler (2001), our aim in this paper is to seek insights into what information that influence sell-side equity analysts' decisions. They found that certain information is given more attention in analysts' decisions. The decisions concern forecasts of sales, earnings and cash flows, valuations and stock recommendations (Bradshaw, 2009). In contrast to previous literature, our sample consists of sell-side equity analyst reports on Swedish large cap stocks provided by both international and Nordic brokerage firms. We formulate the following research question:

*What information does sell-side equity analysts base their decisions on?*

Previous researchers (Previts et al., 1994; Breton and Taffler, 2001) have not provided any reasoning behind the selected time frames nor the potential effects that the time period could have on their findings. Given that uncertainty in the market has a material impact on stock prices, this should be

reflected in sell-side equity analyst's decision process and therefore be included in their reports. Therefore, we investigate if the information that influences sell-side equity analysts' decisions varies in times characterized by opposing business climates, in terms of uncertainty in the market. Consequently, we formulate the following research question:

*Does the information that sell-side equity analysts base their decisions on vary in different business climates?*

To investigate our first research question we conduct a content analysis on analyst reports by classifying words into common meaning categories (Weber, 1990). The classification scheme, where the common meaning categories are adopted from Breton and Taffler (2001), is rooted in valuation theory and accounting. We assess the importance of different information by measuring the frequency of occurrence in the reports and compare our findings with previous research (Breton and Taffler, 2001; Previts et al., 1994). The second research question is investigated by running statistical tests on our sample of reports between 2006 and 2009 to capture potential differences. These time periods were selected because they are characterized by opposing business climates, in terms of uncertainty in the market.

## 1.2 SCOPE

To explore the research questions outlined above, we conduct a content analysis on sell-side equity analyst reports. We focus strictly on sell-side equity analysts and not buy-side equity analysts in line with core literature for this thesis. The rationale is that sell-side equity analyst reports are more accessible and available than buy-side equity analyst reports. (Previts et al., 1994; Breton and Taffler, 2001) We first examine what information that influences sell-side equity analysts' (analysts hereafter) decisions and thereafter investigates if the information varies between times periods with different business climates, in terms of uncertainty in the market. However, we do not attempt to explain any association, or lack thereof, between analyst' decision process and particular investment recommendations or target prices. To explore the research questions we conducted our content analysis on ten stocks listed on the OMX Stockholm 30 index, across nine sectors. The sample consists of a total of 1,000 analyst reports published by ten international and Nordic brokerage firms during 2006 and 2009. The full calendar years 2006 and 2009 are respectively characterized by low versus high uncertainty in the market.

## 1.3 STRUCTURE OF THE THESIS

The remainder of the paper comprises five main parts: previous research, methodology & data, results, analysis and concluding remarks, limitations and suggestions for further research. Previous research is found in section 2 and reviews earlier work in this field of study as well an introduction to valuation theory. It is followed by a discussion of our methodology & data in section 3 which also contains our

classification scheme that the content analysis is based on. Section 3 also includes detailed descriptions of our sample. Our results are presented in section 4 and analysed in section 5 along with further discussions regarding the reliability and validity as well as robustness of our results. Section 6 consists of concluding remarks, limitations and suggestions of further research.

# 2. PREVIOUS LITERATURE

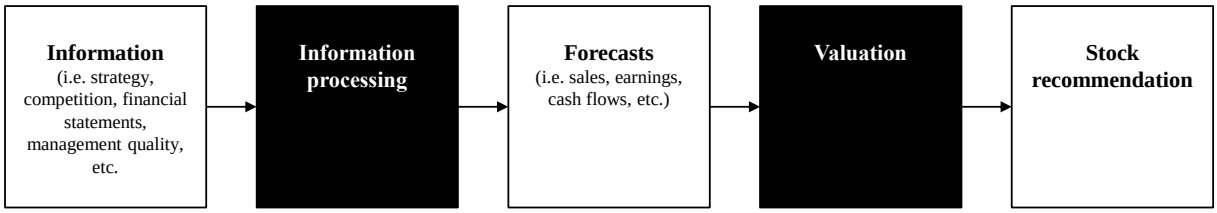
In this section previous research related to analysts will be outlined as well as an introduction to valuation theory. We will give an introduction to the field of study and highlight the research opportunity of particular interest to this paper as well as explain analysts' reporting environment. Various research methods will then be discussed and results specifically derived from content analyses will be presented. Valuation theory is included to aid in our analysis of the results and to provide a foundation of our content analysis.

## 2.1 RESEARCH ON ANALYSTS

In the early 1990's the two researchers Schipper (1991) and Brown (1993) published articles that were important for future research. In 1991, Schipper published a commentary where she discussed the previous research on analysts, and thereafter suggested new directions and perspectives that future research could take and benefit from. She noted that literature on analysts were separated into two distinct areas, research using capital market approaches and research on judgment and decision-making. Research using capital market approaches, had focused narrowly on the statistical properties of analysts' earnings forecasts as a proxy for market expectations in relation to the stock market. By doing so, the researchers ignored the full decision context and economic incentives analysts faced. Research within this field, mainly, dealt with analysts. In contrast, the majority of the research related to judgment and decision-making process dealt with buy-side analysts. Schipper (1991) requested more research into the full decision context of how analysts make their earnings forecasts and the inputs used to develop investment recommendations. In one of four key points, Brown (1993) joins Schipper in her request for future research to explore the association between analysts' inputs such as earnings, macroeconomic and industry data and the final output, i.e. the investment recommendations.

Bradshaw (2009) illustrates analysts' information process by dividing it into five stages. In the model, analysts selectively process information from various sources which they base their forecasts on. These forecasts are then used as input in the valuation of a firm. Depending on whether the stock is deemed over or undervalued, an investment recommendation is made accordingly. According to Bradshaw (2009), the most interesting stages are the analysts' information process and the valuation that lead to forecasts and stock recommendation respectively, the so called *"black boxes"*.

**Figure I. Bradshaw's (2009) Simple schematic of analyst information processing**




In a commentary, where Bradshaw (2011) discussed what we have learned about analysts' role and activity in the capital markets so far, he restated that future research should aim to penetrate the *"black box"* of how analysts process information. Even 20 years after it was first acknowledged, research has still not managed to penetrate the *"black box"* of analysts' decision process (Ramnath et al., 2008; Bradshaw, 2009; Bradshaw, 2011).

### 2.1.1 ANALYSTS' REPORTING ENVIRONMENT

Ramnath et al. (2008) investigated 250 research papers related to analysts published in eleven well-renowned research journals from 1992 to 2008. They identified seven themes based on the previous research that were part of analysts' reporting environment. The starting point of the reporting environment described by the authors is that analysts gather, interpret and analyse information from various sources including financial reports, macroeconomic conditions, industry specific data and management. Analysts then use this information as input to produce output such as earnings forecasts, valuations, target prices and stock recommendations. The findings are then communicated to investors who in turn use the research and execute trades that affect market prices. Given market efficiency, market prices and analysts' forecasts should immediately reflect all information available in the analysts' reporting environment. Predictable forecast errors and changes in stock prices can be seen as signs of market inefficiencies. (Ramnath et al., 2008)

The first theme that Ramnath et al. (2008) identified relates to analysts' decision process where researchers have, among others, conducted surveys (Block, 1999; Orens and Lybaert, 2010) and content analysis (Previts, Bricker, Robinson and Young, 1994; Rogers and Grant, 1997; Breton and Taffler, 2010) to understand how analysts process information as well as experiments to study how analysts use information (Bouwman, Frishkoff and Frishkoff, 1995). The second theme concerns analysts' expertise and the characteristics of earnings forecasts. For example, Clement (1999) studied how analysts' experience, employment and number of firms and industries covered, affect the accuracy of their forecasts. Cheng et al. (2006) investigated how fund managers evaluate buy-side versus analysts' research. The third theme examines how informative analyst reports are. Besides archival methods which the majority of studies addressing this theme are based on, Hirst, Koonce and Simko (1995) conducted an experiment where they studied investor reactions to analyst reports in

three settings; when the analysts' firm provided investment banking services, the reports' strength of arguments and the conclusion itself. The fourth theme focuses on whether investors respond efficiently to new information where, among others, Gleason and Lee (2003) examined share price reactions post analyst forecast revisions and Womack (1996) who studied share price reactions when analysts changed their share recommendations. The fifth theme relates to analysts' incentives and motivation, where Hong, Kubik and Solomon (2000) investigate if there is an association between herding behaviour and career concerns among analysts. There also been research examining the effects of investment banking relationships on analysts' earnings forecasts and recommendations (Dugar and Nathan, 1995; Lin and McNichols, 1998). The sixth theme discusses the regulatory environment that surrounds the analysts and particularly the effects from SEC's adoption of Regulation Fair Disclosure[2] in August 2000 (Bailey, Li, Mao and Zhong, 2003; Eleswarapu, Thompson, and Venkataraman, 2004). Finally, Ramnath et al. (2008) present research articles that examine the validity of papers related to analyst forecast bias and inefficiencies.

### 2.1.2 RESEARCH METHODS AND FINDINGS FROM CONTENT ANALYSES

As identified by Schipper (1991) and Brown (1993) and then restated by Bradshaw (2011), much of analysts' decision process still remain hidden in a *"black box"*. This relates back to the first theme explained by Ramnath et al. (2008), labelled Analysts' decision process. To overcome this problem Bradshaw (2011) argues that *"What academics generally do instead of directly observing the analysts' decision process of analysis is to examine correlations between inputs, outputs and conditioning variables to understand the analysis process" (Bradshaw, 2011, p. 6).* Inputs include share prices and financial statements and outputs include earnings forecasts and recommendations. Conditioning variables explain how analysts' abilities and incentives affect their decisions. Traditionally, archival methods have been used, but there is currently growing research based on alternative methods such as content analysis, experiments and surveys. Although archival methods provide more generalizable results they do not fully capture and penetrate the *"black box"*. Instead, experimental and contextual methods which are less generalizable have been used in recent years. (Ramnath et al., 2008) However, the drawbacks of using these methods are potential bias in surveys, difficulty in replicating tasks in a realistic setting in experiments (Schipper, 1991) and focus on the final product i.e. analysts' reports rather than the process itself in content analysis. Despite these methods being imperfect in one way or another, Bradshaw (2011) encourages further research in this area. Furthermore, Bradshaw (2011) stated that published content analysis were rare, unfortunately, as he found their contribution valuable. Breton and Taffler (2001) also recognize that there are limitations with questionnaire and interview methods since these may be influenced by subjectivity and provide inconsistent results. To overcome some of the identified issues related to methodology, Imam, Barker and Clubb (2008), based their

[2] The purpose of the Regulation Fair Disclosure was to prevent listed companies from disclosing material non-public information to certain individuals or entities (U.S. Securities and Exchange Commission, 2004)

research on both semi-structured interviews and content analysis. While this approach enables the researchers to undertake a wider scope, it also generates verifiable results that can be confirmed and interpreted in interviews. On the down-side, this approach is time consuming which may prevent future researchers from using this methodology.

Research of analysts' decision process through content analysis has made several important findings on specific areas, particularly relating to valuation, as well as on a general level. Of particular relevance is the content analysis by Breton and Taffler (2001). The study was conducted on reports published between 1989 and 1990. By measuring the frequency of categories linked to references and phrases, they concluded that the three most frequently mentioned categories were Profitability, Market Conditions and Growth which corresponded to 35%, 32% and 16% of the content respectively. The least frequently mentioned categories were Financial Position and Management & Strategy which corresponded to 9% and 8% respectively. They also investigated if categories were associated with analysts' recommendations; buy, hold or sell. They found that information relating to Management & Strategy, although less frequently mentioned in the reports, is the key single determinant in the analysts' decision process of making stock recommendations. (Breton and Taffler, 2001) With a similar method, Previts et al. (1994) analysed the content of analyst reports on U.S. listed stocks published during three different time periods. They also measured the frequency of categories and concluded that references made to the income statement appear approximately 3 times more often than references made to the balance sheet and cash flow statement combined. Segment related phrases appeared with similar frequency as the balance sheet and cash flow statement combined. Non-financial information, such as market share, competitive position and management, appeared approximately 6 times less than income statement related references. (Previts et al., 1994) Both Previts et al. (1994) and Breton and Taffler (2001) found consistent results that income statement related information, labelled Profitability in Breton and Taffler's article, is the most frequently appearing category and an important factor in the analysts' decision process. Balance Sheet related information, labelled Financial Position in Breton and Taffler's article, appear far less frequently. Previts et al. found that this is also true for cash flow related information. These findings were consistent with research on what valuation models analysts use. Empirical evidence provided by Govindarajan (1980) and Asquith (2005) assert that analysts focus more on earnings measures than on cash flows. Moreover, Bradshaw (2002) and Demirakos, Strong and Walker (2004) found that price-earnings models are still widely used and preferred over cash flow based models such as the Discounted Cash Flow (DCF hereafter) model. This is to some degree contradictory to theory, as the fundamental value of an asset is determined by its future expected cash flows (Koller, Goedhart and Wessels, 2010). Demirakos et al. (2004) and Imam et al. (2008) also find that analysts' use of the DCF model has increased over the recent years which contradict the empirical evidence provided by Bradshaw (2002). Imam et al. (2008) discussed that valuation models were complementary to each other and were used in combination rather than in

isolation. They also suggested that unsophisticated accrual based (earnings) models such as the price-earnings ratio were used to sanity check the more sophisticated models, such as the DCF model. Also, price earnings ratios tend to be used when communicating valuation, independently of the underlying valuation model. (Imam et al., 2008)

Rogers and Grant (1997) analysed the content of analyst reports published between 1993 and 1994 on randomly selected listed U.S. firms. After having identified six categories of information, they measured the frequency of these. They found that financial and operating data appeared most frequently (51% of the total content). In addition, the income statement, consistent with Previts et al. (1994) and Breton and Taffler (2001), is by far the most frequently cited financial statement relative to the balance sheet and cash flow statement. Descriptive information about the firm and its operating environment, such as products, competition and market conditions, is the second most frequently appearing category (31% of the total content). This category can be compared with Breton and Taffler's (2001) category Market Conditions and Previts et al.'s (1994) category Non-financial information and therefore confirms the importance of qualitative information in analysts' decision process. After completing the content analysis, Rogers and Grant (1997) cross-referenced the content with annual reports to identify the information sources. They found that the annual reports provide 52% of the information cited in the analyst reports, where 50% is derived from the financial statements and 50% from the narrative sections. One of their main findings is that analysts seems to rely on management discussion and analysis more than expected, as the cross-reference analysis provides evidence of that those sections in the annual reports are frequently cited. Based on the findings of Previts et al. (1994), Breton and Taffler (2001) and Rogers and Grant (1997), we can conclude that non-financial information is important in analysts' decision process. Orens and Lybaert (2010) find that analysts tend to take more non-financial information into account when evaluating stocks with higher risk, where leverage and stock return volatility is used as a proxy. A potential explanation for this could be that analysts try to *"counter concerns over higher risks and to capture underlying economic events" (Orens and Lybaert, 2010, p. 50),* meaning that they use more non-financial information to compensate for insufficient financial information. They also found that less experienced analysts and analysts that cover a higher number of firms are more willing to use non-financial information. Abdolmohammadi and Simnett (2006) contribute with additional research on the use of non-financial information. Their findings show that only approximately 26% of the content consists of financial information. They also find that analysts tend to use a higher proportion of non-financial information when covering stocks that heavily rely on technology and intangible assets than for stocks with a more tangible asset base. (Abdolmohammadi and Simnett, 2006)

As already mentioned, Previts et al. (1994), Rogers and Grant (1997) and Breton and Taffler (2001) analysed the content of analyst reports. All three studies are based on data published between 1987 and 1994. The study by Previts et al. (1994) is the only one based on different time periods, however,

the reason behind this is to control for variations in business climate, but not to analyse or compare the information content between the different time periods. Rogers and Grant (1997) and Breton and Taffler (2001) do not provide any explanations of why they decided to study the particular time period. In general, research on analyst reports have been conducted on more or less arbitrary time periods, disregarding Previts et al. (1994). We find limited reasoning behind the chosen time frames problematic. As can be seen in other studies, the content of analyst reports have changed over time. Imam et al. (2008) and Demirakos et al. (2004) for example showed that analysts have shifted their valuation preferences over time.

Previts et al. (1994), similar to this paper, chose to study three one-year periods surrounding and prior to the stock market crash in 1987 to capture potential differences. However, they do not take any particular notice of this in their conclusion, nor do they attempt to explore reasons for the potential differences between the time periods. Given that outside forces such as uncertainty and volatility in the markets have a material impact on share prices, this should be reflected in analyst's decision process and therefore be included in the analyst reports. By extension, this also means that the previous research may have been influenced and biased by the prevailing business climate. By conducting a study which compares the content in analyst reports under different prevailing business climates, this should enable us to draw conclusions in two important aspects. Firstly, it allows us to see if current empirics support previous research. Secondly, it allows us to see if the prevailing business climate has a material impact on the content in analyst reports and therefore analysts' decision process.

## 2.2 VALUATION THEORY

In this section we will give an introduction to valuation theory. We will make the connection between accounting and valuation theory, as valuation theory gives accounting terms a meaning and will be used in our content analysis. The fundamentals of the discounted cash flow model and the underlying value drivers in valuation will then be presented. These value drivers will be the foundation of the content analysis. Finally, a brief introduction to valuation multiples will be given as this is a common way of valuing stock and a complement to other more sophisticated valuation models.

### 2.2.1 FUNDAMENTALS OF VALUATION THEORY

The basic concept of valuation is to determine the expected future cash flows generated by an asset. Value is defined as the difference between the generated cash inflows and outflows, adjusted to its present value while taking into account the riskiness of future cash flows. The discount rate or cost of capital reflects the rate of return that capital providers require given the level of risk associated with the investment. It can also be expressed as the opportunity cost for investing in another asset with similar risk. The required rate of return must be consistent with the recipients of the cash flows, for example cash flows available to all investors should be discounted with the weighted average cost of capital (WACC), which takes into account both equity and debt investors. (Koller et al. 2010) Unless

the capital structure affects the cash flows, a firm's value is independent of the structure of equity and debt ownership. However, as interest charges are tax deductible in most countries, the total taxes paid by levered firms will be lower and therefore increase the available cash flows to all capital providers. (Modigliani and Miller, 1958) The value created is referred to as a tax shield (Koller et al., 2010).

In valuation, companies are typically assumed to go on indefinitely, known as the *"going concern"* assumption. The forecast period is normally divided into an explicit forecasting period and a terminal value, where the terminal value represents the present value of a perpetual stream of cash flows that is assumed to grow at a constant rate. The value of a firm consists of both the value generated during the explicit forecast period and the terminal value. (Penman, 2010)

### 2.2.2 ACCOUNTING AND VALUATION

Accounting and valuation, although different in their nature have a very close connection. While accounting is typically concerned with computing accruals, valuation is concerned with estimating an intrinsic value of a firm's cash flows. Accounting can be defined in the following way:

*"Accounting is a service activity. Its function is to provide quantitative information primarily financial in nature, about economic entities that is intended to be useful in making economic decisions, in making resolved choices among alternative courses of actions" (Accounting Principles Board, Statement No. 4)*

From this definition, it can be established that accounting is a service activity with the intent of being useful in economic decisions to different types of entities. More generally, accounting can be separated in two distinct branches where management accounting is intended for internal use, whereas financial accounting concerns external users such as equity investors or debt holders. (Alexander and Nobes, 2007) For valuation purposes though, a financial analyst is not interested in an asset's historical cost accounting but rather with inferring its intrinsic value through analysing financial statements. As the financial statements are not its original form intended for valuation purposes, financial analysts typically reorganize the financial statements to be able to make robust assessments of operating performance and value. (Koller et al., 2010)

While accounting terms are used in the valuation process, its purpose is solely to provide a way of calculating cash flows. The important point is that accounting has no value in itself but is only necessary to derive the free cash flows which are expected to flow to a firm. Therefore, it follows that different accounting standards do not lead to different values (Koller et al., 2010).

### 2.2.3 THE DISCOUNTED CASH FLOW (DCF) MODEL

The DCF model discounts future expected cash flows available to all investors. The model can be divided into two parts; an explicit forecast period and a terminal value. In the first part, free cash flows available to all investors are explicitly forecasted. In the second part, a terminal value is calculated by

forecasting free cash flows assuming perpetual growth. These two parts sum up to the enterprise value, which is the total value of operations assuming *"going concern"*. To derive the value of equity, net debt is subtracted from the enterprise value. Net debt equals reported debt less excess cash. (Koller et al., 2010)

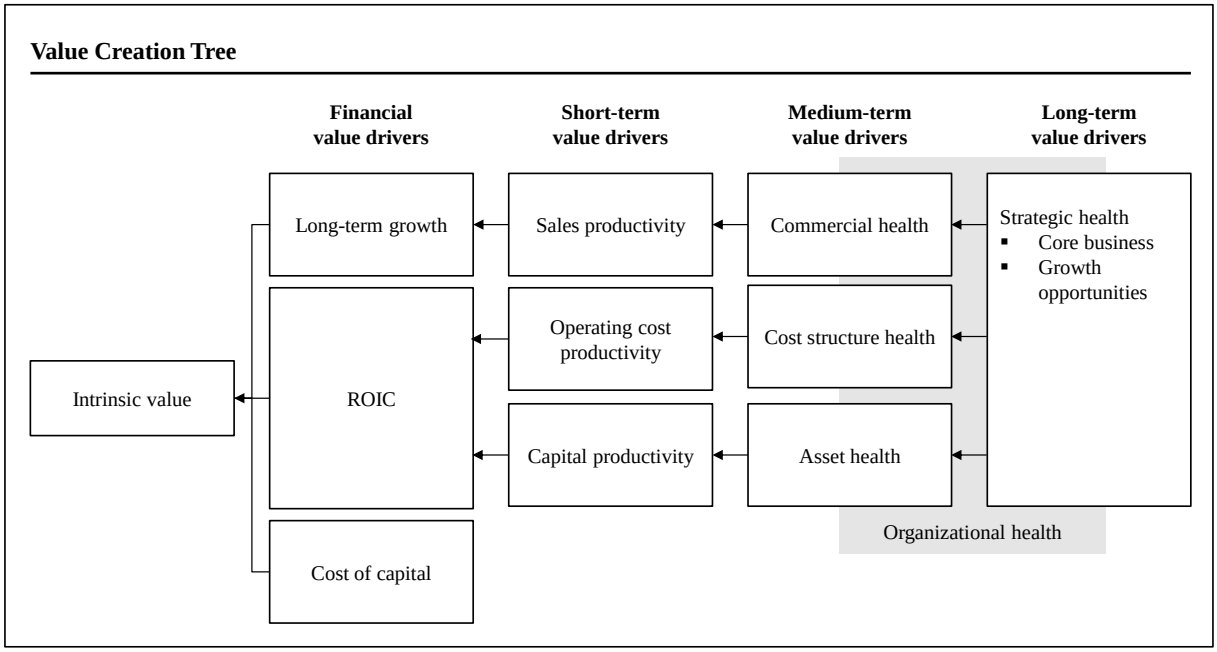
Since the free cash flows are available to all investors the WACC is used as the discount rate. Using the terminology of the DCF model, the two main drivers of free cash flow is return on invested capital (ROIC) and revenue growth. ROIC is defined as net operating profit less adjusted tax (NOPLAT) divided by net operating assets (Invested Capital). Value is created when investments in the operations generate returns that exceed the cost of capital. Under the presumption that the firm can maintain a ROIC that exceeds the WACC, revenue growth will contribute to the value creation. (Koller et al., 2010)

In accounting terms, free cash flows can be described as a function of revenue, EBIT margin, operating cash taxes, adjustments for non-cash items and investments in operations. Adjustments for non-cash items include depreciation and other non-cash items. Investment in operations are typically separated into investments in operations and net working capital. Net working capital is defined as the net current operating assets, known as the short-term capital requirements to operate a business. It typically includes inventories and accounts receivables less accounts payables. Investments in operations (capex) are for example investments in property, plant & equipment. (Koller et al., 2010)

### 2.2.4 INTRINSIC VALUE DECOMPOSITION

In this section we are concerned with the drivers or decomposition of the intrinsic value since this adds context and meaning. Koller et al. (2010) explain that the intrinsic value of a firm can be decomposed into four value drivers; financial, short-term, medium-term and long-term value drivers. Organizational health is an element with influence on medium-term and long-term value drivers.

**Figure II. Koller et al.'s (2010) Value Creation Tree**




#### 2.2.4.1 FINANCIAL VALUE DRIVERS

Long-term growth can be disaggregated into the three drivers; sales productivity, commercial health and strategic health. To grow its core business and capture long-term growth opportunities firms can make capital investments and acquisitions. (Koller et al., 2010) ROIC is a measure of firms' operating performance while taking the firms' capital investment requirements into consideration. ROIC (pre-tax) can be divided into operating margin and invested capital turnover. The numerator mainly concerns operating financial performance and can be further decomposed into gross margin, sales general & administrative (SG&A) costs and depreciation as a percentage of revenues. The denominator mainly concerns capital turnover and can be decomposed into operating working capital and fixed assets turnover. (Koller et al., 2010) Cost of capital for the entire firm is expressed as a weighted average cost of capital, which takes both equity and debt investors into account. This number is a blended measure of the required return for equity investors and the after-tax cost of debt. Market values are used to calculate the weights of debt and equity to enterprise value which enter into the

formula[3]. This term is closely related to firms' capital structure and respective financial position. (Koller et al., 2010)

Short-term value drivers are indicators of whether current growth and ROIC can be sustained in the short-term and can be decomposed into sales productivity, operating cost productivity and capital productivity. Sales productivity concerns metrics such as market share and pricing relative to peers, operating cost productivity relates to unit costs and capital productivity concerns the efficiency of its operating capital.

The medium-term value drivers indicate whether companies can sustain or improve its current revenue growth and ROIC over a five year period. These fall into three main categories; commercial health, cost structure health and asset health where the first category concerns long-term growth and the latter two concerns ROIC. Commercial health primarily include the company's product pipeline, brand strength and customer satisfaction. The cost structure health category assesses the company's ability to sustain or improve its cost structure and asset health measures how effectively a company manages its assets. (Koller et al., 2010)

The long-term value drivers measure firms' long-term strategy and ability to sustain its activities over longer time horizons. This includes assessing opportunities and threats in the long term that could have a significant impact on the company. An assessment of organizational health is vital to a company's ability to sustain and improve its performance over time. Organizational health is a measure of a company's skills and capabilities, in terms of innovation, ability to retain key employees, culture and management talent. The medium-term value drivers as well as the long-term value drivers are influenced by the organizational health (Koller et al., 2010).

### 2.2.3 VALUATION MULTIPLES

Valuation multiples are used primarily for three purposes; sanity checks of more sophisticated valuation models, relative valuations compared to peers and for communicating valuation, independently of the underlying model (Imam et al., 2008; Koller et al., 2010). When doing a relative valuation the chosen peer group should be carefully selected based on factors such as, but not limited to, industry, size and geographic exposure. Multiples are typically based on either share price or enterprise value as numerator, where the denominator must be consistent with the numerator. For example, earnings that are only available to shareholders must be compared with the share price. The price earnings ratio (P/E) has two major drawbacks; it is affected by the capital structure and it is affected by non-recurring items, for example one-time restructuring charges. Following the same logic, (i) Earnings before interests and taxes (EBIT) and (ii) Earnings before interests, taxes, depreciations and amortisations (EBITDA) that are available to all investors must be compared with

[3] $WACC = \frac{D}{D+E} k_d (1 - T_m) + \frac{E}{D+E} k_e$ as formulated by Koller et al. (2010).

enterprise value (EV/EBIT and EV/EBIDTA). When comparing companies across different sectors with inherently different capital intensity, EV/EBITDA is arguably more suitable than EV/EBIT. The inherently more capital intensive companies will on an EBIT comparison be punished for their significantly larger depreciations, as a result of their larger need for investing. (Koller et al., 2010)

# 3. METHODOLOGY AND DATA

We are concerned in understanding analysts' decision process by analyzing the content of their reports. For this purpose, content analysis as a research method is powerful while remaining unobtrusive, as it identifies and makes sense of what is communicated without influencing the sender or the receiver of the message (Krippendorff, 2004). This method enables us to distinguish what information that influences analysts' decisions and compare our results with previous research (Breton and Taffler, 2001; Rogers and Grant, 1997; Previts et al., 1994). In this section we will explain content analysis and our application of the method as well as providing the entire classification scheme that the content analysis is based on. We will continue by describing the procedure for statistical analysis and give description of the sample used.

## 3.1 PROCEDURE FOR TEXTUAL ANALYSIS

Content analysis as research method enables us to make observations of analyst decision process. The content analysis conducted is based on Weber's (1990) methodology where the central idea is that words, phrases, sentences or other units of text can be classified into categories. In our application of content analysis we have classified words in analyst reports into categories and measured their importance in terms of frequency of occurrence. We have adopted Breton and Taffler's (2001) pre-defined categories and internally developed a classification scheme based on valuation theory and accounting. Due to time constraints and decreasing importance of low frequency words, we have assumed in line with previous researchers that the most frequently appearing words reflect the greatest concern (Weber, 1990).

To make valid inferences, the classification of content into categories needs to be reliable and in order to be reliable, the procedure needs to be consistent and replicable. This means that the classification should generate the same result independently of the coder and timing. In addition, the classification procedure needs to generate variables that are valid in the sense that variables actually measure what they were intended to measure. (Weber, 1990)

An important point is that the tables and all the content in the analyst research reports are analysed through our defined category variables. Though the tables themselves do not contain arguments and reasoning to support a view on the stock, it is considered part of the overall content and as such a basis for analysts' decision process. A potential restriction to this approach is that key arguments included in the tables may also be presented in the texts.

### 3.1.1 SPECIFIC STEPS IN THE CONTENT ANALYSIS

In the first step of the content analysis, the 1,000 most frequently appearing words from the entire sample of analyst reports were classified into common meaning categories. The classification was conducted independently by two researchers. Numbers and incomplete words were excluded before

the classification was conducted. Secondly, the individual classification schemes were compared. When disagreement occurred between the researchers concerning the classification, NVivo[4] was used in order to understand in which context particular words appear in the text most frequently (KWIC[5] analysis). Then, 10 reports were coded both based on the developed classification scheme by using Microsoft Excel and independently by the researchers when reading the reports. A second KWIC analysis was conducted by using NVivo when there were disagreements between the classifications. At this stage, we had our final classification scheme, which was used to classify the entire sample of analyst reports.

### 3.1.2 VALIDATION

To be able to make valid inferences based on the results from the content analysis we need to ensure the reliability and validity of the method. Reliability is obtained when the method, the classification scheme in this case, is consistent and replicable independently of the researcher. The use of multiple researchers when classifying words to categories is the traditional approach in content analysis when trying to mitigate reliability problems (Morris, 1994). In this study, the classification scheme has been developed independently by two researchers and revised in collaboration at two stages in the classification process. First, the 1,000 most frequently appearing words from the entire sample were assigned to categories independently by the researchers and revised if there were disagreements. Secondly, the researchers read ten reports independently, compared their classifications with each other and then revised the classification scheme accordingly. These actions have been taken to mitigate reliability problems in our content analysis. However, higher level of reliability may have been reached if we would have had access to additional researchers.

The main concern in content analysis is the validity of the underlying classification scheme. Often the validity depends on the researchers' knowledge and expertise within the particular field. (Morris, 1994). Validity is achieved when the categories of the classification scheme actually measure what they were intended to measure (Weber, 1990). A form of validity is semantic validity that exists when researchers with similar knowledge and expertise of the domain being investigated can reach agreement regarding the classification scheme (Krippendorff, 1980). In our classification scheme, the five categories of which words have been assigned to have been defined based on valuation theory and accounting. Therefore, we may expect that researchers with expertise and knowledge in valuation theory and accounting would agree on our developed classification scheme. However, we are aware of that our definitions of the categories are open for amelioration. Sometimes, ambiguity concerning the context in which words appear in text made the classification process even more complex. To avoid assigning words with different meanings to the same category we took two actions. First, KWIC

[4] Nvivo is a research software for textual analysis.
[5] This method is known as Key-word-in-context (KWIC), commonly used in content analysis, which Breton and Taffler (2001) used among others.

analyses were conducted by using NVivo. Secondly, both researchers developed a test classification scheme by reading ten reports independently and compared these classifications with the initial scheme developed in the first stage. Stronger validity may have been reached if the sample of analyst reports would have been more limited. With a more limited sample there would have been time to read all analyst reports and ensure the context in which words appear in throughout the entire sample. However, the current size of the sample does not allow this.

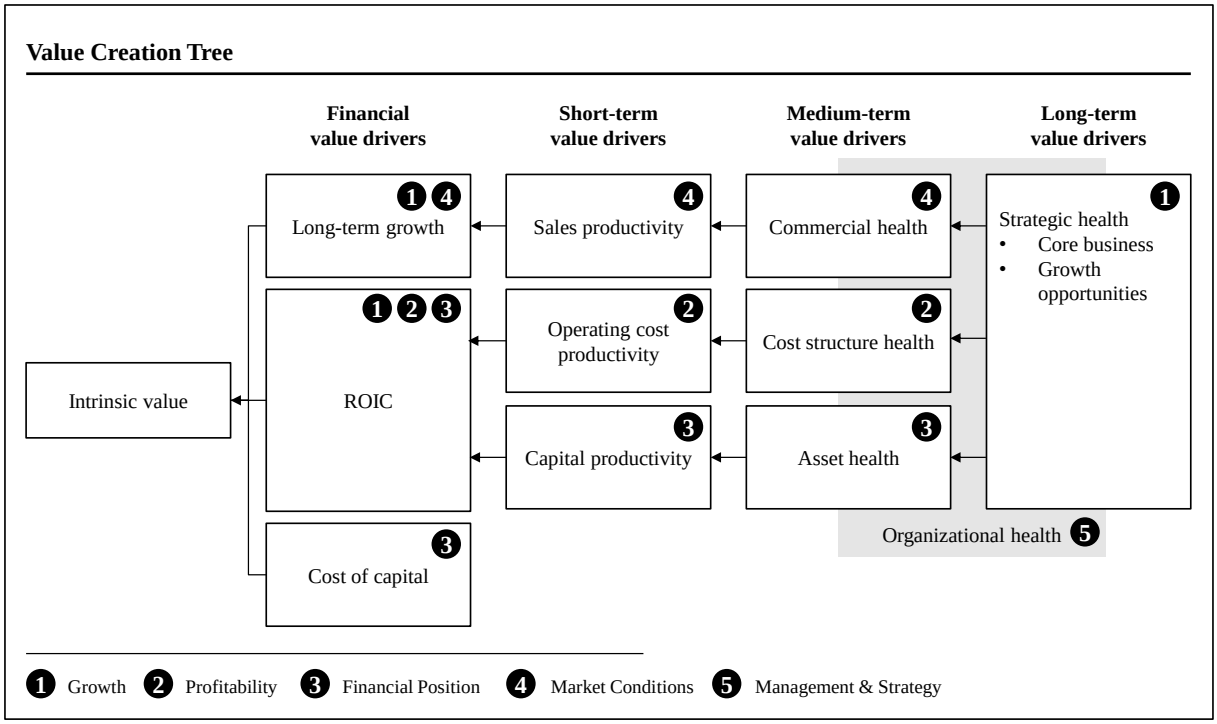
## 3.2 CLASSIFICATION SCHEME

In this section we will provide the reasoning behind our classification scheme of which the content analysis is based on. Our categories are derived from Breton and Taffler's (2001) mutually exclusive[6] categories; Growth, Management & Strategy, Profitability, Financial Position and Market Conditions. Using these categories, we have developed a classification scheme based on valuation theory and accounting. Specifically, we have used Koller et al.'s (2010) value creation tree for guidance. This is not to say that the classification process and the application of the value creation tree have been completely clear-cut. Although ambiguities in the classification scheme may exist, we believe that the essence is captured for every category. In the following section each category will be defined, all the assigned words will be presented and discussed. Examples from KWIC analyses will also be provided.

Figure III illustrates our application of Koller et al.'s (2010) value creation tree to classify the content of analysts' report in a systematic and consistent manner. The categories have been defined and assigned meaning using the underlying drivers of valuation. The numbers in figure III shows our rationale and how we have reasoned. Long-term growth is driven by Growth (1) and Market Conditions (4). ROIC is dependent on Growth (1), Profitability (2) and Financial Position (3), where the numerator of ROIC is primarily driven by Profitability (1) and the denominator primarily by Financial Position (3). Cost of capital is dependent on Financial Position (3) as it reflects the required rate of return for all investors. Management & Strategy relates to Organizational health, which influences medium- and long-term value drivers. More detailed information is found under each category.

[6] If words can be assigned simultaneously to two or more categories, much statistical analysis may provide invalid results (Weber, 1990).

**Figure III. Link between categories and valuation based on Koller et al.'s (2010) Value Creation Tree**



### 3.2.1 GROWTH CATEGORY

The category Growth is intended to measure references related to Koller et al.'s (2010) long-term value driver growth opportunities. Growth opportunities include both internally generated growth driven by capital investments and externally generated growth through acquisitions or divestments. Organic investments are made both to maintain and expand the capacity. Acquisitions can be made for several reasons such as consolidating a market and entering a new geographical or product market. (Koller et al., 2010) References made to Growth are typically found in text and have been classified into the following subgroups; acquisitions and organic investments.

**Table I. Classification of words to the Growth category**

| **Subgroups** | **References** | **Comments** |
|---|---|---|
| Relates to acquisitions | Acquisition<br>Acquisitions<br>Deal<br>Transaction<br>Transactions | • These words are references to acquisitions and therefore classified into the Growth category<br>• The ambiguous word Deal was included as it typically refers to contexts when evaluating potential acquisition. See example of KWIC extract from reports:<br>*"The motives for such a **deal** are likely to be the lack of new products and near patent expiries" (AstraZeneca, Danske Bank, 2009-01-26)* |
| **Subgroups** | **References** | **Comments** |
| Relates to organic investments | Capex<br>Growth<br>Invested<br>Investing<br>Investments<br>Organic<br>Prospects<br>Trial | • These words are references to organic investments and therefore classified in the Growth category<br>• Ambiguous words were Organic, Prospects and Trial. Organic and Prospects typically refer to growth, Trial to investments in new drugs and therefore they were included. See example of KWIC extract from reports:<br>*"With stronger underlying **organic** growth rates and a restructuring plan on track…" (Assa Abloy, Danske Bank, 2006-08-10)*<br>*"…HM's growth **prospects** stand to fall further…" (HM, Danske Bank, 2006-06-14)*<br>*"…high likelihood of success in the large clinical outcome **trial**…" (AstraZeneca, Handelsbanken, 2006-05-22)* |

### 3.2.2 MANAGEMENT & STRATEGY CATEGORY

The category Management & Strategy is intended to measure references related to Koller et al.'s (2010) organizational health which influences medium-term and long-term value drivers. Organizational health concern a firm's skills and capabilities, culture, management talent and ability to execute on strategy. (Koller et al., 2010) This category also intends to measure references related to guidance and outlook statements from management, as we believe they contain useful information for assessing a firm's long-term strategy and managements' ability to execute the strategy. References made to Management & Strategy are typically found in text and have been classified into the following subgroups; management and strategy.

**Table II. Classification of words to the Management & Strategy category**

| **Subgroups** | **References** | **Comments** |
|---|---|---|
| Relates to management | Board<br>Directors<br>Management<br>Officer | • These words are references to management and therefore classified into the Management & Strategy category<br>The ambiguous word Officer was included as it typically refers to quotes from management. See example of KWIC extract from reports:<br>*'"It's a mighty crop of people, the mightiest companies in the world that suddenly have emerged as our competitors.", Chief Executive **Officer** Olli-Pekka Kallasvuo was quoted...." (Nokia, DnB Nor, 2009-06-15)* |
| **Subgroups** | **References** | **Comments** |
| Relates to strategy | Competition<br>Guidance<br>Impairment<br>Marketing<br>Objective<br>Objectives<br>Outlook<br>Peer<br>Peers<br>Policies<br>Restructuring<br>Savings<br>Strategy<br>Targets | • These words are references to strategy and therefore classified into the Management & Strategy category<br>• Ambiguous words were Competition, Impairment, Marketing and Peer/-s. Competition typically refer to strategy in relation to competitors[7], Impairment to negative consequences of strategic decision, Marketing to strategic initiatives and Peer/-s to current strategies are reflected in valuation compared to peers. See example of KWIC extract from reports:<br>*"Nokia enjoys significant economies of scale vs **competition** in terms of procuring, manufacturing and distribution." (Nokia, Danske Bank, 2009-01-23)*<br>*"We expect a SEK 2bn **impairment** for Bulgaria." (MTG, Handelsbanken, 2009-04-15)*<br>*"Assa Abloy is ramping up sales and **marketing** within Assa Abloy HID (card-based entrance systems)." (Assa Abloy, Danske Bank, 2006-08-10)*<br>*"We find the stock overvalued on the break-up, **peer** group and DCF valuations." (Atlas Copco, Handelsbanken, 2006-10-04)* |

[7] Competition could potentially be classified into Market Conditions, however, the KWIC analysis indicates that Management & Strategy is a more suitable classification.

**Table II continued. Classification of words to the Management & Strategy category**

| Subgroups | References | Comments |
|---|---|---|
| Relates to strategy | | *"ABB is valued significantly below high quality capital goods **peers** like Atlas Copco and Assa Abloy, which we think is a bit odd considering that the end-market and geographical exposure for ABB are more favourable than for the two **peers**." (ABB, Handelsbanken, 2006-10-27)* |

### 3.2.3 PROFITABILITY CATEGORY

The category Profitability is intended to measure references primarily related to the numerator of Koller et al.'s (2010) financial value driver ROIC. The numerator of ROIC concerns the operating performance and is dependent on the operating cost productivity and cost structure health. For example, operating performance metrics can be decomposed into the components gross profit, SG&A expenses and depreciation and their corresponding margins in relation to revenues. However, operating performance metrics can also include other components in varying combinations (Koller et al., 2010). The category Profitability also measures references made to cash flows and return metrics. This definition may not completely agree with Koller et al.'s (2010) value creation tree but after analysis of the contexts where these references typically occur, they have been included. Cash flow metrics typically refer to operating performance metrics and are used to measure firms' ability to generate value. Return metrics typically focus on the numerator of ROIC and operating performance of the company. References made to Profitability are typically found in tables and have been classified into the following subgroups; operating performance, cash flow and return metrics.

**Table III. Classification of words to the Profitability category**

| Subgroups | References | Comments |
|---|---|---|
| Relates to operating performance | Amortisation<br>Amortization<br>Cost<br>Costs<br>Depreciation<br>Earnings<br>Ebit<br>Ebita<br>Ebitda<br>Ebt<br>Eps<br>Expense | • These words are references to operating performance and therefore classified into the Profitability category<br>• The ambiguous words Cost/-s, Expense/-s, Gains, Loss and Losses have no evident definition in either valuation theory or accounting but typically refer to operating performance or found in conjunction with other operating performance items in tables e.g. in conjunction with tax or interest. See example of KWIC extract from reports:<br>*"High level of fixed **cost** to reduce margin improvement short term." (Assa Abloy, Danske Bank, 2006-08-10)*<br>*"…this year will be the first **loss** making year since 1992." (SSAB, Pareto, 2009-09-10)* |

**Table III continued. Classification of words to the Profitability category**

| Subgroups | References | Comments |
|---|---|---|
| Relates to operating performance | Expenses<br>Gains<br>Income<br>Interest<br>Interests<br>Loss<br>Losses<br>Margin<br>Margins<br>Noplat<br>Profit<br>Profitability<br>Profit<br>Result<br>Tax<br>Taxation<br>Taxes | • See additional examples of KWIC extracts from reports:<br>*"…underlying **EBITDA** of 3,395m, indicating a 27.2% **margin**." (TeliaSonera, Pareto, 2009-02-05)*<br>*"…but with better operating **profit** figures, underlining the strong cost-reduction…" (ABB, Nomura, 2009-07-21)*<br>*"Assa should continue to deliver solid **results** under the circumstances, with **margins** boosted by significant **cost** cuts already underway…" (Assa Abloy, Danske Bank, 2009-07-13)*<br>*"Also, Sweden is a lower-margin market than Germany owing to high labour **costs**..." (HM, BofA Merril Lynch, 2009-09-02)*<br>*"Still low **EBIT margin** in Asia Pacific division…" (Assa Abloy, Danske Bank, 2006-11-09)*<br>*"This would be offset, however, by **amortisation** of intangible assets…." (AstraZeneca, BofA Merril Lynch, 2006-07-28)* |
| **Subgroups** | **References** | **Comments** |
| Relates to cash flow | Cashflow<br>Dcf<br>Fcf<br>Fcfe<br>Fcff<br>Ffo | • These words are references to cash flow and therefore classified into the Profitability category. Cashflow, Dcf, Fcf, Fcfe, Fcff and Ffo typically refer to operating performance metrics, often found in tables, and used to measure firm's ability to generate value. See example of KWIC extract from reports:<br>*"…is expected to continue at a good rate and the EBIT margin and **cashflow** are expected to develop well…" (Assa Abloy, Handelsbanken, 2006-02-13)* |
| **Subgroups** | **References** | **Comments** |
| Relates to return metrics | Return<br>Roce<br>Roe<br>Roic | • These words are references to return metrics and therefore classified into the Profitability category. Roce, Roe and Roic typically refer to the numerator of the return metric i.e. the profitability component<br>• The ambiguous word Return is not a specific metric in itself but is typically found in conjunction with other return metrics related to profitability. See example of KWIC extract from reports:<br>*"H&M's net **return** on capital employed has been on a falling trend..." (HM, BofA Merril Lynch, 2009-09-02)* |

### 3.2.4 FINANCIAL POSITION CATEGORY

The category Financial Position is intended to measure references related to the denominator of Koller et al.'s (2010) value driver ROIC and cost of capital. The denominator of ROIC can be decomposed into operating working capital and fixed asset turnover which both are dependent on the capital productivity and asset health. It is important to point out that the focus of this category is on the capital base and not the capital turnover in relation to revenues. Cost of capital can be expressed as the weighted average cost of capital for equity and debt investors. (Koller et al., 2010) References made to Financial Position are typically found in tables and have been classified into the following subgroups; assets, liabilities and equity.

**Table IV. Classification of words to the Financial Position category**

| **Subgroups** | **References** | **Comments** |
|---|---|---|
| Relates to assets | Asset<br>Assets<br>Cash<br>Goodwill<br>Inventory<br>Nwc<br>Receivable<br>Wacc | • These words are references to the asset side of the balance sheet and therefore classified into the Financial Position category<br>• The ambiguous word Wacc was included as it reflects the financing of a firm, by taking into account both equity and debt investors |
| **Subgroups** | **References** | **Comments** |
| Relates to liabilities | Liabilities<br>Liability<br>Debt<br>Derivatives<br>Financing | • These words are references to the liability side of the balance sheet and therefore classified into the Financial Position category<br>• The ambiguous word Financing was included as it typically refers to financing activities, often found in tables, with effects on a firm's financial position |
| **Subgroups** | **References** | **Comments** |
| Relates to equity | Minorities<br>Minority<br>Equities<br>Equity<br>Div<br>Dividend<br>Dividends<br>Dps<br>Payout<br>Shares | • These words are references to the equity side of the balance sheet and therefore classified into the Financial Position category |

**Table IV continued. Classification of words to the Financial Position category**

| Subgroups | References | Comments |
|---|---|---|
| Relates to equity | Stock | |
| | Stocks | |

### 3.2.5 MARKET CONDITIONS CATEGORY

The category Market Conditions is intended to measure references related to Koller et al.'s (2010) value driver long-term growth, with the underlying drivers; sales productivity and commercial health. Sales productivity is the driver of recent sales growth and include price, quantity sold and market share among others. Commercial health indicates whether a firm can sustain or improve its current revenue growth, which includes factors such as product pipeline, brand strength and customer satisfaction. (Koller et al., 2010) References made to Market Conditions are typically found in text and have been classified into the following subgroups; macro conditions, products and customers & segments.

**Table V. Classification of words to the Market Condition category**

| Subgroups | References | Comments |
|---|---|---|
| Relates to macro conditions | Cycle<br>Demand<br>Order<br>Orders<br>Recovery<br>Replacement<br>Revenue<br>Revenues<br>Sale<br>Sales<br>Shipments<br>Trends<br>Volume<br>Volumes | • These words are references to macro conditions and therefore classified into the Market Conditions category<br>• The ambiguous words Replacement, Revenue/-s, sale/-s, Shipments were included as they typically are found in contexts describing the current market demand. See example of KWIC extract from reports:<br>*"Rising volumes, more complex technologies and an increasing share of **replacement sales** enable Nokia to sweep small vendors out of the market." (Nokia, Danske Bank, 2009-04-24)*<br>*"Industry **shipments** may lag end-sales due to inventory variations." (Electrolux, Danske Bank, 2006-09-05)* |
| **Subgroups** | **References** | **Comments** |
| Relates to products | Components<br>Generic<br>Portfolio<br>Prices<br>Pricing | • These words are references to products and therefore classified into the Market Conditions category<br>• The ambiguous word Components was included as it typically refers to contexts in which products are described. See example of KWIC extract from reports: |

**Table V continued. Classification of words to the Market Condition category**

| Subgroups | References | Comments |
|---|---|---|
| Relates to products | Product<br>Products | *"We believe most or all major handset suppliers have started to cancel orders for high-end smartphone **components** during the past two weeks." (Nokia, Danske Bank, 2009-11-05)* |
| **Subgroups** | **References** | **Comments** |
| Relates to customers & segments | Aftermarket<br>Branch<br>Client<br>Clients<br>Customers<br>Department<br>Division<br>Divisional<br>Region<br>Retail<br>Service | • These words are references to customers & segments and therefore classified into the Market Conditions category<br>• Ambiguous words were Department, Division, Divisional and Region. These words where particularly difficult to classify but were ultimately included as they capture contexts describing the market situations without direct references to words otherwise included in our definition of Market Conditions. See example of KWIC extract from reports:<br>*"…we believe the Nordic **region** and Eastern Europe will continue to perform…" (Assa Abloy, Handelsbanken, 2006-04-26)*<br>*"Slower progress in the Asia Pacific **division**…" (Assa Abloy, Danske Bank, 2006-08-10)* |

## 3.3 PROCEDURE FOR STATISTICAL ANALYSIS

To analyse the output from the content analysis, we examine the characteristics of the analyst reports through the non-parametric statistical test, Kruskal-Wallis H-test. We run several tests to examine if report length, size of stocks and frequency of references statistically differ among brokerage firms.

We proceed to run a series of univariate and unpaired two-tailed T-tests to examine if the frequency of references for each category is statistically different between 2006 and 2009. The variables[8] Growth, Profitability, Financial Position, Market Conditions and Management & Strategy are defined as the frequency of occurrence in texts divided by total number of words in the texts, thus standardizing the variables for lengths of reports. For the T-tests, we assume that our samples are roughly normally distributed with approximately unequal variances.

To examine our findings from the content analysis in more detail, we test the relationship between uncertainty in the market and our variables through five separate multivariate regressions[9]. We regress our category variables against the independent variable Uncertainty in the market while controlling for the origin of brokerage firm (International/Nordic) and the cyclical characteristics of the stocks

[8] Category variables = Frequency of category references / Total number of words in the texts.
[9] In this specification, this is as running an ANOVA analsysis which assumes normally distributed data.

(Cyclical/Non-cyclical). In our estimation, we run a limited chance of selection bias as the sample is diverse in terms of stock coverage[10] and brokerage firm[11]. For the statistical tests STATA[12] was used.

## 3.4 SAMPLE SELECTION

To capture potential differences in analysts' decision process between periods with varying business climates, two time periods surrounding the global financial crisis in 2008 were chosen. A pre- and post-crisis period was determined through a systematic approach using a volatility index, namely the S&P 500 VIX. The pre-crisis period 2006 is characterized by low expected volatility and the post-crisis period 2009 is characterised by high expected volatility.[13] The calendar years 2006 and 2009 have an average expected volatility of 12.8% and 31.5% respectively.

The sample includes analyst reports published by the brokerage firms during the full calendar years 2006 and 2009. Only analyst reports that are similar in format have been included in the sample. In total, the sample consists of 1,000 analyst reports of which 421 and 579 were published in 2006 and 2009 respectively.

### 3.4.1 SELECTED STOCKS

Our sample consists of the following stocks; ABB, Assa Abloy, AstraZeneca, Atlas Copco, Electrolux, Hennes & Mauritz, Modern Times Group, Nokia, SSAB and TeliaSonera. The selection process of the stocks is based on the OMX Stockholm 30 Index[14] in October 2013. Nasdaq OMX's sector classification was used to ensure that stocks from various sectors were represented in the sample (Nasdaq OMX Nordic, 2013). Stocks within the following sectors; Banks, Basic Resources, Financial Services and Oil & Gas were excluded due to their inherent different value drivers and valuation methodologies. Although SSAB is classified as part of the Basic Resources sector, we did not exclude it as the business model's characteristic is more similar to the Industrial Goods & Services sector. The remaining stocks were then ranked based on the number of analysts covering the stock. The stock with the highest analyst coverage within a sector was then selected. After that, the sample consisted of nine stocks and to reach a sample consisting of ten stocks an additional stock from the Industrial Goods and Services sector was selected due to the sector's relative large proportion of the index. After ABB, Atlas Copco and SKF has the highest number of analysts following. Therefore, Atlas Copco was randomly selected. See table VI for descriptive data of the analyst reports per stock.

[10] The 10 stocks included operate across nine different sectors.
[11] Reports originate from 10 different Nordic and international brokerage firms.
[12] STATA is a software for data analysis and statistical testing.
[13] The VIX index is often referred to as the fear index as its value rises when investors expect and are concerned about future volatility. There are numerous VIX indices based on different instrument, however, according to Financial Times the S&P 500 VIX index is assumed to be the most important one. An index value of 20 indicates that the market expects annual returns to be generated with an on average 20% standard deviation. (Financial Times, 2013) The expected volatility over the next 30 days during the years surrounding the bankruptcy of Lehman Brothers on September 15, 2008, has varied significantly.
[14] The OMX Stockholm 30 Index consists of the 30 shares that have the largest trading volume in a given time period (Nasdaq OMX, 2013)

To better interpret and understand our results, information about the stocks' cyclicality was included. The stocks' cyclicality has been estimated by calculating the shares' beta value versus Nasdaq OMX Stockholm and finding supporting quotes in the analyst reports. The shares' beta values were then ranked from 1 to 10, where 1 is the most cyclical stock and 10 is the least cyclical stock. As all stocks have beta values over 0, they are all *"cyclical"* and affected by the general economic development, however in varying degrees. What is indicated as a cyclical stock is a beta over 1.0, i.e. stocks that are more sensitive to turns in the economic development. Two groups are formed, cyclical and non-cyclical stocks. The cyclical stocks include ABB, Assa Abloy, Atlas Copco, Electrolux and SSAB. The non-cyclical stocks include AstraZeneca, H&M, Nokia, Modern Times Group (MTG) and TeliaSonera. (See exhibit II in appendix)

**Table VI. Data description of analyst reports per stock**

This table shows a summary of how the reports are distributed among the stocks; market capitalisation as per the 2nd of June 2009, number of reports per stock and mean report length defined as total number of words per report (including tables).

| *Stocks* | *Mcap (EURbn)* | *Number of reports* | | | *Mean report length* | | |
|---|---|---|---|---|---|---|---|
| | **2009** | **2006** | **2009** | **Total** | **2006** | **2009** | **Total** |
| Cyclical stocks | | | | | | | |
| ABB | 28 | 53 | 64 | 117 | 3,216 | 4,607 | 3,977 |
| Assa Abloy | 3 | 33 | 38 | 71 | 3,224 | 5,773 | 4,588 |
| Atlas Copco | 9 | 50 | 47 | 97 | 3,622 | 6,116 | 4,830 |
| Electrolux | 3 | 8 | 16 | 24 | 5,938 | 4,556 | 5,017 |
| SSAB | 3 | 12 | 27 | 39 | 5,384 | 4,973 | 5,100 |
| Total | 46 | 156 | 192 | 348 | 3,654 | 5,254 | 4,537 |
| Non-cyclical stocks | | | | | | | |
| AstraZeneca | 42 | 84 | 110 | 194 | 3,873 | 4,471 | 4,212 |
| Hennes & Mauritz | 29 | 39 | 70 | 109 | 2,843 | 4,441 | 3,869 |
| Modern Times Group | 1 | 20 | 24 | 44 | 4,173 | 7,153 | 5,798 |
| Nokia | 43 | 85 | 115 | 200 | 3,576 | 5,801 | 4,855 |
| TeliaSonera | 16 | 37 | 68 | 105 | 4,559 | 4,492 | 4,515 |
| Total | 131 | 265 | 387 | 652 | 3,744 | 5,031 | 4,508 |

### 3.4.2 SELECTED BROKERAGE FIRMS

The analyst reports have been accessed through the database Thomson Reuters Knowledge (2013). This database include analyst reports from the following brokerage firms; Barclays, Credit Suisse, Danske Bank, DnB Nor, Handelsbanken, Bank of America Merrill Lynch, Morgan Stanley, Nomura, Pareto and Societe Generale. As Barclays acquired parts of Lehman Brothers in 2008, reports from 2006 are defined in the database and in our sample as published by Barclays when the reports in fact were published by Lehman Brothers (Barclays, 2013). As Bank of America acquired Merrill Lynch in 2009, reports from 2006 are defined in the database and in our sample as published by Bank of America Merrill Lynch when the reports in fact were published by Merrill Lynch (Bank of America, 2012). Moreover, reports defined in the database and in our sample as published by Pareto are in fact published by either Öhman Fondkommission, which was acquired by Pareto in 2011, or Evli Bank,

which has Pareto as partner in the North American market (Evli Bank, 2013; Pareto Securities, 2013). See table VII for descriptive data of the analyst reports per brokerage firm.

**Table VII. Data description of analyst reports per brokerage firm**

This table shows a summary of how the reports are distributed among the brokerage firms; size of the stocks expressed as the average market capitalisation, number of reports per brokerage firm and mean report length defined as total number of words per report (including tables).

| *Brokerage firms* | *Avg Mcap (EURbn)* | | *Number of reports* | | | *Mean report length* | | |
|---|---|---|---|---|---|---|---|---|
| | **2006** | **2009** | **2006** | **2009** | **Total** | **2006** | **2009** | **Total** |
| Nordic brokerage firms | | | | | | | | |
| Danske Bank | 20 | 30 | 17 | 78 | 95 | 2,922 | 5,083 | 4,696 |
| Dnb Nor | 0 | 24 | 0 | 19 | 19 | 0 | 2,739 | 2,739 |
| Handelsbanken | 18 | 17 | 63 | 112 | 175 | 6,493 | 7,679 | 7,252 |
| Pareto | 25 | 22 | 68 | 126 | 194 | 2,268 | 2,745 | 2,578 |
| Total | 21 | 22 | 148 | 335 | 483 | 4,142 | 4,939 | 4,694 |
| International brokerage firms | | | | | | | | |
| Barclays | 36 | 36 | 33 | 4 | 37 | 4,183 | 4,161 | 4,180 |
| Credit Suisse | 26 | 34 | 31 | 23 | 54 | 6,650 | 4,486 | 5,729 |
| BofA ML | 31 | 31 | 88 | 98 | 186 | 4,032 | 6,217 | 5,183 |
| Morgan Stanley | 37 | 31 | 18 | 51 | 69 | 4,484 | 5,690 | 5,376 |
| Nomura | 43 | 32 | 5 | 34 | 39 | 2,610 | 6,098 | 5,651 |
| Societe Generale | 23 | 32 | 98 | 34 | 132 | 1,597 | 2,198 | 1,752 |
| Total | 29 | 32 | 273 | 244 | 517 | 3,477 | 5,333 | 4,353 |

### 3.4.3 DESCRIPTIVE STATISTICS OF VARIABLES

In table VIII below, descriptive statistics of our variables are shown. The sample consists of 1,000 observations for 10 stocks issued by 10 different brokerage firms. The statistics include the 1st percentile, mean, median, the 99th percentile as well as the standard deviation for each variable.

**Table VIII. Data description of variables**

| *Variable* | *P1* | *Mean* | *Median* | *P99* | *Sd* |
|---|---|---|---|---|---|
| Dependent variables | | | | | |
| Profitability | 0.8% | 2.9% | 2.9% | 5.1% | 1.0% |
| Financial Position | 0.4% | 1.9% | 1.8% | 3.6% | 0.7% |
| Growth | 0.0% | 0.4% | 0.3% | 1.1% | 0.2% |
| Market Conditions | 0.5% | 1.5% | 1.4% | 3.2% | 0.6% |
| Management & Strategy | 0.0% | 0.4% | 0.3% | 1.2% | 0.2% |
| Independent dummy-variables | | | | | |
| Uncertainty (0,1) | 0.00 | 0.58 | 1.00 | 1.00 | 0.49 |
| Cyclical stocks (0,1) | 0.00 | 0.35 | 0.00 | 1.00 | 0.48 |
| Nordic brokerage firms (0,1) | 0.00 | 0.48 | 0.00 | 1.00 | 0.50 |
| Other | | | | | |
| Total words | 491 | 4,518 | 3,965 | 12,490 | 2,769 |
| Frequency of keywords | 3.4% | 7.0% | 7.1% | 10.9% | 1.6% |

# 4. RESULTS

In this section we will present our results from the content analysis and statistical tests. We will begin by examining the characteristics of the analyst reports and then provide results for the research questions. The results for the first research question is found in section 4.2 and results for the second research question is in part found in section 4.2 but primarily in section 4.3. Finally, we conduct two statistical robustness tests to confirm our results.

## 4.1 ANALYST REPORT CHARACTERISTICS

In line with Breton and Taffler (2001), we may expect differences among brokerage firms. These characteristics are displayed in table IX. In our data set, a Kruskal-Wallis test indicates that both report length (expressed in total words per report), average size of the stocks covered (expressed in market capitalisation) and frequency of references (calculated as references divided by total number of words per report) statistically differs among brokerage firms.[15] Unlike Breton and Taffler (2001), we also find statistically significant differences among brokerage firms in terms of coverage which means that certain brokerage firms are overrepresented for certain stocks. Therefore we test the relationship between the two dummy variables the stocks' cyclical characteristics (Cyclical/Non-cyclical) and the origin of brokerage firm (International/Nordic). However, we find only a small and negative correlation between the variables[16].

Additionally, we may expect the report length to be correlated with the proportion of references. Arguably, shorter reports may compel analysts to argue more sparsely and focused and thus with a higher proportion of references. On the contrary, longer reports may be a result of more in-depth analysis and therefore warrant a more frequent use of references. However, we only find a weak and slightly negative correlation between report length and proportion of references in the texts[17]. The explanatory power of report length on frequency of references is almost none. The proportion of references in the texts is about 7%[18].

[15] Adopting the Kruskal-Wallis H-test, for report length $\chi^2_{calc}$ = 522, for size $\chi^2_{calc}$ = 122 and frequency of references $\chi^2_{calc}$ = 242 ($\chi^2_{0.05}$ = 16.92).
[16] The correlation coefficient is -0.0172.
[17] The correlation coefficient between report length and proportion of references is -0.045.
[18] Breton and Taffler (2001) found the proportion of references about 6%.

**Table IX. Data description of analyst reports per brokerage firm**

This table shows report characteristics such as number of reports, report length expressed in total words, coverage expressed in average market capitalisation and frequency of references calculated as references divided by total words in the reports.

| *Brokerage firms* | *n* | *Report length* | | | *Avg Mcap (EURbn)* | | | *Frequency of keywords (%)* | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Mean** | **Median** | **St dev** | **Mean** | **Median** | **St dev** | **Mean** | **Median** | **St dev** |
| Nordic brokerage firms | | | | | | | | | | |
| Danske Bank | 95 | 4,696 | 4,820 | 1,599 | 28 | 29 | 16 | 8 | 8 | 1 |
| Dnb Nor | 19 | 2,739 | 2,006 | 1,901 | 24 | 16 | 10 | 7 | 8 | 2 |
| Handelsbanken | 175 | 7,252 | 7,030 | 1,357 | 17 | 16 | 16 | 7 | 7 | 1 |
| Pareto | 194 | 2,578 | 2,124 | 1,470 | 23 | 28 | 15 | 6 | 6 | 2 |
| Total | 483 | 4,694 | 4,692 | 2,548 | 22 | 28 | 16 | 7 | 7 | 1 |
| International brokerage firms | | | | | | | | | | |
| Barclays | 37 | 4,180 | 3,921 | 1,698 | 36 | 43 | 11 | 7 | 7 | 1 |
| Credit Suisse | 54 | 5,729 | 4,781 | 3,142 | 30 | 28 | 14 | 6 | 6 | 1 |
| BofA ML | 186 | 5,183 | 5,095 | 2,695 | 31 | 42 | 14 | 7 | 7 | 2 |
| Morgan Stanley | 69 | 5,376 | 4,185 | 3,054 | 33 | 42 | 13 | 6 | 5 | 1 |
| Nomura | 39 | 5,651 | 4,818 | 2,867 | 33 | 42 | 13 | 6 | 7 | 1 |
| Societe Generale | 132 | 1,752 | 1,297 | 1,571 | 26 | 28 | 14 | 8 | 8 | 2 |
| Total | 517 | 4,353 | 3,650 | 2,954 | 30 | 29 | 14 | 7 | 7 | 2 |

## 4.2 UNIVARIATE ANALYSIS

Following pre-analyses of the sample data, we proceed to measure the frequency of references as well as testing the potential mean differences between low uncertainty (2006) and high uncertainty (2009) for the five category variables through a series of univariate and unpaired two-tailed T-tests. The results from the tests are presented in table X. The sample is described in detail in Section 3.4 and is presented in tables VI, VII and VIII.

Table X shows the categories ranked in descending order by frequency in the analyst reports relative to total references. References made to Profitability (41%) and Financial Position (27%) are most frequent, accounting for more than two thirds of all references together. In third place, Market Conditions (21%) accounts for slightly more than one fifth of all references. In last place, the categories Management & Strategy (6%) and Growth (5%) are referenced far less frequently than other categories.

The T-tests show that there are significant differences between the mean frequency of total words for all categories except Market Conditions. However, we cannot determine whether these differences are caused by uncertainty in the market, stocks' cyclical characteristics or origin of brokerage firm.

**Table X. Mean frequencies**

This table shows the mean frequency of references in proportions to total references and total words.

| *Category* | *Mean frequency of references* | | | *Mean frequency of total words* | | |
|---|---|---|---|---|---|---|
| | **Low uncertainty (2006)** | **High uncertainty (2009)** | **Total** | **Low uncertainty (2006)** | **High uncertainty (2009)** | **Total** |
| Profitability*** | 41.5% | 39.9% | 40.6% | 3.0% | 2.8% | 2.9% |
| Financial Position* | 25.7% | 28.2% | 27.1% | 1.9% | 1.9% | 1.9% |
| Market Conditions | 21.6% | 21.4% | 21.5% | 1.5% | 1.5% | 1.5% |
| Management & Strategy** | 5.8% | 5.7% | 5.7% | 0.4% | 0.4% | 0.4% |
| Growth*** | 5.4% | 4.9% | 5.1% | 0.4% | 0.3% | 0.4% |

* p<0.10 ** p<0.05 *** p<0.01

[Respective T-statistics with p in brackets: 2.7 (0.0066), -1.8 (0.0708), 2.1 (0.0369), 4.2 (0.0000)]

## 4.3 MULTIVARIATE ANALYSIS

The results from the multivariate analysis are presented in table XI below. Models (1) to (5) use the category variables[19] as the dependent variable and uncertainty in the market as the independent variable, controlling for stocks' cyclical characteristics and origin of the brokerage firm. The regressions show that high uncertainty in the market, as in 2009, is statistically significant for the category variables; Growth, Profitability and Financial Position. We find that uncertainty in the market has no statistical effect on the category variables Management & Strategy and Market Conditions.

Model (1) shows that the coefficient for High uncertainty is negative and statistically significant at the 10% level. This statistical significance is low compared to Model (3) and Model (4) and we cannot reject the null hypothesis with a 95% confidence interval. The coefficient indicates that high uncertainty yields a 0.02 percentage points decrease of the category variable Growth. This means that in times of high uncertainty analysts seems to focus 5%[20] less on information related to Growth. Model (3) shows that the coefficient for High uncertainty is negative and statistically significant at the 1% level. The coefficient indicates that high uncertainty yields a 0.30 percentage points decrease of the category variable Profitability. This means that in times of high uncertainty analysts seems to focus 10%[21] less on information related to Profitability. Model (4) shows that the coefficient for High uncertainty is positive and statistically significant at the 5% level. The coefficient indicates that high uncertainty yields a 0.11 percentage points decrease of the category variable Financial Position. This means that in times of high uncertainty analysts seems to focus 6%[22] more on information related to Financial Position. The regressions also indicate that the control variables Cyclical stocks and Nordic

[19] Category variables = Frequency of category references / Total number of words in the texts.
[20] Calculated as the coefficient divided by the mean frequency of category variable in 2006.
[21] Calculated as the coefficient divided by the mean frequency of category variable in 2006.
[22] Calculated as the coefficient divided by the mean frequency of category variable in 2006.

brokerage firms have statistically significant effects on the category variables which are often larger than high uncertainty.

**Table XI. Regressions of uncertainty and the category variables**

This table shows the regressions of the category variables and uncertainty in the market. Robust t-statistics are reported within parentheses in the second row, beneath the coefficients. P-values are denoted by stars next to coefficients.

| **Variables** | (1) **Growth** | (2) **Management & Strategy** | (3) **Profitability** | (4) **Financial Position** | (5) **Market Conditions** |
|---|---|---|---|---|---|
| High uncertainty (0,1) | -0.0002* | 0.0001 | -0.0030*** | 0.0011** | 0.0005 |
| | (-1.71) | (0.86) | (-5.16) | (2.49) | (1.43) |
| **Control variables** | | | | | |
| Cyclical stocks (0,1) | 0.0012*** | 0.0003* | 0.0039*** | 0.0019*** | 0.0042*** |
| | (9.06) | (1.85) | (6.62) | (4.23) | (11.24) |
| Nordic brokerage firms (0,1) | -0.0015*** | -0.0020*** | 0.0065*** | -0.0008* | -0.0032*** |
| | (-12.02) | (-15.15) | (11.66) | (-1.92) | (-9.73) |
| Constant | 0.0040*** | 0.0047*** | 0.0262*** | 0.0182*** | 0.0146*** |
| | (33.79) | (30.36) | (45.09) | (38.56) | (50.20) |
| Observations | 1000 | 1000 | 1000 | 1000 | 1000 |
| R-squared | 0.209 | 0.173 | 0.150 | 0.024 | 0.201 |

t statistics in parentheses
* p<0.10 ** p<0.05 *** p<0.01

### 4.3.1 ROBUSTNESS TESTS

To verify our statistical results, we run two sets of robustness tests. First we test the model for multicollinearity and secondly we re-run our regressions with winsorized data.

We find a high correlation between the variables Uncertainty and Nordic brokerage firms of 0.2243. The correlation between other independent variables fall short of 0.05 and therefore we do not proceed to do additional tests. While multicollinearity does not reduce the reliability of the model as a whole it may produce invalid results about any individual predictor. Therefore, we re-run our regressions while dropping the variable Nordic brokerage firms. In this specification, it is worth noting that the coefficient for High uncertainty in Model (2) has changed sign and is now statistically significant at a 5% level. Given that the correlation between Uncertainty and Nordic brokerage firms is nowhere near perfect and that our results remain fairly intact, we chose to keep our original specification of the regressions. In addition, since the variable has high explanatory power in our original specification, we argue that the pros of including this variable outweighs the cons. However, we can conclude that high uncertainty in Model (2) is not robust in relation to the original specification when dropping one of the independent variables.

**Table XII. Robustness test when dropping the independent variable Nordic brokerage firms**

This table shows the regressions of the variables and uncertainty in the market. Robust t-statistics are reported within parentheses in the second row, beneath the coefficients. P-values are denoted by stars next to coefficients.

| **Variables** | (1) **Growth** | (2) **Management & Strategy** | (3) **Profitability** | (4) **Financial Position** | (5) **Market Conditions** |
|---|---|---|---|---|---|
| High uncertainty (0,1) | -0.0006*** | -0.0003** | -0.0016** | 0.0009** | -0.0002 |
| | (-4.04) | (-2.03) | (-2.55) | (1.99) | (-0.71) |
| **Control variables** | | | | | |
| Cyclical stocks (0,1) | 0.0012*** | 0.0003* | 0.0038*** | 0.0019*** | 0.0042*** |
| | (8.48) | (1.82) | (6.31) | (4.23) | (10.69) |
| Constant | 0.0035*** | 0.0040*** | 0.0285*** | 0.0179*** | 0.0135*** |
| | (28.91) | (28.01) | (54.60) | (41.67) | (48.61) |
| Observations | 1000 | 1000 | 1000 | 1000 | 1000 |
| R-squared | 0.096 | 0.008 | 0.043 | 0.020 | 0.127 |

t statistics in parentheses

* p<0.10 ** p<0.05 *** p<0.01

In the second robustness test, we re-run our regressions using a 98% winsorization, which means that the bottom 1% of the values are set equal to the value corresponding to the 1st percentile and the top 1% of the values are set equal to the value corresponding to the 99th percentile. Without the influence of outliers we still observe the same principal trends for all category variables except for Growth, where uncertainty no longer is statistically significant. This could be expected given the low statistical significance in the original specification.

**Table XIII. Robustness test of uncertainty and the category variables**

This table shows the regressions of the category variables and uncertainty in the market. Robust t-statistics are reported within parentheses in the second row, beneath the coefficients. P-values are denoted by stars next to coefficients.

| **Variables** | (1) **Growth** | (2) **Management & Strategy** | (3) **Profitability** | (4) **Financial Position** | (5) **Market Conditions** |
|---|---|---|---|---|---|
| High uncertainty (0,1) | -0.0002 | 0.0002 | -0.0030*** | 0.0012*** | 0.0005 |
| | (-1.57) | (1.39) | (-5.16) | (2.60) | (1.44) |
| **Control variables** | | | | | |
| Cyclical stocks (0,1) | 0.0012*** | 0.0003** | 0.0038*** | 0.0019*** | 0.0041*** |
| | (9.22) | (1.97) | (6.61) | (4.22) | (11.34) |
| Nordic brokerage firms (0,1) | -0.0014*** | -0.0019*** | 0.0065*** | -0.0008* | -0.0031*** |
| | (-12.06) | (-15.56) | (11.78) | (-1.83) | (-9.75) |
| Constant | 0.0040*** | 0.0046*** | 0.0262*** | 0.0181*** | 0.0146*** |
| | (34.91) | (33.71) | (45.33) | (38.87) | (50.74) |
| Observations | 1000 | 1000 | 1000 | 1000 | 1000 |
| R-squared | 0.213 | 0.190 | 0.152 | 0.024 | 0.203 |

t statistics in parentheses
* p<0.10 ** p<0.05 *** p<0.01

We can conclude that the results related to the category variables Profitability, Financial Position and Market Conditions seem to be robust. However, we should be careful when interpreting the results related to Growth and Management & Strategy.

# 5. ANALYSIS

This study investigates what information that influences analysts' decision process and if this is affected by uncertainty in the market. The first time period, 2006, is characterized by low uncertainty and the second time period, 2009, is characterized by high uncertainty. As the decision process cannot be measured directly, we have studied the content in analyst reports as a proxy for what information that influences analysts' decisions regarding forecasts, valuations and stock recommendations (Bradshaw, 2009). In the first section we will analyse the results for the first research question i.e. what information influences analysts' decisions. Secondly, we will analyse the effect from uncertainty in the market on what information that influences analysts' decisions. Finally, a discussion of the effects of stocks' cyclical characteristics and origin of the brokerage firm will be given.

## 5.1 WHAT INFORMATION INFLUENCES ANALYSTS?

We find that analysts' base their decisions primarily on information related to Profitability and Financial Position as these accounts for 41% and 27% respectively of the total references. References made to Market Conditions accounts for 21%. Management & strategy and Growth are far less frequently referenced with 6% respectively 5%. In line with Breton and Taffler (2001) and Previts et al. (1994) we find that references made to Profitability are most frequent and references made to Management & Strategy are far less frequent. In table XIV our results are compared with Breton and Taffler's (2001) findings as our categories are similar to theirs. Aside from the observations above, the results are considerably different where the largest deviations are found for Financial Position, Market Conditions and Growth.

These deviations may be explained by the methodology of content analysis and differences in the sample, in terms of stocks and brokerage firms. There are two critical factors that differentiate our methodology from theirs. First, we are unable to get insight into their classification scheme as it is not disclosed. Ours are derived from valuation theory and accounting whereas theirs is developed through pre-sample analyses. This may have material impact on the results. Secondly, Breton and Taffler (2001) have not included tables in the analyst reports whereas we have. This may have a critical effect on particularly Profitability and Financial Position as references to these categories are often found in tables (see section 3.2.3 and 3.2.4). We may also expect differences in the samples to have an effect on the results. Our sample consists of analyst reports from both international and Nordic brokerage firms as well as stocks listed in Sweden with different industry exposure. Breton and Taffler's (2001) sample only include reports from international brokerage firms and does not disclose the stocks.

We can conclude that analysts' base their decisions on different types of information with varying degree where information related to Profitability clearly seems to be most important. Our results show both similarities and differences to Breton and Taffler (2001). In the next section, the effect of uncertainty in the market will be analysed.

**Table XIV. Comparison with Breton and Taffler (2001)**

This table shows the mean frequency of references in proportions to total references.

| *Category* | *Mean frequency of references* | | | | *Deviation* |
|---|---|---|---|---|---|
| | **Results** | **Rank** | **Breton and Taffler (2001)** | **Rank** | **(p.p.)** |
| Profitability | 41% | 1 | 35% | 1 | 6% |
| Financial Position | 27% | 2 | 9% | 4 | 19% |
| Market Conditions | 21% | 3 | 32% | 2 | -11% |
| Management & Strategy | 6% | 4 | 8% | 5 | -2% |
| Growth | 5% | 5 | 16% | 3 | -11% |

## 5.2 THE EFFECTS OF UNCERTAINTY

In this section we intend to analyse if uncertainty in the market influences analysts' decisions. Our results indicate that high uncertainty has influence on references made to Profitability and Financial Position with statistical significance. For Growth, high uncertainty only has a statistically significant influence at a 10% level in the original specification and is not significant at all when using a 98% winsorization of the sample. References made to Management & Strategy and Market Conditions seem to be independent of high uncertainty in the market in our original specification. However, if the variable Nordic brokerage firms is dropped, high uncertainty has significant influence on Management & Strategy at a 5% level. As the category variables are rooted in valuation theory[23] and accounting we intend to analyse these findings from a valuation perspective.

### 5.2.1 PROFITABILITY

Profitability is intended to capture references made to profitability metrics, i.e. the numerator of the value driver ROIC. In times with high uncertainty information related to Profitability seems to be less influential in analysts' decisions. As described in the valuation section, ROIC and revenue growth are the main drivers of cash flow. While higher ROIC is always good, the same cannot be said about revenue growth as higher revenue growth only creates value as long as ROIC exceeds the cost of capital. The main inputs to the numerator of ROIC are operating profitability metrics. In a DCF model, valuation is more sensitive to changes in profitability than for revenue growth. (Koller et al., 2010) As profitability is crucial in valuation it is somewhat surprising that information related to Profitability seems to be less influential in analysts' decisions in times with high uncertainty. Revenue growth and profitability are two important drivers of valuation and companies may arguably be able to mitigate growth concerns by focusing on costs and maintaining profitability. An analyst expresses this in the following way:

[23] More specifically, Koller et al.'s (2010) value drivers of intrinsic value described in sections 2 and 3.

*"With limited prospects for top-line growth, costs will remain in focus." (TeliaSonera, Handelsbanken, 2009-10-05)*

However, our results indicate information to Profitability is less influential in times with high uncertainty. This may be the result of an exceptionally strong focus on Profitability in less uncertain times or simply a changed format of the analyst reports. As this information is mainly found in tables, fewer tables could in part explain the fewer references made to information related to Profitability.

### 5.2.2 FINANCIAL POSITION

Financial Position is intended to capture references made to the denominator of ROIC. The denominator of ROIC is dependent on capital productivity, asset health and cost of capital i.e. stocks' financial position in terms of assets, liabilities and equity. From our results it seems like analysts base their decisions on more information related to Financial Position in times with high uncertainty in the market. This could be seen as intuitive as high uncertainty may be translated into high variability of expected future cash flows. In general, stocks with low operating risk i.e. the risk in future cash flow, can bear a higher financial risk (Johansson and Runsten, 2005). Increases of the operating risk should therefore warrant higher concerns of the financial position. Remembering that our sample consists of large cap stocks with, arguably, limited risk of financial distress or bankruptcy our results still show that information related to Financial Position is more relevant. For example, an analyst describes the situation in the following way:

*"Focusing on financials: Electrolux management remains cautious in preserving the company's financial health, given the low visibility and uncertain market outlook." (Electrolux, Credit Suisse, 2009-09-17)*

### 5.2.3 GROWTH

Growth is intended to capture references made to growth initiatives in terms of organic and inorganic growth i.e. investments and acquisitions. We are unable to determine if information related to Growth is affected by uncertainty in analysts' decisions. It is important to point out that Growth is only significant at a 10% level in the original specification and not significant at all in one of the robustness tests. Having this in mind we should treat this result with caution.

Organic investments are made both to maintain and expand capacity. Arguably, companies will be less willing to expand their production capacity when there is high uncertainty in the market and in extension the future demand. This is supported by several sources. In 2009, the investment growth in the world and in the European Union declined by 13% respectively 25% (IMF, 2013). We also note

that analysts expected drastic capital spending cuts for the years 2009 and 2010 (CapitalIQ, 2013) [24]. For example, analyst expresses this in the following way:

*"The end of the restructuring programme is important because it marks the end of the excess investments, totalling almost SEK 9bn more than depreciation and amortisation in the last 5 years. Capacity closures and the lack of new factories should limit capex to maintenance and product investments." (Electrolux, Handelsbanken, 2009-08-04)*

Given the expected cuts of capital expenditure, it is intuitively difficult to explain why information related to Growth seems to be less relevant when there is high uncertainty in the market as postponed capital expenditures will impact valuations. Postponed capital expenditures will lower cash outflows in the near term but result in future effects such as lowered growth or unrealized operating enhancements. With such immediate and long-term effects on companies' performance, information related to Growth should constantly be relevant for analysts' decisions from a valuation perspective, independent of the uncertainty in the market. The inorganic alternative to generate growth is to make acquisitions. Acquisitions can be made for several reasons such as consolidating a market and entering or exiting a new geographical or product market. In 2009 compared to 2006, the number of acquisitions fell by approximately 33% globally (mergermarket, 2011) and for the stocks included in our sample, the number of announced acquisitions fell by approximately 28% compared with 2006 (CapitalIQ, 2013)[25]. Fewer references made to Growth in terms of acquisitions may partially be explained by the fact that there were less acquisitions made and potential transactions to evaluate. In conclusion, we are unable to determine if Growth is affected by uncertainty in the market with confidence although there are some signs suggesting this.

### 5.2.4 MANAGEMENT & STRATEGY

Management & Strategy is intended to capture references made to organizational health and long-term strategy in terms of firm's skills and capabilities, culture, management talent and guidance. References made to Management & Strategy can also be thought of as long-term forecasts in narrative form (Breton and Taffler, 2001). It is important to point out that Management & Strategy is not statistically significant in the original specification but in fact significant at a 5% level in one of the robustness tests. Having this in mind we should treat this result with caution. In previous research we find two views that suggests opposite results.

Breton and Taffler (2001) noted that analysts seemed to make fewer references to Management & Strategy in negative contexts than in positive and neutral contexts. We may expect that high

[24] For cyclical stocks capital expenditure were expected to fall by 7% annually for 2009 and 2010 compared to the historical increase of 11% annually for 2007 and 2008. For non-cyclical stocks the annual growth rate in capital expenditure was expected to fall to 4% from 15%.

[25] The number of announced mergers and acquisitions for the stock in our sample decreased from 58 to 42 in 2006 respectively 2009.

uncertainty in the market unveils possible weaknesses and threats to firms' long-term strategy and managements' ability to execute the strategy. This may give analysts more opportunities to write negatively about information related to Management & Strategy. However, Breton and Taffler (2001) suggest that analysts may instead have incentives to avoid doing this. Making negative comments about management may lead to that analysts are cut off from management as an information source. Secondly, the investment banking relations between the brokerage of firm, i.e. the analyst's employer, and the company that is the target of the analysis. (Koller et al., 2010) This suggests that information related to Management & Strategy is equally influential in analysts' decisions independent of uncertainty.

Feng and Koch (2010) suggest another view. They found that managers are less likely to provide guidance for a given year when past guidance has been overly optimistic. Given that the financial crisis hit globally in 2008 it may be assumed that past guidance for 2008 and onwards had been overly optimistic to a larger extent than in 2006. Therefore, managers were arguably less likely to give guidance in 2009 than in 2006. This suggests that information related to Management & Strategy would be less influential in the analysts' decisions.

### 5.2.5 MARKET CONDITIONS

Market Conditions is intended to capture references made to the underlying factors of long-term growth which are sales productivity (price, quantity and market share etc.) and commercial health (product pipeline, brand strength and customers etc.). Information related to Market Conditions seems to be equally important for analysts' decisions independent of uncertainty. Information related to Market Conditions has a central role in valuation as it is translated into assumptions regarding revenue growth, an important value driver. This type of information seems to be constantly relevant to motivate and reinforce the analysts' forecasts and stock recommendations. To our knowledge, there is no previous research that suggests that information related to Market Conditions should be more or less influential in analysts' decision. This is also confirmed in our empirical results which are robust in both sets of statistical robustness tests. Two analysts describe the situation in 2006 and 2009 in the following way:

*"Assa expects a challenging year. Market conditions remained very tough for the quarter and Assa expects the US market to weaken as commercial construction projects are cut."(Assa Abloy, Morgan Stanley, 2009-07-29)*

*"In their Q3 reports, European steel companies were more moderate in their outlooks, talking about "unchanged strong market conditions" for the rest of the year" (SSAB, Handelsbanken, 2006-01-16)*

## 5.3 THE EFFECTS OF CYCLICALITY AND BROKERAGE FIRM

In this section we will analyse the influence of stocks' cyclical characteristics and origin of brokerage firm on our results. As our results indicate, the control variables cyclicality[26] and brokerage firm origin[27] are statistically significant in all statistical tests including the robustness tests.

### 5.3.1 THE EFFECTS OF CYCLICALITY

In our regression analyses cyclicality has been used as a control variable. As cyclicality in stocks may imply certain inherent characteristics and sensitivities to external forces, our intention was to control for this. In this section the cyclicality will be debated and other interesting observations relating to cyclicality will be discussed. As shown in table XI, cyclicality seems to have a positive and statistically significant effect for all category variables. This indicates that cyclical stocks are associated with a higher frequency of references made to all category variables. Apparently analysts for cyclical stocks do not direct their attention in a certain way but tend be influenced by more information related to all categories. Also, compared to the coefficients for high uncertainty, cyclicality seems to explain more. For Growth and Market Conditions, this is particularly evident where they explain approximately 6[28] and 21[29] times more than high uncertainty.

In our sample, we can also make some interesting observations of how different stocks are affected by cyclicality. For cyclical stocks in our sample, growth outlooks were relatively weak compared to non-cyclical stocks. Analysts estimated that cyclical stocks would shrink their revenues with 5% annually for 2009 and 2010 while they estimated that non-cyclical stocks would increase their revenues with 3% for the same period (CapitalIQ, 2013). Cyclical stocks are arguably more affected by macro conditions than non-cyclical stocks. However, Koller et al. (2010) make an interesting observation that consensus earnings forecasts for cyclical stocks appear to ignore cyclicality. Forecasts always show an upward-sloping trend independent of where in the cycle the stock is. They offer the explanation that analysts have incentives to avoid predicting the earnings cycle and in particular downturns. Some academic research argues that it could damage the investment banking relations between the brokerage firm, i.e. the analyst's employer, and the particular company. Secondly, analysts risk their access to companies if they express negative comments about the stock that is the target of the analysis. It is intuitively difficult to put Koller et al.'s (2010) observations together with our results. Since analysts seem to ignore cyclicality, there is arguably no theory to support more in-depth analysis of cyclical stocks compared to less cyclical stocks. A potential explanation could be that there is a certain degree of herding behaviour among analysts in writing style and format of the reports. For example, herding

[26] Labelled Cyclical stocks (0,1) in the regressions in section 4.
[27] Labelled Nordic brokerage firms (0,1) in the regresions in section 4.
[28] Calculated as |0.0012| / |-0.0002| = 6.0x.
[29] Calculated as |0.0042| / |0.0002| = 21.0x.

behaviour among analysts in earnings forecasts have been demonstrated in previous academic studies. (Trueman, 1994) This may in part explain why we observe the same pattern for all cyclical stocks.

In conclusion, stocks with cyclical characteristics have considerably different outlooks than non-cyclical stocks when there is high uncertainty in the market. Our results indicate that analysts covering cyclical stocks tend to base their decisions on more information but it is difficult to explain why. Possibly this is related to herding behaviours among analysts but we cannot rule out that this is a result of bias in our sample.

### 5.3.2 THE EFFECTS OF ORGIGIN OF BROKERAGE FIRMS

In our regression analyses, the origin of brokerage firm has also been used as a control variable. Our results suggest that there are statistically significant differences in terms of what information that underlie analysts' decisions between Nordic and international brokerage firms. It seems that Nordic brokerage firms are associated with fewer references made to all category variables except Profitability. This means that analysts employed by Nordic brokerage firms generally base their decisions on less information. In this section we will discuss factors that may differentiate Nordic and international brokerage firms.

Previous research suggests that analysts' forecasts and stock recommendations are influenced by the incentives or pressure faced by analysts (Dugar and Nathan, 1995; Ljungqvist et al., 2007). In addition, Breton and Taffler (2001) show that stock recommendations are dependent on what information analysts base their decisions on. The research suggests that analysts are more likely to issue optimistic stock recommendations if the employer, the brokerage firm, has an existing or potential relationship with the particular company through investment banking services. Analysts could then come under pressure to issue favourable reports to not hurt existing or potential investment banking businesses. This also relates to sell-analysts' incentive to ensure access to management as an information source (Dugar and Nathan, 1995; Ljungqvist et al., 2007). Secondly, analysts are under pressure to generate trading commission where positive stock recommendations seem to generate additional trading commission. Therefore, analysts could come under pressure to, once again, issue optimistic rather than neutral or pessimistic stock recommendations (Irvine, 2004; Jackson, 2005). In addition, it is also shown that analysts that are employed by investment banks with major trading business are more aggressive in their stock recommendations. Finally, analysts are also concerned with their career and reputation, which are dependent on the ranking from their clients (investors and buy-side analysts). It is suggested that analysts that covers stocks that are highly visible for investors are less likely to fall back for investment banking relations or brokerage pressure. As a result they will issue less biased forecasts and recommendations. (Ljungqvist et al., 2007)

According to previous research factors such as investment banking relations, brokerage pressure, career and reputation concerns, and presence of institutional investors seem to influence analysts'

decisions and differentiate Nordic and international brokerage firms. In addition, physical distance and language barriers between the analysts and management as an information source may also have an impact.

## 5.4 CONCLUSION

In this section we will summarize our findings, provide further discussions regarding reliability and validity concerns of the content analysis and the robustness of our results.

### 5.4.1 SUMMARY OF ANALYSIS

In our first research question we intended to investigate what information that analysts base their decisions on. We found that information related to Profitability, Financial Position and Market Conditions seems to influence analysts' decisions most, as they together account for around 90% of the total references. Information related to Management & Strategy and Growth seems to be equally influential. Our findings deviate from Breton and Taffler's findings (2001), which we believe primarily is a result of differences in terms of the content analysis methodology and sample. Limited insight in both the classification scheme of their content analysis and sample characteristics make further analysis difficult.

In our second research question we intended to investigate if uncertainty affect the information that analysts base their decisions on. With statistical significance, uncertainty has an impact on Profitability and Financial Position whereas Market Conditions is seemingly unaffected. Our collective view of uncertainty is that we perceive a shift in focus from stocks' long term horizon to its current state. In valuation terms put, we can see a shift from the numerator in ROIC, i.e. profitability, to the denominator of ROIC, i.e. the financial position. For Market Conditions, we find it intuitive that this is always relevant, independent of uncertainty in the market. For Management & Strategy and Growth our results are not robust and therefore we are left to speculations. For Growth we are unable to determine if uncertainty in the market has an effect although we find signs suggesting this. Also for Management & Strategy we are unable to determine if uncertainty has an effect. The relevant literature provides two contradicting views for Management & Strategy. In addition, stocks' cyclical characteristics and origin of the brokerage firm seems to have an effect. Though we argue that uncertainty has an impact on analysts' decision and therefore valuations of stocks, our results do not allow us to quantify this effect. We can only conclude that analysts base their decisions on different information when there is high uncertainty in the market.

Our results have implications for several groups; managers of public companies, investors in securities and regulators. For example, it is important for managers to be aware of that analysts request and emphasize a stocks' financial position in times with greater uncertainty. Companies could precede analysts by showing more detailed information on their financial position when times are turning for

the worse. Information related to future growth and profitability is seemingly less important and is difficult to interpret for analysts due to the great uncertainty in the market. Also, companies' comments about their economic outlook and market conditions seem to be constantly relevant and are important for companies to note. Secondly, as investors are dependent on returns from their investments it should be interesting for them to know what factors that drive valuations and how this changes in uncertain times. Finally, regulators should also find this information useful as they have the ability through legislative power to alter the information that companies are made to produce in annual reports for example.

### 5.4.2 FINAL CONCLUSIONS ON RELIABILITY AND VALIDITY OF CONTENT ANALYSIS

To make observations of what information that influence analysts' decision we have analyzed the content of analyst reports by classifying words into common meaning categories. (See section 3 for further details) In content analysis, concerns regarding reliability and validity are particularly important. Our final conclusions of the methodology will be discussed in this section.

To make valid inferences, the classification of content into categories needs to be reliable and in order to be reliable, the procedure needs to be consistent and replicable. This means that the classification should generate the same result independently of the coder and timing. (Weber, 1990) We have, in line with the traditional approach to reliability problems in content analysis, used multiple independent coders when developing the classification scheme (Morris, 1994). By using additional independent coders the method could have reached higher reliability. To increase the reliability we have published the entire classification scheme and presented our rationale as well as provided examples from the reports. This goes against the traditional approach as researchers in this field typically provide limited insight and explanation of their classification scheme. This is problematic and makes comparison with previous research difficult. Without any or limited insight into the reasoning behind the classification scheme previous studies are difficult to replicate. Therefore we have been transparent about our classification scheme unlike previous research. We argue that this increases the reliability of our content analysis.

The classification procedure also needs to generate variables that are valid in the sense that variables actually measure what they were intended to measure (Weber, 1990). Semantic validity is a form of validity that can be achieved when researchers with similar knowledge and expertise can reach agreement regarding the classification scheme (Krippendorff, 1980). Our classification scheme has been developed based on valuation theory[30] and accounting. Therefore we expect researchers with similar expertise and knowledge to agree with our classification scheme. As a result, a certain degree of semantic validity may have been achieved. Still, the development of the classification scheme has been far from unproblematic. Although ambiguities in the classification scheme may exist, we believe

[30] More specifically, Koller et al.'s (2010) value drivers of intrinsic value described in sections 2 and 3.

that the essence is captured for every category. To mitigate the risk of classifying references without a common meaning into the same category, we have used KWIC analysis and also classified ten reports by reading them. However, we are aware of that our definitions of the categories are open for amelioration. As highlighted by Breton and Taffler (2001) one approach to validity concerns is to refine the classification scheme into a greater number of categories with more narrow definitions. We decided against this to enable comparison with Breton and Taffler (2001). Additional suggestions for higher validity may be to interview or run surveys on a sample of analysts and also let them classify the content of some reports themselves. This would probably increase the understanding of how they differentiate between information and what information that influences them most. The sample could also have been limited to fewer reports which would enable us to read and classify the entire sample. To conduct statistical tests and make valid inferences though we decided to have a larger sample of analyst reports.

Finally, content analysis relies on the assumption that the frequency of occurrence determines the importance of different information categories and of course this may not be fully realistic (Weber, 1990). Arguably, the process of writing a sell-side report is far more complex than that. However, previous research demonstrates support in using content analysis despite its imperfections (Schipper, 1991; Bradshaw, 2011).

### 5.4.3 ROBUSTNESS OF STATISTICAL ANALYSIS

To verify our results, we ran two sets of robustness tests. In the first set of tests we dropped an independent variable due to potential multicollinearity. As a result, Profitability is now only statistically significant at a 5% level and Management & Strategy has changed sign and is now statistically significant at a 5% level from previously none. In our second application, we ran tests on a 98% winsorized data sample. By excluding outliers we were able to rule out the impact of outliers in our results. As a result, Growth is now no longer statistically significant. Our conclusion from the robustness tests is that the results for Profitability, Financial Position and Market Conditions are robust. However, the results for Growth and Management & Strategy should be considered with caution.

# 6. CONCLUDING REMARKS, LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

Research to date into what information that influences analysts' decisions is limited (Schipper, 1991; Brown, 1993; Ramnath et al., 2008). According to Bradshaw (2009, 2011) researchers have not yet managed to gain full insight into the so called *"black boxes"* of how analysts' process and select information that translates into their forecasts and valuations. By using content analysis as a methodology, researchers have made several important findings though. However, to our knowledge none of these researchers have provided any reasoning behind neither the selected time frames nor the potential effects that the time period could have on their findings. (Previts et al., 1994; Rogers and Grant, 1997; Breton and Taffler, 2001) The aim of this paper was therefore to investigate what information that influences analysts' decisions and to examine if this is affected by the uncertainty in the market. Our results indicate that certain information is given more attention in analysts' decisions. We also find that uncertainty has an influence when controlling for stocks' cyclical characteristics and brokerage firms origin.

We acknowledge that we cannot directly study analysts' decision process and that reports are not records of their decisions, but to penetrate the *"black boxes"* we use them as a proxy in line with previous research (Previts et al., 1994; Rogers and Grant, 1997; Breton and Taffler, 2001). We assume that analyst reports contain the necessary information and argumentation which translates into their forecasts, valuations and stock recommendations. From these observations, we are able to make inferences. However, an underlying difficulty with content analysis is to ensure the validity of the method. Arguably, there is an inherent trade-off between sample size and validity. Studying a smaller sample of analyst reports allows researchers to manually verify the entire classification scheme and coding of the text. On the other hand, this limits the opportunity for making statistically significant observations. In this paper the validity of the method may have suffered to enable having a large enough sample for making statistical inferences.

The extent of this paper is limited, which leaves room for further research on this topic. In this paper we can only conclude that analysts' decision process is dependent on the uncertainty in the market but not the effects. A potential extension is therefore to quantify the effect uncertainty has on valuations. Another extension of this paper would be to analyze what information that affects buy-side analysts' decision process and if these are affected by uncertainty. For example, it could be interesting to analyze how buy-side analysts use and process the reports issued by sell-side analysts. Remembering that buy-side analysts may have other incentives and motivations, we can only speculate on the results.

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Thomson Reuters Knowledge. *Thomson Reuters, (2013).* http://www.reuters.com/knowledge/corporates

World Economic Outlook Database, *IMF, (2013).*
http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/index.aspx

**Programs**

NVIVO. http://www.qsrinternational.com/products_NVivo.aspx

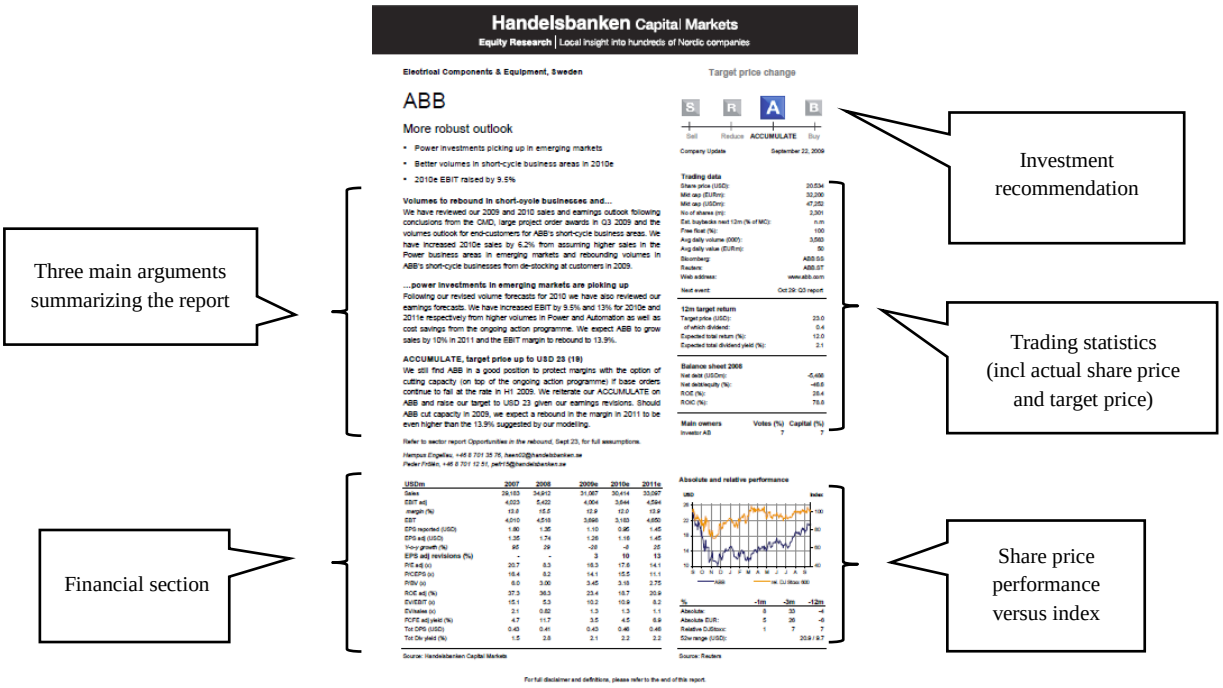
Microsoft Excel. http://office.microsoft.com/en-us/

STATA. http://www.stata.com/

# 8. APPENDIX

## Exhibit I. A typical front page of a sell-side equity analyst report

Below is a typical analyst report published by Handelsbanken on ABB. The main body contains three main arguments which are summarised in the headline of every paragraph. It also contains the investment recommendation, a target price, trading statistics including current share price, a table presenting key financials and trading multiples.




*Source: Handelsbanken, 2009-09-22.*

**Exhibit II. Cyclicality and supporting quotes**

The table shows the estimated beta values for each share compared to the OMX Stockholm All share price index. The beta is calculated on time series that have been adjusted for stock splits and share issues. The beta has then been calculated as the covariance of share price returns and market returns divided by the variance of market returns for several 60-day periods. Then the average of beta values throughout the period 2006-01-01 and 2009-12-31 has been calculated for each share.

| *Stocks* | *Beta* | *Rank* |
|---|---|---|
| Cyclical stocks | | |
| ABB | 1.27 | 4 |
| Assa Abloy | 1.11 | 5 |
| Atlas Copco | 1.43 | 1 |
| Electrolux | 1.30 | 3 |
| SSAB | 1.41 | 2 |
| Non-cyclical stocks | | |
| AstraZeneca | 0.51 | 10 |
| Hennes & Mauritz | 0.84 | 8 |
| Modern Times Group | 0.96 | 7 |
| Nokia | 0.96 | 6 |
| TeliaSonera | 0.76 | 9 |

*Source: CapitalIQ, S&P500, 2013 and OMX Stockholm 30 Index. Nasdaq OMX Nordic, 2013.*

*"As regards the sector overall, we think that the time for investors to explore investments in some of the **mid and late cycle stocks (such as ABB)** is upon us, given the huge relative share price outperformance seen by the early-cycle names since early 2008 versus the mid and late cycle names. As we show in the table below, **the same early-cycle stocks (such as Electrolux, SKF, Tomkins)** […]" (ABB, Nomura, 2009-07-24)*

*"Atlas Copco has outperformed given its good cost structure and excellent control of its operations. As we expect earnings risk to become less of a determiner of share prices, we fear that **Atlas Copco's late-cyclical profile** will weigh on the stock, especially as we expect the company's drop in earnings to be equal or larger than many of its peers." (Atlas Copco, Handelsbanken, 2009-01-20)*

*"The stock has a clear outperformer over last six months due to its defensive qualities, but as 11x 2009e earnings and 9x EV/EBIT we see these features as well discounted. **Together with its late-cyclical profile**, we recommend REDUCE with a target price of SEK 80 per share despite our DCF calculation returning a higher value." (Assa Abloy, Handelsbanken, 2009-01-16)*

*"Even though SSAB has a significant exposure to the spot market (c 75-80% of total sales) a meaningful stake of **profit (c 33%) is tied up to late cycle businesses (Mining and Energy Capex)**. (SSAB, Credit Suisse, 2009-05-01)*