Gamification and its effect on investor behaviour

A qualitative study investigating the gamified trading platform Avanza

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Abstract

The gamification trend has in recent years gained a strong hold across the field of finance. Market participants are leveraging the benefits of implementing game-design elements to previously mundane banking activities. However, while gamification is expected to grow further, the current research investigating its effects is scarce, particularly in a Swedish context. This research project aims to investigate if, and how the behaviour of retail investors is affected by gamification used on trading platforms. We collected qualitative data through seven semi-structured interviews with respondents who were active users of Avanza, the largest internet broker in Sweden. To expand the scope of the study, data was also included from a senior executive at Avanza creating a nuanced picture of the effects of gamification. Our analysis is grounded in the Octalysis Framework, which has been used together with behavioural finance theories to draw valuable conclusions.

Our study finds that gamification has an effect on investors and may influence their trade decisions. We conclude that social game-design elements cause intrinsic motivation and have a strong effect on retail investors. The study further shows that visualising personal development has a strong extrinsically motivating effect on retail investors' desire to increase their capital. Our results also show that gamification can be used to promote both healthy and unhealthy financial behaviours, making it a powerful tool for the one's controlling it. However, if not managed properly, excessive usage of gamification runs the risk of decreasing the perceived seriousness and validity of the institution implementing it. Lastly, this study concludes that investors tend to believe that gamification affects their investment behaviour less than others, suggesting that they suffer from overconfidence bias.

Situating gamification and the Octalysis framework within a financial context contributes to the current discussion about gamification and the future understanding of the concept. By taking behavioural finance into consideration, we contribute to the field of behavioural finance by showcasing how gamification may affect the investment behaviour of retail investors on gamified platforms. The results of the study are of great relevance to market participants and regulators. Being aware of how gamification influences investor behaviour is necessary for market regulators to prevent exploitative behaviours and for market participants to make well-informed decisions.

**Key words:** Gamification, Behavioural finance, Octalysis, Avanza, Financial literacy
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1. Introduction

The introductory chapter presents the background to the subject and touches upon relevant literature. Next, follows a problem formulation describing the research gap. In the purpose section of the study, the authors aim to put the research into a relevant context. The chapter ends with a presentation of the research question followed by the delimitations of the study.

1.1 Background

The usage of gamification on trading platforms has rapidly become the new normal and is affecting the behaviour of retail investors both positively and negatively. Gamification can be described as a technological tool used to influence an individual’s behaviour and/or enhance an experience through the usage of game elements in non-game contexts (Deterding et al., 2011; Huotari & Hamari, 2012). Its usage is spread out over a wide spectrum of industries ranging between education, health, and finance to name a few. A clear example of the usage of gamification is the educational platform Duolingo. Duolingo realised that learning a language is a challenging task and decided to gamify the learning process through the implementation of badges, rewards, and even social functions (Huynh et al., 2016, p. 270). More retail investors than ever before are being exposed to gamification related to their finances, whether it is through a simple saving goal or a full-fledged experience. This trend is further visible through the large influx of new users on several financial trading platforms such as Avanza, Nordnet, and eToro (Avanza, n.d., B; Nordnet, n.d; eToro, 2021) Perhaps the most well-known trading platform today is Robinhood LLC, which launched in 2014 and is universally known for democratising personal finance. The company has experienced a surge of new users between its launch in 2013 and 2021, growing the number of active accounts from 0.5 million to 22.5 million (Robinhood Markets, Inc, 2021). Disruptive methods of gamification have been used to remove the barriers to investing, which likely has contributed heavily to the popularity of the platform. However, Robinhood has repeatedly been criticised for its heavy use of gamification. In December 2020, state regulators in Massachusetts filed a complaint accusing the company of abusing its usage of gamification to “...encourage and entice continues and repetitive use of its trading application” (Commonwealth of Massachusetts, 2020, p. 2). Others, such as the famous investors Warren Buffet and Charlie Munger have both directed criticism towards Robinhood claiming that the company is promoting casino-like behaviours in the stock market (Fitzgerald, 2021).

Although a great deal of criticism has been directed towards the dangers of gamification in personal finance, it is still important to acknowledge the positive impacts it can have on retail investors. Several applications and tools have been introduced in recent years with the common goal to improve financial well-being and literacy. The application “SavingsQuest” was designed to provide instant gratification in the form of a dancing pig when the consumer saved money, which resulted in a 25% higher savings rate than other cardholders (Maynard & McGlazer, 2017). Furthermore, Kwon et al. (2015) claim that gamified elements in the form of badges, achievements, or similar can cause higher engagement on platforms and has the potential to lower the threshold for using financial platforms. Bayuk and Albotello (2019) also claim that gamification can improve financial well-being since it can motivate users to undertake financially healthy behaviours, such as saving or investing.

Gamification appears to affect the behaviour of retail investors, which raises the importance of studying them. It is, however, first necessary to define what investor behaviour is. The study of investor behaviour falls under the umbrella of behavioural finance, which according to Bodies et al. (2017 cited in Bikas et al., 2013 p. 871) can be defined as a “set of models of financial markets that emphasizes potential intervention of psychological
factors into investor’s behaviour”. Behavioural finance challenges the assumption of the efficient market hypothesis (EMH) that investors act rationally and instead claims that deviations from the efficient market are expected and explained by irrational investor behaviours (Shleifer, 2009). This report will account for and document the way specific game elements affect investor behaviour through the scope of behavioural financial theories and a gamification framework.

Moreover, it could be argued that the younger generation of retail investors that enter the financial market today are more susceptible to gamification because of the similarities in technology that they have been continuously exposed to through their upbringing. Several trading platforms are built upon the same game elements that could be seen in a wide range of video games, making it a more familiar environment and increasing user engagement. (Shell, 2021, p. 35) Elements such as rewards when finishing a level in a game can be compared to the virtual rains of confetti when doing your first trade, as previously could be seen on Robinhood’s trading app. Chapkovski et al. (2021, p. 21) concluded that inexperienced retail investors generally have a low level of financial literacy and an over belief in their financial abilities, which had a negative effect on the risk behaviour of the participants.

1.2 Problem formulation

Banks and retail investors are leveraging the benefits of implementing game-design elements to previously mundane banking activities. The Swedish internet broker Avanza has witnessed great success minimising the barriers for new retail investors to enter the financial market through their usage of gamification. For instance, the function “Avanza Svajper” allows users to speed-date stocks in a similar fashion to the popular dating app Tinder, turning the navigation through +10,000 available stocks into an effortless activity, allowing users to easily gain further information and track the performance of the stocks (Jönsson, 2020). Another example is “Saving goals”, which lets users experiment by choosing different levels of interest rates and monthly amounts to deposit and then set a desired saving goal. Based on what the user has entered, they get a visualisation of how long it will take to reach their goal. They can also change the inputs in order to see how their plan would change if, for example, interest rates were to change or the monthly deposit. (Avanza, 2021, i)

The effects of gamification related to investment behaviour are fairly unknown. Arguably, current research into the realm of gamification has tended to be biased towards its positive effects and somewhat disregarded the negatives tied to the technology (Hyrynsalmi et al., 2017). However, to make maximal use of its applicability, it is important to regard all aspects of gamification. The authors of “The Bright and Dark sides of Gamification” claim that gamification can have positive results, but that it must be controlled and monitored to reach the desired outcomes. The article presents three common problems likely to occur through the misuse of gamification: Off-task behaviour, Undesired competition, and Addiction and Dependence (Andrade et al., 2016 p. 178).

Off-task behaviour refers to the asymmetry of the gamification system compared to the desired outcome, meaning that the game element becomes a distraction rather than a beneficial function. This could, for instance, be a chat function or a forum on an educational learning platform that allows users to spend time on unrelated functions rather than those tied to the desired outcome. Another example could be features of customization functioning through the creation of avatars or personalised profiles on a platform. These features are important for immersion but are usually not directly linked to the goal of gamification. (Andrade et al., 2016. p. 178)
The second problem relates to the implementation of undesired competition in terms of leader boards and similar functions. The authors claim that forced competition can decrease interest, engagement, and sense of competence among both low performing students and those with low self-efficacy (Andrade et al., 2016 p. 179). Therefore, the role of competition needs to be carefully monitored to fit the users to minimise the risks of negative consequences. In addition, Sailar et al. (2017) argue that leader boards can increase motivation if the users competing against each other are equal in performance, but that it instead can decrease motivation for the people at the bottom of the leader board if people perceive a large performance gap. The importance of managing competition is further emphasised by Hanus and Fox (2015) who investigated the motivating effects of competitive game-design elements. Their results showed that elements favouring comparison between users initially increased users’ motivation, but that over time it showed signs of causing demotivation (Hanus & Fox, 2015).

The last problem mentioned is that sensations caused by gamified systems can induce addiction and dependence in their users. A highly desired sensation for gamification systems is to make users’ experience flow (Andrade et al., 2016. p. 177), which can be described as a state of mind when a person becomes fully immersed in an activity (Csikszentmihalyi, 1990). Chou and Ting (2003) claim that this state of mind increases the likelihood of addiction among users experiencing it. This could potentially lead to users developing an unhealthy relationship with a platform where they focus more on obtaining rewards or collecting points than the desired objectives.

Even if gamification is “successfully” implemented on a platform to reach the desired outcome, the question is who decides the desired outcome and who benefits from them? Does the platform want the best for the consumer or is someone else trying to utilise the effects of gamification? Ian Bogost, an American video game designer, has directed plenty of critique toward the technology. He argues that gamification tries to replace real incentives with fictional ones, stripping away genuine value and trust. Bogost suggests a name change and believes that “Exploitationware” describes the technology better than “Gamification” does. He believes gamification relies on dysfunctional perversions through counterfeit incentives and shams. The term ‘exploitationware’ is a contrarian response to the gamification trend rationale to get something out of people for nothing. (Bogost, 2011)

As previously mentioned, the internet broker Robinhood has been in the spotlight for its heavy usage of gamification. Something that separates the brokerage from others is that they offer commission-free stock trading. Robinhood generates a majority of its income through the practice “Payment For Order Flow” (PFOF) which translates to the compensation received for directing an order to external parties for trade execution (CFA Institute, 2016). In other words, the more orders they direct, the more money they earn. Other brokerages such as Avanza and Nordnet, generate a majority of their income through brokerage fees, which essentially is a commission received for executing the trade (Ganti, 2021). The present game-design elements on the Robinhood platform take the form of push notifications, rewards, leader boards etc. in an attempt to generate increased activity on the platform. Data shows that Robinhood users trade up to 40 times as many shares per dollar in average accounts compared to users on the competitive platform Charles Schwab (Popper, 2020). Barber and Odean (2000) claim that there exists a negative correlation between high activity and returns saying that active American households on average receive a 5.5% lower yearly return than their passive counterpart. This statement is further nuanced in the article “Attention-Induced Trading and Returns: Evidence from Robinhood Users” which documents that the top 0.5% of stocks bought every day through the
Robinhood platform generates a 4.7% negative return on average subsequent month (Barber et al., 2020, p. 3). Circling back to the question concerning who benefits from gamification, the answer becomes elusive. In the case of Robinhood, the company earns money based on the high activity generated by the game-design elements, and consumers run the risk of receiving lower returns than through other brokers. However, the interactive platform has eliminated the barriers to participate in the financial market, resulting in people who otherwise would not take the step to invest in finding the financial market.

Based on the problematization presented above, it is reasonable to assume that gamification is a powerful tool that needs to be properly monitored and controlled to disallow exploitative behaviours. The currently available research is primarily focused on motivation in the workplace and education (Hamari et al., 2014, p. 3028) and is rather limited in financial contexts. We believe that further research needs to be done to map out the behavioural impact of the gamified systems. Previous research on gamification and its effects on investment behaviour has generally taken on an international context without any particular sample group, therefore we believe that further research in a Swedish context is needed. To concretize the research gap, a study of a specific platform was conducted to monitor how retail investors perceive the given game elements. Thus, our study investigated how the Swedish broker Avanza incorporates gamification on its platform and how it affects investor behaviour. Investigating Avanza also allows the study to apply current research into a Swedish context which is scarce since previous research has predominantly been based on an American perspective.

1.3 Research questions
The following research question has been formulated based on the identified research gap.

- Does gamification affect retail investors’ investment behaviour?
If yes:
- How does gamification affect retail investors’ investment behaviour?

1.4 Purpose of the study
The study aims to investigate how game-design elements used on financial platforms influence the behaviour of retail investors. Previous research investigating the effects of gamification is scarce, especially in the contexts of finance and the Swedish market. However, the trend is likely to take an even bigger role in the financial market in the years to come, resulting in the importance of mapping them out. The study is of great importance for retail investors to make them aware of how their investment behaviour can be affected by the platforms they are using. Furthermore, it is also important for financial institutes and the designers of gamified platforms to be aware of their position of influence, to create an ethical and sustainable platform for their users.

1.5 Delimitations
This research project predominantly adopts a user perspective, meaning that it will be investigating the perceived effects that game-design elements may have on users. The study will not conclude how and why an organisation should implement gamification to their platform. Instead, it will explore what elements are present and how they may affect the users.

Our data collection will be conducted through seven interviews. Six of the interviews will be with users of Avanza and one of the interviews will be with a senior executive at Avanza.
By doing so, we gain valuable insight into how users act as well as Avanza’s operations. The analysis will be based on the gamification framework Octalysis (Chou, 2014) to connect the results to the literature in an efficient way. Although it could nuance the study, due to the limitations of the study, it will not involve additional theories regarding motivation and decision-making. Furthermore, theories concerning behavioural finance have been chosen based on judgements about their significance and relevance to the study. Since Avanza is only available in Swedish and all respondents are Swedish speaking, our study will be geographically limited to Sweden.
2. Methodology

The methodology chapter describes and elaborates on our pre-existing knowledge, choice of subject and theoretical assumptions made by the authors. It ends with an account of the theoretical approach and the literature review process.

2.1 Pre-existing knowledge & choice of subject

The authors of this thesis are both students enrolled at Umeå University taking part in the International Business Program. The research presented constitutes the authors’ degree project equivalent to 30 HP (ECTS) and is being conducted during their 8th semester. Ljungkvist and Moore have partaken in the same undergraduate courses at Umeå University but have chosen different fields of specialisation at Graduate level. Ljungkvist possesses wide knowledge in finance through his specialisation Financial Management D which represents 30 credits of graduate-level courses in finance. Moore, on the other hand, possesses good knowledge of entrepreneurship and innovation and has completed several graduate courses in the field of Innovation Management. The authors chose to investigate how the usage of gamification affects investor behaviour based on their prior knowledge, personal interests, and academic experiences. The interest was first prompted when Moore stumbled upon the topic of gamification in the course Sales Management C when writing an essay concerning company responsibility related to emerging technologies. Furthermore, Ljungkvist and Moore have complementary academic experience in different fields of business administration that they wanted to be able to utilise. The subject at stake incorporates several areas of expertise, including finance, innovation, and psychology, allowing them to draw from each other's strengths. Growing up as Gen Z’s, both have constantly been exposed to gamification systems in their everyday life, whether it is through educational applications, bonus programs, or full-fledged trading platforms. This combined with their interest in personal finance sparked the interest in examining how game-design elements influence trading decisions.

Bryman and Bell (2015) claim that values reflect the personal beliefs and feelings of the researcher, something that could influence the study in different ways. Although we as researchers aim to stay objective, our choice of research area is influenced by our personal interests. The research strives to solely apply relevant theories to the analysis without bringing in subjective interferences in the form of preconceptions or opinions. We, as researchers, do not want to influence the answers received from the respondents but are aware that the questions we design and the way we ask them might have some influences. In an attempt to counteract potential biases on our part, we have allowed other non-related people to critique the interview questions. Although we never can eliminate all potential biases, we have taken measures to ensure reliable results.

2.2 Theoretical method

2.2.1 Paradigm

The philosophical framework that outlines how a scientific study should be conducted can be referred to as paradigms and is built upon fundamental beliefs and assumptions on knowledge, existence, and reality (Collis & Hussey, 2014 p. 43). Since these quite subjective assumptions and beliefs can change over time and, as a response to possible shortcomings, so do the paradigms. Positivism, which is related to the natural science sphere, was for a long time the only recognized research paradigm in existence. Fast forward to today, there is two major research paradigms that are recognized and commonly used in modern research, Positivism and Interpretivism.
Positivism, as previously mentioned, relates back to hard science where scientists observe a social reality and present results that often are broadly applicable and have a high degree of generalisation (Saunders et al., 2003, p. 83). The research process is characterised by objectivity and creating a clear research structure that emphasises replication. Often used in quantitative studies where the observations contribute to statistical analysis. Researchers should distance themselves from the study subjects and set aside their own prejudice or opinions. It is the data and the statistical findings which the results should be based on, disregarding subjectivity and social constructs (Saunders et al., 2003, p. 84). Choosing a positivism approach would therefore not be suitable for our study since we are observing how users perceive the effects of gamification. We will receive subjective opinions of our respondents and their personal view of a social phenomenon, our results are coloured by the subjectivity from both respondents and ourselves.

Interpretivism stems from the social science branch of society and is related to interpreting and creating an understanding of social phenomenons, moving away from the previously strict view of positivism (Collis & Hussey, 2014, p. 44). Contrary to positivism, interpretivism emphasises that reality is subjective and a creation of our own perceptions and beliefs, exploring a social phenomenon instead of trying to measure it. It makes itself prominent in qualitative research where researchers set out to explore and create a deeper understanding, often through interviews since this allows researchers to ask in-depth questions about their experiences (Collis & Hussey, 2014, p. 45). Furthermore, since social constructs change over time, so does the applicability of qualitative research. Interpretivism argues that generalisation is less crucial when circumstances can change, making today’s results less applicable and valuable after a couple of months (Saunders et al., 2003, p. 84). Since it is essential for our study to explore subjective ideas of how people perceive gamification and its effects on their behaviour, we believe that interpretivism is most suitable for the study. It will also allow us to use an interview guide with both precise and broader questions, giving us valuable insights to their opinions and thoughts. Adopting a positivism approach would not give us that opportunity since the results from observations should then be objective, further arguments that it would not be suitable for our choice of study.

2.2.2 Ontology

Ontology, the view one has of reality and its nature is a continuum where positivism and interpretivism are the extreme points (Collis & Hussey, 2014, p. 45; Lumsden et al., 2011, p. 247). It means that one can conduct research without fully committing to either of the paradigms but depending on the approach of the study, it tends to favour one or the other (Collis & Hussey, 2014, p. 45). Interpretivism believes that there is not one true and objective reality, but rather several subjective realities in society that are created by people’s perceptions and social constructs. Positivism, on the other hand, believes that there is only one objective reality in society, which can be quantified and measured scientifically (Collis & Hussey, 2014, p. 45). Positivism is therefore commonly used in quantitative research, while interpretivism often relates to qualitative research.

As previously mentioned, interpretivism is recognized to be most suitable within the social science sphere when one is trying to explore social phenomena and gain a deeper understanding (Collis & Hussey, 2014, p. 45). Therefore, our ontological assumption of this study will be grounded in the interpretivist end of the continuum. This is a rather natural choice for the study since we will be investigating how human behaviour, in this case financial behaviour, changes because of gamification which is in the natural science sphere. The data of our study will be collected through interviews, meaning that each person that we interview has their own view on reality (Collis & Hussey, 2014, p. 47). These realities
entail their own subjective ideas and beliefs. If we were to adopt a positivist approach to our study, we would disregard their realities and only accept one true reality. That approach would render our interviews less valuable since we would have to ignore subjective data, making it less suitable to qualitative data. With regards to this, we strongly believe that interpretivism is the most suitable approach since this will allow us to expand our research and interpret social phenomena.

2.2.3 Epistemology

Epistemological assumption refers to what should be viewed as valid or acceptable information as well as the relationship between the researcher(s) and the area being researched (Bryman & Bell, 2015, p. 26; Fejes & Thornberg, 2012, p. 22). The assumption separates into two different directions, Positivism and Interpretivism (Collis & Hussey, 2014, p. 47). Positivism claims that valid knowledge only comes from phenomenon that can be observed and later measured. Under the positivist assumptions researchers want to keep an objective stance with a high level of independence from the research area (Collis & Hussey, 2014, p. 47). Contrary to positivism, interpretivism seeks to lessen the distance between the researcher and what is being researched which creates a much more subjective interpretation (Bryman & Bell, 2015, p. 28).

In this study, an interpretivist method in the epistemological assumption has been adopted. This is grounded in the fact that we will be investigating and interpreting a real-world phenomenon, namely, how our respondents are affected by gamification. This includes a high level of subjectivity, thus not suited for the positivism method where researchers should maintain objectivity throughout the research process (Saunders et al., 2009, p. 114). Neither could the answers from our interviews be seen as valid knowledge since these answers are the opinions and subjective thoughts of the respondents. The positivism method would have been more suited for a quantitative data collection where the data can be coded, quantified and scientifically proven (Saunders et al., 2009, p. 112-113). Early on, we realised that the positivism method would not suit our study because we wanted to do deeper interviews, resulting in high-quality answers, helping us understand what the respondents experience and how they are affected.

2.2.4 Axiology

In the context of academic research, axiology relates to what can be considered as good or desirable and how such values affect the research process (Biedenbach & Jacobsson, 2016, p. 140). How these values are present and linkage to the researcher can alter the level of acceptance towards the discoveries of the study as well as the knowledge produced. A positivist research approach makes it easier for the researcher to distance themselves from subjective values surrounding their area of research since they believe that the research process is detached from values and that they are completely independent (Collis & Hussey, 2014, p. 48).

Because of the interpretivist approach that we have chosen for our study, the research process will be affected by us being directly involved in the actual research itself. Our values and beliefs will affect how we chose to interview our respondents and how the questions are phrased. Furthermore, interpreting the answers from our interviewees while applying the chosen literature and theories will be affected by our subjectivity as well. We believe that the strengths of the interpretivist approach lie in the fact that the research is allowed to involve subject opinions as this provides a more in-depth understanding of how gamification affects investment behaviour, which is the area of research for our thesis. Having this in mind the study and acknowledging its existence, the interpretation of the
findings and the results of the study should be accepted as valid knowledge and evidence, originating from the participants of our study (Collis & Hussey, 2014, p. 46-48).

2.3 Theoretical approach

Collis and Hussey (2014, p. 7) explain that there exist two different theoretical approaches in scientific research that describe the relationship between theory and empirical observations; inductive and deductive. Bryman and Bell (2015, p. 25) claim that the two approaches often influence each other, and it is therefore not uncommon to observe elements of induction in deductive research as well as elements of deduction in inductive research. This research project will ultimately adopt an inductive theoretical approach but does not exclude the possibility of deductive elements influencing the research design. Fejes and Thornberg (2012, p. 24) explain the deductive approach as the formation and testing of hypotheses based on theory. This approach grants researcher(s) the ability to systematically test to what degree a certain theory holds true by building up strong empirical evidence supporting it (Collis & Hussey, 2014, p. 7) and is commonly found in quantitative research that undertakes a positivist ontological perspective. A common fallacy for researchers using the deductive approach is that they become less sensitive to the empirical observations since they believe it is more important to “prove” the theory that they are testing. (Fejes & Thornberg, 2012, p. 24) On the opposite, inductive research states general patterns or laws based on individual observations (Collis & Hussey, 2014, p. 7; Fejes & Thornberg, 2012, p. 23), i.e it moves from the specific to the more general in an attempt to draw valid conclusions. This form of theoretical approach is often linked with the ontological perspective interpretivism and is commonly found in qualitative research projects.

Our research will be grounded in already existing theories concerning mainly gamification and behavioural finance proposed by numerous scholars. However, we do not aim to prove the reliability of the theories by generating hypotheses and gathering empirical evidence to support them. Rather, we aim to investigate a gap in the research and generate new theoretical contributions by combining theory and empirical findings.

2.4 Literature review

A vital part of any research project is the literature search, whether it be literature relevant to the research itself or related to research methodology and data collection techniques (Hart, 2012, p. 2). A literature review can be defined as a systematic process for identifying the already existing knowledge about a certain topic (Collis & Hussey, 2014, p. 76) and should be viewed as the foundation on which researchers base and justify their research questions and research design (Bryman & Bell, 2015, p. 100). Searching the literature will also prevent researchers from duplicating what has already been done and instead enable them to generate a unique topic that contributes to the field of research (Hart, 2012, p. 3). Without a comprehensive literature search, a research project is likely to lack the expected breadth and depth of understanding. Keeping this in mind, we have chosen to follow Hart’s (2012, p. 8) keys to a successful search, which are to: plan the search, gain knowledge about the tools in which knowledge is retrievable and organised, and select potentially useful sources to carefully read and extract appropriate information, including arguments, data, theories, and definitions. However, due to the sizable amount of information available through academic journals, books, and other sources, a literature review needs to include the making of judgements to decide what information is to be included or excluded (Bryman & Bell, 2015, p. 100).

To find relevant and reliable scientific articles for this study, we chose to mainly use Google Scholar, Academic search premier and Business source ultimate which was provided by
Umeå University. The initial process included the search for keywords such as *Gamification, Behavioural Finance, Financial literacy* and *Octalysis* to gain an overarching understanding of the topic at hand. From the literature found through these keywords, we could easily find additional sources and keywords to further deepen our knowledge by going through what literature they had referenced. New and specific keywords emerge from this such as *Octalysis framework, Gamification in Finance,* and *Retail Investor Behaviour.* All the keywords used in our search have given us an enormous number of articles and information to choose from. This prompted us to make judgments about what information to include. The selection process was done out of the relevance of the articles as well as the actual content of the source. Due to the vast number of results from the search of keywords, we acknowledge the possibility of excluding information that could have been relevant to our study. All sources, with few exceptions, are peer-reviewed scientific articles which have given us an indication of the quality of the source. Other, non-peer-reviewed sources have been deemed quality assured by cross-referencing and thus we feel confident about using them. Furthermore, our choices of literature concerning research methodology, research design, and data processing have been based on suggested literature given in the thesis manual provided by Umeå University. Based on this, we deem the sources used in the research to be of high quality.
3. Theoretical framework

The theoretical framework begins by descending into gamification in an attempt to explain what it is and where it is currently being utilized. Further, the chapter explains gamification related to investments and introduces the doctrine of Behavioural Finance where analysis of how gamification might affect cognitive biases is conducted. Lastly, the theoretical framework expands on financial literacy and risk and attempts to connect the two concepts.

3.1 Gamification

The term gamification was first mentioned in 2002 by Nick Pelling but did not experience any significant spread until the second half of the 2010s (Kim, 2015). A literature review exploring peer-reviewed empirical studies related to the usage of gamification found that the number of studies published about the subject is constantly growing, proving that gamification is gaining an increased amount of interest among scholars (Hamari et al., 2014). Today, the concept is a well-established technique within Human-Computer Interaction (Rapp et al., 2018 p. 1) but lacks an academically recognized definition due to disagreements among researchers. However, the most widespread definition was first coined in the article “From Game Design Elements to Gamefulness: Defining “Gamification”, where the authors defined gamification as “the use of game-design elements in non-game contexts” (Deterding et al., 2011, p. 10). These contexts do not necessarily need to be digital, enabling gamification to be applicable to non-digital environments as well; thus, moving outside the technological sphere (Pal et al., 2021, p. 506). Applications using gamification can be found in several industries, e.g., in healthcare, private banking, and marketing which have proven that gamification features and game elements have a strong effect on influencing the behaviour of individuals (Pal et al., 2021, p. 504). Commonly used elements of gamification are badges, leader boards, point systems and rewards that are based on the user's progress or usage. Introducing leader boards, for example, visualises the comparison among employees or consumers and can encourage users to perform better than their peers. These gamification elements can be seen as a motivation or incentive to achieve a result and may subsequently lead to behavioural changes in the consumer (Pal et al., 2021, p. 506).

Unpacking the definition proposed by Deterding et al. (2011) results in an important discernment of gamification compared to serious games and playful interaction through the two dimensions of playing/gaming and parts/whole. In game studies, play is conceived as a broader and freer category with a large emphasis on playfulness compared to games which are characterised through structures based on rules and competitive strife towards specific goals. Further, “parts” refers to the usage of certain game elements rather than the opposing whole which can be interpreted as the application of full-fledged games. The concept of gamification is situated as the combination of games and parts in the sense it relies on the usage of design elements characterised by games in non-game contexts. (Deterding et al., 2011 p. 11) Contrarian to Deterding et al., Houtari and Hamari (2012) argue that game elements are not enough to create a definition for gamification since there does not exist a set of game elements unique for gamification and that they do not automatically generate game-full experiences. The authors emphasise the role of gamification to create psychological experiences typically invoked by normal games and define the concept as “a process of enhancing a service with affordances for gameful experiences in order to support user's overall value creation” (Houtari & Hamari, 2012 p. 19). Accepting the definition
proposed by Deterding et al. (2011) raises the importance of defining game-design elements as well as non-game contexts to further enhance the understanding of gamification.

3.1.1 Game-design elements & non-game contexts

As illustrated in figure 2, Deterding et al. (2011) argue that there are five levels of game elements that all have a certain level of abstraction. The first level, game interface design patterns, introduce design elements that the user would be directly exposed to. This could for instance be leader boards or badges that are shown in the user interface as a visual accomplishment. Comparison amongst other users and what necessary steps are needed to achieve a higher level contributes to making this the most concrete and understandable level. Game design patterns and mechanics, which is the second level, refer to elements of the game that the user would interact with directly. These elements could for example be a turn-based style of gameplay and limitations to either time or resources (Morford et al., 2014). One could therefore argue that the two first levels have more direct interaction towards the consumer as the common denominator; thus, making it easier to interpret and understand.

The following three levels all focus more on verbal practises and are increasingly abstract in comparison to the previously mentioned levels. The third level, game design principles and heuristics, uses verbal behaviour (Mechner et al., 2013) to solve and analyse design problems as well as to evaluate given solutions. Game models, which is the fourth level, pertain to the user's perception and experience of the game. From a design point of view, it could mean designing the game to summon a certain feeling of play. The fifth and last level is game design methods and focuses on the general design strategies when designing games (Morford et al., 2014).
Deterding et al. (2011) further believe that the context is crucial to differentiate gamification from other closely related concepts. The usage of game-design elements in non-game contexts emphasises how elements are used for other reasons than their ‘normal’ purpose. Normal purposes are determined by social, historical, and cultural constructs that may change over time. However, it is sensible to assume that the current normal purpose of games is, in fact, entertainment. (Deterding et al., 2011) Unlike a game, gamification is not a product of its own, but instead, something that adds game elements to an already existing process to change how the process influences certain behaviours (Landers et al., 2018). Simply put, non-game contexts are contexts that do not incorporate the normal purpose of entertainment.

Understanding what elements to use and how they will serve the purpose of the outcome is of the utmost importance in order to make effective use of gamification. Landers (2019, p. 139) emphasises that many companies take to gamification without fully understanding the elements of it, ending up with both wasted time and money without the desired results. Therefore, making use of gamification and game elements should be done with great care to assess what elements best suit the context/purpose of using gamification in the first place.

3.1.2 Gamification and investments

Available research linking the usage of gamification to finance is, still to this date, relatively scant. However, as technology has minimised the barriers to financial markets and made personal banking more accessible, there has been an increased shift in focus toward retail investors. Estimates based on the current U.S stock market suggest that retail trading volume represents more than 25% of the trading market (McCrank, 2021). Furthermore, a report published by the Federal Reserve (2016) suggests that +50% of Americans monitor their bank accounts daily through mobile devices and as many as 66% on a weekly basis (Lexington Law, 2018). Bitrián et al. (2021) find that mobile applications that offer personal banking and savings services corresponded to approximately 5% of total downloaded apps in 2019. The field of finance is leveraging its usage of gamification through i.e., encouragement of saving, boosting financial literacy, stimulating healthy financial management, coping with risk, and creating community. Many banking applications rely on the usage of hedonic elements to enhance the user experience through playful and exciting elements (Baptista & Oliveira, 2017, p. 131). Common game elements used on financial platforms are savings goals, performance graphs, and leader boards where the user can compare themselves to their peers. These elements contribute to making financial management more fun and frictionless, while also creating an increased desire to use the application (Bitrián et al., 2021, p. 1311).

Today, there exist countless examples of the usage of gamification in financial contexts. A pioneering example is “SavingsQuest”, introduced by Doorways to Dreams in 2015 with the aim to reward real-life saving behaviour through instant gratification in the form of a pig that danced every time a consumer engaged in money-saving activities. The outcomes were fortunate, resulting in a 25% higher savings rate than other cardholders. (Maynard & McGlazer, 2017) Another example is PayPal, a platform that allows people to transfer money instantly to their friends. PayPal introduced a badge as a reward to encourage people to connect their credit cards to the platform and simply called it “verification” (Liu, 2022). The platform also puts a heavy focus on the customization of the home screen which amplifies the feeling of immersion on the platform. The Swedish internet broker Nordnet is another example of where gamification has been implemented in the field of personal finance. They introduced Shareville, which is a social network for savings and investments allowing users to share their portfolios, transactions, and performance compared to their
peers (Nordnet, n.d.). The social aspects make investing more enjoyable and can increase engagement through common game elements such as leader boards, chat forums, social badges etc (Chou, 2014, p. 195-196).

Although gamification has the potential to promote sound financial habits, increase financial literacy, and cause financial well-being, it also runs the risk of triggering some of the cognitive biases found in behavioural finance. Some of the most prominent and recurring biases found will be discussed below in relation to gamification. This section includes assumptions made by the authors to illustrate potential triggers of behavioural biases through game elements found on trading platforms. The literature connecting these two fields is limited. The authors still argue that this section is necessary to put the two fields in relation to each other for the future understanding of this study.

3.2 Behavioural finance

Traditional financial theories have long advocated that the Efficient Market Hypothesis (EMH) is the central foundation for modern finance. The hypothesis, first proposed by Fama (1970), suggests that the market price fully reflects all the available information at any time, leaving no room for excessive profits since everything already is fairly priced. EMH proposes that investment decision-makers act rational and utility-maximising in a presented situation. Contrary, the field of cognitive psychology argues that decision-makers are prone to illusions and biases, which causes individuals to act irrational (Singh, 2012). The field of behavioural finance aims to help understand the influence psychology has on investment decisions and how these decisions affect financial markets (Kenton, 2019). Shleifer (2009) claims that deviations from the efficient market are expected and explained by irrational investor behaviours. Behavioural finance views investors as “normal” rather than “rational”, meaning that they are prone to cognitive errors, have limited self-control, and are influenced by their own biases (CFI, 2015). Figure 3 shows an illustration of the cognitive biases that will be processed in this chapter. It is worth pointing out that there are two main branches stemming from the overarching concept, Heuristics and Prospect Theory, where investment decisions generally are based on one of the two.

![Figure 3: An illustration of common cognitive biases in decision making](image-url)
3.2.1 Heuristics

Heuristics is a collective concept that explains the means of reducing cognitive resources to find a solution to a problem. Individuals commonly take mental shortcuts to simplify complex situations where judgement or decisions are to be taken. Decision takers are consequently presented with a set of choices with a high level of uncertainty and limited ability to quantify the probability of an outcome, which forces them to take mental shortcuts. In short, heuristics refers to information processing errors and incorporates several of the following biases further presented below. (Baker & Nofsinger, 2010)

*Overconfidence bias*

People suffering from overconfidence bias generally experience an inflated view of their own ability to make decisions (Logg et al., 2018). Baker and Ricciardi (2014, p. 52-53) explain overconfidence as an over belief in an individual's ability to influence the outcome of an event, leading to irrational decisions being made. This bias is prominent in both behavioural finance theory and capital markets. A study conducted by Montier (2006) interviewed 300 fund managers about their perceived ability to invest compared to their peers. The results show that 74% of fund managers believe their ability to invest is above average, while most of the remaining 26% believed they were average (Montier, 2006). In essence, the answers represent a statistical impossibility and confirm the presence of an overconfidence bias among fund managers. Since fund managers experience a high level of financial literacy, a reasonable assumption is that overconfidence among retail investors is even higher due to the comparable low financial literacy.

Overconfident investors are more likely to underestimate risks related to their investments and therefore take on unwarranted risks. One source of overconfidence stems from ignoring “sentiment-based risks” i.e., risks related to decisions based on emotional considerations. Another source of overconfidence can be derived from an “illusion of validity”, meaning that individuals tend to “… construct consistent narratives that conform to their prior beliefs” (Kahneman 2011, cited in Baker & Ricciardi, 2014, p. 53). A key assumption about the illusion of validity is that investors rigorously dismiss evidence contrary to the coherence of the constructed narrative, which overlaps with another prominent bias known as “Confirmation Bias”. (Baker & Ricciardi, 2014) Confirmation bias refers to the error of processing available information inconsistently. Investors tend to overweight information that confirms their current beliefs and underweight information that opposes their current conception. (Baker et al., 2017, p. 27) This may further skew the value of an investor's investment decision due to their cognitive bias.

The illusion of overconfidence runs the risk of being enlarged when gamified platforms heavily utilize rewards, badges, and other types of gratification elements, causing investors to believe they are performing better than what reality suggests. Barber and Odean (2000) find overconfidence to be a significant reason for abnormally high trading activity and poor performance. Robinhood, eToro, WeBull, Avanza, and Nordnet are just a few examples of financial platforms that rely on heavy usage of game elements in an attempt to generate increased activity on their platforms. Figures show that the average Robinhood user trades up to 40 times as many shares per dollar in average accounts compared to more conservative platforms such as Charles Schwab (Popper, 2020). Based on Barber and Odean's findings combined with the diverging trading volume of gamified platforms, it is reasonable to assume that game-design elements influence retail investors' propensity to experience overconfidence.
**Availability bias**

When individuals assess the probability of an event occurring, they tend to take mental shortcuts based on what they already know. Individuals tend to believe that recalled events are more probable to occur than those they struggle to imagine. For instance, seeing a house burn down will affect the subjective probability for a person to think an event like that could occur more than reading about it in a newspaper. The bias declares that a person is likely to base their decisions on the data that is available and easily accessible rather than processing all available information objectively. (Tversky & Kahneman, 1974, p. 1127)

Large parts of the success experienced by gamified platforms are due to them making investing frictionless by removing the classical obstacles to investments. The barriers are significantly lower, but so is also the availability of information present for retail investors to base their decisions on. Figure 4 and 5 below represents the interface investors are met with before executing a trade decision on the two brokers Robinhood and Charles Schwab.

![Figure 4: a screenshot of Robinhood’s layout (Reinkensmeyer & McKhann, 2022)](image1)

![Figure 5: a screenshot of Charles Schwab’s layout (Reinkensmeyer, 2022)](image2)

Figure 4 (Robinhood) represents a scaled-down design containing limited amounts of information about the stock, virtually no tools for deeper analysis, and large buttons in strong colours. Figure 5 (Charles Schwab) contains substantial information about the stock, a large number of tools to base one’s analysis on, and normal-sized buttons to buy. To quantify the differences in an example, Robinhood offers 5 charting indicators compared to Charles Schwab which offers 41 (Stockbrokers, 2022). The interface in figure 4 is frictionless and easy to comprehend compared to figure 5 and is designed to encourage trade activity rather than scare it off. However, the lack of available and easily accessible
information on the platform may influence the decision-making process and investors exposed to less information might make less rational choices because of it.

**Herding behaviour**

Herding behaviour is derived from social influences and can be described as the dismissal of one’s strategy or analysis in favour of following a crowd (Baker et al., 2017, p. 26). It is a common, evolved heuristic that occurs when investors are unsure about the future movements of asset prices and instead choose to trust the crowd in front of their personal opinion (Baker & Ricciardi, 2014, p. 51). Investors tend to deviate from their own analysis and instead act on emotion and instinct. It is natural for us to herd, and psychologists even argue that acting contrary to the herd can cause physical pain (CFI, 2019). Herding behaviour has also been linked as a contributor to the emergence of financial bubbles and crashes. As a result, investment opportunities become artificial and lack real value, which has been seen repeatedly throughout history. Analysts struggle to handle herding behaviour since they run the risk of falling behind their peers if they abstain from herding opportunities, but risk detrimental losses if they unsuccessfully try to exploit the trade opportunity. (Baker et al., 2017)

Dismissing your personal strategy/analysis in favour of following the crowd, is a common psychological heuristic that runs the risk of being amplified through gamification. Since herding behaviour relies on social influences, game-design elements such as leader boards, top movers lists, and chat forums need to be closely monitored to not cause excessive herding episodes. Leader boards could either increase or decrease motivation to invest depending on the size of the performance gap among peers (Sailar et al., 2017). In addition, it could cause an investor experiencing low returns to abandon their own strategy in favour of copying a higher-performing person’s strategy based on short term performance gains. Shareville, the previously mentioned social network for investments, gives users full insights into each other's portfolios and trading decisions. Although it could cause users to learn from more experienced and skilled investors, it also runs the risk of influencing people to abandon their own strategy to follow the high performers. Below is a fictional example created to demonstrate a type of herding behaviour prone to occur through leader boards:

*Assume that popular users at the top of the leader board have invested heavily into renewable energy stocks, which have performed extremely well. Investors that own more conservative stocks in e.g., the banking or automotive sector, might compare the performance of their portfolio with the portfolio containing renewable energy stocks only to realise that they currently are not performing as well. Naturally, they also want higher returns and decide to sell some of their conservative investments to buy renewable energy stocks. The issue is that the renewable energy stocks already experienced a surge in returns, which is why the top of the leader board was filled with portfolios containing them. A few weeks go by, and the renewable energy stocks have decreased in value and the current top users own portfolios containing banks and technology stocks. This is an example of how leader boards can induce herding events where investors dismiss their personal strategy in favour of following a superior.*

The bottom line with the presented example above is that leader boards run the risk of retail investors following others they believe know more without a proper analysis of the investments at hand.
Another game element that could affect herding behaviour is *Top movers*. Top movers lists is a common element on trading platforms illustrating the largest percentage changes throughout the day from the previous day’s closing price (Barber et al., 2020). These lists tend to concentrate trades into financial instruments with extreme returns, both positive and negative. Barber et al. (2020) found that a gamified trading platform users had 35% of net buying concentrated into ten stocks, which is eleven percentage points higher than the general retail investor. The authors conclude that the game-design elements combined with the inexperience of its users made them more likely to experience herding behaviour (Barber et al., 2020). Similar lists containing most bought or sold stocks is another common feature found on trading platforms, which likely will influence an investor’s decision-making process. Since it goes against our nature to act contrary to the herd (CFI, 2019), an investor seeing a stock they own appear on the most sold list is likely to cause unpleasant emotions and increase the probability of selling the stock based on the actions of the crowd.

Forums, chats, and other social media influences can also play a major role in affecting herding behaviour. In 2021, the financial community experienced a herding event never seen before when several hedge funds short-sold the GameStop stock based on poor fundamentals and disbelief in their business model (Umar et al., 2021, p. 2). The retail investor community began countering the massive short positions taken by the hedge funds, resulting in an increase in the price of the stock from $5 to $325 in less than a month (Mitchell, 2022). This herding event was made possible through the alignment of retail investors through social media forums and was by no means a rational investment decision. Both Hedge funds and retail investors ended up losing significant amounts of money, while a few managed to generate significant profits.

**Anchoring**

The anchoring bias reflects the faulty estimation based on an initial value that is altered to yield the final answer. Different starting point values generate different answers that tend to be biased towards the initial value. (Tversky & Kahneman, 1974, p. 1128) Put differently, individuals tend to rely too much on previous information they have been exposed to instead of treating new information objectively. A comprehensible example to illustrate the bias can be seen if you first spot a pair of jeans for $200, and then another pair for $80. A person is increasingly prone to experience the second pair as cheap since they were exposed to the $200 pair first. Similar principles can be found when investors base their analysis on historical trading prices, skewing their perception of what is considered a fair asset price.

### 3.2.2 Prospect theory

Kahneman and Tversky (1979) developed the *Prospect theory* as a way to describe observed human behaviour in decision-making when exposed to risk. The theory aims to explain how people *are* behaving instead of how they *should* behave (Baker & Ricciardi, 2014, p. 32). Kahneman and Tversky’s (1979) findings show that most people suffer from the cognitive illusion known as “Aversion”, meaning that they experience portfolio losses stronger than gains. To rephrase it, the pain experienced from losing 100$ is greater than the joy experienced by gaining the same amount (Baker & Ricciardi, 2014, p. 33). A rational investor would experience equally strong reactions in both scenarios above.

Regret aversion is a term used to explain the regretful emotions experienced followed by taking a decision that either turns out to be a bad or at least inferior choice. The theory

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1 “Short selling is an investment or trading strategy that speculates on the decline in a stock or other security’s price” - (Chen, 2022, a)
primarily explores how the anticipation of regret in the future affects individuals making decisions. Generally, people influencing anticipated regret tend to take less risk to reduce the probability of experiencing unsatisfactory outcomes. (Baker & Nofsinger, 2010, p. 322) An example of regret aversion is Fear of Missing Out (FOMO), which frequently occurs when people make decisions based on fear of missing an opportunity, believing they will regret their decision in the future. During extended periods of bull market and high investor optimism, the effects of FOMO become especially distinct and can cause even the most conservative investor to ignore warning signs of a future negative market. (Chen, 2021, a)

3.2.3 Risk and financial literacy

According to Baker & Nofsinger, (2010, p. 143) risk has historically been explained by two major perspectives that have connections to the academic sphere, Standard Finance and Behavioural Finance. Under the standard finance perspective, the risk of an investment is primarily based upon uncertainty about future returns. In standard finance, the risk is based upon traditional quantitative measurements such as beta, standard deviation and variance, disregarding investor psychology. (Baker & Nofsinger, 2010, p. 134) On the opposite, behavioural finance incorporates qualitative and cognitive aspects together with the traditional quantitative measurements in their analysis of risk. Understanding these subjective aspects, such as knowledge, trust, and benefit, is central to measuring and understanding the risk involved. (Baker & Nofsinger, 2010, p. 137-139).

Financial literacy is known to affect investors’ handling of risk by reducing the inconsistency between risk propensity and risk behaviour (Korkmaz et al., 2021, p. 293). Lusardi and Michell (2014, p. 6) define financial literacy as “peoples’ ability to process economic information and make informed decisions about financial planning, wealth accumulation, debt, and pensions”. A low level of financial literacy increases the risk of performing poorly on the stock market and accumulating high levels of debt (Klapper & Lusardi, 2020, p. 590). On the contrary, a high level of financial literacy decreases those risks and can initiate a higher degree of market participation (Pramahender et al., 2020, p. 2).

When investment choices and available financial information for investors and consumers increase, so does the difficulty to sift and interpret such information in a correct way. Agnew and Szykman (2005, p. 58) argue that publishing more information for investors to take part in does not necessarily help in making good investment decisions, as this could instead cause an information overload. Furthermore, the authors explain that consumers make the best use of information that is easy to interpret and requires less effort to obtain, thus strengthening the argument of information overload. Lusardi and Mitchell (2014, p. 34) claim that the correlation between financial literacy and financial behaviour is still hard to specify. It can, however, be argued that individuals who obtain a higher level of financial literacy also have a lower risk of failing in the financial market. Higher market participation, more successful retirement savings, better debt management and an overall more secure financial situation all seem to be connected to a higher level of financial literacy.
4. Frameworks and context

The third chapter will present the chosen framework used to analyse the findings. It will be explaining why this framework was chosen over other similar frameworks and why it is relevant for the study. In addition, it will take a deeper look into the chosen framework “Octalysis” and the eight core drives that follow in order to nuance the effects gamification can have on behaviour and motivation.

4.1 Octalysis

As gamification has increased, numerous frameworks for analysing have been proposed by scholars. Some of the most prominent frameworks include the “Six Steps to Gamification” (6D) by Werbach and Hunter which proposes a six-step plan for deploying a gamification system, the “Player Centered Design Methodology” proposed by Kumar in 2013 which embraces gamification in a business context, and lastly, the “GAME” framework introduced by Marczewski in 2012, which emphasises two phases, planning and development (Mora et al., 2015, p. 102). However, we believe that these frameworks focus excessively on how to implement and use the gamification systems and not enough on how the gamification affects individuals. Instead, we argue that the complete gamification framework known as “Octalysis” is better suited to fit the aim of our study since the chosen platform adopts elements that allude to human emotions. It differentiates itself from other frameworks by focusing on human motivation. By doing so, Octalysis emphasises Human-Focused Design, meaning that it is centred around human behaviour, rather than Function-Focused design, which focuses on objectively completing a task (Mora et al., 2015, p. 103).

Yu-Kai Chou is the creator of the Octalysis framework and an internationally renowned speaker on gamification and behavioural design. The Octalysis framework came into place because Chou (2014) saw the need for a tool that could, more effectively, analyse what strategies and systems make games more engaging. The framework consists of eight core drives where each drive speaks for different factors of motivation, some are considered to be extrinsic (left brain) while others are intrinsic (right brain). Chou (2014, p. 31) also divides the drives into White Hat core drives which are located at the top of the octagon and Black hat core drives which are located at the bottom of the octagon. All of which will be explained more in detail in the following chapters, the entire framework can also be seen in figure 6 below. (Chou, 2014).

Chou (2014) emphasises that, if the desired action is not based on any of the 8 core drives, there will be zero motivation and hence no action from the user at all. Core drives associated with analytical thinking, logic and ownership are located on the left side of the octagon and referred to as Left Brain Core Drives. On the opposite side, drives containing social dynamics, creativity and self-expression are arranged to the right side of the octagon, hence called Right Brain Core Drives (Chou, 2014, p. 29). The left brain core drives tend to be motivated by extrinsic factors, meaning that the individual is motivated by an external incentive such as a goal or a reward in order to fulfil the task. On the other hand, right brain core drives are motivated by intrinsic factors where no rewards or goals are needed. Purely doing the activity itself is seen to be rewarding enough. (Chou, 2014, p. 30)

The three white hat core drives (core drive 1, 2,3), at the top of the octagon, are considered to be positive motivations. Here, an individual experiences success and empowerment by taking part in an activity that allows creativity. Black hat core drives (core drive 6, 7, 8), at the bottom of the octagon, are considered to be negative motivations. Feelings of anxiety, addiction, and obsession because the individual will engage in an activity out of uncertainty,
the fear of losing something or trying to achieve something that you cannot obtain. (Chou, 2014, p. 31-32)

![Image of the Octalysis framework](image)

**Figure 6: An illustration of the Octalysis framework (Chou, 2014, p. 23)**

4.1.1 Core drive 1 - Epic Meaning & Calling
At the very top of the Octalysis framework, the strongest of the white hat core drives is located, namely epic meaning and calling. Epic meaning comes from the feeling of taking part in an activity that is bigger than yourself. McGonigal (2011) claims that meaning stems from pursuing a collective goal and contributing to the overall achievement. The Epic part of the definition refers to something that far surpasses the ordinary in terms of intensity, scale, and size (McGonigal, 2011, p. 98). The epic meaning is evident in real life where people devote themselves to activities that are beneficial to the bigger crowd, such as administrators on Wikipedia who do it to assure accurate information (Chou, 2014, p. 25).

Calling transcribes into a person who believes that they have a special gift that others do not, that is destined for this particular activity (Chou, 2014, p. 85). One example that Chou (2014, p. 86) brings up is to give people free items that normally come at a price, in order to make the user feel singled out and special which favours the user to further action.

4.1.2 Core drive 2 - Development & Accomplishment
Development and Accomplishment is the second core drive and, as the name might suggest, where individuals are motivated by personal growth and the need to fulfil a targeted goal. According to Chou (2014, p. 90), elements such as progression bars, achievement symbols and status points are the most common elements of gamification implemented in real life related to this core drive. Chou (2014, p. 91) emphasises that the key in this core drive is to have a challenge, which in the end is conquered, and that the user should feel proud of the achievement by the reward given.

4.1.3 Core drive 3 - Empowerment of Creativity & Feedback
As can be seen in figure 6 above, Empowerment of Creativity and Feedback is located in the top right corner, meaning that it has strong long term positive effects on emotions and
emphasises intrinsic motivation. Individuals thrive on being able to express and differentiate themselves from their peers. It lies within human nature to show a sense of style and prove that they belong to a certain group (Zichermann & Cunningham, 2011). This core drive is achieved when the user is allowed to, through creativity, try out different combinations and see the results first hand which gives them instant feedback (Chou, 2014, p. 26). To put this into a comprehensible context, playing with Lego or similar toys, enables the user to have close to an infinity of combinations to try. During the build, it is possible to alter the shape and size of the creation which gives immediate feedback to the user, mouths out in empowerment (Chou, 2014, p. 124). Implemented correctly, users can achieve an evergreen state of mind. This means that the user then can continuously use their creativity to engage in the activity, not needing further content from the game designer (Chou, 2014, p. 129).

4.1.4 Core drive 4 - Ownership & Possession
To the far left of the Octalysis framework model, heavily influenced by analytical thinking and logic, we find Ownership and Possession. The emotional connection between caring for something you own and the need to improve, protect or attain more of that something (Chou, 2014, p. 160; Hummels & Overbeeke, 2000). This is also connected to the Endowment effect (Kahneman, 2011) which is realised when the user obtains a feeling of ownership of an item. In order to contextualise, one can use the example of collecting Pokémon cards. Here, the collector is driven by improving the collection by trading old ones as well as protecting the current collection of cards, while simultaneously obtaining new cards. Similar to accumulating wealth, where the collection of Pokémon cards would indicate the wealth and increasing the collection of cards would increase the overall wealth. The cards on their own might have a low level of practical use but presented in a large selection increases the perceived value for the collector (Chou, 2014, p. 161-163).

4.1.5 Core drive 5 - Social Influence & Relatedness
Core drive five is affected by social influence and the desire to connect and compare to other people, hence located to the far right in the figure where intrinsic motivation is the most present. McGonigal (2011) argues that games build stronger social bonds and more active social networks and that social interaction results in an increased likelihood for people to generate a subset of positive emotions. Activities are influenced by what other people think and how they do or talk about a certain activity. Observing a friend that owns something spectacular or simply has great skill at something would, according to this core drive, motivate you to have that same item or increase your skills in order to better connect and compare to your friend (Chou, 2014, p. 195-196). Relatedness comes from drawing closer to items, geographical places, and people because there is a relatable factor in play. For example, viewing an item and bringing back memories of one’s childhood might increase the urge to buy that item because of the sense of nostalgia (Chou, 2014, p. 27).

4.1.6 Core drive 6 - Scarcity & Impatience
Longing for a rare achievement, exclusive membership, and impatience, is part of the sixth core drive of the Octalysis framework. Being able to control this core drive and successfully combining it with the seventh and eighth core drive, greatly increases the chance of affecting consumer action (Chou, 2014, p. 267). Chou uses the example of Facebook, at first the platform was only available to Harvard students which created an exclusive feeling around the community. Later, opening to other schools and continuously invited a larger crowd. When Facebook finally opened to the greater public, people's impatience towards the previously unattainable, made for huge success. (Chou, 2014, p. 27)
4.1.7 Core drive 7 - Unpredictability & Curiosity

Unpredictability and engaging the brain in an irregular pattern force it to pay more attention to the activity, very recognisable in gambling environments, where the chance factor comes into play (Chou, 2014, p. 28). Further, listening to a speech or a lecture that keeps the listener on their toes also prevents them from losing focus. Whenever the brain recognizes the pattern of whatever activity, the risk of zoning out greatly increases. The latter part of the core drive, Curiosity, plays at the instinct of exploring the unknown. Drive theory suggests that curiosity triggers unpleasant sensations that are redacted through exploration of the source (Loewenstein, 1994). Locating this within a game-related context could for example mean being rewarded with a mystery box while playing a game (Chou, 2014, p. 296) or receiving a notification that only displays parts of information.

4.1.8 Core drive 8 - Loss & Avoidance

The last core drive, located at the very bottom of the figure and being a powerful black hat drive, is Loss and Avoidance. As the name implies, the motivation of engaging in activities comes from trying to avoid negative things from happening. It can also be related to the fear of losing ownership over an item or wealth. This drive is particularly strong since it can create the feeling of losing out on something forever if they do not act immediately on the spot. A common example of this is the phrase Limited offer, putting pressure on the consumer to act before the time frame is over or losing the ability to take advantage of the offer. (Chou, 2014, p. 307-309) Core drive eight resonates with Kahneman and Tversky’s (1979) previous work on Prospect Theory, suggesting that individuals experience loss stronger than gains and that anticipated regret affects people’s ability to make rational decisions.

4.2 Presentation of Avanza

Avanza Bank Holding AB, founded in 1999, is today one of the biggest stockbrokers on the Swedish market with approximately 1.5 million active users. In 2005 the company received their banking licence which enabled them to enter the online broker market. Since then, Avanza has continued to expand its services as well as increase the selection of financial instruments available to its users. Avanza is available both through its website and mobile phone application. (Avanza, n.d., C)

Avanza's income is based on brokerage fees coming from trading stock, bonds, and funds. It implies that an increased trading frequency would lead to a higher level of income relating to brokerage fees for the institution in question, which could be argued to be an incentive for a company to increase the trading frequency of its user (Judge, 2013). Avanza emphasises that they have a user perspective in mind, aiming to educate their users and provide financial information for the user to make rational and well-informed decisions (Avanza, n.d., C). In the Swedish market, Avanza has been a pioneer in its usage of gamification on financial platforms. As seen in figure 7, the broker has managed to design a stripped and playful platform where strong colours and large buttons are prevalent. Strong colours are seen throughout all parts of the platform but become distinct when being illustrated in performance graphs and the movement of financial instruments. Large buttons are visible when actions are to be taken and buttons like BUY and SELL are always visible when one is viewing a financial instrument. Today, numerous game-design elements are present on its platform, with new ones constantly being introduced to engage its users. A prominent element is the portfolio created when a person invests in financial instruments, showing the collective value of their possessions. The account settings can be tailored to show this portfolio on the starting page of both the application and website, giving instant
feedback to the user when entering the platform. Although there exist numerous additional elements, this research project has identified six major game-design elements present on the platform that it will focus on: *Your numbers, Top movers, Charts, Milestones, Push notifications,* and *Avanza Svajper.* They will be described further in chapter 6 together with the responses of our interviewees as well as discussed in chapter 7 in relation to the literature.

*Figure 7 General layout on the Avanza platform*
5. Practical method

This chapter will present our choice of data collection, how the interviews were conducted, the quality of our data as well as how ethical principles have been considered during this process.

Under the interpretivist approach, the quality and depth of the collected data is heavily emphasised. Qualitative research data tend to be better suited for obtaining a deeper understanding of a social phenomenon than quantitative research data since it incorporates subjective opinions and personal experiences from respondents, making qualitative data more detailed and refined (Collis & Hussey, 2014, p. 52; Lenger, 2019, p. 950). Quantitative researchers critique qualitative research for being too subjective, arguing that a study’s findings are too affected by the researcher’s own views of what is important hence not limiting the view of the study (Bryman & Bell, 2015, p. 413). A qualitative study is, apart from a quantitative study, more flexible in the sense that the researcher can alter the course of the investigation more easily (Bryman & Bell, 2015, p. 408–409). Contrary to mentioned above, quantitative interviews are significantly more standardised and less flexible since researchers want quicker answers that easily can be coded or quantified. The questionnaire can be seen as a strict framework that systematically should be answered, one question after another, without unnecessary expansion on the interviewee’s behalf. In a quantitative interview process, it may jeopardise the outcome and validity of the interview if the researcher deviates from the structured process. (Bryman & Bell, 2015, p. 480-481) A quantitative interview process is better suited for a positivistic approach since this falls under the natural science sphere where researchers believe there is one, objective and true, reality of its interviewees and do not seek to gain a deeper understanding of a social phenomenon (Collis & Hussey, 2014, p. 46). Quantitative researchers have expressed concern about the problem of generalisation that comes with qualitative studies. The major critique focuses on how a fairly small sample size possibly can be applicable to a larger population, or in a setting that is different from that of the original setting (Bryman & Bell, 2015, p. 414). Another criticism of qualitative research, put forth by researchers in the quantitative sphere, is the lack of transparency, meaning that the work process and how the researcher comes to the conclusion is not always clear and obvious (Bryman & Bell, 2015, p. 414). Because of what has been mentioned above, it is also close to impossible to replicate the study because of the researcher’s preferences. The results of one researcher can differ from what another researcher concludes, coming purely from personal preferences on what might be of importance to the study (Bryman & Bell, 2015, p. 414).

To effectively answer our research question, we needed to gain a deeper understanding of how our respondents perceive the effect of gamification and how it might affect their investment behaviour. It would not have been possible without the option to ask follow-up questions and allow the interviewees to expand on their own opinions and ideas. This prompted us to rule out the alternative of using a quantitative research method with a structured form of interviewing and deemed ourselves confident in our choice of a qualitative research method since this allowed, both researchers and interviewees, to expand on complexities and subjective thoughts.

5.1 Interview structure

Interviews are a common method of collecting data under the interpretivist paradigm where the interviewees are asked questions in which they respond to how they think, feel, or do in a certain scenario (Collis & Hussey, 2014, p. 133). There exist three common ways of structuring interviews; structured interviews, semi-structured interviews, and unstructured
structured interviews (Saunders et al., 2003, p. 246; Bryman & Bell, 2015, p. 213). Structured interviews rely on a predetermined and standardised set of questions where each respondent is handed identical questions. The aim of structured interviews is to ensure that the results of the interviews can be aggregated (Bryman & Bell, 2015, p. 211). Semi-structured interviews are non-standardised but contain broad questions and themes that the interviewers want to touch upon. The interviews are commonly somewhat more general than the structured style, which gives room for potential probes and might look different depending on the context and gives (Bryman & Bell, 2015, p. 213). This interview style is frequently used in qualitative projects since it allows the interviewee to expand on their own opinions and reflections, giving more insight and understanding of the interviewee’s point of view (Bryman & Bell, 2015, p. 480). Because the interview can take a less structured approach, researchers have the possibility to depart from the original interview guide to ask follow-up questions that further expand on the interviewees’ subjective realities. This does, however, require a higher degree of skill from interviewers to successfully obtain the opinions of the respondent, while also being a more time-consuming process (Lenger, 2019, p. 5). Unstructured interviews give the interviewer total freedom of what questions will be asked and usually adopts an informal type of language. Since there is no predetermined list of questions to cover, the content of the interviews may vary greatly which may result in difficulties analysing the collected data (Collis & Hussey, 2014, p. 135). Although the content of the interview is not predetermined, it is still important for the interviewer to have a clear idea of what they want to explore in order to obtain any information of value to the study (Saunders et al., 2003, p. 247).

This study adopted a semi-structured interview form which is suitable when; there are a large number of questions, complex or open-ended questions, or when the order and logic of questioning need to be mixed (Saunders et al., 2003, p. 251). We deemed this structure to be appropriate since this research project falls under the interpretivist paradigm, meaning that our respondents share different views of reality. This structure allowed us to adjust the interview to fit the respondent, ask suitable follow-up questions, and follow an appropriate order. Several open-ended questions were asked that allowed the respondent to answer freely. This gave us the chance to adjust what order we asked the questions and the timing of the follow-up questions. Our study also contains several complex questions, which is why we argued, with the support of Saunders et al. (2003, p. 251), that a semi-structured interview would allow us to obtain superior information compared to the alternatives. A structured interview would have limited our ability to collect deep knowledge, while an unstructured interview might have run the risk of us not being able to obtain sufficient information and/or causing problems in our analysis of the data.

The interviews consisted of three main parts, illustrated in figure 3. The first part focused on letting the respondent tell us about themselves. This part was necessary to include since our analysis aimed to illustrate demographic differences regarding the influence gamification has on investor behaviour. The second part focused on the respondent’s usage and familiarity with the financial platform Avanza, while simultaneously collecting information about the respondent’s financial literacy. The third and last part investigated the specific elements of gamification present on the Avanza platform. This section contained a presentation showing examples of game-design elements taken from their mobile application. Appendix 7 presents the interview guide.

5.2 Selection

One of the most common issues found in qualitative research is the selection of a sample. As previously mentioned, our research aims to investigate how gamification affects the behaviour of retail investors. This research has relied on two types of sampling methods:
purposive sampling and self-selection sampling. Using several sampling approaches is common in purposive sampling to reach the desired goal and sample size. Purposive sampling refers to a non-probability form of sampling where the researcher(s) seeks to choose the sample strategically based on its relevance to the research question (Bryman & Bell, 2015, p. 429). This type of sampling is commonly used when the sample size is small and/or the researcher(s) deems an individual to be particularly informative (Saunders et al., 2003, p. 237), which is something we did when targeting a senior employee at Avanza.

Self-selection sampling refers to when researchers allow individuals to independently identify their desire to participate in a study based on an advertisement in relevant forums that they are in need of respondents (Saunders et al., 2003, p. 241). In our case, we advertised the need for participants in two different Swedish Facebook groups about investments. We argued that this would be an efficient way to find appropriate participants for the study since it requires a certain interest in the subject to be a part of the group. However, the demographics in these groups tend to be skewed with a majority of the members being males between the ages of 25-40. Therefore, we complemented the sample received from the groups by handpicking one female to expand the demographic differences of the results. We were aware that only interviewing one female is not enough to make any broad generalisations about the investment behaviour of the whole gender but still argued that it would add diversity to the results. Despite our study originating from a consumer perspective, interviewing a senior executive at Avanza allows us to expand the scope of our study. Because of the subjectivity of the research, we believe that it is important to gain an understanding of how Avanza view their own usage of gamification. Connecting the two views is, in our opinion, essential to fully understand this phenomenon.

A common issue for qualitative research that needs to be addressed is the difficulty of correctly deciding on the number of interviews needed in order to achieve theoretical saturation (Bryman, 2012, p. 425). Initially, we believed that the number of interviews needed would exceed ten participants and that we would preferably like to have done approximately that many interviews. However, because of limitations to both time and resources, we quickly learned that conducting that many interviews would not be possible regarding our timeline. Also, as our interviews progressed, we started to see certain patterns and that the respondents’ answers were similar to each other. This led us to believe that theoretical saturation had been met after seven interviews, with regard to the questions of the interview guide. To further expand the study, we would need to increase the number of women, making the sample population more equal and allowing us to see patterns across gender. Also, increasing the age groups and possibly selecting participants with certain backgrounds, would allow us to investigate to what degree, for example, financial literacy affects the results of the study. Nevertheless, we believe that our sample is representative of the Avanza customer base, being cantered towards relatively young males.

5.3 Preparations for interviews & interview guide

Before conducting interviews, it is important to be well-prepared and knowledgeable about the organisation and context in which the interview will be held (Saunders et al., 2003, p. 254). We deemed ourselves to be knowledgeable about the subjects of gamification and finance both due to our previous competence, but also due to our continuous reading of academic literature. Since our knowledge inevitably would affect our credibility (Saunders et al., 2003, p. 255) we aimed to obtain deep knowledge about the subject to appear as credible as possible to the research participants. Conversations with our supervisor together with university-held seminars prompted us to seek out conversations with knowledgeable people about our research subject to further verify our knowledge. For some of the
interviews with high profile individuals, we deemed it was also necessary to read up on the individual and/or organisation to get a comprehensive understanding before the interview. Using LinkedIn, Google, and organisational websites to obtain necessary information prior to the interviews. This also saved us valuable interview time since we already had substantial background information, meaning there was no need to ask any great amounts of background questions. Instead, we could focus on the essential part of the interview and deep dive into the questions.

Before conducting the interviews, we argued that having a test interview to get comfortable conducting interviews was necessary to ensure the best possible collection of data. This also allowed us to revise the interview guide to improve the material for future interviews. The test interview was held with a person that fulfilled the sample criteria of the study to give us valuable and applicable feedback.

The interview guide was designed based on the game-design elements identified on the Avanza platform in section 4.2. To effectively formulate interview questions, we deemed it to be a vital step to gain the ability to answer our research question. It is constituted of three parts illustrated in figure 8, where the first one covers some general background questions. The second part focuses on the usage of the platform and the attitude towards gamification. Lastly, the third part covers the specific game-design elements identified in section 4.2, and how they influence investors. The elements are further explained in chapter 7 and discussed in chapter 8.

![Part 1: Background](image1)
![Part 2: Usage & Attitude](image2)
![Part 3: Gamification on Avanza](image3)

**Figure 8: interview structure**

5.4 Practical collection of data

In business research, it is customary to conduct the interviews in person (Saunders et al., 2003, p. 215). Technological advances and evolving tools such as Skype, Zoom and Microsoft Teams, have made it possible for people to now connect more easily than ever before. This has become more prominent during the Covid-19 pandemic, where many offices and schools switched their activities to be online-based. This eliminates some of the problems that previously have been connected to qualitative data collection, for example, geographical, physical and also financial constraints since conducting on-site interviews can be financially costly. Online video meetings do however have their limitations. Since the interviewers cannot see more than the head of the interviewee, translating the body language becomes close to impossible (Janghorban et al., 2014, p. 1).
The larger mass of our respondents lived outside of Umeå which made interviews through Zoom a viable and efficient alternative to meeting in person. Zoom allows for both audio and video during the call which makes it possible for both interviewees and interviewers to see each other during the whole duration of the interview in real-time. Since Covid-19 was no longer classified as a pandemic, we did take the opportunity to meet one of the respondents that were based in Stockholm during the month of April. However, due to both time and cost constraints, it was not possible to conduct all the interviews in person. We were invited to conduct the interview with the Senior Executive at Avanza at their office in Stockholm, something which might have influenced the power geometry of the interview.

Both authors were present during all the interviews. Even though the most common interview technique is to have one interviewer and one interviewee (Collis & Hussey, 2014, p. 135), we deemed it to be more beneficial to have one interviewer who focused on leading the conversation, while the other took notes and focused on follow-up questions. We recognized the issue of keeping track of time and staying on the subject during semi-structured interviews can be hard. Having a secondary interviewer helped to keep the time of the interview as well as stay on track if the respondents steered too far off. Using this strategy made it possible to explore all topics of our interview guide and enabled us to gain a deeper understanding of the respondent.

5.5 Recording & transcribing

Before each interview, we asked the respondents for their consent to record their answers. Interviewees sometimes feel self-conscious or discomforted by the thought of them being recorded, which is why it is not uncommon for a small number of people to refuse to be recorded during interviews (Bryman & Bell, 2015, p. 494). Luckily, all our respondents accepted our request to record. The reason we wanted to record was to ensure that we did not have to take extensive notes throughout the interview, allowing us to instead pay full attention to the interview and ask relevant follow-up questions. Another reason was to take advantage of being able to not only listen to what the respondents say but also note how they say it (Saunders et al., 2009, p. 339; Bryman & Bell, 2015, p. 494). Our recordings allowed us to examine the content thoroughly and repeatedly, eliminating the potential risk of missing information due to the limitations of our human memory. As the majority of the interviews took place through Zoom, we primarily used the recording function provided by the software. At least three audio files were recorded at each interview to ensure that no material would get lost by malfunctioning, whereas two were through Zoom’s own function and one was through a mobile recording. This was a method that we felt comfortable with, which Collis & Hussey (2014, p. 135) argues is important before an interview since both of us had previous experience using these recording tools.

Transcribing interviews is a very time consuming but necessary matter where researchers commonly underestimate the amount of time necessary for accurate transcription (Bryman & Bell, 2015, p. 495; Collis & Hussey, 2014, p. 166). To be able to transcribe a relatively large number of interviews in a short time, we decided to use the transcription function in Microsoft Word to generate text from our audio recordings. This was by no means perfect but simplified the overall process while it still was in need of “data cleaning” (Saunders et al., 2009, p. 485) The generated text was then corrected by us while listening to the recorded audio files to ensure that the transcription was of high quality without errors. We tried to transcribe the interviews as soon as possible after they had been conducted to avoid stockpiling the large amount of work needed for transcription. This also allowed us to identify patterns and characteristics throughout our study (Collis & Hussey 2014, p. 170), which we could further ask about during the coming interviews (Bryman & Bell, 2015, p.
Since our interviews were held in Swedish, the transcription that followed was also one in Swedish. Our choice of language will be further explained in the following section.

5.6 Interview language

Although the report is written in English, all our interviews were held in Swedish. We choose to conduct the interviews in Swedish since Avanza’s platform currently only exists on the Swedish market and is only available in the Swedish language (Avanza, n.d., D). Swedish is also the native language of our respondents as well as ourselves, which caused us to believe that we would be able to obtain more in-depth information by conducting the interviews in Swedish rather than in English. Knowing that respondents were native to Swedish, we wanted to eliminate the possibility of language barriers being a reason for inadequate responses. Furthermore, we believe that it would be easier for us and the respondents to relate to the game-design elements if they are addressed in the same language as they are presented on the platform. Describing the elements in English instead of Swedish could have resulted in aiming errors to what elements are being investigated. Our choices did cause us additional work since we needed to translate the transcriptions into English before presenting them in the result and analysis sections. We are aware of the risk of information getting lost in translation, such as the meaning of certain words or phrases (Cassel, 2015, p. 10), but argue that the potential to obtain valuable information justifies that risk. The answers presented in the report are translated, to the best of our ability, into English and correspond, in close detail, to the original Swedish transcript.

5.7 Data quality

Morse et al. (2002) argue that qualitative research under the interpretivist paradigm should aim to ensure the trustworthiness of its sources and research process. This is accomplished by taking reliability and validity into account and making sure that they are upheld throughout the whole process of the study.

5.7.1 Reliability & lack of standardisation

Question of reliability and lack of standardisation in qualitative interview processes are two concerns that have been raised by researchers according to Saunders et al. (2003, p. 252). Reliability is often easier to prove and assure in a study that uses quantitative data collection (Lewis, 2009, p. 8) since the quantitative process is stricter in its structure and choice of questions. It has been argued that qualitative research is hard to replicate and that results vary depending on the subjectivity of the researcher(s) or other biases that played a role. A common bias, which may be one of the most important, is interviewer bias. (Collis & Hussey, 2014, p. 208-209) Body language, tone of voice and overall behaviour of the interviewer run the risk of creating a bias that can affect how the respondent chooses to answer the question. Researchers might also risk the reliability of the research by reflecting their own beliefs and opinions in the questions asked to the respondents, causing the questions to be angled or one-sided.

Saunders et al. (2003, p. 252) raise a response to the question of replicating a qualitative study, research that is non-standardised does not automatically entail being recreated. These studies show a representation of reality at one point in time and therefore also subject to change. The results of our study, on how gamification affects retail investors, may therefore change with time which is fairly reasonable to assume since both the technology behind gamification and the perception among people also change with time.
5.7.2 Validity

Validity in business research, and particularly within qualitative research, could be synonymous with the appropriateness or suitableness of the tools and processes used (Leung, 2015, p. 325). Validity is not limited to one single part of a research study but rather present throughout the whole study, permeating all parts. If the chosen method is suitable for effectively answering the research question stated, the results should be valid and suitable for the targeted sample of the study. This often starts to take place in the chosen paradigm of the study since, depending on the research paradigm, the study can take different standpoints (Leung, 2015, p. 325). Keeping this in mind and acknowledging that our study takes on the interpretivist paradigm, all parts of our research process have been well thought out to assure validity.

To further strengthen the validity, triangulation (Lewis, 2009, p. 11) can be used to better validate findings or in explaining certain events. It can be explained by trying to find an unknown point by using several known points. The more known points that support the same result, a higher level of validity can be established for the findings. In qualitative research, these known points can come from literature, theory and interviews which then are used to validate the findings of the unknown, in this case how retail consumers are affected by gamification. This is a big and complex subject that involves personal opinions and subjective answers which means that there is more than one true reality, which is within the interpretivist approach previously mentioned in the ontology chapter. Therefore, we do not discourage answers from interviews that deviate from theory, literature, or our own previous knowledge. Instead, we acknowledge their views of reality.

5.8 Data analysis

The report adopts a thematic analysis approach to the collected data. Thematic analysis can be defined as “...a method for identifying analysing and reporting patterns (themes) within data” (Braun & Clarke, 2006, p. 79). It is a commonly used method in qualitative research used to render qualitative data. Since our research question aims to answer how gamification affects the investment behaviour of retail investors, our themes are founded in theory. Identified themes are usage, attitude, and game-design elements.

The collected data is of a qualitative nature, meaning that it contains both verbal and visual content. To effectively and thoroughly analyse this data, we have followed the three simultaneous steps of the general analytical procedure suggested by Miles and Huberman (1994, cited in Collis & Hussey, 2014, p. 157). These steps include reducing the data, displaying the data, and drawing conclusions and verifying the validity of those conclusions. This procedure is summarised in figure 9. The data reduction stage includes the reorganisation of data through selecting, discarding, summarising, and simplifying the collected data (Collis & Hussey, 2014, p. 158). Our collected data was extensive, meaning that this was a crucial step to making sense of the results. Since the interviews were of a semi-structured nature, responses to specific themes came in different orders. The interview guide also covered general topics in both the beginning and ending phases of the interviews. Therefore, we deemed it necessary to restructure and group together the material based on certain themes. The next stage includes the display of data, referring to the summary of data into visual contexts to simplify drawing conclusions (Saunders et al., 2009, p. 503). Based on our identified themes, we illustrated and coded the responses of our respondents to look for patterns. Albeit having a small sample size, our recorded material was extensive. This procedure helped us identify recurring answers and themes by drawing networks based on each element. The work made in the two previous stages makes way for the third and final stage, drawing conclusions and verifying them.
5.9 Ethical considerations

Adhering to the ethics of conducting research is a pivotal aspect of every research project (Saunders et al., 2009; Bryman & Bell, 2015). Ethics in business research focuses on how researchers are supposed to treat the participants of their study and what activities researchers should or should not engage in (Bryman & Bell, 2015, p. 129). This research project has continuously adhered to the ethical guidelines proposed and compiled by Bell & Bryman (2007, p. 71) listed down below:

**Harm to participants** - It is crucial that researchers do not engage in activities that end up hurting the participant or others involved either physically or mentally. All interviews, except for one, have been conducted through zoom. The interview that was held in person was in an environment decided by the interviewee, thus ensuring their safety and comfort. This has enabled the physical safety of all parties during every interview. Only questions deemed relevant to the study have been asked, steering away from sensitive topics.

**Dignity** - Avoiding anxiety and discomfort by respecting the dignity of other researchers, interview participants or other parties involved in the study. Respondents themselves have been able to suggest both date and time for the interviews, as well as the choice of participating through both video and audio or only audio.

**Informed consent and Privacy** - Assuring that respondents are fully informed on what the research aims to investigate and what potential implications their participation can have. Further, the privacy of all participants needs to be protected and that the collected information is used within the scope of the research. Before every interview, we informed all interviewees of their rights and that they could end the interview at any given point if wanted. Furthermore, the personal information and answers of the participants would not be disclosed to anyone outside of the study or other parties.

**Confidentiality and Anonymity** - Protecting the identity and collected information of participants, whether that concerns individuals or organisations. In the information stated prior to the interviews, we stated that participants will have complete anonymity throughout the research process, this was also repeated before the start of every interview.

**Deception** - Presenting research data in a misleading way or causing individuals to be misled by lies. Before every interview, we gave the participants background information about ourselves and the study. That was done to establish a level of personal connection, enabling the participant to feel comfortable and have the ability to give honest insights. At the end of all the interviews, we offered a chance for the participants to ask questions of their own, making sure that any questions were not left unanswered. By transcribing the interviews in an orderly fashion, we have the ability to go over the interviews again and avoid any misleading information.
Affiliation - Affiliations, either personal or professional and research that is sponsored or funded must be disclosed. There are no issues of affiliation in this study since it has not been sponsored or funded by any outside party, nor are there any personal or professional affiliations involved.

Honesty and Transparency - All parties involved in the research process should be met with trust and honesty. During the whole interview process, participants were informed about the purpose of the study, making them fully aware of the implications that their participation could have.

Reciprocity - The research should be mutually beneficial for both the participants and the researcher(s). Both before and after every interview, we asked each participant if they had any questions of their own. We believe this gave the participants an opportunity to reflect on their own behaviour and how elements of gamification potentially could affect them. That was also beneficial for us since it enabled self-reflection and evaluation of our interview skills.

Misrepresentation - Misleading, misunderstandings, misrepresenting and reporting research findings in a false manner must be avoided. By building the study from the bottom, stating the study’s purpose and research question, and presenting relevant theoretical background for the reader, we minimise the risk of misrepresenting, misunderstandings and misleading. Striving for objectivity throughout the research process also reduces the risk of biases and that our findings are coloured by our own opinions.
6. Results

Chapter six will be presenting the respondent’s answers to the interview questions. This section begins with a short presentation of each of the respondents, followed by a synthesis of the interview material. The results have, just like the interviews, been divided into two main parts: Usage and Attitude, as well as the specific game-design elements.

6.1 Presentation of respondents

All our participating respondents were, at the time, active users of the Avanza platform. Both before and at the initial phases of each interview, the respondents have been guaranteed anonymity throughout the research project. We have regarded anonymity highly, which is why the results purposely have left out selected details that may be traced back to the identity of the respondent. Respondent 1 (R1) has, however, consented to have his organisation’s name (Avanza) visible in the research project. The company perspective was necessary to contrast Avanza’s goals and opinions with the perceived usefulness of the users. All the respondents have been given a level of financial literacy, low, medium, or high. These measurements are based on each respondent’s experiences, knowledge, and answers that we obtained through the interviews. It was deemed important for us to establish what level of financial literacy they have because of how it relates to the research question and the results of the study.

To maintain complete anonymity, the identity of the respondents has been coded and referred to as; Respondent 1 (R1), Respondent 2 (R2), Respondent 3 (R3), Respondent 4 (R4), Respondent 5 (R5), Respondent 6 (R6), and Respondent 7 (R7). Table 1 contains a list of the respondents together with a handful of demographic variables.

<table>
<thead>
<tr>
<th>Name</th>
<th>Appr. age</th>
<th>Gender</th>
<th>Financial Literacy</th>
<th>Interview Form</th>
<th>Date</th>
<th>Time (h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent 1 Senior Executive at Avanza</td>
<td>55 - 65</td>
<td>Male</td>
<td>High</td>
<td>In Person</td>
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6.2 Usage & attitude

6.2.1 Usage

The senior executive at Avanza, R1, believes it is design combined with the simplicity that contributes to Avanza’s platform being user friendly and easily navigated. He explains that Avanza has been working towards becoming relevant to all investors, expanding and making it easier for new or inexperienced investors to enter the market. Due to the wide range of investment choices, every user on the platform can find an investment that suits them, regardless of experience level. Apart from the platform’s historical expansion, R1 also takes the Covid-19 pandemic into account when discussing the inflow of new customers. “With the pandemic, people started evaluating their financial situation which led to many entering the stock market out of stress and other factors”. R1 argues that users could experience a “positive momentum” when realising that investing is not as intimidating or hard as they initially thought, but instead be fun and interesting.

R2 explains that most of the financial knowledge obtained comes from his personal interest and self-studies by using books, YouTube, and other online sources for the most part, “That takes you a long way in today’s society. You can learn a lot”. Choosing Avanza is no obvious choice. according to R2 “I used google during my start to find something and then I saw an ad for Avanza, that is how I started”. Five years later, he looks back at how Avanza Academy has developed his financial skills and that it has been an important tool “You encounter new concepts which make you want to learn more and use google to find out even more”. During the first three years of using the Avanza platform, he used more of the different functions that are available but is not particularly updated on the latest functions of the platform. User-friendliness and that the platform is easy to navigate through motivates his usage on a weekly basis. Regularly checking how the market has performed, but not exclusively related to his portfolio. “Depending on what is happening on the market, maybe two times a week […] mostly during weekends to see my weekly performance, but it does not matter how I have performed for the week in the end, […] I think it can be fun to see, when the market is down, what is sinking like a stone and what keeps holding on”. The main purpose of using Avanza’s platform according to R2 is to buy and sell securities, primarily funds, but also to stay up to date on financial news and reports. When evaluating funds, there exist some instruments that can be utilised. For instance, Morningstar has a fund rating that R2 rarely focuses on since they are, by no means, a guarantee for success. He does however mention that a fund with a lower Morningstar rating will be met with a greater deal of scepticism, if not disregarded altogether.

The main purpose while using Avanza’s platform for R3 is to buy and sell securities as well as to keep himself updated on news about the financial market. He uses the platform daily but despite this, he is not particularly happy about the user experience. “The interface and design is maybe a little boring on Avanza, that is why I tried Nordnet to see if that was better”. R3 expresses that his financial skills have improved since he started using Avanza in the middle of 2020. Continuing, trading with financial securities “forces you to get more involved” which has made R3 fairly comfortable with the basic financial tools. At the beginning of the interview, R3 also expressed that he has some academic background in economics and finance through an, at the time, unfinished bachelor’s degree in business which has given him some pre-knowledge of basic financial concepts.

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2 “Morningstar is a Chicago-based investment research firm that compiles and analyzes fund, stock, and general market data”- (Chen, 2022, b)
R4 made her first transaction on Avanza in 2018 but increased the level of activity before the covid pandemic in 2020. As a master’s student in accounting and finance, she has a wide knowledge of basic financial concepts as well as a deeper understanding of forces surrounding the financial market. Avanza has not been a major influence on her, in terms of learning new concepts and financial tools, but has rather increased her knowledge about specific companies and stocks. R4 uses the platform daily “Sometimes several times every day, […] mostly to see my holdings or if something has risen or fallen a lot. Sometimes I read news reports but primarily to check my portfolio”. R4 describes the platform as “easy to understand” and “intuitive”, which together with useful instruments that you can use to get inspiration, adds to the user-friendliness and overall experience. The majority of the research and background checks that R4 chooses to make happen on Avanza’s platform, with some exceptions to investigating financial reports from the companies themselves as well as google. While screening and evaluating securities, R4 emphasises factors such as total value, future growth, and ownership holdings.

R5 have been using Avanza daily for 15 years and have therefore seen the platform evolve into what it is today. He has always had an interest in personal saving and thought of it as a fun hobby, not having any academic education in economics or finance. “In the beginning, I mostly played around and tried a little bit, as I grew older and more comfortable on the platform my previous hobby became more serious and I got more invested in it”. R5 explains that he has used both Swedbank and Danske Bank, which are two of the larger banks in Sweden, in the past but experienced that their services were rather difficult to manage. Avanza presented an easier user interface as well as an improved design and lower fees for their services which contributed to his change. He also recognised that the market has developed since he began buying securities “The banks today have of course become better compared to 15 years ago […] but the simplicity and lower fees of Avanza have kept me there”. Avanza’s platform is primarily used to buy and sell financial securities, using basic financial tools. In addition to the information presented on Avanza R5 also uses Dagens Industri, Avanza podcast and published company information to collect additional information.

R6, who has both academic and professional knowledge in finance has currently been an Avanza user for seven years, actively using the platform every day. Because of his line of work and personal interest in savings, there are few instruments and functions that are unfamiliar to him on Avanza's platform. The platform's clean design, user-friendliness and simplicity were the most obvious factors that he values, he also believes that it is because of these factors that Avanza has become the biggest stockbroker in Sweden. Searching for information about potential trades and general information about the financial market are the main purposes of his usage of the platform, besides buying and selling securities. “I use it for both pleasure and fun, […] a lot of weekends are spent on Avanza and Dagens Industri to research for the upcoming week”. Popular tools that he uses in his analysis process are primarily historical growth and financial reports.

R7 had, at the time, been using Avanza for five years. With no educational background in economics or finance, Avanza was the start for him taking an interest in the stock market. R7 uses the Avanza platform daily, primarily to keep updated on his portfolio, the overall stock market as well as various indexes. Furthermore, R7 explains that it was the platform’s user-friendly approach and recommendations from others that led him to Avanza, “Mostly it was because of what I had heard from others, that it was one of the cheaper alternatives

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3 A Swedish financial news paper
and very easy to buy stocks I would say. [...] I have had Handelsbanken\(^4\) before and they include so many things and have numerous functions, while Avanza is more specific to stocks and stuff\(^4\). Depending on what kind of financial securities R7 wants to investigate, he says that the information available on Avanza's platform usually is sufficient to base his investment decisions on.

6.2.2 Attitude
The senior executive at Avanza, R1, highlights that there is a big responsibility on financial institutions such as Avanza to not mislead users for their own gain. He also problematizes the gamification and what can be seen abroad, for example with Robin Hood. R1 believes that this kind of gamification use has evolved to a level which is unhealthy and to a certain extent, also dangerous. Elements similar to that of online casinos are pushing users to make fast decisions with high risk, seeking to earn quick and easy money. The model that Avanza has adopted is driven by creating long term value for users by promoting rational decision making. Even though that could be viewed as counterproductive, with regard to Avanza's business model, the senior executive argues that it is in the best interest of the users and will benefit Avanza in the long run with loyal users.

R2 initially highlights how gamification that we see today ties back to the fast-moving societal situation, where interactions should be quick and effortless, saying that “It constantly needs to be some kind of dopamine kick and instant gratification involved”. For elements to be effective and relevant, R2 believes that they need to be easy to use and erase time-consuming aspects. He raises concerns about to what degree of “noise” a user can be exposed to before it reaches the maximum amount and instead becomes ineffective and problematic. “Long term I do not think it is healthy with regards to stress and other factors. Short term, it can be fun and be a positive aspect of the element”. Despite not using the existing social media channels such as YouTube, Instagram, and Twitter that Avanza are active on, he would still appreciate a social media similar to Shareville that Nordnet has. Developing on that, R2 explains that the previous Avanza forum Placera had both positive and negative aspects connected to it. On a positive note, the forum was fun and interactive by connecting people and their opinions on financial securities. On a negative note, forums that demand no verification on identity or fact check could lead to misinformation and speculation. Further, R2 expands on the idea that this misinformation could lead to “herding behaviour”, causing users to follow others simply because of the fear of missing out. Forums in their essence are a positive function if they can be managed properly, limiting speculation and misinformation to a minimum. However, gamification can decrease entry barriers by making investing more accessible to people that otherwise would not have found themselves taking part. His counterarguments revolve around the grey area of the ethical aspects, to what extent should gamification be allowed to be implemented and how should those elements be designed? Using Robinhood as an example, “Well, it loses what might be the main focus when investing”, moving closer to the casino world where the dopamine addiction is the driving force and short-term verification, instead of the initial goal which would be to increase your savings long term.

R3's general attitude towards Avanza is rather neutral. He experienced that some parts of the platform can be perceived as childish, focusing on too basic financial knowledge. He believes that most users already know the presented information, thus creating otiose elements. According to R3, that space could be used for elements that instead target a higher degree of financial knowledge or implementing an interactive social media which would increase user value. Similar to other respondents, R3 expresses that he would appreciate it

\(^4\) A Swedish bank
if Avanza reintroduced a forum on their platform. He does not express any downsides in having that kind of element on the platform. Instead, he highlights that it is a fun and interactive function. To have the ability to discuss what other users choose to focus on and potentially follow their strategy. In terms of using more extreme forms of gamification, R3 raises concerns that people can be tempted to engage in activities that are unhealthy, similar to gambling. Seeking quick money with higher risk and even borrowing money to achieve, for example, new milestones. Although, there are positive aspects as well since some elements can also act as a motivator, increasing the will to save money.

R4 perceives gamification in general as positive if implemented in a way that does not promote unhealthy decisions and behaviour. According to R4, Avanza uses gamification to promote a long term, stable and healthy investment strategy. An element that R4 critiques is the previous forum Placera, she believes that a forum like that could negatively affect new or less experienced investors. The distinction between speculations and facts becomes obscure when people express their own opinions as an analysis. In her opinion, the forum did not add value for users or to the overall impression of Avanza. R4 highlights the difference in the usage of gamification between Avanza and the foreign platform Robinhood. She believes that Robinhood uses gamification for its own gain, “[...] drawing in and tricking people”, while Avanza utilises elements of gamification to benefit the user and add value. Overall advantages of gamification on Avanza’s platform, according to R4, would be that people are more motivated to save money and think about their economy. A disadvantage that R4 identifies could be if users become overly motivated, leading to them taking on more risk to achieve a higher return on their investments.

R5 adopts a generally positive view on gamification, assuming it is managed ethically. On the Swedish market in general and Avanza in particular, there are softer and less aggressive elements of gamification compared to abroad, which R5 believe can have positive effects. “Lower barriers of entry on the market and the possibility for retail investors to increase their savings could be beneficial for the whole economy”. On the other hand, the excessive and more aggressive form of gamification, that can be found abroad, is focused on short-term, high-intensity trading. Using these, harder elements of gamification could trigger unhealthy behaviour and does not coincide with the main idea of investing long term according to R5. “[...] a financial institution such as Avanza should not give their users incentives to create a behaviour which is unfavourable, that is when gamification has gone too far”. One element that R5 considers could be beneficial for Avanza to reintroduce is the Placera forum. Although it can be hard to separate facts from speculations, the forum contributed to an interesting discussion among people.

There are elements that R6 identifies as unnecessary on Avanza’s platform, as they do not contribute any positive value for users. He believes that elements such as Avanza Svajper and Your numbers are in place to trigger user activity and risk leading to irrational decision making. Further, implementing such elements of gamification decreases his view of the company, as Avanza appears less serious or professional because of this. R6 argues that the excessive usage of gamification, which can primarily be seen abroad in the US, is dangerous as it swindles users and promotes unhealthy investor behaviour. The conservative usage of gamification among financial institutions in Sweden enables users to stay in control to a higher degree. Even though arguments can be made that harder gamification can lower the barriers to entry into the financial market, R6 explains that the risk outweighs the possibilities. “The question then is whether it is worth being on the stock market in the first place [...] seeking quick money. It defeats the purpose of investing long term [...] especially when barriers for new users already are low in Sweden”. R6 explains that there are elements of gamification on Avanza that are, in his opinion, positive. An interactive platform, low
trading fees and useful functions but Avanza runs the risk of being perceived as less serious with elements such as Avanza Svajper. Gazing into a future where gamification could increase, R6 highlights that developing elements of gamification along with the tech industry will be crucial to stay relevant. Also, that financial institutions have a big responsibility of transparency towards their users. Promoting retail investors to act responsibly and make well-informed decisions, not misleading them into using advanced instruments beyond their knowledge. “If you place yourself as a retail investor’s best friend, as Avanza does, you should also have to live up to that”.

R7 recognises that gamification on a platform such as Avanza can have both positive and negative effects on retail investor behaviour. Elements such as Avanza Svajper, allow users to quickly explore stocks that could be of interest. Broadening the scope of the users could increase one’s spread and diversify their portfolio. R7 believes that the negative aspects of gamification could be if users are incentivised to stay on the platform for a longer period of time, continually exposing themselves to new information. “They (Avanza) really want people to buy and sell, they are smart in using new tools that keep the user on the app more. [...] at the end of the day they are a company that wants to make money”. R7 puts emphasis on the possibility that each element is designed to make people “tick” in a certain way and lead them to make a decision, whether that decision is good or bad is hard to say. Elements should not be designed to promote unhealthy behaviours. They should instead incentivise users to save money and invest long term, favouring a stable and healthy financial situation. R7 experienced that the forum Placera was rather unnecessary and believes it was a positive thing that Avanza took it down. People’s personal opinions which led to speculation could, according to R7, be fun to read but did not contribute to the platform. In the case of more aggressive use of gamification, R7 believes that it would be “unethical” for Avanza to implement such measures. Monetary bonus programs for inviting friends or designing the platform to increase user activity would decrease the seriousness and validity of the whole company, closing the gap to casino-like platforms.

6.3 Game-design elements

6.3.1 Your numbers

Each month, Avanza sends out a summary of how your portfolio has performed compared to other users, as well as popular stock indexes. The function simultaneously shows you your best/worst performing securities for the month, the change in the value of your capital, and which days of the month your portfolio performed the best/worst.

The Senior Executive at Avanza (R1) explains that they designed this function to satisfy the customers’ “want” to compare their performance to others. “People love to compare themselves, [...] it relies a little bit on the competitive instinct, which is similarly found in milestones. There is likely a minority of people out there believing this is a “real” competition and misuses the function. However, we mitigate these risks by informing people to not take on more risk than they can handle”. The function is, however, first and foremost designed to inspire their customers and increase their motivation through some “fun-factor”, not the opposite. R1 explains how useful a function like this can be when investing in mutual funds since a large number of people bought their funds many years ago without continuous evaluation of their performance, which is something this function entails.
Your numbers is a function that R2 follows every month. He views it as a fun “nerd function” which he recognizes from video games that show you how much XP you gained or how fast you completed a mission. R2 believes that this monthly report can have a great effect on some people, but that he follows a long-term investment strategy which makes his monthly performance close to irrelevant. He elaborates by saying “I have saved a lot of money throughout the years and own, as of now, only long-term assets. I do not chase “stock-price-doublers” anymore. I can afford to underperform for some time”. R2 does, however, believe that this function may amplify overconfidence, resulting in people taking irrationally large risks, especially during the past years when the market has generated abnormally large returns. “When new investors only have experienced a market that yields returns over 20% per year, it may very well result in them becoming cocky and expecting similar returns in the coming years by continuing to take on large risks”. He expands his argument by saying that he further believes that the game element may trigger some people who are underperforming compared to others on Avanza to take on larger risks in order to “regain” the previous losses and to make their numbers look better.

R3 perceives the monthly summary of your performance as a fun and interesting function that he enjoys using. He recognizes this type of summaries from games and believes that it activates his competitive strife to beat the index and to be better than others. According to R3, the function can sometimes increase his activity on the platform. If he is underperforming, he feels inclined to look over his portfolio and compare it to what other higher-performing investors own and make changes. On the other hand, R3 believes that if the monthly summaries show that an investor is overperforming over a certain period of time compared to his peers, overconfidence in their own ability may arise, which can be dangerous when the market shifts.

R4 says that she follows the monthly statistics to see her performance in comparison to others. If she has performed worse than others, she asks herself “what have I done wrong?”, while a feeling of accomplishment arises if she performs better than her peers on Avanza. She says that the feeling has not yet been strong enough to trigger a reallocation in her portfolio, something she also believes has to do with the fact that her investment strategy is somewhat defensive and follows the general movement of the indexes, meaning that her performance rarely differs much from the general market. However, she thinks that if the differences in her performance compared to her peers were more substantial, she would feel increasingly inclined to make portfolio changes based on the monthly summaries. When R4 is asked about potential overconfidence bias in relation to this game-design element, she explains that she believes it might amplify underlying overconfidence since it visualises the performance clearly, but that it probably is not the sole reason for investors feeling overconfident. Instead, R4 believes abnormally large returns, which have been present the last couple of years, lead to investors being overconfident thinking it is easy to make money in the stock market. The monthly numbers Avanza sends out can instead induce stress seeing how you constantly perform compared to others.

R5 believes that your numbers have an emotional effect on him that triggers his competitive strife and says that “You always want to perform at least better than the average investor”. Even if he today does not change his investing strategy based on these performance summaries, he admits that his younger self probably would have been more prone to make portfolio changes based on these performance comparisons. R5 elaborates his thoughts about the element and says that “Visualising one's performance like this, might act as a motivator or demotivator based on how your performance stands in comparison to others. If people make significant losses or underperform, it can affect their willingness to invest
negatively”. The same principle applies if a person performs better than others, arguing that it will increase a person’s motivation. Further, R5 believes that it is difficult to separate emotions from investments and that it has a great effect on people and himself. “It is probably not uncommon for people that underperform to take on larger risks in the future to regain previously lost capital. It would be interesting to see if Avanza would publish statistics on that”.

R6 follows the monthly updates but obtains a negative view of the element. He says that “The function is very triggering and induces unnecessary stress among investors. Nobody should have an investment horizon of a month, it is simply too short to make anything out of. This [element] triggers a hunt for quick money and only sends out the wrong message to investors. [...] This feels like a way to make people make irrational decisions and make changes in their portfolios”. R6 says that through his many years on the stock market and his financial literacy, he is able to distance himself from these monthly comparisons and does not act upon them, even though he continually compares himself to the index. “However, there is no need for Avanza to push these statistics in my face, I am well aware of how my performance stands compared to the index”. Another thing on R6’s mind is his scepticism towards Avanza’s agenda. He says that “This [element] does inevitably generate brokerage fees for Avanza, which likely is a large factor to why they use this element”.

R7 follows these summaries of how he has performed every month and appreciates its existence since it allows him to easily compare his performance with the indexes. He argues that if his performance consistently is inferior to that of the Stockholm OMX30 index, there is no need for him to actively own an individual stock portfolio. R7 continues by explaining how he has experienced similar usage of monthly performance summaries during other instances. He said “This type of element is common in computer games, where you every month see how you have performed in terms of stats. [...] I also recognize this from Spotify, they send out your listening statistics and allow you to compare music and plays with others”. When R7 is asked if the element affects him in any way, he explains that, albeit being small, it does set off emotions within him, “It triggers my competitive strife seeing if I perform better or worse than others, which is something that can be both positive and negative. However, since I’m a former elite athlete, I thrive on challenges and all types of competitions. It is fun to come out on top”. The element does make him look over his portfolio and re-evaluate his possessions more often than before he started using the function. R7 explains that when the whole market goes down due to macro-related reasons, he does not make changes in his portfolio. However, when the market is booming and the monthly summaries show that he performs inferior to other Avanza users and/or the indexes, he feels more inclined to make portfolio changes.

6.3.2 Top movers

Top movers\(^7\) is a game element that is commonly found on trading platforms and displays the stocks with the largest price changes since the previous day’s closing price (Barber et al., 2020). Avanza displays the top 20 performing stocks of the day under the name “Daily Winners” and the bottom 20 performing stocks as “Daily Losers”. There is also a top mover’s list connected to a user’s watchlist, displaying the 10 largest movements in your watchlist today.

\(^6\) Informal slang referring to “Statistics”

\(^7\) Appendix 2
R1 describes this function to be designed in a way to help users keep track of the market. It is not intended to trigger people into making hasty decisions. Instead, top movers should be seen as an indication that something has happened, prompting investors to collect further information. “If stock X has fallen 7% today without releasing a report etc, this should make a person re-evaluate its place in the portfolio. Similarly, if stock Y has increased 24% in a day, investors should ask themselves whether this increase is justified based on their investment strategy. [...] This is how we believe an investor should use the information, just like any other information.” When asked about the top movers related to a user’s watchlist, R1 explains that it can be used as a way to sift through the thousands of available instruments on the platform, keep an eye on interesting ones, and find a good entry point.

This function generally does not affect R2’s investment behaviour apart from sporadically setting off a feeling of FOMO. However, R2 says that “I have stopped acting upon the FOMO since every time I have acted upon it, things have turned out negatively”. Today, R2 says that he adopts a more mature view on investing and tries to distance himself from the feeling of FOMO that can be induced through the element. When asked about his opinion regarding the top-movers list of one’s watchlist, R2 says that although it is an engaging function, he does not believe that it will contribute to better total returns for the users. Instead, he believes it more likely will induce feelings of FOMO seeing how an instrument you have been interested in continually moves up.

R3 utilises the element mainly to reflect on whether his holdings are present on any of the lists. These lists can also help R3 to find a good entry position in companies he already has an interest in. He continues by explaining that he feels more inclined to buy companies exposed on the “winner” list and consequently the opposite concerning stocks displayed as “losers”.

R4 uses the function from time to time but does not think it affects her to any large extent. “It is fun to see these extreme movements, but there is always a reason why they fall 10, 15, or even 20% in a day, which is why I don’t act upon the lists themselves”. The respondent elaborates on her statement by saying that when her holdings are displayed on the loser list, she instead tries to view it as she can buy more of them at a discount, instead of panicking since she obtains a long-term investing strategy. R4 uses the watchlist function and enjoys the top-movers list related to it. “If there is a stock I have an interest in and the market falls, I try to “buy the dip” even if it is impossible to know when the market hits the bottom. I would much rather buy a stock that is minus today than a stock that is plus today since [...] there is more room for profits”. However, R4 says whether the stock price is negative or positive does not affect her when she decides to sell a stock, only when buying.

R5 uses the top-movers function to identify companies that have decreased more than may be justified due to temporary reasons. At the same time, R5 admits that it by no means is a guarantee that the stock will bounce back. He says that it is always fun to see his holdings labelled as “winners” but feels sad when they are displayed as “losers”. When R5 is asked if the element affects his investment behaviour he says “Today I’m able to remain calm when my holdings are losers or winners. However, there have been several occurrences previously where I have sold something when it gets emotionally tough. [...] It is very easy to sell when the numbers are red and uncomfortable feelings arise. You start thinking about it in monetary terms and how much you can salvage by selling”. Furthermore, R5 believes that the watchlist top-movers function adds some value to the customer since it simplifies

8 “Fear of Missing Out”
the process of entering a stock at the right time. Nevertheless, R5 still thinks it can have a triggering effect and cause people to make quick decisions.

R6 holds the view that this element touches upon the same principles as the your numbers element in the sense that it drives people into making quick and poorly thought out decisions. “I’m well aware that a large portion of the people following me uses these top-movers lists to try ride on a trend or to “catch falling knives”. Most people aren’t aware of why a stock fall or rises heavily and tend to believe that today’s winners will be tomorrow’s winners as well. They make hasty decisions based on emotions rather than fundamentals”. In addition, R6 believes that having your holdings displayed on these lists will likely affect inexperienced investors emotionally, but not experienced investors to the same extent. The watchlist top-movers element is, however, something that R6 takes a more positive stance towards. “Here, an investor has probably already analysed the companies and is not exposed to random top-movers from the whole market”.

R7 uses this function predominantly as a way to find inspiration and keep himself updated. It is rare for him to base his investment decision on these lists but says that he feels more inclined to buy a company displayed on the loser side rather than the winner side since “you don’t want to buy a company that already has risen”. R7 does, however, believe that stocks displayed on the loser side will have an increased selling pressure due to emotions related to that people do not like owning “losers”. Furthermore, R7 believes that the top movers in the watchlist might trigger more emotions and affect people to a larger extent than the general top-movers list. This is since people likely already have an interest in the company placed on the watchlist.

6.3.3 Charts

Charts visualise the ownership popularity among stocks on the platform and its users, making three different distinctions: most owned stock, stocks with the most new owners, and the most owned foreign stock. These categories can in turn be viewed in a time span of either three or one month(s).

R1 explains that the fundamental reason behind this function is to inspire users and allow them to see how other users are investing, while also having the ability to quickly sort through popular stocks. Charts allow users to get inspiration and on their own investigate new investment opportunities, seeing what the rest of the market has confidence in. While the degree of ownership among users is no quality assurance, R1 argues that an investment in all of the ten most owned stocks on Avanza would not be a bad investment. He believes that there is a rationale in following others in these cases and that, “[...] it is very good information to take part of because all Swedes want to know what other people do”.

As R2 primarily invests in funds and charts focus on stocks, he views this function as a “fun factor” but not particularly useful for him as he does not act on the information presented. He does, however, elaborate on how it can affect others in their decision making. “I am sure people can experience FOMO, feeling that other people know something that I do not and therefore follow others”. When R2 does decide to invest in stocks, he bases his analysis on personal predictions and opinions, thus trying to avoid the opinions of others.

R3 thinks that charts have a greater chance of influencing retail investors that are new to the market, since they may have less experience than investors who have been active for years.

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9 Buying stocks that have severely decreased its stock price
R3 recounts that charts affected him more in the past when he was new to investing and had a strategy of following others. Because of more experience and new insights, he has altered his strategy into a contrarian one. “Choosing to focus on less popular stocks creates a sense of discounted price because you are investing opposite to many others. This is rather hard to do, not following what others believe in”. The background to his new strategy can partly be traced back to bad inputs from others in the past, not leading to the expected results. R3 emphasises the importance of conducting your own research and basing decisions off that, instead of following others blindly.

R4 believes that charts are a good indicator of what the market considers to be stable and financially sound. She explains that the most common use of the function is to view stocks with the most new owners since this can show what other investors have belief in and is worth investigating. The inspirational factor of charts is also highlighted from R4, using this function as a starting point to find interesting investment opportunities. Furthermore, R4 argues that an element such as charts, in combination with being exposed to other sources of input, can have a big influence on investment decisions. Although she does not base her own decisions solely on what other users do, she recognises its influential powers.

According to R5, charts that, for example, show most new owners of a stock can occasionally be misleading. Temporary trends in the economy or global incidents can, in some cases, be the cause of these increases in owners because of their speculative nature. Such trends may not necessarily trace back to the performance of the company, but circumstances in the world. As we have seen in Sweden surrounding SAAB and the ongoing war in Ukraine, which has led to an increased stock price. Despite the risk of being misleading, R5 generally believes that charts can be validating and an indication that the market is confident in a certain stock. While companies that have a lower number of Avanza owners are not disregarded entirely, it affects the proportion and size of his potential investment. R5 explains that it also affects the level of background research needed. A popular stock among Avanza users would need less research than an unpopular stock, connecting back to validation.

R6 does not believe that the charts affect his investment behaviour but argues that this element is a prime example of herding behaviour. “People move in the direction of others. A stock that has a large number of owners is more likely to gain additional owners since people trust that someone else has made a thorough analysis already”. At the same time, R6 finds it comical that “Norwegian” is the most owned foreign stock at Avanza, which is considered a high-risk company. He elaborates by saying that investors may deem a large number of owners as a quality stamp, especially among the most owned Swedish stocks. “It is crazy that SAS and H&M continue to top the lists, even though they are “dying” companies. But it largely comes down to that people trust that other people know something that they don’t and that others have done a good analysis. R6 decides to lift Tesla as an example of a share that has gained a following most closely compared to that of a sect, which he believes is unhealthy since prices are affected greatly by herding behaviour, something that tends to be amplified by media. “It is not a coincidence that popular stocks with many owners tend to appear frequently in Dagens Industri since retail investors easily are influenced by what is said in the media. […] It is smart, but ugly journalism”.

R7 uses the function occasionally, saying that it partly fulfils the purpose of being an indicator of security. Choosing what companies to analyse can be filtered by their popularity, disregarding companies that have a low degree of ownership among Avanza users. Although realising that ownership does not guarantee high quality, R7 argues that it is a good indicator for the company and shows that the market has confidence. Even though
R7 claims that the function does not affect him, he recognises that it can cause feelings of FOMO. Using Tesla as an example, he explained that feelings of FOMO were apparent to him while seeing the stock skyrocket.

6.3.4 Milestones

The milestone function relies on the total value of your portfolio and savings. A higher value leads to higher achievements being unlocked. These milestones display the date of achievement as well as how many other Avanza users have reached the same level. If the value of one’s portfolio decreases, one can lose the previously achieved level.

R1 says that Avanza does not view this function as a game-design element, but rather as a way to visualise a user's savings and inspire further savings. “What we (Avanza) see is that most people save for something fun, like buying an MC10, and that people think it is fun to see a visual representation of their progression and it can be motivating.” When asked about potential negative effects, R1 explains that there is a risk that people become obsessed with reaching milestones and take on more risks than they can handle. “Therefore, we have a continuous internal discussion and work hard to mitigate those risks by promoting the importance of diversification and long-term investment horizons”. He continues by saying that “Approximately 10-12% of the Swedish population have some type of addiction, [...] and I would lie if I said that these people aren’t also found on Avanza. Once you become big enough, you will always find exceptions of people that are prone to misuse it, but the vast majority appreciate this function and feel motivated by it.

R2 believes that this element is likely to influence him more than he may be aware of and that it can have a motivating effect. “I’m thinking that humans generally desire concrete things. Seeing a progress bar fill up the closer you get to a goal feels good for the soul”. He obtains an overarching positive view of this element and claims that the only real downside he sees is if investors take these milestones slightly too seriously. R2 says that “Perhaps some people get too focused on reaching the milestone and engage in behaviours they might not have done otherwise. Let’s say your next milestone is 250 KSEK and you currently have 249 KSEK, people may save in on their lives in an unhealthy way since they just want to reach that milestone so badly. Nothing is risk-free. However, people generally have a hard time depicting the future. It is simply not in our nature to invest money now to feel good in 10 years since it doesn’t generate any dopamine kicks.”.

This function is viewed positively by R3. He believes it is motivating and can trigger sound financial behaviour by encouraging investors to save more. Nevertheless, even if R3’s perception of this element is mostly positive, he acknowledges that it can have negative effects as well, especially if the market falls. “If you once have reached a level and then lose it when the market falls, it triggers negative feelings and reminds you that you have lost a milestone. Being reminded of your negative performance will likely amplify your negative feelings”. Despite this, R3 argues that it depends on the amount of money you have invested, saying that if you have larger sums invested, you will likely be more affected than someone with small sums. A last negative aspect R3 found is that this element might cause increased risk-taking among users since they want to reach the milestones faster.

R4 recognizes this element from mobile games and bonus programs and enjoys the use of it saying that “… it has an inspiring effect to visualise your progression. [...] It gives you a kick to reach a milestone when Avanza portrays how long it took you to reach this milestone.

10 Motorcycle
how many others have reached it, and how you have to the next one”. She emphasises the difference between setting up your own goals and having a standardised set of goals, arguing that the latter has a more motivating effect. “It becomes a different thing when Avanza sets a general milestone for everybody and not just me. Reaching the milestone feels more rewarding then”. R4 expands by saying that the motivation might become “too much”, causing irrational investment behaviours. “Maybe you invest money you cannot spare at the moment just to reach that milestone. I know from my own experience that if I realise that I need an additional 2000 SEK to reach a milestone, I will throw that in, even if it means I’m not following my original investment strategy. You act more on the feeling of reaching a milestone than rational investment behaviour”. She continues by explaining how she believes the same risks of irrational investment behaviour are prevalent when an individual loses a milestone and feels a need to regain it. Lastly, R4 explains that what is considered irrational depends on a person’s condition. Adding 2000 SEK to reach a milestone might be seen as irrational if you only have a few thousand in your bank, but if you have hundreds of thousands in your bank, it is not as irrational.

Although R5 is not using the milestone element himself since it does not align with his view on investments, he is well acquainted with it from other parts of society. Given R5’s conservative investment strategy, he does not believe that this type of element would have any strong effect on him. “Perhaps it will be a little fun, but I don’t believe that this would affect how much I invest or in what”. He expands his thoughts claiming that it likely has a motivating effect on people in general, that causes them to invest greater amounts resulting in larger incomes for Avanza. “At the end of the day, Avanza is a company that wants to generate money, and motivating users like this is likely to increase that”. R5 does believe that this element may turn people more prone to financially unsound activity saying that “Maybe you take on more risk than is justified since you had the goal to reach a milestone after, let’s say three years, but after one and a half year you are not close to the expected progress. [...] Milestones might also create incentives to borrow money for investments, which doesn’t have to be negative if managed correctly, but some might do it to reach the expected goals faster”. Furthermore, he believes that losing a reached milestone induces stronger reactions than reaching a milestone, especially when it takes a long time to regain the milestone.

R6 enjoys the milestone function and believes it is extremely important to set goals when you start investing and that visualising the progress like this has a motivating effect. The only real downside he sees is that you might save “too much” causing you to be cheap in other parts of your life saying that people might think that “If I only save an additional 2000 SEK every month or reach 12% yield instead of 8%, I’ll reach my goals faster”. What R6 views as a larger problem are the saving goals that allow a person to adjust the expected returns over a period of time-based on personal risk. “They should default the expected returns to that of the index rather than letting the user put in unreasonably high returns that are followed by high risk. [...] Instead, Avanza should emphasise pre-determined and reasonably exemplified calculations on future returns.”. Lastly, R6 explains how he believes that the joy of reaching a milestone is short-lived, while the loss of a milestone is tougher and increasingly long-lived, “I believe that when money moves the “wrong way”, it affects people to a larger extent”.

R7 says that he has been heavily exposed to this element, especially in the past. “I used to have most of my assets in crypto, almost 100%, but that is not the case anymore. But before, when the crypto market went well, I could reach several milestones in a short time. However, when crypto went bad, I could quickly lose these achieved levels, which is not a very nice feeling”. According to R7, this element has a strong motivating effect on him.
“Reaching a milestone feels nice, it gives me a small amount of dopamine”. R7 argues that the feeling of losing a milestone is stronger than the feeling of reaching one and that it can influence the choices an investor makes. “You put your money in assets since you want them to steadily increase, so when it doesn’t, it induces very uncomfortable feelings which may cause you to act differently”.

6.3.5 Notifications
Receiving a dividend pay-out is followed by a push notification sent out by Avanza. This notification contains the infamous “Ka-ching” sound of a cash register alerting its users that they have received money. The notification initially shows a small informative message, saying that you have new information to read and serves as an informative purpose. Upon entering the platform and opening the notification, it displays information about the amount received and from what company.

R1 together with Avanza views this as a fun and positive addition to the platform. Avanza designed this with “fun-factor” in mind while remaining informative by notifying events that otherwise are difficult to keep track of. R1 continues by saying “We have made this function voluntary and enabled it to be personalised. [...] We believe that you should not force users into something, instead give them the option to choose themselves depending on their preferences”.

R2 appreciates this function and thinks that the sound of a cash register is a fun addition. “It is super fun to see that you have received dividend pay-outs, it almost feels like free money, even though it is not. It is mental accounting\textsuperscript{11} to call it free”. He expands his thoughts on the element by claiming that it is motivating, “If I can increase that 100 SEK dividend to 200 SEK the following year, it naturally makes me happy”. R2 further believes that Avanza is well aware of how this makes the users feel and that they utilise this to make users act upon the positive feelings, “They live off brokerage fees, someone has to pay those fees”.

R3 does not possess any stocks that pay dividends on Avanza, causing him to not have been exposed to the game-design element. He associates the sound of a cash register with “Winning”, whether it be the lottery or through gambling. However, R3 thinks that it is an overall good function that is likely to have a positive effect on people. “Perhaps people feel more inclined to buy additional dividend stocks in the future since they enjoy receiving the dividend and the notification that follows”.

R4 has never activated this function on Avanza, resulting in a lack of personal experience. “I cannot speak for myself, but I believe it induces similar feelings as receiving a “swish”\textsuperscript{12}. You feel like you have gotten something for free, “ka-ching” now I’m rich”. R4 elaborates on her perception of the element arguing that it likely makes people want to invest more, thus having a motivating effect. “If you reinvest the dividends in the same stocks, your dividend pay-outs will keep on growing. This is a “win-win situation” since reinvesting creates compound interest for the user while it also generates more income for Avanza through brokerage fees”.

R5 believes a notification like this is necessary, “It can be difficult to keep track of dividend pay-outs yourself and this simplifies that process severely. The sound of a cash register

\textsuperscript{11} “Mental accounting refers to the different values a person places on the same amount of money, based on subjective criteria, often with detrimental results” - Segal (2020)

\textsuperscript{12} Swedish mobile payment system
turns into a receipt that you have done something right, even though dividends may not be the optimal metric for that. [...] Overall, I think it is a really good function”. He does believe that this element may reinforce people’s belief in dividend stocks by amplifying the positive feelings that they (the dividend stocks) already are inducing. The approach taken by Avanza is, according to R5, beneficial for both customers and themselves. “Serving their customers with this useful information also increases the chances of them reinvesting the dividends on Avanza, resulting in higher incomes.”.

R6 believes this is a strategy to increase activity on the platform saying that “They want you to spend as much time as possible on the platform since it is where you make decisions. They lure people in by sending out, not only dividend notifications, but also other ones to get you back into the “quicksand”. He holds the opinion that the sound effect is designed to awaken emotions, saying that “Everyone likes money, which creates a “rush of joy” similarly found in gambling and drugs. This might not be optimal for a bank claiming to be the retail investor’s best friend”. However, R6 believes that people possessing dividend stocks generally have a sound view on investing since companies that pay dividends need a stable cash flow and balance sheet. “Perhaps the general dividend investor is more experienced and is therefore not much affected by the notifications. Of course, it can still trigger addictive behaviours, but there are much worse addictions out there than being addicted to dividends”.

R7 has inactivated notifications on his mobile phone but claims that the element essentially is saying “You have been good, here you have some money”. He continues by arguing that this causes people to invest more and use their available funds when possible. The sound of a cash register is something that R7 has a positive connection with, expanding on the idea that one might focus their own strategy on stocks that have a pay-out dividend.

6.3.6 Avanza Svajper
This function lets users speed date stocks in a similar fashion as popular dating apps use. With a short introduction to the stock and key figures, users have the ability to either swipe right or left to indicate their interest. Swiping right would add the stock to their watch list while swiping left indicates no interest and is therefore discarded.

R1 explains that this function is designed primarily as a sorting tool to simplify navigating through the thousands of available securities. “You get a short introduction to the company so that you can sort out which ones you are interested in and can put it into a watchlist”. He explains how “swiping” has become a phenomenon that many people are used to today saying that “The swiping behaviour is already there, and how we can utilise that to make it simple for users to sort out stocks is the foundation of the function”. R1 explains how Avanza is constantly monitoring the game-design elements they launch on their platform and lifts an example from Avanza Svajper, “Previously, once you pressed on a stock, you immediately got directed to the buy and sell part. We decided to remove this since a person swiping and then being sent straight to the buy and sell part might make thoughtless buying decisions. Now, you get to the information site about the stock instead, so that you don’t run the risk of accidentally buying a stock. [...] This is a good example where we realised that we went too far and decided to back up and redesign the function”.

R2 has sporadically used Avanza Svajper but, because of his fund-focused investment strategy, he perceives this element as irrelevant since it solely focuses on stocks. However, he does believe that the function can have an inspiring effect. “I think that depending on how a person uses it, swiping through different categories can have a positive effect and inspire users to find new companies.”. He continues by discussing how some categories
like “luxury consumption” is something that perhaps previously haven’t struck people’s minds to include in their portfolio, but since it is now displayed in the element, they start to consider it. R2 also highlights the question of selection in stocks that are viewed, arguing that Avanza has a responsibility towards their users and what stocks they choose to “promote”.

R3 has not experienced this element himself on Avanza but has encountered it in other contexts. “It seems like a convenient way of sorting through the available shares”. He also believes that a person is more willing to use a function if they have encountered it before in another context, especially if they lack technical skills and experience. R3 expands on this by emphasising that it could be utilised to attract elderly people by decreasing the barriers to their platform and focusing on elements that the elderly already are familiar with.

R4 argues that this is a fun function, although she has not used it much herself. Although she does not believe it is an especially difficult function to understand, she believes that it probably is directed toward young users. This is since R4 believes that you are more likely to use an element you are familiar with and have experienced before. Furthermore, R4 expands her thoughts about the element, saying that “If you think in terms of diversification, this is a great way to find companies to complement your portfolio. Since Avanza also has portfolio insights that show you statistics about the diversification of your portfolio, the swiping function gets an even greater effect. [...] Let’s say that the portfolio insights reveal that your portfolio is concentrated in the Swedish industry market, then this function [Avanza Svajper] could simplify the diversification process greatly by displaying other categories and so on”. Lastly, she does not believe Avanza should have the biggest responsibility towards what companies are found under the categories. Instead, she believes the responsibility ultimately lies with the individual.

R5 associates Avanza Svajper with the popular dating app Tinder, which plays on similar principles of swiping left or right. Personally, R5 has not used the function but appreciates the function of adding stocks to the watch list upon swiping right. Continuing, he believes Avanza Svajper is a way of connecting and targeting young people on their platform, since they may have been exposed to the same principles but in different contexts such as Tinder. Similar to R2, R5 recounts the responsibility that Avanza has in the process of viewing stocks in the various categories. Although the information that is presented can be useful, R5 is opposed to the idea of actively choosing to show a sample of stocks instead of the whole population. He argues that it could result in promoting stocks that are unfavourable to users with regard to high fees, which benefits the company promoting them.

R6 finds the adoption of this element unnecessary for a bank and argues that it removes the validity of the institution. “It quickly turns frivolous when Avanza tries to be “down with the kids” by implementing this type of element. The element is about making quick decisions based on a few key numbers, which isn't appropriate when dealing with people’s life savings. [...] However, Avanza is a pioneer in the industry, which largely boils down to them being great at conducting real-world analysis. They see what works in other parts of society and implement them into their platform.”.

R7 thinks that overall, this element is a positive addition to the platform, saying that “It makes it easy to discover companies that you might be interested in”. The striking similarities to popular dating apps is, according to R7, likely to be a way to attract a certain type of clientele. “Avanza wants new customers, and most potential customers are “younger” or similar to our age. They find this familiar and amusing, which makes it more fun to start using Avanza”. The only thing that concerns R7, is the large responsibility
surrounding what companies are being featured, that follows this element. “I'm not sure how their selection process works, but the featured companies will likely be seen more by investors”. 
7. Analysis & discussion

In the following chapter, we are analysing the results from the interviewees, identifying relevant patterns found, with regard to the previously chosen elements of gamification. The results are then put in relation to the theories and frameworks presented in previous chapters.

7.1 General discussion

The general attitude among our respondents towards gamification is positive. Most of our respondents believe it can trigger healthy investing behaviours and be a motivating addition to a platform. This rationale aligns with the general dialogue that current gamification research holds, namely that it is motivating and beneficial. However, two of our respondents did not share this view as they were sceptical about whether gamification actually benefits investors. They expressed that they were doubtful if gamification added value to their experience or if it is mainly a way to increase trade activity and generate higher incomes. Similar criticism towards gamification has been directed by Ian Bogost (2011), arguing that gamification is an exploitative technique used to motivate people through counterfeit incentives and shams.

Furthermore, three respondents perceive several game-design elements to be unnecessary. The general notion questioned how much “noise” users can handle before gamification becomes ineffective and loses its purpose. Some even argued that gamification runs the risk of decreasing the perceived seriousness and validity of the institute implementing it. This aligns with Andrade et al. (2016) previous work investigating the negative aspects of gamification systems. Andrade et al. (2016) emphasised the potential pitfalls caused by asymmetry between the actual effects of gamification and the desired outcomes. They argued that if unsuccessfully implemented, gamification becomes a distraction rather than a beneficial addition to a platform. Nevertheless, all respondents agree that the institutes implementing gamification have a large responsibility to not implement exploitative game-design elements. The aggressive gamification present abroad is something that our respondents all obtain a negative view towards. They argue that it is exploitative, removes seriousness, and promotes unhealthy behaviours, something that Warren Buffet, Charlie Munger, and the state of Massachusetts agree on (Commonwealth of Massachusetts, 2020; Fitzgerald, 2021).

Moreover, our respondents expressed that they use the Avanza platform frequently. All claimed to use it daily, except one respondent that used it two times a week. Based on data from both the Federal Reserve (2016) and Lexington Law (2018), our respondents seem to, on average, use their mobile banking platform more than the average American citizen. Interestingly enough, prominent gamification platforms in the US report a 40% higher activity than their conservative peers. Due to the limitations of this study, we were not able to obtain information regarding the user activity in relation to the average Swedish bank customer. Therefore, further research is needed to explain whether Avanza users' high activity is due to the prevalence of game-design elements or if other variables can explain the report’s findings. Possibly, this is a national and demographic difference rather than a result of gamification, which makes our contribution less relevant.

Previous work done by Chapkovski et al. (2021) found that a low financial literacy increased the impact gamification had on investors. Our results report similar findings. The respondents with low financial literacy reported higher levels of activity and emotions triggered as a result of the game-design elements than those with higher levels of financial
literacy. Our most financially literate respondents admitted that the elements still induced emotions, but that they rarely acted upon those. Other literature on gamified trading platforms suggests that the top 0.5% of stocks bought every day receive, on average, -4.7% returns the subsequent month (Barber et al., 2020, p. 3). Although we lack data on the performance of our respondents, we argue that financial literacy is an important variable of a person's financial wellbeing and necessary to mitigate some of the effects of gamification.

Our respondents pointed out a game-design element that we previously did not consider ourselves before conducting the interviews. The element referred to is the removal of brokerage and fund fees for users with less than 50,000 SEK on the platform. This is undoubtedly a strategy to attract new users to their platform and is a tactic utilised by many competitors in the online brokerage industry. This element relates to core drive one - epic meaning and calling, which suggests that giving users free items that normally come at a price, makes them feel singled out and special, favouring the user to further actions. R6 argued that this deal might sound too good to be true for many users and that the similarities between this element and the ones found on gambling platforms are “scary”. Gambling platforms utilise the motivating effects that core drive one presents by offering e.g., 1000 SEK for just signing up or 500 free spins on games. The function does lower the barriers to beginning investing. But as one of our respondents previously argued, the barriers are already low which turns the dialogue towards the ethics of gamification rather than the lowering of entry barriers.

Lastly, we discovered through our analysis of the results that most of the respondents believe that elements affect other people to a larger extent than it affects themselves. It was common for the respondents to admit that they use the element frequently, but that they could see past the emotional effects it may have had on them. They were, however, quick to point out how others may act in such a situation. These findings resonate with the rationale of overconfidence bias, meaning that they have an inflated view of their own ability to make decisions (Logg et al., 2018). Our results align with the findings of Montier (2006), which found that most fund managers believe their ability to invest is higher than average. Our sample size is perhaps too small to draw any population-wide conclusions, but it is a continuous theme throughout the interviews and something that may influence the validity of our results.

7.2 Your numbers

Core drive five from the Octalysis framework suggests that people have a desire to connect and compare themselves with other people (Chou, 2014). If such a game element is implemented correctly, the social aspects are expected to be intrinsically motivating. Our results largely confirm that the social aspects are having a motivating effect since it touches upon people’s competitive strife. However, some of our respondents argue that it did not increase their motivation and that it at times even had the opposite effect. Instead, the element caused stress and other emotions induced by unwanted comparisons between their own performance and that of others. This is supported by Andrade et al. (2016) previous work, claiming that forced competition can decrease interest, engagement, and sense of competence among individuals. One respondent also argued, with the support of both Hanus and Fox (2015) and Sailar et al. (2017), that comparing your performance could have a demotivating effect if the gap between the users’ performance was large. The same respondent argues that a major reason she has not made portfolio changes based on the element is that her performance continuously has been close to that of her peers and the

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13 Nordnet, Savr, and Degiro all have similar offerings
indexes. If the differences were larger, she would feel increasingly motivated to engage in trade activities.

Furthermore, we see a relation between the respondents that seemingly enjoy this function and those who have experienced similar elements in previous contexts. All respondents that explicitly expressed a positive opinion said that they were familiar with this type of element from other contexts. Our results, therefore, align with the theory behind the element presented by Chou (2014), saying that if a person can relate to an element and have experienced it in other contexts, they are more prone to use and be motivated by it. The respondents that enjoyed the element also appeared to be more likely to engage in trades as a result of the element than the ones that were not familiar with the element.

The interviews provided us with new insights into the potential effects of this element. Our results show that the respondents believe that the emotions investors experience on a regular basis may be amplified by this element. If an investor overperforms for a period of time, this element increases the risk of triggering or amplifying overconfidence bias. This is a valuable insight for both investors and institutions since experiencing overconfidence bias makes investors more likely to underestimate risks related to their investments and therefore take on unwarranted risks (Baker & Ricciardi, 2014). Being aware of the potential positive and negative aspects is crucial for the long-term successful implementation of gamification.

7.3 Top movers

The top movers element relies on core drive eight of the Octalysis framework. Core drive eight suggests that people engage in certain activities in an attempt to avoid negative outcomes or to alleviate themselves from immediate pressure to act to exploit an opportunity that only exists now. The motivation of core drive eight essentially stems from regret aversion, meaning that the anticipation of regret in the future affects individuals making decisions in the present (Baker & Nofsinger, 2010). The respondents of our study all claim to be emotionally affected by this element. Some claim that having your own holdings displayed as either winners or losers touches upon their competitive strife and thus induces positive feelings when they are winning, and negative feelings when they are losing. Others think that seeing companies they are not invested in displayed as winners make them experience stress since they are missing out on the gains. One of our respondents even went as far as to explicitly say that top movers induce FOMO within him and that he previously have acted upon it without satisfying results. FOMO is a prime example of regret aversion (Chen 2021) and it is fair based on the results and literature to assume that this element increases the chances of irrational investment decisions. Nevertheless, it is important to remember that in most cases, our respondents do not base their trade decisions blindly on the emotions induced by the element. The majority uses it as a way to collect information about the market and view the large movements as an indication that something fundamental about the said company has changed.

Furthermore, the top movers element relies on social aspects found in core drive five. According to core drive five, people observing others act in a certain way are motivated to act similarly (Chou, 2014). This statement resonates with the concept of herding behaviour, known as the dismissal of one’s own strategy in favour of following the behaviour of someone else (Baker et al., 2017; Baker & Ricciardi, 2014; CFI, 2019). The literature further suggests that investors are more prone to buy shares that have caught their attention (Odean, 1999) as well as those with either extreme gains or losses (Barber and Odean, 2007). Most of the respondents use the top-movers, as well as other lists, to keep themselves updated with the stock market. It is fair to say that the shares displayed in different elements on
Avanza catch the attention of users more than those that are not. Therefore, we expect there to be a higher concentration of trading activity in these stocks as is evident on other gamified trading platforms (Barber et al., 2020). Barber et al. (2020) further claim that general retail investors are more prone to buying extreme gainers rather than extreme losers, something that our results do not align with. A majority of our respondents instead claim that they feel more inclined to buy extreme losers than winners since they believe the potential upside is larger.

7.4 Charts

Avanza portrays information to its users through Charts\textsuperscript{14} e.g. “Most owned Swedish stocks”, “Most new owners the past month”, and “Most owned foreign stocks”. These lists present information about how the general crowd behave on the stock market in terms of what they currently are possessing/buying. The element can both be seen as informative and triggering. It can help people navigate through the thousands of stocks available on the platform, while also steering people in the direction of the crowd. This element aligns with core drive five, suggesting that activities are influenced by observing the actions of peers. Core drive five and charts further relate to herding behaviour, meaning that decisions are influenced by the behaviour of others (Baker & Ricciardi, 2014). Investors may feel more or less inclined to act based on the charts depending on their preferences and strategy. Our results indicate that most investors view this element as mainly inspirational and as a way to keep track of what the market has confidence in. The senior executive (R1) at Avanza claimed that people are curious about how other people act and what assets they currently hold. Our other respondents largely confirm his belief and further claim that it has an inspirational effect and influences investment decisions. Two of our respondents argue that it induces FOMO to see how others invest. FOMO relates to core drive eight and the previously mentioned behavioural bias regret aversion (Chen 2021). R3 believes that it is tough to act opposite to what the larger mass does, something that aligns with the belief of many psychologists claiming that acting contrary to the herd can go as far as to cause physical pain in the individual (CFI, 2019).

Furthermore, four respondents claim that a large number of owners indicates a higher quality of a stock than those with a smaller number of owners. They claim that they almost view the number of investors as a quality stamp and that a less thorough analysis is needed when there are many investors owning a stock. Dismissing your own analysis due to how other people behave is, according to Baker and Ricciardi (2014), a common psychological heuristic known as herding. If our respondents were rational beings, they would treat the fundamentals objectively and not require a less thorough analysis when more people hold a stock. Instead, they show signs of trusting that other people already have performed a good analysis of the stock. One of the four claimed that it mostly influences the amount of money he is willing to invest, saying that he feels more comfortable with investing large sums in a company many Avanza users also are invested in than a company where few of them have invested their money. This relates to core drive five and is arguably also a sign of herding bias, where the investor’s investment decisions are influenced by how other people act.

7.5 Milestones

Milestones show the progression of your total portfolio value and reward the user with a badge when achieving a progress level. Avanza also displays what percentage of users have achieved this level to illustrate how one is performing compared to their peers. Showing the

\textsuperscript{14} Appendix 3
progression compared to other users in terms of percentage gives a sense of scarcity since it implies that there are fewer people who manage to reach the higher levels, relating back to core drive six of the Octalysis framework - Scarcity & Impatience (Chou, 2014, p. 230). Information on when the user managed to achieve the milestone is also shown, creating a lasting memory. Since this element involves challenging goals as well as rewards, one could also argue that the second core drive, Development & Accomplishment, is touched upon as a way of motivating users (Chou, 2014, p. 90-91). A similar function that relies on the same principles as milestones are the “Saving Goals”, which allows users to set up personal saving goals towards e.g., retirement. It touches upon similar core drives as the milestones element, while also relating to core drive three - Empowerment of Creativity & Feedback - in the sense that it allows the user to try out different combinations of investing strategies and see the expected future results instantly.

All our respondents perceive milestones as having a positive influence, saying that it motivates them to monitor their progress. Also showing signs of competitiveness by increasing the will to reach higher levels. From the results, we saw that the visual presentation of the progression presents a degree of fun factor and instant feedback for the users, aligning with what the senior executive at Avanza explained is their purpose and also touches upon core drive three relating to Feedback.

The respondents to our study argued that the feeling of failure when losing a milestone is greater than the feeling of accomplishment upon reaching one. Two respondents answered that it can have long term negative effects on motivation because of the constant reminder, while others argued that the negative effects were short term. This can further be strengthened by the concept of Prospect Theory (Kahneman & Tversky’s, 1979), where Loss Aversion argues that people in general experience the pain of losing stronger than the joy of winning.

7.6 Notifications

The sound of a cash register is something that most people associate with something positive, e.g., making money and therefore touches upon core drive five about Relatedness. Push notifications are used to grab the user’s attention and are found as visual, auditory, or tactile alerts (Iqbal & Bailey, 2010). Notifying also means making the Avanza user aware of the fact that they have funds available that can be activated through investment. Apart from the notifications regarding dividends, Avanza tends to use notifications that do not display much information without opening the application and logging in. The lack of information plays on the Curiosity part of core drive seven that individuals are motivated by exploring what is unknown. If Avanza simply displayed the full content of information, users would likely dismiss the information more often and not feel the same desire to log into the platform to satisfy their curiosity.

All our respondents express that they associate the element and the sound of a cash register with positive emotions and a sense of receiving free money. Relating back to Curiosity and core drive seven, none of the respondents stated that it was curiosity which drove them to explore the notifications, but more habitual behaviour of checking notifications in general. Four respondents suggested that notifications can affect their behaviour, spending more time on the platform as well as increasing their activity. One of the respondents strongly believed that notifications in general, and at Avanza in particular, are used to bring users back to the platform and keep them on for a longer period of time. Thus, increasing their activity on the platform and their exposure to the element in question. Notifications as Avanza uses in order to inform their users can be compared to in-game notifications, that
update players about events and other information. Nevskaya and Albuquerque (2019, p. 380) argue that notifications motivate users to come back faster to the activity, shortening the time that users are away as well as strengthening their habit of using the activity.

7.7 Avanza Svajper

Avanza Svajper aims to simplify the process of navigating through the thousands of available stocks by letting the users speed-date stocks in a similar fashion to the popular dating app Tinder, allowing users to easily gain further information and track the performance of the stocks (Jönsson, 2020). As seen in appendix 6, the information presented in this feature is rather limited, yet intriguing enough to let the user themselves further gain knowledge about it if they feel like it. Our analysis of this element suggests that it alludes to core drive five in the sense of Relatedness. The swiping function famously known from dating apps is something a large portion of people are familiar with and therefore feel comfortable using. It might therefore amplify a person’s desire to engage in the platform.

A minority of our respondents said that they had used this function, but all respondents claimed that they would be familiar with it because of its easy use and similarities with the dating app Tinder. Thus, showing signs of Relatedness and agreeing with the theoretical logic behind the element. Five of the respondents argued that the element contributes with a fun factor as it plays on exploring new stocks, which they previously had not considered or known about. After the interviews, it is apparent that most of the respondents are using, or would use, this element to find inspiration and further explore new investment possibilities. As the element does not allow the user to see the stocks until either choosing to swipe left or right, there are indications that it creates a sense of curiosity which connects to core drive seven.
8. Ending discussion

In this chapter we will answer the research question and provide conclusions related to our problem background and purpose that was stated in the beginning of the study. In addition, we will present theoretical, practical, and societal implications as well as limitations and further research related to our study.

8.1 Conclusion

The theoretical framework together with collected material fulfils the purpose of the study aimed at investigating whether gamification influences retail investment behaviour. Our study finds that gamification has an effect on investors and may influence their trade decisions. We conclude that social game-design elements cause intrinsic motivation and have a strong effect on retail investors. The study further shows that visualising personal development has a strong extrinsically motivating effect on retail investors’ desire to increase their capital. Our results also show that gamification can be used to promote both healthy and unhealthy financial behaviours, making it a powerful tool for the one’s controlling it. However, if not managed appropriately, excessive usage of gamification runs the risk of decreasing the perceived seriousness and validity of the institution implementing it. Lastly, this study concludes that investors tend to believe that gamification affects their investment behaviour less than others, suggesting that they suffer from overconfidence bias.

Although the responses, at times, have differed among our respondents, the study has still managed to draw conclusions and answer the research questions. It has contributed by expanding the knowledge and theories proposed by previous scholars, while simultaneously situating the research in a Swedish context.

8.1.1 Game-design elements alluding to social aspects has a strong effect on retail investors

After analysing the results from our interviews and comparing the theoretical and empirical findings, our study concludes that elements of gamification relating to intrinsic motivation and social aspects strongly affect retail investors. An investor seeing their development and being compared to indexes and other users creates feelings of both competitiveness and despair, with the chance of leaving long lasting effects. Viewing how others invest and what stocks that the greater mass have the most confidence in can, according to our findings, be argued to cause herding behaviour. Further, our study suggests that retail investors with low levels of financial literacy and less knowledge of the stock market are likely to show signs of herding behaviour, setting aside their own strategy in favour of the greater mass.

8.1.2 Visualising progression has a strong motivational effect on retail investors

We conclude that game-design elements that visualise the personal development of users have strong motivational beneficiaries tied to them. The motivational beneficiary is grounded in the combination of visually seeing the progression and reaching a set out goal. Our study shows that all respondents answer to the extrinsic motivator of achieving a goal and receiving a reward for it, exhibiting signs of self-development and competitiveness. Furthermore, all respondents believed that the visual effects were vital, giving them instant feedback and feeling of accomplishment. The will to increase savings and the total value of the portfolio greatly improved. Relating back to the theory which argues that extrinsic motivators such as goals and challenges are powerful if implemented correctly, we see clear connections to our empirical findings. These findings further support the argument that retail investors indeed are affected by gamification, positively in this instance.
8.1.3 Excessive gamification decreases perceived seriousness and validity

Based on the analysis, we can conclude that a company implementing excessive forms of gamification runs the risk of being perceived as less serious. What is considered excessive is based on subjective connotations, meaning that there is no magical line separating excessive usage from appropriate usage. Therefore, this report is crucial for companies to obtain extensive knowledge about their audience and to continuously evaluate the present game-design elements.

8.1.4 Investors tend to believe that gamification affects other people more than themselves

The analysis suggests that most investors suffer from an overconfidence bias. They tend to believe that game-design elements do not affect them to the same extent as it affects others, thus obtaining an inflated view in their ability to make rational decisions. It represents a statistical impossibility similar to that found in previous studies that everyone believes they are not affected to the same extent as others.

8.2 Theoretical contributions

Our study is set out to investigate how retail investor behaviour is affected by gamification. This was done by analysing the Swedish stockbroker Avanza’s platform, using the Octalysis framework (Chou, 2014) to identify key elements of gamification. Situating gamification and the Octalysis framework within a financial context contributes to the current discussion about gamification and the future understanding of the concept. In addition to the chosen framework, behavioural finance and other vital factors were taken into consideration and, by connecting the two, we have been able to draw conclusions based on our qualitative data.

This study therefore contributes to the field of behavioural finance by showcasing how gamification may affect the investment behaviour of retail investors on gamified platforms. We believe that we have completed the study in accordance with the purpose and research questions stated in the beginning. Although our study has a rather small sample with few interviews, we can clearly see signs that gamification indeed affects retail investors. Themes such as financial literacy and general attitude towards gamification further contribute to the understanding of how retail investors are affected. Our ambition is that the findings presented in the study will drive future researchers to expand on present theories, as well as develop new theories.

8.3 Practical contribution

Our study can be beneficial for all parties involved on the financial market. During the study and its interviews, it was apparent that few of the respondents knew what gamification is and how elements can take shape. Through this study, consumers can raise their awareness about gamification, what it is and what implications it can have on their behaviour. This knowledge therefore empowers individuals, allowing them to make informed decisions and put their trust in platforms appropriate to themselves. Companies and financial institutions that today use gamification could use this study in order to review their own strategy. By doing so, they have the chance to alter their strategy and the possibility to implement elements more effectively through proven theories used in the study. It would also be in their interest to change elements that users experience has a negative effect on their wellbeing and attitude towards the company, or gamification in general.

Lastly, regulators could potentially use our study in order to revise present laws and regulations which restrict or allow the usage of gamification. Since gamification is a
developing concept and highly relevant across the society as a whole, and within finance in particular, regulators have a responsibility to modernise and to be proactive. The primary task should be to protect the safety of investors who partake on the platforms, ensuring that users are not misled or harmed.

8.4 Societal implications

Our study contributes in both theoretical and practical sense to further understanding of how gamification affects the behaviour of retail investors. During the last two years of the covid-19 pandemic, the Swedish stock market has experienced an increase in participants and users. Based on our interview with the senior executive at Avanza, they predict a steady growth of users in the future. Therefore, it is important to be aware of the behavioural aspect that gamification relates to, which our study complements. Crucial indicators such as user habits, attitude, and financial literacy, which all relate to gamification, are highlighted. Companies, financial institutions, regulators, and consumers can all find useful information from our study, indifferent if the goal is to become more aware or to implement gamification more effectively.

It is important to point out that the results of this research project can be utilised in unethical ways. Understanding the influence that gamification can have on investors’ investment behaviour can be utilised to exploit them. Promoting a high trading activity and/or steering investors towards instruments that generate high fees are just two examples of how the technology can be abused. It is therefore crucial that market regulators are updated on the current and future research on gamification to be able mitigate the potentially negative societal effects. Contemporary lawmakers are currently responding to the trends in the market rather than acting preventatively to ensure that gamification is ethically used. For that reason, we hope that market regulators (especially the Financial Supervisory Authority since our research is situated within Sweden) can benefit from our research.

8.5 Limitations and further research

Our study is primarily based on gamification and behavioural finance, two areas that have started to grow in the academic world but are not yet fully evolved. We have provided further understanding on how gamification, and the chosen theory behind it, can affect the behaviour of retail investors. In order to gain a deeper understanding and knowledge about the topic, further research is needed. Because Avanza has approximately 1.7 million users on their platform, expanding the number of respondents, age and gender groups could be done. This would enable for larger comparisons and possibly a stronger validation for the findings as it allows for a greater generalisation. Geographical location and socioeconomic background are factors that also could be considered since this could potentially have implications as to what financial knowledge you possess. In our study we ranked the respondents’ financial literacy level based on our own subjective opinions and answers from the interview. By constructing a series of questions related to financial concepts which score the respondent, a more precise evaluation of the level of financial literacy could be made.

Further research could also be done by including other stockbrokers on the Swedish market, such as Nordnet and traditional banks. Investigating to what extent gamification is present on other platforms could be included in a market-wide study, comparing if retail investors are affected more or less by what platform they are using and the institution behind it. We chose to interview one respondent that was not a consumer but instead a senior executive on Avanza. This gave the study a valuable insight to how certain elements of gamification are constructed from the eyes of Avanza, and what they want to project onto their users.
Continuing this, including more respondents from the company perspective could provide further understanding to how gamification is reviewed and what factors that are taken into account. Because the study has taken a Swedish perspective where Swedish laws and regulations control the financial environment, we do not deem it necessary nor appropriate to expand the scope of our work outside of Sweden.
9. References list


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Appendix

Appendix 1: Your numbers

"Månadsstatistik"

Appendix 2: Top movers

"Dagens Vinnare/Förlorare"
Appendix 3: Charts

"Topplistor"

Appendix 4: Milestones

"Sparmål/Milstolpar"
Appendix 5: Notifications

"Kassa-klirr"

Appendix 6: Avanza Svajper

"Svajper"

Appendix 7: Interview guide in Swedish

Del 1
1. Vem är du? (Ålder, Kön och sysselsättning)

Del 2
2. Hur skulle du beskriva dina finansiella kunskaper?
   - Professionell kunskap? Akademisk kunskap?
   - Var det någon skillnad till innan du började använda Avanza?
3. Hur länge har du använt Avanzas plattform?
   - Hur väl känner du till dess funktioner?
4. Hur ofta skulle du säga att du använder Avanzas plattform?
   - Dagligen/veckovis/månadvis?
5. Vad får dig att vilja använda Avanzas plattform?
   - Är något mer eller mindre viktigt för dig?
   - Användarupplevelse?

6. I vilket syfte använder du plattformen?
   - Lägga ordrar och handla?
   - Hålla dig uppdaterad om din portfölj/börsen?
   - Utbilda sig om handel med värdepapper?

7. När du ska handla med värdepapper, vilka funktioner använder du dig av?
   - Finns det funktioner som du använder mer än andra?
   - Använder du Avanza för att läsa på om aktier/fonder eller använder du andra källor?

Del 3

8. Upplever du att det finns element på Avanza som du känner igen sedan innan?
   - Om ja, vilka element och var känner du igen de från?

9. För att koppla an till elementet du nämnde i tidigare fråga, kan du beskriva de lite mer i detalj?
   - Påverkar några av dessa element dig på något sätt?
   - Framkallar någon av elementen några känslor?

10. Elementet ‘Dina siffror’ visar hur du presterat gentemot andra användare och index.
    - Väcker det några känslor med att jämföra dig själv mot index och andra användare?
    - Får det dig att överväga din egna portfölj eller val av investeringar?
    - Om ja, hur och varför tror du?

    - Om ja, hur påverkar det dig och varför?
    - Om nej, varför inte?
    - Största rörelser på bevakade värdepapper, påverkar det dig?

12. ‘Topplistor’ illustrerar bland annat hur andra Avanza användare agerar och vilka aktier som flest har innehav i.
    - Påverkar det dig? Isännafall, hur?
    - Hur ofta kollar du in topplistorna? Vad får du ut av det?

    - Påverkar de dig på något sätt, i så fall hur påverkar de dig?
    - Motiverar de dig till att vilja öka ditt värde på tillgångar?

    - Om ja, hur påverkas du och vilka känslor kan du beskriva?
    - Upplever du att dina känslor kopplade till detta ljudet/funktionen påverkar framtida val och beslut kopplat till investeringar?
    - Om nej, varför inte?

15. ‘Avanza Svajper’ ger dig möjligheten att speeddejta värdepapper och lägga de bland dina bevakningar.
    - Har du använt detta element?
    - Känner du något speciellt för den och/eller påverkar den dig på något sätt?

16. Finns det inslag av gamification som du upplever är överflödiga eller störande, både på hemsida och app?
    - Om ja, vilka och varför?
17. Tycker du själv att det saknas någon funktion eller game element som skulle få dig mer engagerad i Avanza?
   - Om ja, vad för typ av funktion hade du velat se och vad hade det tillfört till din upplevelse på Avanza?
   - (Författarna tar exempel på hård användning av gamification som kan återfinnas på exempelvis Robinhood) Vad är din syn på den hårdare användningen av gamification?

18. En avslutande fråga. Med hänsyn till Avanzas affärsidé, ser du några nackdelar respektive fördelar med gamification på deras plattform?

Appendix 8: Interview guide in English

Part 1
1. Who are you? (Age, Gender, Current occupation)

Part 2
2. How would you describe your own financial knowledge?
   - Professional or academic knowledge?
   - Was it different from before you started using Avanza?
3. For how long have you been using Avanza?
   - How familiar are you with its functions and tools?
4. How often do you use Avanza’s platform?
   - Daily/Weekly/Monthly?
5. What makes you want to use Avanza?
   - Is something more or less important to you?
   - User experience?
6. In what purpose do you use the platform?
   - Solely to buy and sell securities?
   - Keeping up to date on news and your portfolio?
   - Educating yourself on trading with securities?
7. What functions and tools are you usually using when trading securities?
   - Functions and tools that you use more than others?
   - Is Avanza the only source of information or are there others regarding trading securities?

Part 3
8. Have you experienced that there are elements on Avanza that are familiar since before?
   - If yes, what elements and where have you seen them before?
9. Connecting back to Q8, can you describe those elements in detail?
   - Do any of these elements affect you in any way?
   - Do any of these elements induce any particular feelings?
10. ‘Your Numbers’ shows a representation of your development against index and other Avanza users.
    - Does this comparison to others induce any particular feelings?
    - Does it make you reconsider your own investment decisions?
    - If yes, How and who do you think?
11. ‘Top Movers’ show what stocks and funds that has the best and worst development on the daily stock market.
    - How do you perceive this element and, does it affect the view on your own portfolio?
    - If yes, how and why?
- If no, Who not?
- Biggest movement on your watchlist, does that affect you?

12. ‘Charts’ illustrate how other Avanza users invest and what stocks most have ownership in.
   - Does this element affect you? If so, how and why?
   - How often do you check the charts? What value do you get?

13. ‘Milestones’ is an element that builds upon the value of your own portfolio and your savings. A higher value implies that you climb to a higher milestone. How do you perceive this element?
   - Does it affect you in any way? If so, how and why?
   - Does it motivate you to increase the value of your portfolio?

14. ‘Notifications’ can be seen when receiving dividend payments on Avanza, with the sound of a cash register. Does this affect you in any way?
   - If yes, can you describe how it affects you and what feelings you experience?
   - Do you think that your feelings associated with this element affect your future decisions, with regards to investments?
   - If no, why not?

15. ‘Avanza Svajper’ gives you the opportunity to speed-date stocks and add them to your watchlist.
   - Have you used this element and/or is it familiar to you in other contexts?
   - Do you have any feelings connected to this element?
   - Does this element affect you in any way?

16. Are there elements of gamification that you believe is unnecessary on Avanza, either on the mobile app or webpage?
   - If yes, which one and why?

17. Do you think that Avanza is missing any functions or elements of gamification that would get you more involved in Avanza?
   - If yes, what kind of element would you like to see and what value would it add in your opinion?
   - (Authors’ giving example on hard use of gamification which can be seen on for example, Robinhood). What is your opinion on harder use of gamification?

18. Taking the business idea of Avanza into consideration, do you see any disadvantages or advantages with Avanza using elements of gamification on their platform?

Appendix 9: Ad for participants in Swedish

Hej!

Använder du Avanzas plattform för handel med värdepapper? Eller har du goda kunskaper inom gamification? Då söker vi dig till vår studie!

Jag och min uppsatspartner Hugo Ljungkvist håller just nu på med att skriva vårt examensarbete inom finansiering vid Umeå Universitet. Vi ska undersöka hur småspara res investeringsbeteende påverkas av gamification. Studien är kvalitativ, därför söker vi personer som har erfarenhet av Avanzas plattform och/eller goda kunskaper om gamification och skulle vilja ställa upp på en intervju för att bidra till vår forskning.

Om detta låter intressant och du tror att du kan hjälpa oss så får du gärna höra av dig till mig här på Facebook eller via mail till XX. Intervjun är helt anonym, och vi är anpassningsbara efter ditt schema men ser gärna att vi kan hålla intervjun under första halvan av april.
Appendix 10: Ad for participants in English

Hello!

Are you using Avanza's securities trading platform? Or do you have good knowledge in gamification? Then we are looking for you for our study!

Me and my essay partner Hugo Ljungkvist are currently writing our thesis in finance at Umeå University. We will examine how retail investors' behaviour is affected by gamification. The study is qualitative, therefore we are looking for people who have experience of Avanza's platform and / or good knowledge of gamification and would like to take part in an interview to contribute to our research.

If this sounds interesting and you think you can help us, feel free to contact me here on Facebook or via email to XX. The interview is completely anonymous, and we are flexible to your schedule, but would like to see that we can hold the interview during the first half of April.