

The role of investment beliefs and heuristics in corporate valuation

Qualitative
Research in
Financial Markets

Magnus Jansson

*Department of Health Sciences, University of Skövde, Skövde, Sweden, and
School of Business Economics and Law, Gothenburg Research Institute,
University of Gothenburg – GRI, Gothenburg, Sweden*

Lana Sabelfeld

*School of Business Economics and Law, University of Gothenburg, Gothenburg,
Sweden, and Stanford University, Palo Alto, California, USA, and*

Sakarias Einar Sefik Bank

Department of Health Sciences, University of Skövde, Skövde, Sweden

Received 28 August 2023
Revised 21 March 2024
22 September 2024
22 January 2025
Accepted 13 March 2025

Abstract

Purpose – The purpose of this study is to gain an understanding of the different cognitive processes of buy-side and sell-side financial analysts and their use of investment beliefs and heuristics to mitigate risk and uncertainty when analyzing companies.

Design/methodology/approach – A mixed methods approach and a thematic analysis have been conducted based on 20 semistructured interviews with both buy-side and sell-side financial analysts. Using a think-aloud technique, the respondents formulated their thoughts aloud when analyzing a company and rated the importance of different financial and nonfinancial key measures along with their preferred analysis approaches, source preferences and information usage.

Findings – Buy-side and sell-side financial analysts share similar investment beliefs. Both perceive the stock market as irrational and unpredictable. Both groups also focus on companies' nonfinancial information such as business models, ownership structure and governance while they distrust sustainability rankings. Buy-side analysts emphasized unpredictability and the limitations of expertise. Sell-side analysts focused on controlling corporate risks rather than reflecting on the limitations of the investment process to consider the systematic and inherent market risks. These differences are suggested to be explained by differences in scope and expertise – buy-side analysts being generalists and sell-side being specialists.

Originality/value – The present study is among the few that compares sell-side and buy-side financial analysts' valuation processes by using semistructured interviews and a think-aloud approach. It shows that buy-side analysts share a skepticism toward sell-side analysts' judgments and recommendations, and especially the credibility and validity of Environmental, Social and Governance issues (ESG) rankings. The study also reveals differences in cognitive approaches to valuation of companies.

Keywords Cognitive processes, Investment beliefs, Heuristics, Financial analyst, Buy-side and sell-side analysts

Paper type Research paper

© Magnus Jansson, Lana Sabelfeld and Sakarias Einar Sefik Bank. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licenses/by/4.0/legalcode>

JEL classification – G11, G41

This research was funded by Handelsbankens Research Funds, project P19-0183.



1. Introduction

There are two main research streams exploring the financial analysts in their practices. First, mainstream positivistic research studies the implications of analysts' reports and recommendations on the stock market (e.g. [Ferreira and Smith, 1999](#); [Mokoaleli-Mokoteli et al., 2009](#)). Second, interpretive studies explore how analysts value information to evaluate companies and issue prognoses and recommendations (e.g. [Spence et al., 2019](#)). This study lies within this second research stream and focuses on analysts' cognitive processes intending to investigate what regularly is referred to as the "black box" within which analysts work ([Bradshaw, 2011](#); [Brown et al., 2015](#)). Previous qualitative and experimental research has made contributions to uncovering the "black box" by focusing on the analysts' use of information for corporate analysis and valuation ([Day, 1986](#); [Barker, 1998](#); [Imam, Barker and Clubb, 2008](#); [Cascino et al., 2021](#); [Abraham and Slack, 2023](#)). While early studies considered analysts as a homogenous group ([Pike et al., 1993](#)), more recent studies have shown nuance and differences between financial analysts and fund managers (e.g. [Abraham and Slack, 2023](#)); sell-side and buy-side analysts (e.g. [Imam et al., 2008](#)); and various fund managers (e.g. [Taffler et al., 2017](#)), particularly focusing on the usage of different information sources, investment models and biases in the process of investment decision-making. Previous research within this field has mainly had economic and sociological approaches but also includes some rare cases of the use of psycho-analytic theoretical approaches ([Taffler et al., 2017](#)). This study builds on and contributes to the previous body of research by further discussing the differences between sell-side and buy-side analysts from the theoretical lens of cognitive theory, and how beliefs and heuristics influence sell-side and buy-side financial analysts' information processing. Previous research has to our knowledge not adopted the concept and framework of investment beliefs defined by [Ambachtsheer \(2007\)](#) and [Slager and Koedijk \(2007\)](#) to compare sell-side and buy-side analysts, and further, how investment beliefs and heuristics shape buy-side and sell-side financial analysts' decision-making, especially when it comes to the use of financial and nonfinancial information ([Imam et al., 2008](#)).

Previous research shows that heuristics are adopted when there are cognitive limitations (e.g. in memory or attention) to our ability to comprehend all available information and make fully rational decisions. Instead dominating beliefs and rules of thumb become a guide in the decision-making processes ([Styhre, 2020](#)). Understanding how beliefs and heuristics shape valuations and capital market decision-making is crucial, especially in the rapidly changing rhetoric of global capital markets calling for transformation toward sustainable development. This is highly relevant for financial analysts and the challenges they face in global capital market development. As previous research argues, the profession of analysts, especially sell-side analysts, meets the challenges of survival in the capital market ([Abraham and Bamber, 2017](#); [Graaf, 2018](#); [Spence et al., 2019](#)). These studies provide examples of how sell-side analysts are reframing their professional identity and practices to survive in the context of swift technological and regulatory change, illustrating that along with the professional identity and investment practice, analysts' underlying investment beliefs and heuristics may also change.

Making a distinction between different capital market information users in general ([Barker, 1998](#)) and sell-side and buy-side analysts specifically, is useful ([Imam et al., 2008](#)). Buy-side analysts are generalists, usually employed within the capital management side, within for example large institutional pension funds, evaluating corporate analysis and making forecasts for internal use ([Cheng et al., 2006](#)). In contrast, sell-side analysts are specialists employed by brokerage firms or banks and deliver their analysis and research to external clients, such as institutional and private investors ([Cheng et al., 2006](#); [Johansson, 2007](#)). Buy- and sell-side

analysts are often seen as two homogenous groups (e.g. Pike *et al.*, 1993; Cheng *et al.*, 2006; Johansson, 2007). According to Cheng *et al.* (2006), sell-side analysts are usually more optimistic in their process of corporate valuation compared to buy-side analysts. Being driven by different perspectives (generalist/specialist) and varying employment-related incentives (inside/outside investor teams), the groups are expected to use different valuation processes, which have potentially been shaped by different investment beliefs and heuristics (Cheng *et al.*, 2006; Johansson, 2007). Previous research shows for example that buy-side analysts at large investment firms make less optimistic stock recommendations than sell-side analysts, although sell-side analysts make more accurate prognoses (Groysberg, Healy, Chapman, Shanthikumar and Gui, 2007; Busse, Green and Jegadeesh, 2012; Hobbs and Singh, 2015). In the literature, it is commonly argued that the former happens as buy-side analysts face fewer conflicts of interest and that the latter is due to better incentives on the sell side (Groysberg, Healy, Chapman, Shanthikumar and Gui, 2007; Busse, Green and Jegadeesh, 2012; Hobbs and Singh, 2015). However, another possible explanation not previously addressed could be that buy-side and sell-side analysts are influenced by different investment beliefs and heuristics. This study aims, thus, to explore buy-side and sell-side financial analysts' investment beliefs, heuristics and information usage underlying the process of corporate analysis. More specifically, the objectives of this study are to explore how financial analysts as a heterogeneous group make judgments and how they value different types of information sets while making prognoses. Aligned with this aim, the study addresses the following two research questions:

- RQ1. What are the dominating investment beliefs and heuristics underlying analysts' practices of information usage and corporate valuation?
- RQ2. How do these beliefs and heuristics vary across analysts, between sell-side and buy-side contexts?

The paper is structured as follows. Section 2 presents a literature review focusing first on research on investment beliefs and second on heuristics usage. Section 3 explains the research methods. Section 4 presents the results, followed by the final discussion in Section 5.

2. Literature review

2.1 Investment beliefs

Investment beliefs are defined as investors' fundamental perception of the nature of the financial markets and serve as guiding principles for investment decisions (Koedijk and Slager, 2009; Slager and Koedijk, 2007). Ambachtsheer (2007) concisely defines investment beliefs as beliefs regarding valuations and how the financial market functions. Several researchers (Gray, 2009; Koedijk and Slager, 2011; Rozanov, 2015) use the term investment philosophy or investment beliefs interchangeably to address a collection of assumptions and beliefs that influence investment strategies and tactical asset management. However, investment beliefs are often separate from investment policy, implying that the mission and beliefs of the asset management firm underlie its more concrete policy. Lydenberg (2011) among others (Clark and Urwin, 2008; Fraser and Jennings, 2010; Woods and Urwin, 2010) perceives investment belief statements as a bridge between high-level goals and practical decision-making, helping fund managers and investors to clarify their views on the nature of the financial markets. Empirical research on the practical implications of investment beliefs is scarce but has linked the mere existence of asset management firms' published investment beliefs with superior performance (Koedijk and Slager, 2021; Ambachtsheer, 2007) has for example connected the strong precrisis performance of the Harvard endowment Management

Company and the Ontario Teachers' Pension Plan to home-grown coherent investment beliefs. In a study based on the analysis of published reports of 40 pension funds and assets management firms, [Koedijk and Slager \(2009\)](#) link investment beliefs to improved risk-return ratios. According to [Johnson and de Graaf \(2009\)](#), shared investment beliefs among investment managers and their beneficiaries may improve the ability of pension managers to meet their fiduciary obligations and decrease the risk of conflicts between the pension fund and their beneficiaries. Previous research on Swedish investors has shown that there are significant differences in the financial beliefs of industry professionals and nonprofessional investors ([Jansson et al., 2021](#)). Professionals exhibit stronger beliefs in long-term investments, in the risk-return tradeoff, and in return premium for expertise, whereas nonprofessionals are less consistent in their beliefs and susceptible to psychological bias and emotional affect ([Jansson, et al., 2021](#)). To what extent financial analysts depend on whether they are sell-side or buy-side analysts also differ in their investment beliefs is still an open question that is addressed in the present article.

Previous research on financial analysts' investment beliefs using a structured and well-defined meaning of investment belief is also scarce. Summarizing their extensive investigation of investment beliefs among large institutional investors and pension funds, [Ambachtsheer \(2007\)](#) and [Slager and Koedijk \(2007\)](#) conclude that investment beliefs may be categorized into four principal groups.

The first group addresses beliefs about how the financial markets function at large, its rationality or irrationality and how the market can be played to achieve extra return. This group of beliefs concerns, for example, the correlation between risk and return, the role of financial expertise and the advantages of diversification. The second group assesses the value added to the investment process. It outlines the necessary steps to realize the returns and attain the predetermined objectives, without jeopardizing the investment mission ([Koedijk and Slager, 2011](#)). In other words, beliefs about how the investment process should be structured ([Koedijk and Slager, 2011](#)). These investment beliefs include such issues as having a long-term investment horizon versus frequent portfolio adjustment. The third group connects to the role that an investment manager plays in creating added value for the organization and topics such as the separation between internal and external decision-making ([Koedijk and Slager, 2011](#)), and how management can promote investment effectiveness ([Rozanov, 2015](#)). The last group covers beliefs about the relationship between sustainability, corporate governance, earnings and investment returns ([Koedijk and Slager, 2011](#)). This group of investment beliefs determines the approach and weight the investor attaches to environmental, social and ethical issues in the investment process. The extent to which social responsibility investments, or ethical investments, are important and related to corporate governance and firm values are beliefs included in this group ([De Graaf and Slager, 2006](#); [Brimble et al., 2013](#)).

In this paper, we will use [Ambachtsheer's \(2007\)](#) and [Slager and Koedijk's \(2007\)](#) conceptual definition of investment beliefs and investigate how investment beliefs are represented among both sell-side and buy-side financial analysts.

2.2 Heuristics and uncertainty

In the traditional financial management literature, professional investors and financial analysts are assumed to be rational, unbiased and consistent in their application of modern portfolio theory to handle risks ([Markowitz, 1952](#)). There is a great deal of support in the finance literature that this not is the case ([Ó'Brien, et al., 2005](#)). On the contrary, financial decision-making, even among professionals, has often been shown to be influenced by intuitive rules of thumb known as heuristics ([Kahneman, 1991](#); [Kahneman et al., 1982](#)). One

of the core functions of heuristics is to diminish the complexity of a problem by neglecting some information or searching only a subset of all possible solutions (Neth and Gigerenzer, 2015). Heuristics, hence, simplify decision-making but also increase the risk of making short-term, suboptimized and biased decisions that may be detrimental to long-term strategic goals. Cognitive research separates two different types of cognitive systems: System 1, characterized by intuitive and unconscious thinking, and System 2, characterized by reflection, systematic decision-making and metacognition (Kahneman, 2011). The use of heuristics is mainly associated with the first cognitive system, System one adapted for rough judgments and intuitive decision-making in time-pressed situations, which may lead to systematic biases, especially when information is complex, abstract and uncertain.

Stock market forecasts are often based on several uncertain parameters. Predictions tend to be extrapolations of historical trends (Arnold and Vrugt, 2008; Tversky and Kahneman, 1974). At worst, forecasts are pure guesswork influenced by wishful thinking, leading analysts to look for information that confirms the initial assessment (confirmation bias) rather than fostering an unbounded assessment (Oswald and Grosjean, 2004). All too frequently, new assessments about the future are anchored in previous (anchoring effect) forecasts (Cen *et al.*, 2013). Furthermore, financial experts may be reluctant to reconsider an initial incorrect assessment and “admit” mistakes. In this regard, an initial assessment can be compared to an investment (the investment trap) in time and prestige. Reluctance to admit mistakes and revise previous judgments is also influenced by the tendency to rationalize one’s decisions afterward (Hindsight bias). Overconfidence combined with over-optimism can manifest itself in ignoring warning signals and overestimating probabilities that one is right by clinging to overly optimistic assessments. Overoptimistic future corporate value is a recurrent phenomenon in analysts’ predictions (Lin *et al.*, 2013). When uncertainty is high, the tendency to use heuristics increases (Mousavi and Gigerenzer, 2017).

On the stock market, it is especially common to follow the actions and advice of others to mitigate risks (Asch, 1952; Kahneman *et al.*, 1982). It is often perceived as less risky to follow the general market sentiment than to deviate from the crowd. Heuristics such as herding, overconfidence, representativeness, anchoring and adjustment and availability are, thus, used by investors to control perceived risks. Recent research has investigated the effect of heuristics on individual investors’ decision-making (although not specifically financial analysts) have for example shown that both private and institutional investors are prone to heuristics such as overconfidence, representativeness, availability and anchoring and that these heuristics have a markedly negative impact on investment decisions (Shah *et al.*, 2018). Baker and Nofsinger (2010) conclude that there is a strong negative relation between using “fundamental heuristics” and long-term return on investments. According to Shefrin (2007), behavioral biases are the main reason for stock investors’ irrationality and poor investment performance. A few studies have also examined the role that heuristics play in specifically financial analysts’ information processing (Ashton and Cianci, 2007; Twedt and Rees, 2012; De Franco *et al.*, 2014, 2015; Machado and Lima, 2021) although to our knowledge few studies (Ashton and Cianci, 2007) make a distinction between buy-side and sell-side analysts cognitive processes and heuristics. In Ashton and Cianci (2007) study, motivational and cognitive determinants of optimism in sell-side and buy-side analyst earnings forecasts are compared, showing that institutional incentives to be optimistic contribute to greater forecast optimism for sell-side analysts than for buy-side analysts. However, Ashton and Cianci (2007) study narrowly focused on comparing the extrapolation of trends and representativeness bias by using an experimental methodology. Contrary to Ashton and Cianci (2007), this study applies a broader view of heuristics and investigates the role of investment beliefs for both sell-side and buy-side financial analysts’ information usage.

3. Methods

3.1 *Epistemological approach*

This study approaches its field with a pragmatist paradigm, allowing the research questions to guide the methods (Teddlie and Tashakkori, 2011). In this case, a combination of in-depth interviews was used alongside survey material to gain as deep an understanding as possible of the cognitive processes of financial analysts, whether they are objective or relativistic.

The respondents likely have very differing views and understandings of financial analysis and stock market predictions and evaluations based on their experience in the field, and whether they worked as sell-side or buy-side analysts. Because of the ontology, student samples are insufficient, and only stock market analysts will have the necessary knowledge and understanding of the problem to give thoroughly thought-out answers based on the complexities of their career experiences. Qualitative methodologies are useful when the aim is to understand cognitive processes, which requires an in-depth understanding of reasoning or content analysis to map patterns in reasoning. This study sets out to do both. Within this study, a mixed methods approach is used, with a focus on qualitative methodologies, interactively using both data collection methodologies (Teddlie and Tashakkori, 2009).

An abductive coding scheme was established and maintained with *a priori* categories developed ahead of the coding and extraction of data. No a-priori subthemes were established to make sure the data guides the conclusion, rather than allowing the researcher's conclusions to guide the use of data (Teddlie and Tashakkori, 2009). Further to the pragmatist paradigm, different information types are presented to be discussed by respondents. The intention for the semistructured interviews was for the respondents to discuss their investment strategies and decisions freely, but also to describe their strategies and decisions in some detail. See [Appendix](#) for the full interview guide.

3.2 *Procedure for data collection*

The study targeted Swedish financial analysts with experience in corporate analysis employed as either buy-side or sell-side analysts working for private or institutional organizations. A list of potential participants was developed based on the members list of the Swedish Investment Fund Association (Fondbolagens förening, 2023). The recruitment process was initiated by phone calls to prospective participants alongside e-mails containing information about the purpose of the project, and an information sheet.

Three interviews were done by phone, and 17 using digital communication tools such as Zoom. Interviews were recorded using audio recorders and internal functions in the digital tools, and field notes of keywords were collected during the interviews. During interviews, respondents were asked to describe their analytical process and think aloud about how, and if possible, to use an example of a stock they either previously or currently worked on. They were asked to simulate the financial analysis while looking at stock data, describing and formulating aloud their thoughts. Observing how quickly and in what way the respondents formulated their answers regarding what they did and how they used information, helped us to capture heuristic biases. Answers that came quickly with a high degree of certainty and without reflections and further explanations were interpreted as heuristics. This technique encouraging the respondents without self-censorship to formulate their reasoning is called a think-aloud-technique (Charters, 2003). Respondents were also asked to rate different types of financial and nonfinancial information in terms of usefulness. They were provided lists of common financial and nonfinancial information types and were asked to give snap judgments of the different information types based on importance to their usual analytical methodology. The interviews took on average 36 min. After analysis, no new themes were discovered, and data saturation was achieved. According to Francis *et al.* (2010) setting, a minimum sample

size for interview studies at 13 is very likely to capture most of the important information and reach data saturation. Marshall *et al.* (2013) further describe qualitative sample size in relation to grounded theory and phenomenological studies but showed that only a very limited number of new codes or code modifications were generated after 13 and 19 interviews, respectively. Even though 30 interviews were recommended, theoretical saturation was usually found between 10 and 30 interviews. In total, 20 interviews were done within this study. On average, the respondents had 16.1 years of experience as financial analysts. On average, buy-side analysts had more experience (18.3 years) than sell-side analysts (14.6 years). Only one of the 20 respondents was female (see Table 1).

3.3 Analysis

A thematic analysis was conducted alongside a content analysis with *a priori* main categories where codes relating to the themes were extracted and then arranged into the categories. The first *a priori* theme relates to so-called “investment beliefs” and contains concepts such as believing the market to be rational and efficient, believing that long-term investments are better, and believing that taking risks is key to gaining higher returns (Slager and Koedijk, 2007; Jansson, Hemlin, Sonsino and Trönnberg, 2021). The second and third *a priori* categories relate to the information types that respondents find key during the financial evaluation of corporations, with the second category covering financial information usage and the third covering nonfinancial information usage. The fourth category is related to mentions of cognitive heuristics based on previous experience used by hedge fund investors. The fifth category covers the so-called analytic frame and contains discussions around, for instance, the analysis framework, financial modeling or information sources respondents use.

Table 1. Respondents interviewed, and key demographic information

ID	Experience in years	Interests	Buy/sell side	Gender	Organization
1	16 years	Tech	B	M	Institutional pension fund
2	10 years	Swedish stock	B	M	Institutional pension fund
3	15 years	Large cap	B	M	Institutional pension fund
4	N/A	Swedish stocks	B	M	Institutional pension fund
5	10 years	Small cap, Sweden	B	M	Private fund company
6	28 years	All, mainly Swedish	B	M	Private fund company
7	11 years	Mainly large cap, tech	B	M	Private fund company
8	31 years	Small cap, Sweden	B	M	Private fund company
9	25 years	Small cap, Sweden	B	M	Private fund company
10	25 years	N/A	B	M	Private fund company
11	25 years	Large cap, mainly USA	B	M	Private fund company
12	18 years	Large, mid cap	B	M	Institutional pension fund
13	6 years	Small cap, Sweden	B	M	Private fund company
14	5 years	Small cap, Sweden	S	F	Institutional pension fund
15	7 years	Banks and finance	S	M	Private fund company
16	7 years	Swedish market	S	M	Private fund company
17	1 year	Nordic banks	S	M	Investment bank
18	25 years	Nordic banks	S	M	Investment bank
19	23 years	Mid cap industry Nordic	S	M	Investment bank
20	34 years	Large cap industry, Nordic	S	M	Private fund company

Note(s): Experience, key investment interests, type of organization of respondents

Source(s): Authors’ own creation

Once transcribed, the researchers familiarized themselves with the material by reading it and then started generating codes based on the same *a priori* inductive theme structure as in the content analysis but leaving the opportunity open for new themes to be generated. The *a priori* theme structure is based closely on the research questions, as is typical for a thematic analysis (Braun and Clarke, 2006). As codes were generated, they were also interpreted and categorized into subthemes and themes, and a numerary content synthesis was conducted.

Further to this, a matrix [1] has been created with the key patterns in processes, priorities and heuristics based on the work context of the analysts. These cognitive processes have been compared by looking at identifying factors of sell-side and buy-side analysts. The intention was to search for certain set categories to answer research questions but not to limit the data from informing the development of further themes, using an abductive coding approach without *a priori* subthemes, to make sure the data guides the conclusion, rather than allowing the researcher conclusions to guide the use of data (Teddlie and Tashakkori, 2009).

4. Results

To answer the first research question (What are the dominating investment beliefs and heuristics underlying financial analysts' practices of information usage and corporate valuation?), a summary content analysis has been conducted for the entire sample. The overview of the analysis is presented in Figure 1, covering codes related to the five main themes.

In summary, respondents generally focused a lot on controlling risk, the time horizon of potential investments, their own and others' expertise or lack thereof and the rationality or lack of rationality of the market. Diversifications of portfolios were rarely discussed, and the interaction between risk and return was not mentioned at all.

Respondents also often discussed how uncertainty was a key factor in their work, and showed some tendencies to use representativeness heuristics, specifically through initially and primarily focusing on information that they, through extensive experience, have found to be previously important. They also discussed information sets that they found flawed or showed distrust toward certain information sources. In several cases,

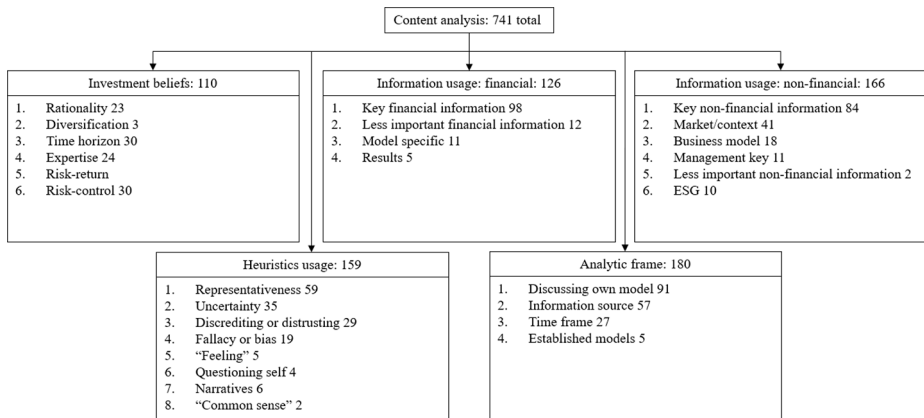


Figure 1. A coding scheme of the key themes and subthemes of this report

Note(s): The coding scheme also contains a numerary content analysis. These numbers refer to the prevalence of each main theme and subtheme

Source(s): Authors' own creation

respondents also described how they focus on a narrative, extrapolated trends, or how they trust common sense.

4.1 Investment beliefs

To explore and understand the investment beliefs of financial analysts, the first category (investment beliefs) is looked at in depth. In total, six investment beliefs were identified: namely, beliefs about rationality, diversification, time horizon, expertise, risk-return correlation and risk control. Their occurrence in the interviews is presented in Table 2, which further enables comparison between sell-side and buy-side analysts.

4.1.1 Rationality. Rationality as an investment belief refers to a key perception that the stock market is rational and efficient according to the efficient market hypothesis (Fama, 1970). Investors who believe that the stock market is rational are less likely to be sensitive to short-term fluctuations and sentiments and, hence, would be more likely to invest long-term (Slager and Koedijk, 2007; Jansson *et al.*, 2021). Only a few respondents seem to deem the market inherently rational. Instead, respondents often described the market as emotionally driven, and short-sighted and the market in general as inherently unpredictable and labeled investments in terms of like “a game”¹. This points toward respondents being aware of potential pitfalls (e.g. governance risks, bounded rationality, short-termism of the market), and aligns well with wanting to mitigate risks. No systematic differences were found between buy-side and sell-side analysts.

Nr	Participant	Category	Subtheme	Code
1	4	Investment beliefs	Rationality	“In terms of stock development, it’s a bit like a game. You don’t know what is going to happen”

4.1.2 Diversification. Diversification is the belief that diversification of risks is essential to achieve the best risk-return ratios. Within this study, respondents are asked to describe how they analyze individual corporations rather than a portfolio of different stocks. Hence, diversification in this case refers to the diversification of corporate business models or product portfolios. When discussed, a diverse product portfolio or business model was something respondents looked for. It is surprising that diversification was not brought up by either buy-side or sell-side analysts more often as risk reduction was a widely discussed topic throughout the interviews.

4.1.3 Time horizon. Time horizon refers to beliefs about the correlation between the investment horizon and the expected risk-adjusted return. Strong beliefs in a positive correlation between the length of the investment horizon and the risk-adjusted return on

Table 2. Codes related to investment beliefs, split between sell-side and buy-side analysts

	Total <i>n</i> = 110	Sell-side <i>n</i> = 42	Buy-side <i>n</i> = 68
1. Rationality	23	6	17
2. Diversification	3	2	1
3. Time horizon	30	12	18
4. Expertise	24	1	23
5. Risk-return			
6. Risk-control	30	21	9

Source(s): Authors’ own creation

QRFM

investments should, thus, encourage investors to take a long-term view of their investments. However, within this study, the respondents do not invest but rather create prognoses. Hence, time horizon codes often refer to respondent prognosis windows or estimate horizons. Within the sample, time horizons ranged from six to nine months² to several years³ regardless of if they were buy-side or sell-side analysts.

Nr	Participant	Category	Subtheme	Code
2	17	Investment beliefs	Time horizon	"I have a fairly good visibility from 6–9 months"
3	4	Investment beliefs	Time horizon	"We judge what the company is worth right now, and then calculate their value in 3–4 years"

4.1.4 Expertise. Expertise refers to the connection between beliefs in market rationality and the weight of expertise, and especially the role of expertise in reaching high risk-adjusted returns. Expertise is especially prevalent in the buy-side group of this study. Within this study, respondents rarely described a belief in a rational market although no cases were found where respondents stated that expertise is unimportant. More prevalent, however, was critique or skepticism toward sustainability rankings⁴ or sell-side prognoses⁵ from within the buy-side group. Buy-side analysts also more frequently underlined the inherent systematic risks of the stock market.

Nr	Participant	Category	Subtheme	Code
4	1	Investment beliefs	Expertise	"They don't even talk to the companies, so you have no idea where the output comes from"
5	3	Investment beliefs	Expertise	"If you're asking about recommendations and so on, we don't usually bother with them – it doesn't matter if they say buy or sell"

A key difference is the way expertise was discussed. Within this study, expertise has mainly appeared as buy-side analysts not putting much faith in reports and recommendations⁶.

Nr	Participant	Category	Subtheme	Code
6	11	Analytic frame	Distrusting or discrediting information	"So I want to do more than just listen to someone sell-side that mentions some key figures and tells me this is a cheap price"

4.1.5 Risk-return. Risk-return refers to the belief that to achieve higher awards, higher risks need to be taken. No respondents inferred that taking higher risks may lead to higher gains. This may again relate to the fact that the respondents worked with analysis rather than fund management. Several respondents instead explained a need to mitigate or minimize risk. Risk return should be a key investment belief among fund managers but may not have been so with financial analysts, especially not sell-side analysts who rarely have to take portfolio management risks themselves.

4.1.6 Risk-control. Risk control refers to the belief that risk can be controlled. The interviewed sell-side analysts focused more often on factors that mitigate risks (see Table 2). Three of the interviewed sell-side analysts worked for investment banks. The banking sector has strict regulations to mitigate risks, and the respondents often described ESG as a measure

for these risks⁷. Sell-side respondents also described how buy-side analysts don't have to consider regulation around risk mitigation to the same extent, and further how they don't have supporting official documents to help with this process⁸.

Nr	Participant	Category	Subtheme	Code
7	15	Investment beliefs	Risk-control	"The way I see it, ESG is a measure of risk. How large is the risk for different scandals?"
8	16	Investment beliefs	Risk-control	"Buy-side doesn't have a... they have a form of internal process, ours is a type of way for those who pay for official documents to cover their back. In the same kind of way that banking has had to go through compliance regulation over the past ten years"

To conclude, both groups perceive the stock market as irrational although buy-side analysts are less confident than sell-side analysts in the importance of financial expertise and in the ability for investors to control risks. Furthermore, sell-side analysts are more concerned about mitigating risks than buy-side analysts, although that may be related specifically to the group of investment bank analysts within this sample, and the regulation they face in their field.

4.2 Information usage

Two main types of information usage are covered in this study, financial and nonfinancial. Out of the two, nonfinancial information sets were the most discussed. Table 3 covers the different types of nonfinancial information that were brought up most often. In general, nonfinancial information about a company was described as important 84 times but buy-side analysts described this information type to a greater depth and mentioned its importance to a far greater degree.

Respondents often described how nonfinancial information was key⁹, and how nonfinancial information was what they started their analysis by looking at¹⁰. Discussions around the wider investment context and market were especially frequent. Respondents often discussed factors such as competitors, future market outlooks and regulation (national and international) as important dependent on the industry branch of the company. Some companies and industries were seen as having a lower rate of change, which was seen as bad in terms of investment potential, but an advantage in terms of risk management¹¹. Of further interest is the frequent attention paid to the market/context and business model of the company. Both of these could be seen as examples of heuristics, expecting companies in

Table 3. Codes relating to nonfinancial information usage, split between sell-side and buy-side analysts

Type of nonfinancial information	Total <i>n</i> = 166	Sell-side <i>n</i> = 26	Buy-side <i>n</i> = 140
1. Key nonfinancial information	84	3	81
2. Market/context	41	12	29
3. Business model	18	4	14
4. Management key	11	2	9
5. Less relevant nonfinancial information	2	0	2
6. ESG	10	5	5

Source(s): Authors' own creation

QRFM

typically reliable industries and with typically successful business models to do well, and expecting companies that have done well in the past to continue doing so.

Nr	Participant	Category	Subtheme	Code
9	7	Information usage: nonfinancial	Key nonfinancial information	“For the judgment of the company, I’d probably say 50/50. Well, in terms of time spent, I do believe we spend more time on the qualitative than we do on the numbers. At that point then maybe 70/30”
10	2	Information usage: nonfinancial	Information usage: nonfinancial	“What we do always start with the non-quantitative, so to say. And it’s all about common sense really, trying to understand a company and so on”
11	2	Information usage: nonfinancial	Market/context	“That industry has a fairly low rate of change, and in part the market is stable... .you do the same thing today that you did five years ago, and it’s probably going to be the same in five years as well”

Further of note is the perceived weight of the business model of the company¹². Respondents felt it very important to understand how the company made money and whether the scale of the model could reach sustained growth¹³. Information about the market and industry seems to have played a part in understanding the company, while information about ESG and sustainability seems more tightly connected to corporate governance and risk management.

Nr	Participant	Category	Subtheme	Code
12	2	Information usage: nonfinancial		“Non-financial information is also very important in many of the cases where these things are judged. And the key thing is: can I understand the company? What is the management like? What do I think of the business model?”
13	14	Information usage: nonfinancial		“At that point getting a deeper sense of the business model and the market”

The less discussed but still highly valued information type was financial information. [Table 4](#) describes subthemes and codes related to discussions around financial information. Again, buy-side analysts described their usage of the information category to a greater depth than sell-side analysts and did not discuss less important financial information at all.

Table 4. Codes relating to financial information usage, split between sell-side and buy-side analysts

Type of financial information	Total $n = 126$	Sell-side $n = 17$	Buy-side $n = 109$
1. Key financial information	98	14	84
2. Less important financial information	12	0	12
3. Model specific	11	3	8
4. Results	5	0	5

Source(s): Authors’ own creation

In most cases, the respondents considered the same factors (e.g. Industry information, Annual results, Earnings Per Share and Management) to be of high importance, and the same (e.g. Sustainability Ranking and EV sales) as less important. In Table 5, ratings of the financial measures' importance by sell-side and buy-side analysts are presented. A Mann-Whitney *U* test yielded significant or close to significant differences between the groups for Revenues, earning per share (EPS) Ebit and Return On Capital Employed (ROCE). While the former three are rated as more important by sell analysts, ROCE is indicated to be a more important financial measure for buy-side analysts.

A further difference is the use of specific and established analysis methods. The sell-side analysts described using established models, while buy-side analysts often described a preference for the development of their models.

On several occasions, sell-side analysts brought up compliance and regulation¹⁴. ESG varied wildly in its self-reported importance. Most analysts were in general skeptical regarding the reliability of ESG-rankings¹⁴.

Nr	Participant	Category	Subtheme	Code
14	3	Analysis frame	Distrusting or discrediting information	"In our team, we don't look at them (sustainability rankings) because we don't find them good. In part because they lag a bit, and in part because they can be based on opinion"

However, when ESG was described as a measure of risk, it was deemed highly important for both groups¹⁵.

Nr	Participant	Category	Subtheme	Code
15	16	Analytic frame	Own model	"And that is to do with compliance (within banking), how the rules look: to reach a price target, analysts use established models such as DCF or multiple evaluations"

In summary, both sell-side and buy-side analysts described in depth the role of nonfinancial information in their analysis. The discussions largely point toward nonfinancial analysis being more demanding in terms of energy and resources. Sustainability rankings were generally considered less useful, and a lot of the analysts had their own sustainability criteria. It is important to mention that sustainability rankings were seen as generally more useful for large capital companies, even as most analysts agreed that the criteria were confusing (e.g. in how smaller companies got poor grades, while international energy companies got good grades)¹⁵. Both groups also highlighted cash flow as central although sell-side analysts more frequently mentioned financial information as central in their analysis. In terms of financial information, most respondents considered the same factors (e.g. EPS, D/E and ROE) to be of high importance, and the same (e.g. EV/Sales and Dividends) as less important although revenue is generally seen as less important but more so by buy-side analysts. Sell-side analysts generally considered industry information, management and market prospects as far more valuable than buy-side analysts did. These differences can be explained by sell-side analysts being specialists (Cheng *et al.*, 2006; Johansson, 2007; Imam *et al.*, 2008) who focus on specific industries that they follow over time. This explains their high interest in updated industry information including management and

Table 5. Mean (M) sell-side and buy-side analysts ratings of importance (from 1 = not important to 10 = very important)

Financial information	Sell-side $n = 7$	Buy-side $n = 13$	Total sample $n = 20$	Kruskal–Wallis U
	M	M	M	significance tests $U(2, 19)$
Revenues	9.00 (1.41)	6.54 (2.93)	7.40 (2.74)	21.00, $p = 0.048^{**}$
Annual results	8.57 (2.30)	7.31 (2.50)	7.75 (2.45)	28.00, $p = 0.183$
Profit margins	5.50 (3.88)	7.82 (2.52)	7.00 (3.16)	43.00, $p = 0.350$
EBITDA	6.00 (4.58)	7.00 (2.76)	6.61 (3.48)	42.00, $p = 0.791$
EPS	9.17 (0.98)	7.09 (2.62)	7.82 (2.38)	11.50, $p = 0.027^{**}$
P/E number	7.17 (3.31)	5.70 (2.75)	6.25 (2.95)	19.00, $p = 0.263$
ROCE	3.33 (3.93)	7.00 (2.68)	5.84 (3.48)	59.50, $p = 0.072^*$
EVsales	3.50 (3.99)	2.80 (2.74)	3.06 (3.15)	28.50, $p = 0.875$
EVebit	7.67 (3.83)	5.33 (1.94)	6.27 (2.96)	9.50, $p = 0.036^{**}$
ROE	7.50 (2.04)	6.23 (2.78)	6.63 (2.24)	24.50, $p = 0.210$
D/E	6.50 (3.56)	6.42 (3.40)	6.44 (3.35)	35.50, $p = 0.964$
Dividend	5.71 (2.87)	4.15 (3.62)	4.70 (3.39)	33.00, $p = 0.351$
EBITA	5.43 (4.39)	6.25 (1.50)	5.73 (3.52)	15.00, $p = 1.00$
Industry information	9.00 (1.00)	7.58 (1.93)	8.11 (1.76)	23.50, $p = 0.120$
ESG	6.57 (2.57)	7.62 (3.23)	7.25 (2.99)	58.50, $p = 0.311$
Sustainability ranking	1.20 (1.09)	1.60 (2.67)	1.47 (2.23)	18.50, $p = 0.440$
Age and history	5.60 (3.65)	5.17 (3.30)	5.29 (3.29)	28.50, $p = 879$
Ownership	7.33 (0.52)	6.75 (3.33)	6.94 (2.67)	42.00, $p = 0.616$
Management	7.50 (1.52)	7.92 (2.10)	7.79 (1.90)	48.00, $p = 0.467$

Note(s): * = $p < 0.10$; ** = $p < 0.05$

Source(s): Authors' own creation

market prospects that help sell-side analysts to make comparisons between fundamental value with the market value of a company in the process of producing recommendations (buy/hold/sell).

4.3 Heuristics

Heuristics within this study refers to any point where respondents described preconceived assumptions, acting on feeling or “common sense,” narratives they believed in or wanted to act upon, or using rules of thumb to handle uncertainty inherent in the situation. On several occasions, it also relates to established praxis or acting on experience in situations where not all information can be analyzed, so respondents have had to choose salient information or information that they know to be key through their expertise or the expertise of others. Respondents are unlikely to be fully aware that they are acting based on heuristic thinking but will instead frame this in other ways. Different types of information or statements from the respondents may be connected to the use of cognitive heuristics, key among them were statements related to the inherent uncertainty of the analytical context, discrediting or distrusting or the application of heuristics that may contain biases. Table 6 covers codes relating to heuristics and biases and contains a split between sell-side and buy-side analysts, enabling a comparison of the two groups.

Of importance is the perceived uncertainty in the investment setting. Citations were coded as heuristic-uncertainty when connected to, for instance, systematic assumptions about a given situation. Several codes also related to doubt or other emotions based on the source of

Table 6. Codes relating to heuristics and biases, split between sell-side and buy-side analysts

	Total n = 159	Sell-side n = 32	Buy-side n = 127
1. Representativity	59	16	43
2. Uncertainty	35	4	31
3. Discrediting or distrusting	29	6	23
4. Fallacy or bias	19	2	17
5. "Feeling"	5	1	4
6. Questioning self	4	0	4
7. Narratives	6	3	3
8. "Common sense"	2	0	2

Source(s): Authors' own creation

the information, as in the case where a respondent did not want to use social media as a source of information because of the inherent complexity of that information¹⁵.

On several occasions, respondents found certain information sets to be irrelevant or poorly constructed. This was the case, especially concerning sustainability rankings¹⁶, but also related to, for instance, recommendations from other analysts. Respondents often felt confident that published sustainability rankings (e.g. those done by Morningstar or Sustainalytics) were erroneous or done without complete and updated information.

No.	Participant	Category	Subtheme	Code
176	1	Heuristic	Discrediting or distrusting	"The companies that set the rankings don't know what they are doing"

Respondents often described the use of a heuristic where they either feared being biased in connection to their use of heuristic models or had perceived others as being biased in their views of a certain type of information. One respondent described a perceived tendency among sales side analysts to be conservative in their recommendations to save face¹⁶. Another clear case was where an analyst described a fear of confirmation bias influencing their work¹⁷. This shows an awareness with at least some analysts that heuristics can be connected to a certain risk of bias, which in turn may lead to mistakes or erroneous assumptions in the analysis process.

Nr	Participant	Category	Subtheme	Code
16	1	Heuristics	Heuristic judgement	"And sometimes it's the case that analysts are a bit too slow. It is much more difficult to, as a sell-side analyst, to write up. If you end up being wrong, you can wind up profits by 50%. If you're wrong, you risk looking stupid. So, people sometimes write up by 25% initially and then look at what others do"
17	5	Heuristics	Heuristic judgement	"Confirmation bias can be very dangerous, so I try very hard to avoid it"

Several respondents described how they put higher trust in companies in stable well-performing markets¹⁸ and with reliable business models¹⁹. This can be attributed to representativeness heuristics, as respondents saw certain nonfinancial and nonquantitative factors as positive. Further to this, respondents on occasion described an expectation for

QRFM

companies and industries that have performed well in the past to continue doing so¹¹, a potential example of availability bias or “hot hand fallacy” (Ayton and Fischer, 2004). It is important to mention that heuristics are not always irrational and problematic, but often come from praxis or years of experience. These types of heuristics will often guide decision-makers to correct judgments while saving resources and time and, hence, are adaptive and rational. Analysts will have to apply some heuristic models to make timely judgments, and as argued by Gigerenzer and Gaissmaier (2011), ignoring part of the information may lead to more accurate judgments as compared to weighting and adding all information.

Nr	Participant	Category	Subtheme	Code
18	2	Heuristics	Representativeness	That industry has a fairly low pace of change, and the market is pretty stable... you do things the same way you did five years ago, and it's probably going to be the same in five years too"
19	4	Heuristics	Heuristic judgement	"I start out looking at the business model of the company"

4.4 Analytic frame

The analytic frame extends the discussion about heuristics by describing explicit information about the respondent's analysis models, sources and time frames of their analytic horizons, which differs from investment horizons as it connects to how far into the future analysts perceive themselves to have good visibility in their estimates. Table 7 illustrates the key subthemes relating to the analytic frame of respondents. They often discussed creating their analytical models, and how they tailor their analysis. This was common among both types of analysts, but especially so among buy-side analysts. Sell-side analysts were the only ones who sometimes had to use established models such as growth at a reasonable price (GARP) or discounted cash flow analysis, specifically those sell-side analysts working for investment banks, which are highly regulated. Respondents also often discussed the information sources they trusted and how long into the future they tried to predict a stock.

The main segment of this theme covers reasoning around analytical models. Some respondents had a more qualitative focus while others had a heavily quantitative focus. Most codes in this theme cover the advantages or flaws of their own models. Some models were described as very simple²⁰, while others were complex. Some models also focused on pure quantitative information²¹.

Nr	Participant	Category	Subtheme	Code
20	5	Analytic frame	Discussing own model	"This is the model I use because you get an oversight very quickly"
21	12	Analytic frame	Discussing own model	"It is a bit of a requirement in our process that you can quantify and not make subjective judgments of stocks"

There was a tendency for buy-side analysts to prefer creating their analytical models, whereas sell-side either preferred to or had to use established models (e.g. “discounted cash flow,” “growth at a reasonable price”) due to regulation, for instance in public investment corporations. Furthermore, buy-side respondents focused more heavily on describing their different sources.

Table 7. Codes relating to analytic frame, split between sell-side and buy-side analysts

	Total <i>n</i> = 180	Sell-side <i>n</i> = 55	Buy-side <i>n</i> = 125
1. Discussing own model	91	27	64
2. Information source	57	11	46
3. Time frame	27	12	15
4. Established models	5	5	0

Source(s): Authors' own creation

The second most discussed subtheme connected to the analytic frame relates to how and where respondents gathered information. Most of their sources depended on the type of analysis they did. Most respondents used a combination of qualitative and quantitative analysis and got their information from a combination of sources. This often includes corporate documents (e.g. annual reports), financial media (e.g. Bloomberg²²) and conversations with the company²³. Respondents also described conversations with other sources, such as clients. Respondents also discussed the believability and risk of bias inherent in some sources, such as corporate management²⁴, and discussed steps they took to reduce this risk, for instance by not using sources perceived as containing bias or by comparing statements to nonbiased sources.

Nr	Participant	Category	Subtheme	Code
22	3	Analytic frame	Information source	"We use Bloomberg, they have everything we need, we also have contact with all the banks, absolutely, and we have all their portals and information..."
23	4	Analytic frame	Information source	"We also talk to the clients of the company, and other parties that could provide relevant information, but that you won't find in public corporate reports"
24	9	Analytic frame	Information source	"The most important sources are the ones that don't have an interest, that aren't biased so to speak. Corporate management is deeply biased, so we don't trust everything they say"

The second research question (How do these beliefs and heuristics vary across analysts, between sell-side side and buy-side contexts?) requires a closer look at the two groups of analysts. [Figure 2](#) presents the key differences between the two groups of analysts.

In summary, buy-side respondents talked more about the role of expertise and questioned its value, while sell-side respondents focused on mitigating risks and discussed risks more often. Discussions around and examples of heuristics were also more common with buy-side respondents, who also showed more sensitivity to uncertainty and awareness of the risks of heuristics and biases.

5. Discussion

This study addressed two interconnected research questions. The first research question explores the dominating investment beliefs and heuristics underlying financial analysts' practices of corporate valuation and information usage. Out of the six included investment beliefs, some fundamental investment beliefs were shared across the two groups, buy-side and sell-side analysts. Both groups struggled with the rationality of the stock market, and to

	Buy-side	Sell-side
Financial		EPS and P/E higher in self-rated decision weight
Non-financial	Consider non-financial factors slightly more.	Branch information rated somewhat higher than with buy-side analysts. Considered ESG a measure of risk.
Investment beliefs	Focused heavily on expertise as a factor in analysis, especially on limited expertise from sell-side analysis and sustainability rankings.	Focused on mitigating risks, generally discussed risks more often.
Heuristics	Heuristics and biases more prevalent with buy-side analysts.	Heuristics and biases rarely described. Uncertainty also less prevalent.
Analytic frame	Discussed their sources to a greater extent.	More frequently explicitly used established analysis model (DCF, GARP).

Figure 2. Matrix containing the key observed differences in perspectives, reasoning, heuristics and self-reported information usage between sell-side and buy-side analysts

Source(s): Authors' own creation

grasp the market unpredictability and irrationality. Still, they repeatedly expressed their reliance on the historical performance of stocks and that companies showing good results will continue to do so in the future. Extrapolating previous trends into the future was, thus, one important underlying heuristic frequently expressed by both sell-side and buy-side analysts. Extrapolation of trends can be attributed to representativeness heuristics and the expectation that companies and industries that have performed well in the past will continue to do so in the future (Aytton and Fischer, 2004). Both groups also expressed an awareness that there is always a risk for confirmation bias, the risk that conclusions are made before the analytic process, and that the process simply confirms the original assumptions. Furthermore, analysts are indicated to undervalue the expertise of other financial analysts and sustainability rankings as useful sources of information while they put more weight on original sources (e.g. corporate official reports) and their own analysis. Although financial analysts showed awareness of risks and described a belief that risks can be mitigated through ESG factors or regulation (policy or law), they expressed little trust in the validity of sustainability rankings.

The second research question addressed was how investment beliefs, information usage and heuristics vary across buy-side and sell-side analysts. Previous research has shown that buy-side analysts at large investment firms make less optimistic stock recommendations than sell-side analysts although sell-side analysts make more accurate prognoses (Groysberg *et al.*, 2007; Busse *et al.*, 2012; Hobbs and Singh, 2015). In the literature, it is commonly argued that the former is due to buy-side analysts facing fewer conflicts of interest and that the latter is due to sell-side analysts' having better incentives (Groysberg *et al.*, 2007; Busse *et al.*, 2012; Hobbs and Singh, 2015). However, another possible explanation not previously suggested could be that sell-side and buy-side analysts endorse different sets of investment beliefs. Sell-side analysts, as specialists, clearly express more optimistic beliefs in financial measures but also in their own ability as experts to control investment risks while buy-side analysts focus more on nonfinancial information. The latter emphasize risks inherent to the stock market are more skeptical toward the value of expertise, and are more aware of heuristics and biases that threaten their objectivity to evaluate companies and stocks. Although both groups used nonfinancial information, buy-side analysts mentioned nonfinancial information to a higher degree, while sell-side analysts focused more specifically on market/context information and business model information. Furthermore, there is an inherent heuristic anchoring structure to how respondents rated financial information differently based on previous experience and adapting information preferences

based on industry and company size. This is a type of constructivist approach to information. Anchoring heuristics also plays a natural role in financial analysis as analysts attempt to extrapolate based on previous results and current trends. A further noteworthy difference was that buy-side respondents more often reflected on their own internal uncertainty and risk of bias, while sell-side respondents were more heavily focused on the risks of the company. While buy-side analysts often described and underscored a lack of certainty, this was more often connected to corporate governance risks or a lack of information. On the other hand, risk control seems to be more important to sell-side analysts, who often believe that risk factors (rather than risks themselves) have the most key impact on the process of analysis. These differences can be explained by the differences in scope and expertise between the two groups – buy-side analysts being generalists and sell-side being specialists in specific sectors (Cheng *et al.*, 2006; Johansson, 2007). But may also be seen in the perspective that sell-side analysts in general have a stronger belief in financial expertise and confidence in their ability to control risks.

Notably, sell-side analysts described ESG as a measure of corporate risk. The self-reported decision weight by buy-side analysts, when ESG is a measure in prognoses, was often perceived as less important, but the Governance dimension of ESG was deemed very important. Sell-side analysts have recently been challenged by the technological and regulatory developments on the market and reframed their professional identity towards a wider field of investment advice and communications (e.g. Graaf, 2018; Spence *et al.*, 2019). At the same time, buy-side analysts tend to construct their own models for the evaluation of ESG as they do not trust ESG rankings. For the buy-side analysts, the expertise behind the ESG rankings was perceived as low, in the same way as they showed distrust of the expertise of the sell-side analysts. Thus, buy-side analysts seem to have a strong contextual dependency.

5.1 Limitations and future research

In general, this study confirms and details further that there is a general distinction between sell-side and buy-side analysts. Moreover, the results show that there are also some differences within the group of buy-side analysts. According to the previous research, buy-side analysts are conceptualized as generalists (Cheng *et al.*, 2006) in contrast, sell-side analysts being specialists (Cheng *et al.*, 2006; Johansson, 2007). However, the research may have identified two distinct subsets within the group of buy-side analysts, which opens for further analysis of different perspectives within the group. Some members of the buy-side group worked for public fund management institutions (e.g. national pension saving funds), and there seems to be a certain subset of demographic, behavioral and cognitive signifiers (e.g. being less experienced, preferring to create their own analysis models rather than using established models such as Discounted Cash Flow or GARP, being more risk avert) that separate these analysts from other buy-side analysts. Further research into this potential third distinct type of analyst and how their beliefs may differ. Extending this, future researchers should investigate the role of legislation and regulation upon heuristic usage among these types of analysts working for large public pension funds.

We also call for future research to test patterns in investment beliefs and heuristics between sell-side and buy-side analysts through quantitative and causational methods. This study has functioned as an exploratory first step to understand such mechanisms, but inference is necessary to make the results useful. Further studies of risk-return beliefs could also be useful in other countries with prudent institutional financial regulation and legislation.

Finally, the study has practical implications for business school education, highlighting variations between sell-side and buy-side analysts. This knowledge will hopefully enhance business school students' understanding of the diverse beliefs and heuristics shaping different groups of analysts' approaches to information usage in the corporate valuation process. The roles of buy-side and sell-side analysts influence information usage, and it is crucial for finance students (the future capital market actors), to be aware of this dynamic, ultimately contributing to a better-functioning capital market.

5.2 Conclusions

The main two differences between the included groups are found to be in terms of the difference in investment beliefs between sell-side and buy-side analysts. Sell-side analysts were more focused on controlling for risks, and especially the governance component of ESG. Several sell-side analysts reported that their main function is reducing uncertainty by giving as valid an estimate as possible. Furthermore, buy-side analysts often voiced distrust in both other analysts and the market itself.

Further to this, scepticism was voiced both toward sell-side analysts and sustainability analytics and rankings and buy-side analysts often described a lack of expertise of sell-side analysts. This is especially evident with small capital companies in the Swedish markets, due to the limited resources and inability to deliver timely information. Most respondents often created their own analytical models over established valuation models such as discounted cash flow analysis. These were often seen as blunt instruments. More sophisticated qualitative instruments for the measurement of ESG are still needed to increase quality in standardized ESG evaluation, as there is a substantial lack of faith in the reliability and validity of the existing instruments.

Note

1. See Figure 2 for a matrix with key takeaways.

References

- Abraham, S. and Bamber, M. (2017), "The Q&A: under surveillance", *Accounting, Organizations and Society*, Vol. 58, pp. 15-31.
- Abraham, S. and Slack, R. (2023), "Understanding fund manager readership of annual report risk disclosure", *Accounting Forum*, Routledge, pp. 1-25.
- Ambachtsheer, K. (2007), "Should (could) you manage your fund like Harvard or Ontario teachers", *Pension Revolution. A Solution to the Pension Crisis*, Chapter 15, John Wiley and Son.
- Arnold, I.J. and Vrugt, E.B. (2008), "Fundamental uncertainty and stock market volatility", *Applied Financial Economics*, Vol. 18 No. 17, pp. 1425-1440.
- Asch, S.E. (1952), *Social Psychology*, Prentice Hall, Englewood Cliffs, NJ.
- Ashton, R.H. and Cianci, A.M. (2007), "Motivational and cognitive determinants of buy-side and sell-side analyst earnings forecasts: an experimental study", *Journal of Behavioral Finance*, Vol. 8 No. 1, pp. 9-19.
- Ayton, P. and Fischer, I. (2004), "The hot hand fallacy and the gambler's fallacy: two faces of subjective randomness?", *Memory and Cognition*, Vol. 32 No. 8, pp. 1369-1378.
- Baker, H.K. and Nofsinger, J.R. (2010), "Behavioral finance: an overview", *Behavioral Finance: Investors, Corporations, and Markets*, pp. 1-21.

-
- Barker, R. (1998), "The market for information-evidence from finance directors, analysts and fund managers", *Accounting and Business Research*, Vol. 29 No. 1, pp. 3-20.
- Bradshaw, M.T. (2011), "A discussion of 'do managers use earnings guidance to influence street earnings exclusions?'" , *Review of Accounting Studies*, Vol. 16 No. 3, pp. 528-538.
- Braun, V. and Clarke, V. (2006), "Using thematic analysis in psychology", *Qualitative Research in Psychology*, Vol. 3 No. 2, pp. 77-101.
- Brimble, M., Vyvyan, V. and Ng, C. (2013), "Belief and investing: preferences and attitudes of the faithful", *Australasian Accounting, Business and Finance Journal*, Vol. 7 No. 1, pp. 23-41.
- Brown, L.D., Call, A.C., Clement, M.B. and Sharp, N.Y. (2015), "Inside the 'black box' of sell-side financial analysts", *Journal of Accounting Research*, Vol. 53 No. 1, pp. 1-47.
- Busse, J.A., Green, T.C. and Jegadeesh, N. (2012), "Buy-side trades and sell-side recommendations: interactions and information content", *Journal of Financial Markets*, Vol. 15 No. 2, pp. 207-232.
- Cascino, S., Clatworthy, M.A., García Osma, B., Gassen, J. and Imam, S. (2021), "The usefulness of financial accounting information: Evidence from the field", *The Accounting Review*, Vol. 96 No. 6, pp. 73-102.
- Cen, L., Hilary, G. and Wei, K.J. (2013), "The role of anchoring bias in the equity market: evidence from analysts' earnings forecasts and stock returns", *Journal of Financial and Quantitative Analysis*, Vol. 48 No. 1, pp. 47-76.
- Charters, E. (2003), "The use of think-aloud methods in qualitative research an introduction to think-aloud methods", *Brock Education Journal*, Vol. 12 No. 2.
- Clark, G.L. and Urwin, R. (2008), "Leadership, collective decision-making, and pension fund governance", *Journal of Financial and Quantitative Analysis*, Available at: SSRN 1133015
- Cheng, Y., Liu, M.H. and Qian, J. (2006), "Buy-side analysts, sell-side analysts and investment decisions of money managers", *Journal of Financial and Quantitative Analysis*, Vol. 41 No. 1, pp. 51-82.
- Day, J. (1986), "The use of annual reports by UK investment analysts", *Accounting and Business Research*, Autumn, Vol. 16 No. 64, pp. 295-307.
- De Franco, G., Vasvari, F. and Wittenberg-Moerman, R. (2014), "Debt analysts' views of debt-equity conflicts of interest", *The Accounting Review*, Vol. 89 No. 2, pp. 571-604, doi: [10.2308/accr-50635](https://doi.org/10.2308/accr-50635).
- De Franco, G., Hope, O., Vyas, D. and Zhou, Y. (2015), "Analyst report readability", *Contemporary Accounting Research*, Vol. 32 No. 1, pp. 76-104, doi: [10.1111/1911-3846.12062](https://doi.org/10.1111/1911-3846.12062).
- De Graaf, F.J. and Slager, A. (2006), "Guidelines for integrating socially responsible investment in the investment process", Available at: SSRN 919108
- Fama, E.F. (1970), "Efficient capital markets: a review of theory and empirical work", *The Journal of Finance*, Vol. 25 No. 2, pp. 383-417.
- Ferreira, E. and Smith, S. (1999), "Stock price reactions to recommendations in the wall street journal 'small stock focus' column", *The Quarterly Review of Economics and Finance*, Vol. 39 No. 3, pp. 379-389.
- Fondbolagens förening (2023), "Collected the 3rd of august 2022 at 11:52 from", available at: www.fondbolagen.se/om-oss/medlemmar/
- Fraser, S.P. and Jennings, W.W. (2010), "Examining the use of investment policy statements", *The Journal of Wealth Management*, Vol. 13 No. 2, p. 10.
- Francis, J.J., Johnston, M., Robertson, C., Glidewell, L., Entwistle, V., Eccles, M.P. and Grimshaw, J.M. (2010), "What is an adequate sample size? Operationalising data saturation for theory-based interview studies", *Psychology and Health*, Vol. 25 No. 10, pp. 1229-1245, doi: [10.1080/08870440903194015](https://doi.org/10.1080/08870440903194015).
- Graaf, J. (2018), "Equity market interactions: exploring analysts' role performances at earnings presentations", *Accounting, Auditing and Accountability Journal*, Vol. 31 No. 4, pp. 1230-1256.

-
- Gray, J. (2009), "Rethinking investment beliefs in a time of crisis: the calming hand of philosophy", *Rotman International Journal of Pension Management*, Vol. 2 No. 1.
- Groysberg, B., Healy, P.M., Chapman, C.J., Shanthikumar, D.M. and Gui, Y. (2007), "Do buy-side analysts out-perform the sell-side?", available at: SSRN 806264.
- Hobbs, J. and Singh, V. (2015), "A comparison of buy-side and sell-side analysts", *Review of Financial Economics*, Vol. 24 No. 1, pp. 42-51.
- Imam, S., Barker, R. and Clubb, C. (2008), "The use of valuation models by UK investment analysts", *European Accounting Review*, Vol. 17 No. 3, pp. 503-535.
- Jansson, M., Hemlin, S., Sonsino, D. and Trönnberg, C.C. (2021), "Investment beliefs and portfolio risk-taking—a comparison between industry professionals and non-professionals", *Behavioral Finance: A Novel Approach*, pp. 239-266.
- Johansson, J. (2007), "Sell-side analysts' creation of value—key roles and relational capital", *Journal of Human Resource Costing and Accounting*.
- Johnson, K.L. and de Graaf, F.J. (2009), "Modernizing pension fund legal standards for the twenty-first century", *Rotman International Journal of Pension Management*, Vol. 2 No. 1.
- Kahneman, D. (2011), *Thinking, Fast and Slow*, Macmillan.
- Kahneman, D. (1991), "Article commentary: judgment and decision making: a personal view", *Psychological Science*, Vol. 2 No. 3, pp. 142-145.
- Kahneman, D., Slovic, P. and Tversky, A. (Eds) (1982), *Judgment under Uncertainty: Heuristics and Biases*, Cambridge University Press.
- Koedijk, K. and Slager, A. (2009), "Do institutional investors have sensible investment beliefs?", *Rotman International Journal of Pension Management*, Vol. 2 No. 1.
- Koedijk, K. and Slager, A. (2011), "Uncovering beliefs", *Investment Beliefs: A Positive Approach to Institutional Investing*, pp. 17-37.
- Koedijk, K. and Slager, A. (2021), "New perspective on investment models", *The Journal of Portfolio Management*, Vol. 47 No. 5, pp. 15-23.
- Koedijk, K. and Slager, A. (2011), *Investment Beliefs – A Positive Approach to Institutional Investing*, Palgrave Macmillan.
- Lin, W.C., Chang, S.C., Chen, S.S. and Liao, T.L. (2013), "The over-optimism of financial analysts and the long-run performance of firms following private placements of equity", *Finance Research Letters*, Vol. 10 No. 2, pp. 82-92.
- Lydenberg, S. (2011), "Investment belief statements", *Harvard Initiative for Responsible Investment (IRI)*.
- Machado, A. and Lima, F.G. (2021), "Sell-side analyst reports and decision-maker reactions: Role of heuristics", *Journal of Behavioral and Experimental Finance*, Vol. 32, p. 100560.
- Markowitz, H.M. (1952), "Portfolio selection", *The Journal of Finance*, Vol. 7 No. 1, pp. 77-91.
- Marshall, B., Cardon, P., Poddar, A. and Fontenot, R. (2013), "Does sample size matter in qualitative research? A review of qualitative interviews in is research", *Journal of Computer Information Systems*, Vol. 54 No. 1, pp. 11-22.
- Mokoaleli-Mokoteli, T., Taffler, R.J. and Agarwal, V. (2009), "Behavioural bias and conflicts of interest in analyst stock recommendations", *Journal of Business Finance and Accounting*, Vol. 36 Nos 3/4, pp. 384-418.
- Mousavi, S. and Gigerenzer, G. (2017), "Heuristics are tools for uncertainty", *Homo Oeconomicus*, Vol. 34 No. 4, pp. 361-379.
- Neth, H. and Gigerenzer, G. (2015), "Heuristics: Tools for an uncertain world", *Emerging Trends in the Social and Behavioral Sciences*, Wiley Online Library, pp. 1-18.
- Ó'Brien, P., McNichols, M. and Hsiou-Wei, L. (2005), "Analyst impartiality and investment banking relationship", *Journal of Accounting Research*, Vol. 43 No. 4, pp. 623-650.

- Oswald, M.E. and Grosjean, S. (2004), "Confirmation bias", *Cognitive Illusions: A Handbook on Fallacies and Biases in Thinking, Judgement and Memory*, p. 79.
- Pike, R., Meerjanssen, J. and Chadwick, L. (1993), "The appraisal of ordinary shares investments analysts in the UK and Germany", *Accounting and Business Research*, Vol. 23 No. 92, pp. 489-499.
- Rozanov, A. (2015), "Public pension fund management: best practice and international experience", *Asian Economic Policy Review*, Vol. 10 No. 2, pp. 275-295.
- Shah, S.Z.A., Ahmad, M. and Mahmood, F. (2018), "Heuristic biases in investment decision-making and perceived market efficiency: a survey at the Pakistan stock exchange", *Qualitative Research in Financial Markets*, Vol. 10 No. 1, pp. 85-110.
- Shefrin, H. (2007), "How the disposition effect and momentum impact investment professionals", *Journal of Investment Consulting*, Vol. 8 No. 2, pp. 68-79.
- Slager, A. and Koedijk, K. (2007), "Investment beliefs", *The Journal of Portfolio Management*, Vol. 33 No. 3, pp. 77-84.
- Spence, C., Aleksanyan, M., Millo, Y., Imam, S. and Abhayawansa, S. (2019), "Earning the 'write to speak': sell-side analysts and their struggle to be heard", *Contemporary Accounting Research*, Vol. 36 No. 4, pp. 2635-2662.
- Styhre (2020), "Decision-making in organizations", in Eriksson-Zetterquist, U., Hansson, M. and Nilsson, F. (Eds), *Theories and Perspectives in Business Administration*, Studentlitteratur.
- Taffler, R.J., Spence, C. and Eshraghi, A. (2017), "Emotional economic man: calculation and anxiety in fund management", *Accounting, Organizations and Society*, Vol. 61, pp. 53-67.
- Teddle, C. and Tashakkori, A. (2009), *Foundations of Mixed Methods Research: Integrating Quantitative and Qualitative Approaches in the Social and Behavioral Sciences*, Sage.
- Teddle, C. and Tashakkori, A. (2011), "Mixed methods research", *The Sage Handbook of Qualitative Research*, Vol. 4, pp. 285-300.
- Tversky, A. and Kahneman, D. (1974), "Judgment under uncertainty: Heuristics and biases: biases in judgments reveal some heuristics of thinking under uncertainty", *Science*, Vol. 185 No. 4157, pp. 1124-1131.
- Twedt, B. and Rees, L. (2012), "Reading between the lines: an empirical examination of qualitative attributes of financial analysts' reports", *Journal of Accounting and Public Policy*, Vol. 31 No. 1, pp. 1-21, doi: [10.1016/j.jaccpubpol.2011.10.010](https://doi.org/10.1016/j.jaccpubpol.2011.10.010).
- Woods, C. and Urwin, R. (2010), "Putting sustainable investing into practice: a governance framework for pension funds", *Journal of Business Ethics*, Vol. 92, pp. 1-19.

Further reading

- FCLTglobal (2018), August 30, 2018, available at: www.fcltglobal.org/news/blog/article/2018/08/30
- Gigerenzer, G. and Todd, P.M. (1999), "Fast and frugal heuristics: the adaptive toolbox", *Simple Heuristics That Make us Smart*, Oxford University Press, pp. 3-34.
- Koedijk, K.C., Slager, A. and Bauer, R. (2010), "Investment beliefs that matter: New insights into the value drivers of pension funds", available at: SSRN 1603262.

Appendix. Explorative interview with a focus on investment analysis process*Interview guide*

- (1) Introduction and background
 - Could you tell me about your professional background, role and your responsibility within the organization?
 - What tasks do you do?
 - For how long have you been working with financial analysis/investments?
- (2) Let's look at an example! (feel free to look at a Swedish company you are currently working with):
 - Could you tell me about each step of the analysis?
 - What do you usually start out looking at in the analysis process? Can you guide me through each step using examples and describe why each step matters?
 - Which information is important for you in the process?
 - How important is each bit of information in your analysis?
 - Why is it important?
 - Which key numbers are important?
 - Rate the following factors from 1–10 in your analysis?
 - Do you usually try to estimate stock results and price targets over 6 months?
 - Prognosis of stock targets in 6 months?
 - Prognosis of stock profit in 6 months
- (3) What sources do you use to gain access to this information?
 - How do you work with sources in practice? What sources are the most important to you?
 - What sources do you trust the most? Why?
 - Can you show me an example of how you work with the sources?
- (4) Do you use any specific model (or several models) in your analysis of stocks/companies?
 - Can you show me/tell me more about the model and explain why you use it?
 - What do you think are the strengths/limitations of the model?
 - Can you explain how the model helps you in your analysis process?
- (5) Do you use the published prognoses and recommendations of external analysts in your analysis?
 - Why?
 - Do you trust them?
 - Is it important how many analysts follow the stock?
 - What role does external analyst prognosis and recommendations play in your own analysis?
 - Could you give me an example of how external analyst prognosis and recommendations impact your decision?
 - What is your preference, more or less spread recommendations?
 - Are consensus groups more reliable when the spread is low?
 - Are unexpected prognoses that differ highly from the current consensus worth including in the analysis or are they confounding?

- (6) What nonfinancial information impacts your analysis and investment decisions? (e.g. branch information, ESG-factors, sustainability etc.)
- Why do these factors matter?
 - How much does nonfinancial information matter compared to financial information, for your analysis? Can you give me a split of 100% between financial and nonfinancial factors?

Type of information	100%
Financial information	
Nonfinancial information	

- Rate specific nonfinancial factors according to a scale of 1–10 in terms of impact on your analysis.
- (7) Does your analysis process and the steps within it usually the same?
- If they aren't, what causes the variation?
 - Do you evaluate your investment decisions in hindsight? If yes, how?
- (8) Could you provide any examples of the evaluation based on your own experience?
- Is there anything I didn't ask about, that you still feel is important?

Corresponding author

Magnus Jansson can be contacted at: magnus.jansson@his.se