Behavioural biases – the biggest challenges to Self-Directed Investors.

Dissertation submitted in part fulfilment of the requirements for the degree of

Master of Business Administration in Finance
at Dublin Business School

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Declaration statement

Declaration: I, Irina Simonova, declare that this research is my original work and that it has never been presented to any institution or university for the award of Degree or Diploma. In addition, I have referenced correctly all literature and sources used in this work and this work is fully compliant with the Dublin Business School’s academic honesty policy.

Signed: Irina Simonova
Date: 21 August 2015
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Abstract

This dissertation is an attempt to look at the problem of behavioral biases from the perspective of self-directed investors. It is an attempt to justify how important this knowledge is for this segment of investors. The behavioral biases issue can become even more significant given that the segment of direct investors was constantly growing over last years and predictions are that it will continue to grow in the nearest future.

Behavioral biases come from the behavioral finance theory, the theory that embraces finance and psychology. Theory of behavioral finance started to gain its significance since the moment it was discovered that people and markets are not rational. It is now obvious that investors cannot be successful until they start to exploit the techniques of behavioral finance on top of the skills and techniques of traditional finance theories.

It was established that self-directed investors are the ones who are most susceptible to behavioral biases as the sector comprises of people from different backgrounds. We all learn from our own mistakes, but the process of learning sometimes can take too long that it can be too late.

This dissertation is an attempt to attract the attention of self-directed investors to the challenges they are facing, namely to problems connected with behavioral biases. The aim of this dissertation is to prove that self-directed investors are prone to behavioral biases so to prove the significance of the subject to them and to show what types of biases are more common and what has to be done in order to avoid them or to mitigate their effect.
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1 Introduction

1.1 Research problem

Behavioural finance theory has been very popular for last decades. It attracts more and more followers who consider the theory to be of a great importance to them because of the observation that individuals rarely behave according to the assumptions made in traditional finance theory. Since behavioural finance uses researches from psychology to develop an understanding of financial decision-making it also takes into account the observed human behaviour (Byrne and Utkus, 2013).

Behavioral finance makes an attempt to explain and improve people’s awareness regarding the emotional factors and psychological processes of individuals and entities that invest in financial markets.

Within behavioural finance, it is assumed that the information structure and the characteristics of market participants systematically influence individuals’ investment decisions as well as market outcomes. When it comes to investing, trading or making financial decisions, an individual is not always as rational as he thinks he is. The concluding observation is that understanding of various behavioural key biases and traits can help an individual to take sound financial decisions which is the key to successful investing (Ricciardi and Simon, 2002).

These biases can affect all types of decision-making but have particular implications in relation to money and investing. The behavioral biases relate to how we process information to reach decisions and the preferences we hold. The biases tend to sit deep inside the human mind and may serve them well in certain circumstances. However, in investment they may lead people to harmful decisions. As a fundamental part of human nature, these biases affect all types of investors, both professional and private (Byrne and Utkus, 2013).

Rise in self-directed investor sector makes it important to raise the problem of behavioral biases for this particular segment of investors. Behavioral finance claims that on top of the usual investing skills the investor should be in control of his emotions if he wants to succeed. Independent thinking, good analytical capabilities, patience, decisiveness and dedication to the task are desirable traits of DIY investors. A healthy dose of realism is a useful antidote to questionable and inappropriate investments (Bebee, 2014).
Some people may argue that they are not emotionally biased, that they are in control of their business, life, etc. A lot of studies prove the opposite; we all are susceptible to biases. So, since it innate to us the only thing we can do about it is to be aware of it and try to control it. Since you are aware of the existence of a problem you are able to deal with it in the most efficient way. Independent traders who put their money and time into investing have to consider this for sure.

From the perspective of the researcher the behavioural biases or decision-making behaviours are considered to be the greatest challenges for this new and emerging type of an investor. Firstly, most of them even are not aware of the existence of this type of issues; secondly, they usually do not know how to deal with them.

We are unlikely to find a ‘cure’ for the biases, but if we are aware of the biases and their effect, we can possibly avoid the major pitfalls. Behavioural finance holds out the prospect of a better understanding of financial market behaviour and scope for investors to make better investment decisions based on an understanding of the potential pitfalls (Byrne and Utkus, 2013).

1.2 Objectives of the research

The main purpose of the research is to show the importance of the knowledge to people who decided to become self-directed investors. The major contributions of the study in this filed would be to emphasize the importance of the subject for those people who decided to trade directly and who are in control of their own money, to find out what are the most common behavioral biases inherent in direct trading, what other personal attributes can matter and be vital in decision-making, to prove that the knowledge of behavioral biases will enhance the performance of self-directed investors.

According to these statements it was identified that the main objectives of the research are to establish:
- that there is a significant rise of self-directed investors so it is worthwhile to conduct a research on their financial behaviour;
- what are the main reasons for investors to choose to trade directly;
- if self-directed investors are aware of behavioral finance and behavioral biases;
- that age, gender, profession and experience of self-directed investors influence the financial behaviour and attitude to risk;
- what behavioural biases are there that affect self-directed investors;
- that the knowledge of behavioural biases and behavioural finance will aid individuals in their investment practices?

1.3 Dissertation roadmap

The dissertation has been divided into 7 chapters: literature review, research methodology, data analysis/findings, discussion, conclusions and self-reflection.

Literature review chapter will examine the literature chosen for the research purpose. Behavioural finance is quite contemporary subject so the most up to date literature is out there. The researcher will start with the reviewing of the literature on the behavioral finance and behavioral biases backgrounds. The works of psychologist and the founder of two-way thinking system Daniel Kahneman will be reviewed and general findings will be discussed. Nassim Taleb is the author of popular best sellers on the subject of randomness. He truly believes that random events have a great impact on people life; he is also the strong believer in behavioral finance. Due to the fact that self-directed investors’ segment has been growing over the recent years because of the several factors the researcher will try to establish the main trends driving this growth as well as the most common biases that influence investors’ behaviour.

Research methodology chapter will reflect the underlying assumptions about the research methodology chosen by an author. The author will discuss the research methods, philosophy and research strategy. The time horizon and scope of the research will be discussed in this chapter as well; detailed description of the ways of secondary and primary data collection as well as the ethical issues and limitations to the research will be outlined in the research methodology chapter.

Data Analysis/Findings chapter will present and illustrate the findings of the research. Each objective identified for the purpose of this research will be addresses in the separate section of this chapter. Data analysis/Findings chapter will include the analysis of the results gathered with the aim of the on-line survey.

Discussion chapter will review the whole research process and the work done during this process; interpretation of the results will be discussed here in an attempt to answer the research questions. The discussion on implications of findings and limitations to research will be presented in this chapter as well.

Conclusions/Recommendations chapter will represent a summary of the findings in relation to the objectives of the research with an emphasis on the ways in which these
particular findings illuminate the general issues raised in the literature review. The ideas and recommendations for future research in the area will be discussed in this chapter as well.

Reflection chapter is the chapter on self-assessment of the researcher’s experience that she gained through the process of research as well as during the whole process of Master’s studies.

1.4 Scope and limitations of the research

The researcher tried to access as many secondary and primary data as she could possibly work through in the given period of time. The researcher was lacking information on the trends and future forecasts of the self-directed investors sector so the assumptions were based on the information that was available to her. The angle that was chosen for the research, namely the particular segment of investors put restrains and limits on the size of the survey sample.
2 Literature review

2.1 Introduction

The subject of behavioral finance is quite new and popular therefore there are a lot of researches done and constantly held; hence the most current information is available on the topic. As the main question of the research is to establish if the behavioral biases are the biggest challenges for self-directed investors the researcher has reviewed the literature in both topics – behavioral biases and literature related to the segment of self-directed investors.

Background section of the chapter explores the underlying theory of behavioral biases and behavioral finance. The works of famous psychologist and essayist/investor were reviewed in order to get a general idea of how human mind is designed and what biases are there from the perspective of both the authors.

‘Behavioral biases’ comes from the relatively new theory on behavioural finance and has been inspired by the studies of Kahneman and Tversky in the 1970’s. Daniel Kahneman, psychologist, winner of the Nobel Prize in 2002 for his contribution into behavioral economics (finance) is very famous in the area and his works are cited by almost every author writing on the subject of behavioral finance. The main idea of his works is that people are irrational and that research in this area would help to “improve the ability to identify and understand errors of judgement and choice, in others and eventually in ourselves” (Kahneman, 2011, p. 4).

Another great author writing on the subject of behavioral finance is Nassim Nicholas Taleb. He is an author of the bestselling books “Black swan”, “Fooled by randomness” and other successful books on the subject of randomness. Taleb started out as a trader, worked as a quantitative analyst and ran his own investment firm; thus Taleb has an excessive experience both in theory and in practise. Taleb does strongly believe in Kahneman’s theories, his books are full of stories that are confirming the theories with the greater focus on people who ignore the randomness in their lives.

Self-directed investors will be explored in the second section of the chapter. The researcher will try to establish any recent trends, future forecasts of the growth in this sector, thus trying to confirm the importance of research. The second section will also include the list and description of behavioral biases which are most common for self-directed investors and thus more important for this research. By reviewing the literature the researcher will try to
establish if the behavioral biases are really the biggest challenges for DIY investors and if the knowledge and awareness of the subject could really improve their performance.

2.2 Background

2.2.1 Daniel Kahneman

Economic theory has traditionally assumed that all individuals were rational in the choices and that the prices reflect this rationality and the deviation is unsystematic or minor. Empirical research since the seventies led by Kahneman and Tversky has proved this wrong; it has proved that individuals are irrational and that cognitive biases are systematic and significant. Kahneman (2011, pp. 3-4) states that: “systematic errors, known as biases, will recur predictably in particular circumstances”.

People use rules of thumb, known as heuristics, to assess potential investment possibilities. By their nature heuristics are imperfect, and therefore give rise to biases. Most investors are hampered by their biases in the attempt to exploit market inefficiencies (Shefrin and Statman, 2003, p. 56-57).

Kahneman (2011, p. 98) describes the heuristics as a “simple procedure that helps find adequate, though often imperfect, answers to difficult questions”.

System 1 and System 2

In order to explain the irrationality of human decision-making Kahneman tries to establish how the process of formation of thought really works. In doing so he identifies two models of thinking: System 1 and System 2. He describes these two models as follows:

- System 1: Fast, automatic, frequent, emotional, stereotypic, subconscious, where decisions are instinctual and heuristic-based;
- System 2: Slow, effortful, infrequent, logical, calculating, conscious, where processes are calculated and analytical.

According to Kahneman (2011):

System 1 continuously generates suggestions for System 2: impressions, intuitions, intentions, and feelings. If endorsed by System 2, impressions and intuitions turn into beliefs, and impulses turn into voluntary actions. When all goes smoothly, which is most of the time, System 2 adopts the suggestions of System 1 with little or no
You generally believe your impressions and act on your desires, and that is fine – usually (Kahneman, 2011, p. 24).

The main drawback of System 1 is that it is gullible and biased and it cannot be turned off. When information is scarce it operates as a machine for jumping to conclusions. System 2 is in charge of doubting and unbelieving but it has the drawbacks as well - it is often lazy and follows the path of least effort which in turn endorses a heuristic answer to any given question no matter if it is truly appropriate (Kahneman, 2011, p. 81-99).

Kahneman (2011, p. 26-44) considers that one of the main tasks of System 2 is to overcome the impulses of System 1 and to put System 2 in charge of self-control by monitoring and controlling thoughts and actions “suggested” by System 1, allowing some to be expressed directly in behaviour and suppressing or modifying others. He considers that in real life the best we can do is to compromise: learn to recognize situations in which mistakes are likely and try harder to avoid significant mistakes when the stakes are high.

In the context of financial markets it is very important to be able to avoid System 1 and to rely on System 2 as System 1 is actually the one responsible for biases; whether it is availability, confirmation or overconfidence bias.

Kahneman runs different tests and uses the analyses of other psychologists to find out what biases are there and why and how they influence humans. He comes to the same conclusion that when people are in a state of higher vigilance and use their analytical System 2, they are less susceptible to biases. And the opposite, when people let themselves to be guided by instinctual and heuristic-based System 1 they suffer from all types of biases.

Kahneman (2011) considers that: “people who let themselves to be guided by system 1 are more strongly susceptible to availability biases than others who are in a state of higher vigilance. The following are some conditions in which people “go with the flow” and are affected more strongly by ease of retrieval than by the content they retrieved:

- When they are engaged in another effortful task at the same time
- When they are in the good mood because they just thought of a happy episode in their life
- if they score low on a depression scale
- if they are knowledgeable novices on the topic of the task, in contrast to true experts
- when they score high on a scale of faith in intuition
- if they are (or are made to feel) powerful” (Kahneman, 2011, p. 135)
2.2.2 Nassim Nicholas Taleb

The researcher found the Taleb’s book rather enjoyable and easy to read. Reading his books puts you in a different state of mind, opens the broader picture of the world we live in. Taleb manages to incorporate different aspects of life into one coherent story. Taleb emphasizes the role of randomness in people lives focusing on the idea that “it is not all random” but “it is more random than we think”. People can predict and forecast future based on past events but things are happening independently of that and that linear progression is not the norm.

Black Swans or random events

Modernity is too complex to understand that an unexpected event or unpredicted shock having an extreme impact, the “Black Swan”, will always occur at some point.

He emphasizes the significance of the Black Swans as he considers that “a small number of Black Swans explain almost everything in our world, from the success of ideas and religions, to the dynamics of historical events, to elements of our own personal life” (Taleb, 2008, prologue).

The awareness of a possibility of problems is at its lowest point when the situation is stable for a longer period of time which in turn encourage risk taking. After Black Swan events people always become alert and risk averse.

Taleb thinks that in our society we should be always alert and should really switch from living in “Mediocristan” where we can rely on predictions based on past events to “Extremistan” which is dominated by rare events as, he considers, the future will be increasingly less predictable. “The modern world, being Extremistan …can deliver a Black Swan after thousands and thousands of white ones, so we need to withhold judgement for longer than we are inclined to” (Taleb, 2008, p. 61).

Behavioral biases

Taleb (2008, p. 102-112) identifies biases in people behaviour and calls them: “the difference between what you see and what is there… a systematic error consistently showing a more positive, or negative, effect from the phenomenon”.
Taleb (2008, p. 119) sees the confirmation bias in the very nature of the human beings: “we are explanation-seeking animals who tend to think that everything has an identifiable cause and grab the most apparent one as the explanation”.

“We have natural tendency to look for instances that confirm our story and our vision of the world...you take past instances that corroborate your theories and you treat them as evidence” (Taleb, 2008, p. 55).

Our memory is limited and filtered; we will remember only the things that match the facts. We also try not to reverse opinion which was already made.

Taleb (2008, p. 152) considers humans to be overconfident and asymmetrical in the perception of random events. People tend to overvalue their knowledge and underestimate the probability of being wrong.

This is natural for humans to be overconfident in order not to kill the self-esteem. People attribute success to skills and failures to random events. This causes people to think that they are better in what they do for a living than others. This is another effect of overconfidence and attribution bias – illusion of being better. “Findings show that 80 to 90% of people think that they are above the average (and median) in many things” (Taleb, 2005, p. 244).

Therefore Taleb does not favour such professions such economists and financial analysts as to his opinion they are seeing things too narrow: “certain professionals, while believing they are experts, are in fact not. Based on their empirical record, they do not know more about their subject matter than the general population, but they are much better at narrating – or, worse, at smoking you with complicated mathematical models” (Taleb, 2008, prologue). People in finance, economists are taught to use techniques and ignore infrequent events.

There was an experiment done by Tadeusz Tyszka and Piotr Zielonka who found that the analysts are even worse at predicting when having a greater faith in their own skills (Taleb, 2008, p. 150).

Taleb argues that the most influence on economic thinking over the past two centuries had two non-economists: Daniel Kahneman and Amos Tversky.

“Our brains are made for fitness not for truth” (Taleb, 2005, p. 197). Humans will digest everything that sounds intelligent. “Traders rarely hire economists for their own consumption, but rather to provide stories for their less sophisticated clients” (Taleb, 2008, p. 150)
Taleb argues that the better predictors of random events would be older people, as they have been exposed to the rare events for a longer period of time. They know for sure that the things that never happened before do happen.

Taleb considers that the hormones are making people to take risky decisions; hormones increase the lever of overconfidence. Taleb (2005, p.18) states that: “strings of success will inject them with so much serotonin (or similar substance) that they will even fool themselves about their ability to outperform markets (our hormonal system does not know whether our success depend on randomness)”.

**Success and failure**

Another thing that keeps people’s attention away from the importance of Black swan events is the tendency of people to focus on success. The salient evidence, the failures will never be heard and subsequently analysed: “those who win show up among the rich and famous, others fail and disappear from the analyses” (Taleb, 2005, p. 148).

Taleb considers that success goes hand to hand with failure and it all due to the randomness. People attribute success to skills and failures to bad luck; Taleb attributes everything to luck and randomness: “it is all randomness: either by taking enormous (and unconscious) risks, or by being extraordinarily lucky. Mild success can be explainable by skills and labour. Wild success is attributable to variance” (Taleb, 2005, p. 12).

Taleb suggests to just be prepared for random events, to know how to work around unpredictability and how to even exploit it. “I will never get to know the unknown since, by definition, it is unknown. However, I can always guess how it might affect me, and I should base my decisions around that” (Taleb, 2008, p. 210).

Taleb strongly believes that in order to understand successes and the ways of getting there first of all people need to study the traits present in failures. People usually think the opposite and try to study and read as much as possible about the success and successful people. The main idea is that we should be able to see the true picture and should be able to learn the rules, not just facts. We have to be able to see with an open-mind and do not look for attributes that would strike our ego: “speculator George Soros, when making a financial bet, keeps looking for instances that would prove his initial theory wrong” (Taleb, 2008, p. 59).

“Optimism, it is said, is predictive of success. Predictive? It can also be predictive of failure. Optimistic people certainly take more risks as they are overconfident about the odds” (Taleb, 2005, p. 148).
Taleb’s suggestions for someone who works in randomness-laden profession, i.e. for someone who is likely to suffer burnout effects from constant second-guessing of past actions is to keep a diary (Taleb, 2008, p. 73). Real speculators like Soros are devoid of path dependence and totally free from their past actions. Every day is a clean state (Taleb, 2005, p. 239).

2.3 Self-directed investors and behavioral biases

2.3.1 Trends in self-directed investors sector

Over the last two years there has been a significant growth of a new self-directed segment of investors. Women, millennials, retirees and baby boomers are making up a great percentage of today’s traders. The key trend that is driving this transformation would be the increasing use of technology in financial services (Scivantage, 2015).

Numerous researches are being held in order to find out the tendencies and trends in this emerging sector of investors. One of the researches carried out by Oxford University in 2014 discovered that there is a 58 per cent chance of financial advisors being replaced by automated advice in the nearest future (Santhebennur, 2015).

The loss of trust in brokers and financial advisers after the recent financial crisis is also among the reasons driving this change.

On top of that there are other things that attract people to invest directly. First and the most important advantage of being self-directed investor is that you are in control of your money and you are able to invest in any investments of your choice which can lead you to the potentially better returns. Second, you can save on the brokerage commissions and fees that in some cases can be significant. Third, you can benefit from direct investing in the way that you systematically learn new things, adapt to new circumstances, get the experience that in turn can help you to become successful and ultimately to satisfy your financial and self-esteem needs. Fourth, is that DIY investors are avoiding the adviser biases such as recommendations that are based on an adviser’s compensation and not a client’s best interests.
2.3.2 Types of behavioral biases common for SDI

What self-directed investors cannot avoid and what would be one of their major pitfalls are their own behavioral biases. First of all, self-directed investors have to be aware of the existing biases; therefore on top of the knowledge in economics and finance, investors should look into the area of behavioral economics. It has been proved by many investors that this knowledge can significantly improve the results. Investor and partner of Warren Buffet Charlie Munger (1995) mentions that: “By not relying on this, and not understanding this, it was costing me a lot of money”. So why not listen and learn from the experts…

There are a lot of researches held recently and the most up to date information is available on behavioral finance as well as on behavioral biases. All of the researches confirm that all people are susceptible to biases. “For a gifted few in the industry, biases are a source of alpha. But for many others biases impose a cost — a price paid for irrationalities” (Kunte, 2015).

It is surprising how the human brain works. With the same set of facts different people can arrive at completely different conclusions, or even more, the same people can come to the different conclusions. This can be caused by a variety of reasons, but a lack of human consistency is often associated with anchoring bias, framing effect, availability bias, or something as simple as hunger and fatigue (Gray, 2014).

The Brandes Institute researchers picked out a few key emotional biases that they believe are the most damaging to investor performance over the long run. All of these biases revolve around self-deception, simplification, emotion and social interaction (Hargreaves, 2015).

Self-Deception

Two key biases that relate to the central bias of self-deception are: overconfidence and self-attribution.

“Overconfidence, or the inability to appropriately calibrate our forecasts, is often cited as among the most robust empirical finding in psychology experiments” (Gray, 2014). Overconfidence bias can be presented in several forms, such as expert-hypothesis bias, over-optimism bias.

Mahajan (1992, p. 330) gives the definition of overconfidence such as “an overestimation of the probabilities for a set of events”. As investors, we have an inherent ability of forgetting or failing to learn from our past errors, such as a bad investment or
Overconfidence bias occurs when investors overestimate their abilities and feel more confident than they should, when investors begin to consider themselves to be unique: “combination of realized success and intense effort, gives human experts the “illusion of skill”, which translates into overconfidence and a failure to appreciate randomness” (Gray, 2014).

Overconfidence can take a form of an expert hypothesis bias: “in the sense that there is a belief that a human expert armed with a model can generate outsized returns in financial markets because:

- Experts have access to qualitative information;
- Experts have more data;
- Experts have intuition and experience (Gray, 2014)

Gray (2014) argues that: “soft information, more information, and experience/intuition do not lead to more accurate or reliable forecasts, but instead lead to poor decision-making… (on top of that) humans are cognitively inclined to overvalue information that requires effort or time to obtain”.

Unfortunately, human brain tends to interpret more information as better information, which subsequently leads to more confidence, even with no corresponding increase in forecast accuracy (Gray, 2014).

Over-optimisms can also play a trick on investors’ behaviour. Over-optimistic investors would invest in more risky assets by simply relying on their optimism.

Another bias that is caused by self-deception is the self-attribution bias.

Self-attribution bias comes as the consequence of overconfidence. When people become overconfident enough they start to think that they are being successful because they are so skilled; they attribute the success to skills. When the outcome turns out to be a failure they find the other reason for it, they consider this was due to bad luck.

**Simplification**

On the central topic of simplification, there are the following traits that hold investors back: anchoring, framing, availability.

Anchoring bias occurs when people use “anchors” or totally irrelevant information when making any types of decisions. When people have some information or “anchor” in their mind before they have to make a decision surprisingly but they will use this “anchor” in
their decision-making process. Anchoring describes the tendency to rely too heavily on irrelevant information or “anchor” while actually believing in its value (Gray, 2014, p. 14).

Framing bias occurs when the same information presented in different ways, using different frames, will evoke different emotions. By triggering different emotions our brain will lead us to completely different decisions. It is amazing how human brain can actually work against human. It is definitely very important for investors to be aware of this type of a bias and be able to spot the difference in framing.

Availability bias causes our mind to overemphasize the importance of recent or easily recalled information (Gray, 2014). People tend to build stories around the available information to make it more obvious. Humans prefer stories to evidences; human mind is able to build powerful narratives in order to help interpret complex situations. Once the story is made it is hard for the evidence to step into the process of decision making (Gray, 2014).

**Emotional and social interaction**

On the two central topics of emotional and social interaction, there are two main traits holding investors back: regret theory and herding.

Regret theory is about the human fear of being wrong outweighing the cost in objective economic terms (Hargreaves, 2015).

Bell (1982) described regret as the emotion caused by comparing a given outcome or state of events with the state of a foregone choice (Ricciardi and Simon, 2002).

**Group behaviour**

Herding is a form of a group behaviour and it is argued that subject of group behaviour is one of the most important in behavioral finance as it is found behind almost all behavioral biases. Group biases include the main ones noted previously: framing, overconfidence, anchoring. Solutions to the problems of group decision making are just as difficult as overcoming individual biases. Psychologists have found that groups amplify rather than alleviate decision-making biases (Hargreaves, 2015).

Herding takes place when collective actions carry better and more useful information compared to private knowledge. Reinforcing group actions ultimately overwhelms individual conviction and creates a trend. While all herding is not irrational the cases for herding, among other things, are uncertainty and an information deficit (Kunte, 2015).
"Groups can suffer cascades (in which individuals abandon their own views), polarization (in which groups move to a more extreme version of original beliefs), and ultimately groupthink (an extreme version of polarization)” (Hargreaves, 2015).

**Physical state, gender effect on investing behaviour**

Physical state or particular qualities of a person can also cause disturbances in decision-making process. There are so-called “morning types” and “evening types” of persons which can be crucial for some decisions. This is another reason why a human expert can have the same set of facts, and yet come to different conclusions (Gray, 2014).

It was recently discovered that gender is affecting persons trading behaviour. By conducting numerous tests it was established that men are more likely to take chances than women, especially young men. Young men are found to be more prone to risk due to the hormones of cortisol and testosterone that are more prevalent in them. Testosterone is related to optimism and self-confidence. Profiting from a trade can generate the hormone resulting in self-confidence that can produce more success and more testosterone and move you away from optimal risk-taking (Staley, 2015).

**Success and failure**

Successes and failures are two big themes that need much of attention in relation to investing. The better approach for dealing with it would be “to systematically discount success and overemphasize failures, flip self-attribution bias on its head, or as Charlie Munger, is often saying, “Invert; always invert”. Investors should be able to realize that they are not as smart as they think and that the pain of bad decisions can actually make them stronger, since it is more accurate representation of reality (Gray, 2014).

**Importance of knowledge on behavioural biases for SDI**

It is obvious that is it not possible to find any “cure” for being susceptible to biases as cognitive biases are inherent to human brains. Humans’ natural tendency of fulfilling the hierarchy of needs with the general aim of satisfaction of our innate need for esteem and self-actualization usually puts the humans in a state of lesser emotional control. The problem of being emotionally biased will always be there, but it can be mitigated at least if humans know that this problem actually exists.

The aim of the behavioral finance is to make people aware of the subject and to help people to know themselves better.
“How can investors take into account the biases inherent in the rules of thumb they often find themselves using? How can investors “know themselves better” so they can develop better rules of thumb? In effect, the main purpose of these two questions is to provide a starting point to assist investors to develop their “own tools” (trading strategy and investment philosophy) by using the concepts of behavioral finance” (Ricciardi and Simon, 2000).

There is an opinion that systematic decisions will limit the problems of human behaviour. In order for the decision-making process to be successful it has to be systematic. Individual investors should implement a disciplined trading strategy, such as they should create an investment checklist that discusses their expectations and risk tolerances (Ricciardi and Simon, 2002).
3 Research methods

3.1 Introduction

This chapter will discuss the existing research methods that are used by researchers with an emphasis on the research methodology that has been chosen from a variety of available options for the purpose of this particular research. Chosen methodology will be discussed in detail and the discussion will include the research approach, strategies and philosophies as well as the techniques involved in the collection and analysis of the data. It is an important stage of a dissertation as an improper matching of methodology to the research problem may produce spurious results and may ultimately have negative impact on the validity of the research.

3.2 Research philosophy

As according to Saunders, Lewis and Thornhill (2009, p. 108) the research philosophy you adopt contains important assumptions about the way in which you view the world. These assumptions will underpin your research strategy and the methods you choose as part of that strategy. These interrelationships can be seen in the research ‘onion’ developed by Saunders, Lewis and Thornhill in Appendix 1. Understanding of the philosophical position is the key for the research process as it influences the way in which you think about it.

There are two major ways of thinking about research philosophy: ontology and epistemology (Saunders, Lewis and Thornhill, 2009, p. 109).

Ontology is concerned with the nature of reality and assumptions researchers have about the way the world operates and the commitment held to a particular view (Saunders, Lewis and Thornhill, 2009, p. 110).

Epistemology is concerned with the study of knowledge and what we accept as valid knowledge (Saunders, Lewis and Thornhill, 2009, p. 112).

The choice of the research philosophy will depend on the research question which is “If the behavioral biases are the biggest challenges for Self-Directed Investors”. As the research question is related to the study of a specific knowledge the researcher is considering the epistemology as most appropriate way of thinking for the purposes of this research.

Epistemological approaches to research philosophies would be either of positivism, realism or interpretivism nature.
The positivism approach is normally adopted by those researchers who prefer to seek facts or causes of social or business phenomena using logical reasoning such as precision and objectivity as methods of investigation. The positivism approach is normally adopted by a researcher that prefers to work with an observable social reality in order to come up with law-like generalizations similar to those produced by the physical and natural scientists (Remenyi et al., 1998). Only phenomena that can be observed will lead to the production of credible data (Saunders, Lewis and Thornhill, 2009, p. 113).

Realism also relates to scientific enquiry. The essence of realism is that what senses show us as reality is the truth whereas objects have an existence independent of the human mind. Reality is independent of the mind. Realism assumes scientific approach to the development of knowledge. There are two types of realism – direct and critical. The distinction between two is that the position of direct realist is that there is a thing itself and the sensations that it conveys whereas critical realist would insist that our knowledge of reality is a result of social conditioning (Saunders, Lewis and Thornhill, 2009, p. 114-115).

Interpretivism advocates the necessity for researcher to understand differences between humans in their role as social actors. The term “social actor” is quite important here. Humans interpret their everyday social roles in accordance with the meanings assigned to these roles. It is crucial for the researcher to adopt an empathetic stance so to be able to enter the social world of the research subjects and to understand their world from point of view (Saunders, Lewis and Thornhill, 2009, p. 116).

The researcher considers positivism as the best suited philosophy for this type of research. The key of positivist approach is its value-free perspective, which is when “the researcher is independent of and neither affects nor is affected by the subject of the research” (Remenyi et al., 1998). The researcher will work with observable social reality based on positivism only phenomena that would ultimately lead to the production of credible data. To collect the data the researcher will use the theory that already exists in order to develop a hypothesis that will lead to gathering of facts. These hypotheses will be tested and confirmed or refuted. This process should lead to further development of theory that may be tested by further research. The emphasis of the research will be on quantifiable observations that will lead to the statistical analysis (Saunders, Lewis and Thornhill, 2009, p. 113).
3.3 Research approach

Due to the positivist nature of the research, this study would adopt a deductive approach in which the researcher will develop a theory and hypothesis (or hypotheses) and design of a research strategy to test the hypothesis. This approach represents the most common view of the relationship between theory and research and results gotten from this approach are developed through logical reasoning (Bryman and Bell, 2007). The data findings would be compared against existing literature to ascertain if they concur with what has already been published in the field.

The researcher will adopt the five sequential stages advised by Robson (2002) through which deductive research will progress:
1. Deducing a hypothesis from the theory;
2. Expressing the hypothesis in operational terms;
3. Testing this operational hypothesis
4. Examining the specific outcomes of the inquiry
5. If necessary, modifying the theory in the light of the findings.

In an attempt to verify the theory the researcher will go back to the first step and repeat the whole circle (Saunders, Lewis and Thornhill, 2009, p. 124-125).

3.4 Research strategy

In order to establish the research strategy the researcher has to clearly identify the purpose of the research. The research can have exploratory, descriptive or explanatory purpose which will depends on the way the research question is constructed (Saunders, Lewis and Thornhill, 2009, p. 138)

According to Saunders, Lewis and Thornhill (2009, p. 139-140) an exploratory study aims to find out “what is happening: to seek new insights: to ask questions and to assess phenomena in a new light” (Robson, 2002). The great advantage of this type of research is in its flexibility. At the same time the flexibility inherent in exploratory research does not mean absence of direction to the enquiry. It means that the focus is broad at the beginning and then it narrows down as the researcher progresses. There are three principal ways of conducting exploratory research:
1. A search of the literature;
2. Interviewing ‘experts’ in the subject;
3. Conducting focus group interviews

Descriptive studies are possible when the researcher has a clear picture of the phenomena prior to the collection of data. Descriptive studies will avoid conclusions just descriptions of observations (Saunders, Lewis and Thornhill, 2009, p. 140).

Explanatory studies emphasis on studying a situation or a problem in order to explain the relationships between variables. The research can go ahead and subject the data to correlations and other statistical tests in order to get a clearer view on the relationship between variables (Saunders, Lewis and Thornhill, 2009, p. 140).

For the purpose of this research the exploratory study will be selected as it is seems to be more valid in the circumstances. Researches in the process of research will seek to clarify the understanding of the problem and the direction may be altered accordingly.

The choice of research strategy is guided by research question and objectives, the extent of existing knowledge, the amount of time and other resources available as well as researcher’s own philosophical underpinnings (Saunders, Lewis and Thornhill, 2009, p. 141).

According to Saunders, Lewis and Thornhill (2009, p. 141-150) following are the existing research strategies and their brief description:

- Experiment – form of research originated from natural science with the purpose to study the casual links, such as whether a change in one variable produces a change in another dependant variable;
- Survey strategy – associated with deductive approach, the strategy will allow the researcher to collect quantitative data which can be further analysed;
- Case study – the strategy which involves an empirical investigation of a particular contemporary phenomenon;
- Action research – focuses on action, useful for “how” questions;
- Grounded theory – used mostly for inductive approach, helpful to predict and explain behaviour with an emphasis on developing and building the theory;
- Ethnography – used for inductive approach, originates from anthropology, time consuming as the researcher need to immerse in the social world being researched as completely as possible;
- Archival research – administrative records and documents are the principal source of data for this type of research, the research question will focus on the past and will change over time.
The researcher finds the survey strategy as the most appropriate for this research. According to Saunders, Lewis and Thornhill (2009, p. 141) selecting this strategy allows the researcher to answer questions who, what, where, how much and how many. Given that the tool that will be used for collecting the data for analysis is going to be an on-line survey, the survey strategy is definitely the one to be exploited here. The data collected using this strategy can be also used to suggest possible reasons for particular relationships between variables.

3.5 Time horizon

There are two types of researches depending on the time horizon: longitudinal - diary or a series of “snapshots”; and cross-sectional – “snapshot” taken at a particular time.

The main strength of longitudinal research is the capacity that it has to study change and development. Adams and Schvaneveldt (1991) point out that in observing people or events over time the researcher is able to exercise a measure of control over variables being studied, provided that they are not affected by the research process itself. Even with time constraints it is possible to introduce a longitudinal element to your research as there is a massive amount of published data collected over time just waiting to be re-analysed (Saunders, Lewis and Thornhill, 2009, p. 155).

Cross-sectional research is the study of particular phenomenon at a particular time. Cross-sectional studies often employ the survey strategy (Saunders, Lewis and Thornhill, 2009, p. 155).

Taking into account the nature of the research question and the objectives the time horizon for this research is going to be cross-sectional. The researcher will explore the subject at a given point in time as it is in conformity with research objectives.

3.6 Data collection

The researcher will be collecting both primary and secondary data for the purposes of the research. As according to Saunders, Lewis and Thornhill (2009, p. 272) when collecting the data it is useful to bear in mind that:

- the data will enable you to answer your research question;
- the benefits associated with their use will be greater than the costs;
• you will be allowed to access the data.

3.6.1 Secondary data collection

Secondary data is the data that has been already collected for some other purposes, so the researcher has to identify the relevant themes and find the appropriate literature there, then the researcher has to review and reanalyse it.

Secondary data collection is the part of a learning process on the subject of the thesis, so in order to enhance learning process both raw and compiled data are going to be used. Secondary data will be obtained through external resources such as books available at Dublin Business School, periodicals, journals available through on-line resources, on-line indexes and catalogues, you-tube videos, most recent articles on behavioural finance in general, following the more thorough research in the area of behavioural biases and self-directed investors in particular. Informal discussions can be a useful source of secondary data such as acknowledged experts, colleagues, or project tutor. This all may help the researcher to get the data needed.

3.6.2 Primary data collection

According to the research strategy chosen which survey strategy the researcher is going to conduct primary data collection using questionnaire. Questionnaire includes all techniques of data collection in which each respondent is asked to answer the same set of questions in a predetermined order. Questionnaire provides for an efficient way of collecting responses from a large sample prior to quantitative analysis. For this type of data collection it is of paramount importance to produce a good questionnaire so to answer the main research question and achieve research objectives. Self-administered, internet-mediated questionnaire will be used by the researcher (Saunders, Lewis and Thornhill, 2009, p. 360-362).

According to Saunders, Lewis and Thornhill (2009, p. 368) a problem is in ensuring that the data collected will enable the researcher to answer the research question. The aim of the research is to find out if the behavioral biases are really of great importance for self-directed investors so the aim of the questionnaire will be to see if self-directed investors are actually prone to behavioral biases.
3.7 Sampling and population

Sampling techniques provide a range of methods that enable researcher to reduce the amount of data that need to be collected by considering only data from sub-group rather than all possible cases or elements. Full set of cases from which a sample is taken is called the population (Saunders, Lewis and Thornhill, 2009, p. 211-212).

According to Saunders, Lewis and Thornhill (2009, p. 213) the sampling techniques that are available are of two types:
- probability or representative sampling;
- non-probability or judgemental sampling.

Probability sampling is most commonly associated with survey research strategy where you need to make inferences from your sample about a population to answer the research question (Saunders, Lewis and Thornhill, 2009, p. 214).

Non-probability sampling provides a range of techniques to select samples based on researcher subjective judgement (Saunders, Lewis and Thornhill, 2009, p. 233).

For the purpose of this research the non-probability sampling will be used with the sample size of 40-50 respondents. The research is conducted in the particular sector of population, namely the sector of self-directed investors only so the purposive sampling techniques will be used.

3.8 Ethical issues

Ethical issues are likely to be of importance throughout the research and require ethical integrity from all parties involved. Most ethical problems can be dealt with during the design stage of the research project. This should be attempted by planning to conduct the research project in line with the ethical principle of not causing harm. Ethical concerns can occur at any stage of research project; when seeking access to organizations and to individuals, during data collection, during analysis and report of the findings. The pressure should not be applied to any participant of the research. The researcher will use the letter from the college for confirmation of intention where necessary.
3.9 Limitations to research

The ability to obtain both primary and secondary data will depend on researcher gaining access to an appropriate source, or sources where there is a choice. The appropriateness of the source will depend on the research question, related objectives and research design. The first level of access is physical access. The request for access and cooperation may fail to interest the person who receives it. This may be for a number of reasons:

- a lack of perceived value in relation to the work of the organization, individual;
- the nature of the topic because of its potential sensitivity, or because of concerns about the confidentiality of the information that would be required;
- perceptions about your credibility and doubts about your competence.

Access is therefore likely to be problematic in terms of gaining permission for physical or virtual access, maintaining that access, and being able to create sufficient scope to answer fully the research question and meet the objectives that guide your research. This suggests that feasibility of the research will be important (Saunders, Lewis and Thornhill, 2009, p. 170-171).

There are different strategies developed that can help to gain access to the information that are to be investigated and employed by researcher where necessary.

The research strategy that is chosen by researcher can limit the validity of the results. Due to the fact that data will be collected using the survey research strategy it is unlikely to be as wide-ranging as those collected by other strategies. There is definitely a limit to the number of questions that a questionnaire can contain. The respondents can also do it badly so the conclusions drawn from the questionnaire can be flawed (Saunders, Lewis and Thornhill, 2009, p. 144-145).
4 Data Analysis/Findings

4.1 Introduction

During the process of literature review the researcher has been able to form an opinion – a hypothesis; that “the behavioral biases are of a great importance for self-directed investors”. In order to prove it the researcher has identified the objectives and questions that are to be addressed in the process of the research. This chapter will analyse the results that were gathered with the aim to support the objectives of the research. The main objectives and questions of the research were to establish:

- that there is a significant rise of self-directed investors so it is worthwhile to conduct a research on their financial behaviour;
- what are the main reasons for investors to choose to trade directly;
- if self-directed investors are aware of behavioral finance and behavioral biases;
- that age, gender, profession and experience of self-directed investors influence the financial behaviour and attitude to risk;
- what behavioural biases are there that affect self-directed investors;
- that the knowledge of behavioural biases and behavioural finance will aid individuals in their investment practices?

It was identified that the on-line survey is the most appropriate tool to be used for this type of research. The on-line survey consisting of 18 questions (Appendix 2) in total was structured in such a way as to give an opportunity to answer as much research questions as possible and to find as much as possible evidences and facts in support of the research hypothesis. In this chapter the analysis of the findings will be discussed in detail in order to test the hypothesis. 44 respondents took part in a survey in total.

4.2 Tendencies in direct investing segment

In the given circumstances it was impossible to structure the survey in such a way as to find out if there is an evidence of a significant increase in the sector of self-directed investors. The most relevant information that could be possibly obtained by way of this survey was the information about the reasons that were behind people’s choice to become
DIY investor. While reviewing the literature the researcher has observed that the sector is growing and that the main driver for its growth is the availability of necessary technology. There were also other drivers discovered, so the researcher has structured the survey question in relation to this issue in such a way as to assess it in the best way possible. The question was presented as a multiple choice question where respondents could choose between 3 options or could give their own reasons for becoming self-directed investor. Following is the graph that represents the ranking of the answers.

![Graph 1. Drivers for becoming self-directed investor](image)

35% of respondents have chosen the answer that included two underlying reasons – loss of trust in brokers after the recent crises and the availability of technology. 32% of the respondents consider the availability of necessary technology as the main driver that enabled them to trade directly. 18.6% of respondents have chosen their own reason for it, namely:

<table>
<thead>
<tr>
<th>Reason</th>
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<tbody>
<tr>
<td>To avoid commission and fees</td>
</tr>
<tr>
<td>Cost</td>
</tr>
<tr>
<td>My own experience as a prof money manager</td>
</tr>
<tr>
<td>Most of my career have been managing discretionary mandates</td>
</tr>
<tr>
<td>Why would u not</td>
</tr>
</tbody>
</table>
Opportunity to establish private business
Just made Stock Market Investments / BES
Personal Interest

We can see that costs minimization, personal interests, business opportunities are considered by respondents as the attractive ingredients of the direct trading.

Taking into account that the most popular answer contained two reasons within it the majority of the investors consider the availability of necessary technology as the main driver behind their choice to invest directly. Considering the fact that the technology industry is growing and developing in a very fast pace we can assume that the segment of DIY investors could grow accordingly.

The diversity of respondents’ professions could also be considered as some sort of indicator of popularity of the self-directed investor sector. Findings suggest that people from different professions and industries are involved in direct trading (list of professions is included as Appendix 3). More than a half of the professions from the list are not related to finance or trading. That could lead to another question – how successful these traders can possibly be. Does this fact add any value to the research on behavioral biases?

4.3 Self-directed investors’ attitude to behavioral biases

Next survey question is linked directly with an objective of a survey research on the importance of the subject of behavioral biases for self-directed investors. Do investors know about behavioral biases, do they think this knowledge can assist them in being more successful?
Graph 2. Importance of knowledge

The analysis of the results shows that 88% of respondents consider knowledge and awareness of behavioral biases to be an important issue for them though whereas 12% of respondents consider this knowledge to be not that useful. We can clearly see that it is definitely a big advantage towards the importance of the subject which proves the necessity of its further research and investigation.

4.4 Investors’ age and behavioral biases

There has been established that young men can take up more risks as opposed to older men or women due to the existence of testosterone hormones in the men body that are to be blamed for it. The question on age was included into the survey for the purpose of assessing a correlation between age and risk. The graph below gives us an opportunity to see what age range the majority of the investors that took part in the survey are.
We can clearly see that the majority of investors, exactly half of all respondents, are between 45 and 54 years of age. We can also observe that there is a tendency in growing popularity of direct investing with the age; we can assume that with the age people become more experienced and confident enough to do this type of things. There is a sharp jump down after they hit 55 though.

In order to assess the riskiness of youngest respondents as opposed to their oldest colleagues we will need to assess the answers to questions that include risk element in them, namely:

Question 9 – “You are considering investing in bond market. Investment advisor emphasizes that a particular bond has a 3% chance of default. What are the chances of you investing in it, in %?”; and

Question 16 – “You are considering investing in bond market. Investor advisor assures you that a particular bond has a 97% chance of paying its promised yield. What are the chances of you investing in it, in %?”

The criterion for risk assessment in both questions is: the higher the percentage the riskier the person is.

We will calculate the average answer for each age group and compare the results between the groups. The results are as follows (full extract of the analysis is in Appendix 5):
We can see that the survey was not able to prove the assumption on the correlation between the age and the attitude to risk. It can be due to numerous reasons: the amount of respondents was not sufficient enough to make this type of conclusions or it can be that the questions for the risk tolerance assessment are not really serving this purpose.

4.5 Investors’ gender and behavioural biases

Another question related to risk assessment was the gender. Men are considered to be more prone to risk than women are therefore they could be seen involved in risky enterprises more often than women. Investing on itself is risky enough so the comparison between the number of men and number of women taking part in this type of business might be quite useful.

<table>
<thead>
<tr>
<th>Average answer per age group:</th>
<th>Question Number 9</th>
<th>Question Number 17</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 to 34</td>
<td>38</td>
<td>34</td>
</tr>
<tr>
<td>45 to 54</td>
<td>40</td>
<td>55</td>
</tr>
</tbody>
</table>

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The chart 4 above advises us that the males are prevalent in the investment activities, 77% of respondents of the respondents are men. It is quite a significant difference and it can suggest that women are generally more risk averse than men are. The researcher used the
same questions to assess risk tolerance as for men in previous section (Extract from analysis is in Appendix 6):

<table>
<thead>
<tr>
<th>Average answer for:</th>
<th>Question Number 9</th>
<th>Question Number 17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question Number 9</td>
<td>62.5</td>
<td></td>
</tr>
<tr>
<td>Question Number 17</td>
<td>76.5</td>
<td></td>
</tr>
</tbody>
</table>

Amazingly, but the results suggest the opposite. Women seem to be a lot riskier as compared with both age groups of men. The assumption can be that these women already stand out from the crowd as they took a decision at some stage to be involved in a risky business. So, they might be the bravest female representatives and are willing to take maximum risks.

4.6 Analysis by the type of behavioural biases

The survey was constructed in such a way so the results could be analysed on the subject of specific biases. Scenario based questions and direct questions on “how would you act in particular situation” were included into the survey for this purpose. By doing so the researcher made an attempt to assess if the respondents are prone to:

- overconfidence bias;
- self-attribution bias;
- framing bias;
- anchoring bias;
- availability bias.

4.6.1 Overconfidence bias

There is an assumption that investors are usually trying to collect as much information as possible before they make the decision. They usually think that the more information the better, even if this particular information is irrelevant for this particular case. It is the cognitive bias of human brain that immediately interprets more information as better information. It is a human desire to pursue and misuse useless information (Gray, 2014).
Overconfidence/Expert-hypothesis bias

In order to find out if this is the case the researcher has included two questions asking about respondents’ attitude to quantity of information. The researcher has asked directly if the respondents consider collecting as much information as possible to be worthwhile. Chart 5 below suggests that 77% of respondents do believe that collecting as much information as possible is crucial for decision-making process.

![Chart 5. Overconfidence bias](chart.png)

The researcher has included the follow-up question asking if “any” additional information would add value when making forecasts about potential investment (Chart 6). The “irrational” hypothesis is that humans will interpret more information as better information, without considering whether the additional information actually enhances their forecast ability. The prediction is that forecast accuracy will not improve as people receive more information, but their confidence in their forecast will increase linearly with more information (Gray, 2014).
Chart 6. Overconfidence bias

The analysis of the answers suggests that 75% of respondents truly believe that any additional information must be evaluated and included into the forecast. This can suggest that the majority of the investors are prone to overconfidence bias.

4.6.2 Self-attribution bias

Self-attribution bias is a variation of overconfidence bias. The assumption is that when people became overconfident they tend to attribute their successes to their skills but their failures to bad luck signifying that success is purely their merit but failure is a random event.

Following two scenario based questions were included into the survey to establish if this is true. First question is there to assess if the respondents attribute success to skills or to luck. Second question was to assess if the respondents consider the failure as a consequence of a bad luck or overconfidence. Both questions were designed as multiple choice questions. The third option of the answer in both questions was that both facts can equally be responsible for investor’s success or for his failure.

The underlying assumption is that in the modern world ruled by randomness and irrationality investors have to be ready for every possible outcome and have to be willing to accept it no matter what. So blaming bad luck for failures and admiring skills for success will lead investor to self-deception and over-confident state of mind. The idea is to be flexible and
true to you. “Both assumptions being equal” - is the answer that reflects today's reality distinctly.

Chart 7. Self-attribution bias

Chart 8. Self-attribution bias

Analyses of the answers in charts 7 and 8 suggest that in both cases about 50% of respondents picked the “both assumptions being equal” answer, whereas 40% have attributed
skills to successes and 27% have attributed failures to bad luck. So we can see that those who have chosen the answer between first two options are more inclined to attribute skills to success and blame bad luck for failure. There is an inclination to self-attribution way of thinking.

### 4.6.3 Availability bias

Availability bias occurs when the information that is easily available can affect the decision. For example when investor is considering buying stock the current share price would be the information that is readily available and if investor considers it first the decision will be affected by this information. So, the assumption is that in order to avoid availability bias investor should check the current financial reports first in order to assess the company’s current financial situation and possible potentials. Based on the information acquired from financial reports the investor should consider the current price of the stock. If the current share price is fair enough and reflects the financial information then investor can make a decision whether investor not. Not the other way round. The following question was included to see how the investors are acting in the given situation and therefore to assess of they are prone to availability bias.

![Graph 9. Availability bias](image-url)
According to the chart 9 above 70% of respondents would consider the information laid out in the financial reports prior considering the current share price which suggests that in this case the majority of investors are able to reject the availability bias.

**Availability/Story bias**

Another form of availability bias is a so-called story bias, which means that people prefer to believe in stories even if the evidence can suggest the opposite. The assumption is that human beings love stories and human mind is able to build a perfect narrative to interpret complex situations. It is assumed that once the story is settled in human’s mind it is hard for the evidence to enter at this stage (Gray, 2014).

The researcher has included three questions on story-based bias into the survey in an attempt to assess if this assumption is valid. It is assumed that investors believe in the following stories:

1. Economic growth drives the profits
2. Always buy cheap
3. Pay-out superstition

**Story bias – Economic growth drives the profits**

The assumption of the first story is that investors believe that strong economic growth drives profits which in turn will drive their returns. Therefore they tend to favour strong economic growth and would take it very serious when assessing the potential investment possibility. Whereas the evidence suggests that there is no relation between these two variables as: “the only way a firm increases stockholder value is by investing firm capital in positive net present value projects. And it is unclear why strong economic growth will contribute to a firm’s ability to identify more, or higher yielding, investment projects in the competitive economy” (Gray, 2014). The researcher has decided to test this question.
We can observe from the graph above that 66% of the respondents consider that profitability of the company is in perfect correlation with the economic situation. Story bias has its effect on financial behaviour in this case.

**Story bias – low price strategy**

Another question is based around the assumption that the best investment philosophy is – buy cheap and never stay away from a low price strategy. People believe that buying whatever under-priced stock in hope the price goes up to its fair level is far more lucrative and clever than buying a quality stock at a fair price. In reality the quality stock has far more better potential and strategy that focuses on that would lead to greater returns over a longer period of time.

The researcher asked the investors about their opinion on the matter. Analyses of the answers show that opinions split 50x50. 50% of respondents favour low price strategy whereas 50% believe that quality stock is far better alternative to be chosen by investors.
Graph 11. Availability bias – story based.

**Story bias – pay-out superstition**

Third question was included into the survey for the same purpose as previous two, to check if people prefer stories to evidences. There are different superstitions about the financial markets and one of them is the pay-out superstition which is “low dividend pay-out ratios imply higher earnings growth in the future, high dividend pay-outs suggest that earnings growth will slow in subsequent years”. The idea behind is that if companies retain earnings (i.e. low dividend pay-out) for further investing into the promising projects, earning growth should be higher in the future; conversely, if companies don’t see any growth opportunities, they will pay higher dividends and future earnings shouldn’t experience robust growth. The evidence suggests the opposite and indicates clearly positive relationship between pay-out ratio and future earnings growth. This may be due to the reason that managers being aware of the existing superstition and are actually exploiting it for their own advantages. They can be involved in investing of shareholders money in any kinds of dubious projects and are not able to pay any high dividends (Gray, 2014). So the assumption is that the company with higher earning perspective should pay higher dividends.
We can observe from the above graph 12 that roughly half of the respondents consider higher dividends signalling higher growth perspectives whereas another half of the respondents would go for lower dividend in pursue of higher returns in future.

4.6.4 Framing bias

Framing bias occurs because different ways of presenting information can evoke different emotions, which then leads to different decisions (Gray, 2014). The researcher has included two identical questions into the research but for this purpose framed the questions slightly different from each other:

Question 9: “You are considering investing in bond market. Investment advisor emphasizes that a particular bond has a 3% chance of default. What are the chances of you investing in it, in %”; and

Question 16: “You are considering investing in bond market. The investment advisor assures you that a particular bond has a 97% chance of paying its promised yield. What are the chances of you investing in it, in %”:

3% chance of bond default has exactly the same meaning as 97% chance of paying of
its promised yield. Questions were put in the scenario with the gap of 6 other questions in between so respondents could not easily remember and spot the trick. The analysis of the results has discovered that some respondents didn’t realize that they already answered this question but it was framed slightly different, so the results are that 19 respondents out of 42, circa 50% of respondents are prone to framing bias (Appendix 7).

4.6.5 Anchoring bias

Anchoring occurs on subconscious level. Anchoring describes our tendency to rely too heavily on “anchor”, or on irrelevant information, when making decision (Gray, 2014). In order to test the respondents on the subject of anchoring bias the same two questions as for testing the framing bias were used. Apart from reframing these questions also included two different numbers that can be viewed as “anchors” from the perspective of anchoring bias theory. Question 9 mentions number “3”; question 16 has number “97” included in the context. The assumption is that the “anchor” while being totally irrelevant can play an interesting trick on human mind. “Anchor” should have an effect on people’s decision in the way that seeing number “3” in a message will encourage people to be more inclined to choose lower percentage in the answer whereas number “97” will force people to select a higher number.

The analyses of the results show that 16 out of 42 respondents choose lower number when they saw “3” in the message and higher number when “97” was there (Appendix 7). Therefore the analysis suggests that 38% of respondents have been found to be prone to anchoring bias.

4.6.6 Investors’ self-perception in relation to behavioral biases

In order to get to the main subject of the research, the behavioral biases and the attitude of self-directed investors to them, the researcher has used direct question in the survey to ask the respondents if they actually consider themselves being biased when making investment decisions. The following graph reflects the position of the respondent in relation to the question.
Almost 60% of respondents acknowledge that they are susceptible to behavioral biases with 34% feeling that they might be as well. This can signify that the subject is important for investors and it is worthwhile to conduct this or any further researches on the subject. Nevertheless, 7% of respondents consider that they are in control of their emotions and behaviour when making investment decisions. For the purposes of this research it is interesting to see the answers of these respondents so we can assess if they are being overconfident when being so sure. The full answers of these respondents are attached as an Appendix 4.

All three of the respondents are male and none of them are of the financial or investment background, the major difference between three of them is the trading experience. The results are as follows:
If the survey was constructed clever enough so to be able to test the investors on the subject of behavioral biases we can see that even though the investors are sure they are not prone to behavioral biases in reality they are. From the results we can also observe that investor with longer trading experience is doing considerably better which can mean that with experience people getting more experienced in control of their emotions.

**4.6.7 Investors’ attitude to success and failure**

Investors’ attitude to successes and failures can be of a significant importance. The assumption is that people are naturally inclined to like the success stories as they simply cannot imagine that the opposite story, the story of the failure could contain more useful information, sort of “manual” of what you should never do in order to succeed. Nobody is
really interested in people who fail, even though it could have any important information. It’s in human nature; we do not learn from mistakes of others, we have to do our own.

Success and failure are the attributes of overconfidence and self-attribution biases. As people believe that successes are the cause of being very good and skilful investor but the failure is a random and unpredicted event, bad luck, so basically nothing can be learnt from failure.

The researcher inspired by reading Taleb’s “Black Swan” has decided to test if Taleb was right saying that: “Readers would not pay $26.95 for a story of failure, even if you convinced them that it had more useful tricks than a story of success” (Taleb, 2008, p. 105). The question was included into the survey mostly just out of curiosity.

![Graph](image)

Graph14. Success and failure

62% will prefer to buy a success story. It is definitely sounds more attractive and people are buying into this.
5 Discussion

5.1 Introduction

The discussion chapter will include the detailed explanation of the main purpose of the dissertation. It will review the research process and will evaluate the work done in reaching the purpose of the research. Survey results will be further discussed in this chapter with the aim to answer the research questions and further discuss the implications of findings. The researcher will try to position the research in relation to underlying background and previous researches in the field of study that were reviewed in the literature review chapter with the aim to draw out the contributions of the research into the area of behavioral finance. Limitations to research will be discussed towards the end of this chapter.

5.2 Research process

The aim of the dissertation was to establish if the subject of behavioral finance and behavioral biases is really of a great importance for self-directed investors. The underlying idea of the research was to prove that behavioral biases exist and have to be taken seriously by DIY investors if they aim to be successful in what they do. By way of conducting an online survey the researcher tried to find out respondents’ reaction to some questions in an attempt to find the discrepancies in their answers that would mean the existence of behavioral biases. Survey questions were inspired by the literature that was reviewed before. So the idea was to evaluate the findings that were already claimed in the literature so to add credibility to the subject of behavioral biases and possibly to discover any areas that need closer attention.

Literature review

In order to be able to elaborate on the subject the researcher had reviewed the literature on the theory of behavioral biases. The psychologist Daniel Kahneman is one of the founders of the theory. His numerous tests and researches that were done in the field have proved that humans are not rational as it was claimed before due to the way the human brain works. Kahneman’s discovery was that thinking process is made up by two systems of thinking: fast and slow. Fast intuitional system is to be blamed for the occurrence of behavioral biases.
Nassim Taleb was found to be an appropriate author for the purposes of this research as he has the practical experience of the subject. Being a trader, statistician and philosopher at the same time enables him to view the world from slightly different angle. He argues that not only humans are irrational but the world itself is very unpredictable. His main idea is to stay ready for random events and be able to accept any pitfalls with cool head. He identifies different types of biases in human behaviour that adds the credibility to the subject.

The researcher has chosen to research the behavioral biases from the perspective of self-directed investors as the segment is in its growth stage. There are different drivers that support the growth of the segment and that advise its further growth potential. Literature review supported the idea that self-directed investors are prone to behavioral biases and will greatly benefit from this knowledge.

**Research hypothesis**

During the process of literature review the researcher has formed an opinion that the subject of behavioral biases is one of the most important and most challenging for self-directed investors. It is very important in the way that this knowledge definitely can improve the performance of investors; whereas it is challenging in the way that it is not easy to keep the biases under control. This research aims at explaining these two moments emphasizing on the fact that even awareness of the behavioral biases and their consequences can help one to mitigate the undesired outcomes and be more successful. After the hypothesis was established the researcher needed to prove its viability.

The underlying idea of the whole research was first - to find out if the sector is growing and if so; second - to establish if self-directed investors are prone to behavioral biases. After we have discovered that sector is really growing due to several reasons and factors that facilitate the growth we came to the second step which was to prove that self-directed investors are prone to biases. In the literature review it was discovered that most common behavioral biases for this slice of population are:

- overconfidence bias;
- self-attribution bias;
- framing bias;
- anchoring bias; and
- availability bias.
5.3 Interpretation of research/survey results

The researcher has constructed an on-line survey so it could enable her to prove the findings, assumptions and the hypothesis she formed during the review of the literature on the topic.

With the aim of an on-line survey the researcher was able to discover behavioral patterns that characterized the respondents, the common trends and priorities. It enabled to identify major pitfalls and obstacles that prevent self-directed investors from making rational and sound financial decisions. Each question included into the survey was linked to the research objectives.

Growth of self-directed segment

General observation of findings and results suggest that self-directed investors who took part in the survey are prone to biases. Interestingly enough is that self-directed investors come from variety of professions and backgrounds. Majority of them find that availability of technology opened a possibility for them to trade directly without the need of intermediary. The technology industry is growing rapidly in the recent years bringing technological innovations to the market. Innovations are usually aimed to enhance people’s life and make it easier. Innovations such as automatic financial advisors and other are becoming more and more popular that can suggest that more people will be attracted to this type of business and will choose to do it directly.

Analysis suggests that investors are aware of behavioral biases and most important is the fact that they consider that the knowledge in this subject can improve their decision making process. This is another fact that adds the value to this research.

Another step was to find out if the investors are actually affected by biases when making financial decision, especially by those biases that were identified in the literature review as being most common for this type of businessmen.

Overconfidence bias

The analysis of the results suggests that investors are overconfident. They believe that if they possess a lot of information they are becoming experts in the area. Majority of them believe that any additional information is actually adding value to the forecasts, so they treat any information as relevant information and they become unable to view it from the perspective of validity and relevance. It is called expert hypothesis bias. Since you start to
believe that you are expert you start to truly believe in your forecasts. Obviously this is not good for the decision making process and can lead to unfavourable results (Gray, 2014).

**Self-attribution bias**

The analysis has identified an evidence of self-attribution bias in people responses but not that significant as with other biases tested. People have a tendency to attribute success to skills and bad luck to failures. Even though half of the respondents are considering that success has two equal components which are skills and luck and that failure consists of bad luck and overconfidence evenly split, there is still a tendency towards self-attribution bias in the answers.

**Availability bias**

Availability bias can take the form of story bias where people believe in stories that they often hear. Taleb in his books often mentions that people tend to believe what they see on TV, what they read in magazines, newspapers. He argues that experts on TV will tell you that share prices have dropped because of some political reason, or increased for the same reason. Taleb (2008, p. 144) suggests that if you are not able to totally avoid watching TV or listening to the radio you can at least try to minimize the effect of media: “Listening to the news on the radio every hour is far worse for you than reading a weekly magazine, because the longer interval allows information to be filtered a bit”.

It is assumed that it is easier for people to digest information if it is presented with the story behind it. People listen to stories and truly believe in them so that they are not able to even see that the evidence suggests the opposite. The researcher has included the questions with the aim to test few popular market stories. She has included three questions which contained the stories and market superstitions. The results were that the story of pay-out superstition and story of low price strategy has divided the respondents into two equal groups which confirms that 50% of respondents are affected by story/availability bias.

Another story based question generated 65% of answers in support of availability bias. The question was to test if people believe that it is vital to focus on economic growth before making a decision to buy a stock. If the evidence show that there is no any relationship between economic growth and potential returns, economists are there to tell that there is. Taleb (2005, p. 85) argues that: “Economists are valued on how intelligent they sound, not on a scientific measure of their knowledge of reality”.

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Framing and anchoring bias

The researcher considers questions to test framing and anchoring biases as the most successful in the survey. Two identical questions were included into the survey, similar set of facts but slightly paraphrased message. Both of the questions also contained the anchors.

The questions have asked people to express in per cent their willingness to buy the bond that have 97% of chances of paying its promised yield in one question or the bonds that have 3% chance of default in a reframed question. The results of the analysis suggest that people have answered differently to the same reframed question; people were more willing to buy bonds that have 97% of chances of paying its promised yield than the bonds that have 3% chance of default. It is the same as buying the yogurt that is 93% fat free as opposed to yogurt that is 7% fat. People like words “fat free” and “yield” and dislike such words as “fat” or “default” in case with our questions.

Almost 50% of respondents considered the option with the yield as more attractive and have assigned higher percentage of possibility in acquiring it; whereas default question gained lower percentages in the answers. This difference in percentage assigned has been caused by the anchoring bias. The results suggest that question containing number “97” as an anchor has attracted higher number than question containing anchor number “3”. These irrelevant numbers made respondents mind to act under the influence of the anchor and to choose higher number after they saw “97” in the question and lower number after their mind had anchored on number “3”. Framing and anchoring bias definitely has its effect on investors’ performance and decision making. It is also worth noting that people that interested in selling something to you, marketing people, etc., are usually aware of these types of biases and usually use them as advantage over those who are unaware.

Attitude to risk

Attitude to risk can also significantly affect investors’ performance. From the review of secondary data the researcher has found that young investors are more willing to take risks as opposed to their older colleagues and that the men in general are more risky than women. The researcher considered that this must be tested in this research as it is closely connected with overconfidence and self-attribution bias. In case risk-takers investment turns out to be a success the investor starts to strongly believe in his expertise and his skills, or in other words he becomes overconfident and prone to self-attribution bias. This overconfidence and self-attribution can subsequently lead to even riskier investing tactics (Staley, 2015).
In order to analyse the attitude to risk the researcher used the answers to the questions containing risk element in them. The analysis didn’t prove this particular assumption. Probably the sample size was too small and the respondents were not young enough, as the youngest males were between ages 25 and 34.

**Attitude to success and failure**

Another factor that is closely connected with the behavioral biases is the investors’ attitude to successes and failures. Successes and failures are considered to be the components of overconfidence and self-attribution bias. Taleb often comments in his books that what we can see are usually successful people, investors, who tell their stories of success. People do not have many possibilities to listen to opposite stories as: “those who win show up among the rich and famous, others fail and disappear from the analyses” (Taleb (2005, p. 148). It does not mean that you do not have to listen to successful people; the idea is that you have to know the truth and be true to yourself, so to avoid self-deception as it is exactly what causes people to be overconfident and prone to self-attribution bias. So in order to have a full picture we have to consider both sides of the story – the successful side and unsuccessful. Taleb (2005, p. 12) mentions that: “mild success can be explainable by skills and labour. Wild success is attributable to variance”.

The right attitude to success and failure is that investor has to realize that success and failure is closely connected with the attitude to risk and that risky investing can cause either success or failure and if investor chooses this tactics he has to be prepared to both outcomes, so: “The bottom line: be prepared!” (Taleb, 2008, p. 203)

**Research hypothesis**

Considering all aforesaid we can draw much clearer picture of the self-directed investor in respect to behavioral biases. We can clearly see that investors do mistakes that are caused by behavioral biases. So up to now we have established:

- that there is an obvious rise in self-directed investors sector;
- that self-directed investors are interested in the knowledge of behavioral biases as they believe it to be useful knowledge for them;
- even though self-directed are aware and interested in the knowledge the analyses proved that they are definitely affected by behavioral biases.
Subsequently the researcher can be sure that it was worthwhile to conduct the research to prove the hypothesis that behavioral biases are the biggest challenges for self-directed investors and that the hypothesis is true.

5.4 Research contributions

This research has definitely contributed to the area of behavioral biases. By way of this research it was discovered that the segment of self-directed investors is growing along with the technology sector. Taking into account that forecasts for technology sector suggest for further growth of the sector it can be assumed that this can further drive the growth in DIY investing segment. There are other drivers that make people do it, such as loss of trust in intermediaries after the crisis and other financial reasons such as savings on brokerage fees and commissions. It also enables people to participate in business activities directly from their desk.

The greatest challenge for this type of investors is the control of their own mind and ways the decisions are made. People who are aware of the existence of behavioral biases are at least able to control it to some degree. The awareness is the key in this case and conducting this type of research will assist in delivering this message. Investors have to be aware of the biases in the first place and have to be able to identify what biases can harm them in the second place. The researcher was able to identify that investors are susceptible to behavioral biases and what biases are most harmful. Identifying the behavioral biases will arm the investor with the necessary tools for the battle against the behavioral biases.

The researcher had a chance to learn a lot for herself from the subject that is very interesting. The beauty of the subject is in combination of psychology and finance which both are very useful knowledge but the combination of two makes it more attractive and interesting to study. The study has contributed the researcher in a way that first of all she is now aware of the existence of behavioral biases. She is also aware of the reasons they occur – through two system thinking. Another benefit from the study is that now she acknowledges that system 2 is the most important when making any type of decisions and that it should stay alert then.
5.5 Limitations to research

There have been several limitations identified during research process. Limitations occurred in both stages of the research - secondary research and primary research.

Secondary research limitations were in the limited availability of secondary data of information on the subject of the self-directed investors sector, the forecasts of the sector and actual size, so the information could not be quantified for the research purposes.

As in relation to primary research, the research strategy that was chosen by researcher has limited the validity of the results. Due to the fact that data was collected using the survey research strategy it was not as wide-ranging as it could be if collected using other strategies. There was a limit to the number of questions that a questionnaire could contain, it could not be too long but at the same time it had to be long enough so to get benefits out of it. It was quite challenging task to construct a survey so to include the appropriate questions which could reveal the biases in people. The researcher was limited by the actual access to the people appropriate for this research. Despite of availability of social networks and groups within them, people are rarely ready to spend their time on doing this type of things. Some respondent would stop in the middle of the survey, possibly because some of the questions needed to use some time to think. So those answers could not be accepted as valid, as the survey was structured in such a way that answers are dependent and connected to each other. The respondents probably were not doing it at their best so the conclusions drawn from the questionnaire can be flawed (Saunders, Lewis and Thornhill, 2009, p. 144-145).
6 Conclusions / Recommendations

This chapter presents a summary of the findings of the research with general conclusions pointing out the ways in which these particular findings clarify the general issues raised in the literature review.

The chapter also contains recommendations for the future work to be done in relation to the subject of the research; further development of theory that may be tested by further research.

6.1 General conclusions

The concluding observation is that the researcher was able to address all the research objectives that were identified in the beginning of the research process. Conducting of this research enabled the researcher to collect all the necessary data in support of the research hypothesis. The researcher was able to analyse the data in an appropriate manner so to get to the conclusions on the subject. On-line survey enabled the researcher to structure the questions in such a way as to address each of the research objectives and analyse the results for the purposes of this research. It was discovered that the majority of respondents suffer from behavioral biases. Literature suggests different advices on how to mitigate the negative outcomes of investment practices that can be caused by behavioral biases. It is obvious that further research is needed to emphasize these methods and techniques and this type of research could be very beneficial.

6.2 Recommendations on future researches

The findings of the research suggest that the subject is important for recipients, or self-directed investors in the case of this research and that further investigations would benefit this type of businessmen. Since we have discovered that the subject is important we can be sure that we can continue to explore it further and it will be beneficial for the readers. The puzzles that are missing are the tools and techniques that could aim to explain in detail what exactly has to be done in order to avoid these major pitfalls.

During the literature review the researcher was able to distinguish some information in relation to this issue. For example, Kahneman (2011, p. 26-44) considers that: “in real life
the best we can do is to compromise: learn to recognize situations in which mistakes are likely and try harder to avoid significant mistakes when the stakes are high”.

So we can see that some techniques can be learned and applied. Behavioral biases can be tamed in a way that as Kahneman (2011, pp. 153-154) suggests that: “you should not let yourself believe whatever comes to your mind. To be useful, your beliefs should be constrained by the logic of probability”.

The other author, Taleb (2008, prologue) considers that: “The problem lies in the structure of our minds: we don’t learn rules, just facts, and only facts… and…evidence shows that we do much less thinking than we believe we do”. Taleb (2008, p.57) believes that: “understanding how to act under conditions of incomplete information is the highest and most urgent human pursuit”.

Taleb (2008, p. 73) suggests to “people who are involved in the professions that have an element of randomness such as investors who suffer from the toxic effect of look-back stings and who look back and think: I should have sold my portfolio at the top; I could have bought that stock years ago for pennies and I would now be driving a pink convertible; et cetera. Don’t try to willingly avoid thinking about it: this will almost surely backfire. A more appropriate solution is to make the event appear more unavoidable” and he continues that: “the most successful businesses are precisely those that know how to work around inherent unpredictability and even exploit it” (Taleb, 2008, p.206)

Gray (2014, p. 32) suggests the better approach for dealing with success and failures would be: “to systematically discount success and overemphasize failures, Flip self-attribution bias on its head, or as Charlie Munger, Vice Chairman of Berkshire Hathaway, is often attributed as saying, “Invert; always invert”. While unappealing to most, reiterating that we are not as smart as we thought we were and realizing the pain of bad decisions can actually make us stronger, since it is more accurate representation of reality”.

We can see that there is a lot to be done in this field and the research on best ways of taming the behavioral biases is worthwhile to be conducted.
7 Reflection

This final chapter of the dissertation is a discussion of my experience of Master’s program and the experience of dissertation writing. This is the chapter of self-assessment and the in-depth account of my experience.

7.1 Master’s program

I must admit that my expectations about the Master’s program were a bit different. Probably because I have never did something like this before? My previous study experience included only learning of the subjects and testing of the acquired knowledge. The aim of the Master’s program apart from learning new subjects is to get you to the state of mind where you can freely form your ideas about everything. Master program involves some learning but with the ability to freely elaborate on each subject within the given time limit. This process definitely helped me to learn something new.

The skills that I was lucky to acquire during the study are really important to me personally and professionally. The most important skills that I have gained through Master program are organizational and time-management skills. Study process consisted of numerous written assignments on totally different subjects. The organizational skills were utilized then; in the process of structuring of the content, finding the proper literature, organizing my time.

The assignment writing is another skill in itself. I have learned that every successful piece of work should be well structured and therefore should contain introduction, main body and conclusion, so the message is clear to your reader. It is very useful knowledge for any type of life situations and definitely for work.

Another great skill that I was able to enhance here is the presentation skill. For me it is one of the most important skills and I am glad I had the possibility to enhance it here. I like to challenge myself and giving presentations can be very challenging. I enjoyed it. I learned new things about myself and I know where my strengths and weaknesses are and what further work is needed.

The module on personal development was of particular interest to me, as each lecture was aimed to talk about the different skill that a manager and a leader should possess in order to succeed.
I had a chance to experience and try the leadership while working on the group assignments. I was a leader for a group assignment in finance so I enjoyed being in charge for the whole process beginning with assignments of tasks to each member and up to the process of narrating and organizing of the content. This process ultimately increased the level of my self-confidence.

As I am a foreigner the Master program gave me a chance to improve my English language, I can really feel it and I am really happy about it. First of all my vocabulary has increased significantly along with the ability to find synonyms to words which is really important.

7.2 Dissertation

I found the whole process of the study for Master degree as a preparation for the general event or culmination of the program – research and writing of the thesis. So all the skills gained during the program were used in the research process.

Dissertation and research process is a separate skill in itself and it embraces the development of research skills, improvement of time-management skills and improvement of organisation skills and mastering the skills acquired along the whole Master’s study process.

Writing a dissertation is exciting and exhilarating but also an exhausting at the same time; combination of discovery and drudgery. It is hard as you always have a feeling that something is not done, or can be done better. Hard work, both physically and mentally, that leaves you drained.

The main idea of the whole process is to come up with the clear message and keep it as clear as possible throughout the whole work.

The process starts with planning of your research and crafting of your proposal followed by collection and analysis of data. All this is aimed to get you to the central point, to the hypothesis of the whole research. Once the message is clear you start to consider the best ways of collecting the evidences and the facts so you can get to even clearer message.

I have greatly benefited from the research experience through improving several skills such as time-management and secondary and primary data research skills.

Time-Management Skills

I realized that research process requires extensive preparation and planning for each stage of the process. It is hard to estimate the correct amount of time required and you usually
tend to underestimate. Literature review is the most time consuming part of the research. As you become so interested in the subject that you just want to read the whole book sometimes forgetting about what the objectives of the dissertation were. Actually when you start the literature review process you do not even have any objectives so it is even harder to focus on things that are not even clear for you. Once you realize that it is taking too much time you try to adjust the time and reallocate it more wisely. This is where the time-management skill is mastered. Once you move further you realize that there are certain activities that can be totally avoided so to save time. You read, then you analyse, then you process the information. I was able to start writing only when I had everything settled in my head. And when you start you better do it until you totally exhausted as it takes time to get back to the process and to be productive after the breaks. You also have to know yourself and use it for better results, so you have to identify when you are most alert and focused.

Secondary Research Skills

I can say that the secondary research skills that were acquired during the whole process of study were really basic compared to ones that were acquired in the process of research. There are two important capabilities of research skills that were gained during the process of research: prioritising the data and critical analysis of the data.

There are vast of information available in relation to any subject in secondary data sources including books, journals, magazines, newspapers, internet etc., and it is not possible to analyse all. Accordingly, you are forced to learn to prioritize. Prioritising the data offers a range of substantial benefits such as time-saving.

Another great contribution of the research is the adjustment of your mind to critical position when reading through secondary data. It was the new skill for me to acquire as usually I do not turn my mind to critical state when reading the literature, I just literally digest what is written there.

Primary Research Skills

Primary research skills were also acquired during the course of conducting the research. It was new experience for me to conduct a personally constructed survey for the purposes of collection and analysis of data. It was an exciting process. My communication abilities have also been greatly enhanced as a result of conducting the survey.

I must admit that I have benefitted from this study; I enhanced the skills that I had and gained new very important ones. On top of that the level of my self-confidence has been
significantly increased. The Master’s program in general is aimed at constant mastering of your personal skills that you already possess and those that you acquire during the study process. It is a process of constant progress; you can literally compare yourself before and after and clearly see the difference.

Bibliography:


Appendices:
Appendix 1

Appendix 2.

Hello, my name is Irina and I am an MBA Finance student doing a research in behavioral finance

This survey is aimed to question self-directed (DIY) investors for the purpose of estimation of their awareness of behavioral biases. Please answer these 18 simple questions!

1. What is your age?
   - 18 to 24
   - 25 to 34
   - 35 to 44
   - 45 to 54
   - 55 to 64
   - 65 to 74
   - 75 or older

2. What is your gender?
   - Female
   - Male

3. What is your profession?

4. How long have you been trading (years)?

5. Did you become a self-directed investor due to:
   - Loss of trust in brokers after the recent crisis
   - Availability of necessary technology
   - Both of the above
   - Other

   Other (please specify)
6. Do you think you are affected by behavioral biases when making financial/investment decisions?
   ○ Yes
   ○ No
   ○ Maybe

7. Do you tend to collect as much information as possible before making the decision to buy the stock?
   ○ Yes
   ○ No

8. Do you believe that any additional information adds value to your forecast?
   ○ Yes
   ○ No

9. You are considering investing in bond market. Investment advisor emphasizes that a particular bond has a 3% chance of default. What are the chances of you investing in it, in %:

10. John is an experienced investor. He has fully studied all information available to him before he made the decision to invest. His investment turned out to be a success. Would you be more inclined to attribute his success to:
    ○ Skills rather than luck
    ○ Luck rather than skills
    ○ Both assumptions being equal
11. John was doing exactly the same thing for his other investment but the investment turned out to be a failure. Would you be more inclined to attribute this failure to:

- Bad luck rather than his overconfidence
- Overconfidence rather than bad luck
- Both assumptions being equal

12. When assessing the potential investment would you first consider:

- The current price
- Current financial reports and business perspectives

13. Do you consider it vital to focus on economic growth forecasts before buying the stock?

- Yes
- No

14. Would you prefer to:

- Buy a quality stock at a fair price
- Buy a stock at less than their net current asset value

15. In case you are making long-term investment with the aim to receive decent dividends in future, would you opt to buy a stock with:

- Higher dividend payout ratios
- Lower dividend payout ratios

16. You are considering investing in bond market. The investment advisor assures you that a particular bond has a 97% chance of paying its promised yield. What are the chances of you investing in it, in %:
17. Do you think that the awareness of behavioral biases would have a positive effect on your decision making process and hence positive outcomes?
   ○ Yes
   ○ No

18. Would you prefer to pay EUR 26.95 for:
   ○ A story of a failure
   ○ A story of success

Thank you for your time and effort!
## Appendix 3

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Appendix 4

Q1: What is your age?
   45 to 54

Q2: What is your gender?
   Male

Q3: What is your profession?
   Student

Q4: How long have you been trading (years)?
   20

Q5: Did you become a self-directed investor due to:
   Availability of necessary technology

Q6: Do you think you are affected by behavioral biases when making financial/investment decisions?
   No

Q7: Do you tend to collect as much information as possible before making the decision to buy the stock?
   No
### PAGE 7

**Q8:** Do you believe that any additional information adds value to your forecast?

- No

### PAGE 8

**Q9:** You are considering investing in bond market. Investment advisor emphasizes that a particular bond has a 3% chance of default. What are the chances of you investing in it, in %?

- 0

### PAGE 9

**Q10:** John is an experienced investor. He has fully studied all information available to him before he made the decision to invest. His investment turned out to be a success. Would you be more inclined to attribute his success to:

- Both assumptions being equal

### PAGE 10

**Q11:** John was doing exactly the same thing for his other investment but the investment turned out to be a failure. Would you be more inclined to attribute this failure to:

- Both assumptions being equal

### PAGE 11

**Q12:** When assessing the potential investment would you first consider:

- The current price

### PAGE 12

**Q13:** Do you consider it vital to focus on economic growth forecasts before buying the stock?

- No

### PAGE 13

**Q14:** Would you prefer to:

- Buy a stock at less than their net current asset value
Q15: In case you are making long-term investment with the aim to receive decent dividends in future, would you opt to buy a stock with:

- Higher dividend payout ratios

Q16: You are considering investing in bond market. The investment advisor assures you that a particular bond has a 97% chance of paying its promised yield. What are the chances of you investing in it, in %:

- 0

Q17: Do you think that the awareness of behavioral biases would have a positive effect on your decision making process and hence positive outcomes?

- No

Q18: Would you prefer to pay EUR 26.95 for:

- A story of a failure
Q1: What is your age?
45 to 54

Q2: What is your gender?
Male

Q3: What is your profession?
kayaking instructor

Q4: How long have you been trading (years)?
10

Q5: Did you become a self-directed investor due to:

Other

Other (please specify)  why would u not

Q6: Do you think you are affected by behavioral biases when making financial/investment decisions?
No

Q7: Do you tend to collect as much information as possible before making the decision to buy the stock?
Yes
Q8: Do you believe that any additional information adds value to your forecast?

Yes

Q9: You are considering investing in bond market. Investment advisor emphasizes that a particular bond has a 3% chance of default. What are the chances of you investing in it, in %:

0000

Q10: John is an experienced investor. He has fully studied all information available to him before he made the decision to invest. His investment turned out to be a success. Would you be more inclined to attribute his success to:

Luck rather than skills

Q11: John was doing exactly the same thing for his other investment but the investment turned out to be a failure. Would you be more inclined to attribute this failure to:

Overconfidence rather than bad luck

Q12: When assessing the potential investment would you first consider:

The current price

Q13: Do you consider it vital to focus on economic growth forecasts before buying the stock?

No

Q14: Would you prefer to:

Buy a quality stock at a fair price
Q15: In case you are making long-term investment with the aim to receive decent dividends in future, would you opt to buy a stock with:

High dividend payout ratios

Q16: You are considering investing in bond market. The investment advisor assures you that a particular bond has a 97% chance of paying its promised yield. What are the chances of you investing in it, in %:

10

Q17: Do you think that the awareness of behavioral biases would have a positive effect on your decision making process and hence positive outcomes?

No

Q18: Would you prefer to pay EUR 26.95 for:

A story of a failure
Q1: What is your age?
35 to 44

Q2: What is your gender?
Male

Q3: What is your profession?
ICT Manager

Q4: How long have you been trading (years)?
4

Q5: Did you become a self-directed investor due to:
Availability of necessary technology

Q6: Do you think you are affected by behavioral biases when making financial/investment decisions?
No

Q7: Do you tend to collect as much information as possible before making the decision to buy the stock?
Yes
Q8: Do you believe that any additional information adds value to your forecast?

Yes

Q9: You are considering investing in bond market. Investment advisor emphasizes that a particular bond has a 3% chance of default. What are the chances of you investing in it, in %?

40

Q10: John is an experienced investor. He has fully studied all information available to him before he made the decision to invest. His investment turned out to be a success. Would you be more inclined to attribute his success to:

Skills rather than luck

Q11: John was doing exactly the same thing for his other investment but the investment turned out to be a failure. Would you be more inclined to attribute this failure to:

Bad luck rather than his overconfidence

Q12: When assessing the potential investment would you first consider:

Current financial reports and business perspectives

Q13: Do you consider it vital to focus on economic growth forecasts before buying the stock?

Yes

Q14: Would you prefer to:

Buy a quality stock at a fair price
Q15: In case you are making long-term investment with the aim to receive decent dividends in future, would you opt to buy a stock with:

- Lower dividend payout ratios

Q16: You are considering investing in bond market. The investment advisor assures you that a particular bond has a 97% chance of paying its promised yield. What are the chances of you investing in it, in %:

- 100

Q17: Do you think that the awareness of behavioral biases would have a positive effect on your decision making process and hence positive outcomes?

- Yes

Q18: Would you prefer to pay EUR 26.95 for:

- A story of success
## Appendix 5

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<th>What is your age?</th>
<th>What is your gender?</th>
<th>You are considering investing in bond market. Investment advisor emphasizes that a particular bond has a 3% chance of default. What are the chances of you investing in it, in %:</th>
<th>You are considering investing in bond market. The investment advisor assures you that a particular bond has a 97% chance of paying its promised yield. What are the chances of you investing in it, in %:</th>
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Average answer for:

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Appendix 7

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<th>You are considering investing in bond market. The investment advisor assures you that a particular bond has a 97% chance of paying its promised yield. What are the chances of you investing in it, in %:</th>
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**Framing bias**

**Framing and Anchoring bias**