



Behavioural Finance: Investor behaviour during Russia-Ukraine war

Noona Kantomaa

Haaga-Helia University of Applied Sciences

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Abstract

<p>Author(s) Noona Kantomaa</p>
<p>Programme Finance and Economics</p>
<p>Thesis title Behavioural Finance: Investor behaviour during Russia-Ukraine war</p>
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<p>Investing is more than just analyzing numbers and making decisions to buy and sell various assets and securities. A large part of investing involves individual behaviour. The aim of this thesis was to identify and examine investor behaviour during the Russia-Ukraine war, especially the behaviour of Finnish investors. Behavioural finance micro is used to investigate and examine irrational investor behaviour and common investor biases. The theory challenges the efficient market theory and attempts to offer an alternative explanation to investor behaviour and market efficiency. While the efficient market theory suggest that investors behave rationally, behavioural finance sees investors as irrational and biased. More specifically, the purpose is to identify relevant psychological biases and investigate their influence on investor decisions.</p> <p>Moreover, the thesis analyzes common investor biases, demographics affecting them, Finnish market reaction to the war and a comparison between Covid-19 investor behavior and Ukraine-Russia crisis investor behaviour.</p> <p>The empirical part of the thesis was carried out mainly as a quantitative study, as the aim was to quantify how investor behaviour changes during war. The respondents of the survey were mostly under 30-year-old and Finnish. Qualitative research method was used to strengthen the reliability of the research.</p> <p>The research surveyed investors that invest in any kind of financial assets. Survey questions were based on the theoretical framework.</p> <p>Next, the results of the survey were presented statistically with explanations. Correlation between biases was also presented, and the qualitative data was processed.</p> <p>In conclusion, the study found that familiarity and representativeness biases are strongly experienced during the Russia-Ukraine war. Other biases presented in the thesis were also experienced by the respondents further proving that the Russia-Ukraine war affected investor behaviour. Future suggestions for research are given since investor behaviour during a war is barely studied. However, given the volatile market situation preceding the war it is unclear whether the war amplified or created the investor biases presented in the thesis.</p>
<p>Keywords Behavioural Finance Micro, Investor Bias, Efficient Market Theory, Russia-Ukraine war</p>

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1 Introduction

On 21 February 2022 Russia recognized two Ukrainian states, Donetsk and Luhansk, as autonomous regions. Soon after, Russia invaded Ukraine and a major war in Europe began. In result, Finnish stocks incurred a significant negative abnormal return. The negative reaction of the stock market incurred globally, and it has continued in the post-event period. Russia's invasion in Ukraine and the sanctions imposed on Russia also plunged the energy market into uncertainty, which has significantly increased the prices of energy and everyday goods. The war created yet another threat to the economy. The increased geopolitical tension and the sanctions imposed on Russia gave individual and institutional investors a new headache.

The purpose of the thesis is to examine the investor biases during the Russia–Ukraine war on the Finnish stock market. While it is important to acknowledge the changing and volatile market situation Covid-19 has created globally, the focus of the thesis is to examine investor behaviour during 2022, especially the behaviour in result of the war.

It is yet unknown how individual investors will react to the uncertainty of the conflict. The purpose of this thesis is to introduce common investor biases and examine how these biases have affected investment decisions during 2022.

1.1 Demarcation

This thesis will focus on the investor behaviour from the financial and behavioural point of view. Behavioural finance micro is used to examine biases and behaviours of individual investors. The established theory serves the purpose of the thesis and provides necessary information to understand basic concepts of behavioural finance and investor behaviour. Investor behaviour is examined solely from the point of view of behavioural finance. Since the thesis is a bachelor's thesis and thus the research is limited, the investor biases presented are carefully narrowed from a large number of biases. For the purpose of this thesis, it was not necessary to include all known investor biases, since there are dozens of them. The research is limited to examine Finnish investor behaviour during 2022. The thesis does not include estimations of future to remain unbiased and factual. All results are firmly based on the research and the established theory.

1.2 Research problems

This thesis aims to improve the understanding of the investor behaviour in the Finnish stock market during the Russia-Ukraine war in 2022. The outcome of this thesis will be a study on how the investor behaviour can be explained and what biases Finnish investors experience. This study can be used by financial professionals as well as by private investors to better understand investor behaviour in similar crises. This study can also be used to learn how to avoid common investor biases.

The research question (RQ) can be worded as: how did the Russia-Ukraine war affect Finnish investors behaviour?

RQ is divided into smaller research questions (RQ) as follows:

RQ 1. What are the common behavioural biases during Ukraine-Russia war?

RQ 2. How different demographics affect investor biases and behaviour?

RQ 3. How can the investor behaviour be explained from the point of view of behavioural finance?

Table 1 below presents the theoretical framework, research methods and results chapters for each investigative question.

The Research Problems	Theory	Research method	Results
IQ 1. What are the common behavioural biases during Ukraine-Russia war?	2.6	Quantitative research	5.1
IQ 2. How different demographics affect investor biases and behaviour?	2.5	Desktop research	5.2
IQ 3. How can the investor behaviour be explained from the point of view of behavioural finance?	2.1, 2.2, 2.3, 2.4	Desktop research, quantitative research	5.3

Table 1. Overlay Matrix

1.3 Thesis structure

The thesis is divided into six parts: introduction chapter, theoretical framework, methodology, empirical study, analysis, and conclusions.

Within the part “theoretical framework”, theories, definitions and earlier study about Behavioural Finance is described in a structured manner. This material is used as the basis for the study. The theoretical framework consists of common investor biases, demographical variables and investor biases and a lastly behavioural finance and the on-going market situation.

The empirical part consists of research conducted by the author. The study attempts to examine different investor biases during Ukraine-Russia war. The research is conducted using a quantitative and qualitative methods.

The results are further analyzed, which are directly related to the theoretical part of the thesis. The last section, conclusions, is based on previous work on the thesis and future suggestions for similar studies. Research questions are also discussed and accompanied by answers.

2 Investor biases

2.1 Background on Behavioural Finance

While the efficient market hypothesis supports that people are rational investors who are an important part of financial market, behavioural finance is an alternative model that recognizes people as irrational. When efficient market hypothesis is considered, the assumption is that the price of stock market will reach equilibrium since prices are informationally efficient (Fama, 1970). The efficient market theory thus suggests that investors are perfectly rational, meaning they have the ability to reason and make beneficial judgements. However, behavioral finance claims that investors tend to have some psychological and emotional biases which lead to irrationality. Both new and old concepts try to find solutions for financial and economic problems. Therefore, it is essential to understand and research both models to prevent and understand financial crises. This thesis, however, will examine behavioural finance micro (BFMI). BFMI examines biases and behaviour of individual investors that distinguish them from the rational actors presented in the efficient market theory (Pompian, 2006 pp. 9-12).

Two psychologists, Daniel Kahneman and Amos Tversky are considered to be forerunners in Behavioural Finance. In 1979 Kahneman and Tversky published a scientific article "Prospect Theory: An Analysis of Decision under Risk", where the psychologists presented an alternative perspective to investors' decision making (Kahneman and Tversky, 1979, 263–290). Prospect theory proved valuable to the economic field since it attempts to describe the way people make decisions as opposed to only relying on the efficient market theory. According to Kahneman and Tversky (1979), developing a prospect theory for decision making under uncertainty is a critique of the efficient market theory. Prospect theory believes that several psychological factors influence investors' decisions and deviations from rationality. These psychological factors are known as behavioral bias and will cause a decrease in the return on investment.

Moreover, behavioural finance studies the effect of psychological biases on financial decision making. Behavioral finance combines insights from finance, psychology, and other sciences to study behavior in various market situations that deviate from standard assumptions (Yoong and Ferreira, 2013, pp.15). According to Hirshleifer (1998), investors are susceptible to various behavioral biases, which become an obstacle in the maximization of assets. Kahneman's and Riepe's (1998) views on behavioral bias need to be understood to avoid mistakes in reasoning or judgment in making an investment decision. Irrational valuations in investments are known as biases. Investor behavior in making

investment decisions is influenced by behavioral bias due to limited rationality so that decisions tend to be irrational (Byrne and Brooks, 2008). The behavioral bias in investing consists of two categories, namely Cognitive Bias and Emotional Bias. Behavioural finance micro answers the question: Are investors perfectly rational, or can emotional and cognitive errors impact their financial decisions?

2.2 Common biases

Baker and Ricciardi (2014) divided investor biases into two groups, which are cognitive biases and emotional biases. Cognitive biases refer to tendencies that investors have that make them to think and act in a certain way that might lead them to make irrational decisions. Emotional biases refer to making investment decisions based on feelings and emotions (Baker and Ricciardi, 2014).

This section will go through the most common biases that can affect investor behaviour. Behavioral biases potentially affect the behaviors and decisions of financial market participants. By understanding these biases, financial market participants may be able to moderate or adapt to them and, as a result, improve upon economic outcomes

2.3 Emotional biases

An emotional bias is a distortion in cognition and decision making due to emotional factors. Emotional biases occur based on a feeling. They may be rooted in personal experiences that influence decision-making (Baker and Ricciardi, 2014). The following biases are emotional biases.

2.3.1 Loss Aversion

Loss aversion is a tendency in behavioral finance where investors assign more significance to losses than to gains. This means, that investors are focusing more on trying to prevent losses than actually making gains. Loss aversion bias leads investors to hold on to their stocks for too long resulting a lower rate of returns (Baker and Simon, 2000).

According to Locke and Mann study in 2005, the average holding period for losing trades is longer than for winning trades. They also argue that while all traders hold losers longer than winners, the least successful traders hold the losers for the longest, whereas the most successful hold losers for the shortest amount of time (Locke and Manne, 2005).

2.3.2 Disposition effect

Disposition effect is the tendency of selling stocks that have increased in value since purchasing too early and holding on to losing stocks too long. This bias is closely related to loss aversion and is harmful to investors since it can increase the capital gains taxes that investors pay and may reduce returns even before taxes (Baker and Ricciardi, 2014). The disposition effect is traced to the prospect theory by Kahneman and Tversky in 1979. The prospect theory suggests that when an individual is presented with two equal options, one having possible gains and the other with possible losses, the individual is more likely to choose the former choice. This happens because people dislike losing significantly more than they enjoy winning (Kahneman and Tversky, 1979).

2.3.3 Familiarity

Familiarity bias occurs when an investor has preference for local assets which they are more familiar with (Baker and Ricciardi, 2014). Investors might prefer a local company, since they are more familiar with it, not because they possess actual information regarding financial analysis. Furthermore, the problem with familiarity bias is that investors are prone to invest in local assets instead of diversifying their portfolio. Baker, Filbeck and Ricciardi, (2017) added to this by underlining that investors expect to gain a higher rate of return with investing in familiar assets. This could lead to an undiversified portfolio and unnecessary risks.

2.4 Cognitive biases

Cognitive bias as a concept was first introduced by Amos Tversky and Daniel Kahneman in 1972. The Cambridge Dictionary definition of cognitive bias is “the way a particular person understands events, facts, and other people, which is based on their own particular set of beliefs and experiences and may not be reasonable or accurate”

A cognitive bias is thus a process deviation in managing, understanding, and making decisions on information or facts received. This bias describes any errors or irregularities that occur with information held by investors. The following biases are cognitive biases.

2.4.1 Overconfidence

Overconfidence bias is the tendency for a person to overestimate their abilities. It may lead to investors thinking they have better knowledge than most people or even professional investors. This bias may lead to hasty and risky investments based on a feeling or luck (Baker, H.K. and Ricciardi 2014).

People tend to overestimate their skills and predictions for success thus overconfidence is one of the most persistent bias investors experiences (Ricciardi & Simon, 2000). Ricciardi's 2008 research documents that overconfident behaviour is connected to excessive trading and results in poor investment returns. It can also lead to investors failing to appropriately diversify their portfolios.

2.4.2 Self-Attribution

Self-attribution bias refers to the tendency of investors to attribute successful outcomes to their own actions and unwanted outcomes to external factors (Baker and Ricciardi, 2014). This bias may lead investors thinking that failures happen because external influences, such as bad luck and therefore leads to a greater risk. Self-attribution may lead investors take on inappropriate degrees of financial risk without realizing it and to trade too aggressively, amplifying personal market volatility.

Investors struggling with self-attribution bias may become overconfident, which can lead to underperformance and too aggressive trading.

2.4.3 Herding behaviour

Herding theory has its roots in Keynes, who focused on the motivations to imitate and follow the crowd in a world of uncertainty. Keynes described herding as a response to uncertainty and individuals' perceptions of their own ignorance. People are prone to follow the crowd since they believe that the rest of the crowd is better informed (Keynes, 1930).

Herd behaviour bias thus refers to investors' tendency to mimic and follow what other investors are doing. This bias sets investors out to be largely influenced by emotion and instinct, rather than by their own independent analysis (Baddeley, 2010). This bias might lead investors to make investment decisions without actual information rather they discard their own opinion to follow the crowd. Financial crashes and bubbles may emerge as a result of herding behaviour (Baker, Filbeck and Ricciardi, 2017).

2.4.4 Confirmation bias

Confirmation bias is the tendency to process, interpret, recall, and favor information in a way that is consistent with one's prior beliefs. This bias often results in ignoring inconsistent information and favoring investors' own beliefs or values (Baker and Nofsinger, 2002). Thus, investors might mold their decision based on their own beliefs even if the investment is not profitable. Confirmation for the decision is sought from investors' own beliefs. Overconfidence and confirmation bias are very closely related since both biases tend to favor individual's own knowledge even when it is not beneficial for them.

2.4.5 Representativeness

Representativeness makes investors label investment either good or bad based on its recent performance. Investors fail to analyze the historical and current performance, and this can lead to unwarranted expectations of the stock value. Thus, under uncertainty, investors are likely to believe that a history of a remarkable performance of a given firm is "representative" of a general performance that the firm will continue to generate into the future. Consequently, investors might hold stocks below their intrinsic value (Baker and Ricciardi, 2014).

2.5 Demographical variables and biases

There are various studies that show the significant correlation between demographics and investor biases. Demographical variables are for example gender, age, occupation, level of education and investment experience. There is extensive literature on investor biases, however there is only limited academic research in the area. This section will go

through research attempting to document correlations between demographical variables and investor biases.

Baker, Kumar, Goyal and Gaur (2019) conducted a study to examine the effect of financial literacy and demographic variables related to bias behaviour. The study showed that men are more confident than women about knowledge in the stock market. The study also suggested that the female investors have more disposition effect than male investors. After experiencing the benefits of previous investments, female investors are more likely to invest more. Another study by Barber and Odean (2000) showed a gender bias regarding overconfidence. The study covered 35 000 households over a six-year period. The findings were interesting, since the study showed that men were more overconfident than women regarding their investing skills. As a result of the overconfidence, men tended to sell at the wrong time and experienced much higher trading costs than women. Women tend to utilize the buy and hold strategy, that led to more successful results.

A study by Kumar and Goyal (2016) examined the relationship between investor behavior and rational decision-making in India and investigated the effect of demographical variables on the decision-making process and biases. The results showed that male investors are more prone to herding and overconfidence in India. Female investors tend to be more afraid to take risks, which affects women's level of confidence when making investment decisions. Thus, the study found that gender has a negative effect on overconfidence. The study examined investors in India and had only 386 participants. Therefore, these suggestions cannot be generalized.

Research conducted by Nair et. al. (2017) found that female investors are more likely to have a herding bias than male investors in India. Research by Lin (2011) also found that women are more likely to have a herding bias than men. Male investors are more assertive in making investment decisions than female investors who are more comfortable to follow the ideas of those around them. On the other hand, according to Kumar and Goyal (2016) men tend to follow other investors, such as friends and family.

Research by Baker et. al. (2019) suggests that retired investors are more likely to avoid herding bias than others. Young investors tend to have less knowledge and experience in investing which makes them more prone to following others. Kumar

and Goyal (2016) research showed that investors between the ages 25-45 have more disposition effect than older investors. Young investors are often reluctant to realize the weaknesses of their portfolios.

According to Lewellen, Lease, and Schlarbaum (1977), an individual's age influences its investment behavior as persons tend to develop a longer-term investment horizon that increases with age. Brooks et. al. (2018) and Abreu and Mendes (2012) show that risk tolerance declines at an increasing rate with age. Older investors even demonstrate a reduced willingness to take on risk with profits already achieved in the past.

Income levels and occupation also have correlations to investor biases. Tekçe (2016) showed that investors with high-income levels have a higher level of confidence and more self-control in the ability to choose stocks to invest. According to Dhar and Zhu's (2006) research, investors with low-income are more likely risk-averse when they have a loss experience.

Investors with investment experience tend to be more confident than investors who have investment experience under two years. Investors' confidence is closely related to investing experience (Baker et. al., 2019). According to Chen et. al. (2007), investors who have more investment experience tend to have a lower disposition effect. Investors with more experience can learn from previous failures and may have learned to be more rational. Additionally, investors tend to experience herding bias when they have minimal investment experience, less than one year. This happens because the investors do not have enough knowledge and confidence to trust their own decisions and analysis.

Investors with a higher education level are more confident and trusts the results of their investment decision, since they believe they have more knowledge (Bhandari and Deaves, 2006). Since the investors with high education has confidence, they are more likely to avoid herding bias. Investors with higher education also have a lower disposition effect than investors with lower education (Baker et. al., 2019).

2.6 Behavioural Finance and the changing market situation

Keynes (1936) highlighted the role of psychology in economics long before behavioral finance theory was formed. He argued that sentiment, unrealistic optimism or pessimism, leads to market reactions such as bubbles, booms and busts. He stated that securities

prices often differ from their intrinsic values and explored the implications of such deviation from employment, income, and money.

Behavioral finance offers some clarity regarding Keynes' hypothesis and presents new factors regarding individuals' decisions choices. Behavioral finance tries to explain individuals' economic decisions, beyond the traditional theories of securities markets, by combining behavioral and cognitive psychological theory with traditional economic and finance theories. Especially during an uncertain market situation and financial crises, the importance of behavioural finance increases in understanding irrational investor behaviour. Information structures and market-outcomes are not the only factors to impact investment decision making. It adds the characteristics of market participants as factors that systematically play an important role in investment decision-making process (Baker, & Nofsinger, 2010).

Among the studies of recent political risk events, Smales (2017) documents a significantly positive relationship between political risk and financial market uncertainty. Other study by Caldara and Iacoviello (2022) explores the economic consequences of geopolitical risk, which captures the uncertainty arising from the possibility of conflicts, wars and terrorist attacks. Russia's invasion of Ukraine in 2022 is viewed as part of a resurgent geopolitical competition among the world's great powers, significantly increasing the geopolitical threats.

2.6.1 Ukraine-Russia war

Ukrainian President Volodymyr Zelenskyy approved on 14th of September in 2021 partnership with NATO, despite Russia's oppose to the matter. Three days before the invasion in Ukraine, Vladimir Putin announced that Russia recognizes the independence of the separatist regions of Donetsk and Luhansk in eastern Ukraine and ordered Russian armed forces to move into the regions to "secure peace". On 24th of February 2022, Russia invaded Ukraine, and so began the first war in Europe since the Second World War. Because of the invasion, financial markets reacted in a substantial negative manner: the S&P 500 dropped more than 10% the Euro Stoxx 600 index closed at its lowest level in almost a year, while also the MSCI All-Country World Index dropped with around 6%. The war has continued and there is uncertainty and fear since there is no knowledge when and how the war will come to an end (Taylor, 2022).

2.6.2 Market situation before and during Russia-Ukraine war

As mentioned before, Ukraine-Russia war not the sole reason for high interest levels, inflation and uncertainty in the stock market. The war has rather contributed to inflation in and created more threats to the economy. Inflation means a decrease in the value of money, i.e., an increase in consumer prices. In this case, there is more demand than supply for the goods and services to be purchased. That is, the higher the level of inflation, the fewer products or services you can buy with the same amount compared to before (Nordea).

In the early stages of Covid-19, in the spring of 2020, inflation slowed down significantly, and correspondingly, in 2021, inflation accelerated faster than in recent years. Inflation was especially infused by the rise in energy prices, the recovery of service prices due to the opening of the economy, and different disruptions in the production chains. When demand from households and businesses increased as the pandemic subsided, production could not keep up. The result was an increase in the prices of many goods. At the same time, there was a labor shortage in several sectors, especially services, which also increased the upward pressure on prices (Bank of Finland, 2022).

Two countries considered as global superpowers, China and The United States, have played major role the current inflation situation. In the United States, the economy has contracted for two consecutive quarters and consumer confidence has weakened. Economic growth is dampened by the contraction of real wages, strong fiscal policy, the reduction of savings and the rise of interest rates. The increased demand in housing while the pandemic was still limiting production infused the rise in interest levels.

In China, strict corona lockdowns and problems in the real estate sector pushed the official annual GDP growth close to zero in the second quarter. In July, China announced that it would practically discard its 2022 GDP growth target of around 5.5 percent. The announced growth targets have not been discarded before (Bank of Finland, 2022).

Russia's invasion in Ukraine and the sanctions imposed on Russia also plunged the energy market into uncertainty, which has significantly increased the prices of energy and everyday goods. Due to the war, the demand for many raw materials is significantly greater than the supply, which contributes to the inflation (OP, 2022).

2.6.3 Russia-Ukraine war and Finnish market reaction

At the beginning of 2022, there were many concerns on the investor's mind since there was a rise in energy prices as well as component shortages and disruptions in

production chains caused by Covid-19. However, there was a strong growth in Finland's GDP. The GDP had already surpassed its pre-pandemic level during the first half of 2021, and the economy continued to grow strongly in the latter part of the year (Bank of Finland, 2022). After Russia's invasion in Ukraine the Finnish stock market was yet again facing another crisis.

Immediately after Russia attacked Ukraine, the stock markets plummeted throughout Europe, especially in Finland, with investors selling off relatively more investments in the Helsinki Stock Exchange than elsewhere in the euro area (Finance Finland, 2022). The Helsinki stock exchange fell by more than ten percent in the first few weeks after the war. This was not only due to the geographical location, but also to the dependence of the Finnish economy on Russia. After the start of the attack, investors have sold their riskiest investments and money has flowed into government bonds and the dollar, which were considered as safe investments (Järvinen, 2022). Historically, market reactions to geopolitical crises have been temporary and limited, but the current situation differs from many previous crises and its effects on the market are challenging to assess.

Fortunately, the importance of Eastern trade for Finland has decreased since the time of the YYA agreement, and in 2021 the share of exports to Russia was just over five percent of Finland's total exports. It is worth noting that imports from Russia have been greater than exports practically throughout the 21st century. However, In 2021, Russia was Finland's fifth largest export destination. The impact of the decline in exports on Finland's GDP depends on the content of Finnish value added in the goods and services exported to Russia (Bank of Finland, 2022). Therefore, companies with a lot of operations in Russia were and still are particularly affected. Foreign trade with Russia is collapsing as a result of the war, and higher uncertainty and inflation are weakening the prospects for consumption and investment.

Although a total disaster caused by the outbreak of the war was avoided in the market, the investment outlook for the rest of the year is dim. Inflation forces central banks to limit liquidity in the market, which theoretically will be reflected in lower return expectations for stocks than before. According to Statistics Finland, in September 2022 the inflation was 8,1% in Finland which is due to the increase in the average mortgage interest rate and the price of electricity (Statistics Finland, 2022). The inflation slows investments while the increased prices of raw materials and energy cool the economy.

2.6.4 Investor behaviour during Russia-Ukraine war compared to Covid-19

The effects of terrorism on financial markets in general and on investor behavior in particular has been well documented but it is not yet known how individual investors react on long-term military operations being close to their home market. Therefore, earlier research cannot be generalized. There are only a few research that examine the impact of conflict actions, like World War II or the Israeli-Palestian war (Frey and Kucher 2000; Zussman, Zussman, and Nielsen 2008) but the focus is mainly on the impact on stock prices and not on the underlying behavior of individual investors. Hence, it is more valuable to use research from Covid-19 investor behaviour as a comparison and as a hypothesis to how individuals will behave moving forward. The research around investor behaviour during Covid-19 is also very limited, nevertheless there are few smaller research that can be used to try speculating how investors might behave during a conflict such as the Russia-Ukraine war.

Small research of by Gurpaxani and Gurpe (2021) found that Covid-19 impacted negatively Indian investor's willingness to invest in mutual funds and the stock market. Investors seem to have become more risk averse, and they prefer secure instruments. A study by Ferreruella and Mallor (2021) showed that herding was detected on high volatility days during the Covid-19 pandemic which indicates that people were more prone to follow other people's investment decisions in a crisis. A study by Priem (2021) found that most individuals in Belgium increased their equity positions during Covid-19, suggesting a contrarian strategy. Especially investors between 18 and 35 years old and those being less active are found to increase their equity positions compared to other age and activity level categories. Male investors seem to dominate equity markets in Belgium, even during the COVID-19 confinement period, and they increased their equity positions more in comparison to women.

There is hardly any research on investor behaviour during the Ukraine-Russia crisis due to its recency. However, a study by Priem (2022) attempts to analyze investor behaviour during the crisis. Priem's study focuses on the Belgian market, however results can likely be generalized to other countries. The study shows that individuals bought for more than 7 million EUR in the week before the invasion and then sold almost the same amount in the week of the invasion and the week after. The study further shows that individuals younger than sixty increased their equity

positions compared to older individuals who relatively sold more shares, suggesting that older investors tend to be more risk averse and will therefore hold less risky assets in their portfolio. The study shows that experienced investors increased their equity positions compared to more experienced investors. This suggests that less experienced investors are more likely to be overconfident. The study further shows that individuals being eighty years old or older decreased their equity positions. Investor experience seems to matter and older, risk averse investors tend to lose their risk averseness. However, it is crucial to note that this is only one research and cannot thus be further generalized (Priem, 2022).

Though Covid-19 is a good starting point to understand investor behaviour in crises, it has very different elements compared to Ukraine-Russia crisis. During the Covid-19 situation individual investors had more time and money to spend and people had to be home because of the restrictions imposed to control the spread of the virus. During the Russia-Ukraine war there are more negative consequences to the real economy, such as high level of inflation which seems to be difficult to solve even with governments efforts. In addition, there is a threat that the war might escalate into a European war or even a global nuclear war. The uncertainty of the situation puts more pressure and risk to individual investors. Ethics and morals are also to closely related to the behaviour of investors in Russia-Ukraine war, since investors are more likely to avoid Russian-related securities after the invasion.

2.7 Conclusion on theoretical framework

This theoretical framework examined the common biases that investors have and what affects them. This section also investigated investor behaviour during Russia-Ukraine war in comparison to Covid-19 crisis. In the latter crisis common biases were herding, overconfidence and confirmation bias. According to the study by Priem (2022) investor's experience at least risk aversion and overconfidence during the current crisis; Russia-Ukraine war. Investor's experience, age, gender, education, and occupation were also noted to have an effect to investor behaviour. However, it is important to remember the market reaction of the Russia-Ukraine war was a byproduct of the already existing inflation and uncertainty. Despite these findings, the biases during this war are still partly unknown, because of the recency of Russia-Ukraine war, which is why the main part of this thesis attempts to gain further knowledge of the biases occurring around this unique

financial crisis.

3 Methodology

3.1 Approach and data collection

The methodology chapter is included to justify and describe the chosen method of conducting the empirical part in detail. The research will benefit investors who want to know how psychological factors affect decision-making. The aim is to prove that investors act irrationally in result of the Russia-Ukraine war. Investors can take advantage of the research results in their own decision-making by being aware of the existence of biases.

This is quantitative research, as the measurement of statistical data will ensure the objectivity of an empirical investigation of this size. For this thesis, a survey was chosen to measure investor behaviour during 2022. As the research question is: how did the Russia-Ukraine war affect Finnish investors behaviour? Statistical analysis of the survey data provides an objective answer as it measures the biases of the individual investors' during the war.

Quantitative methods emphasize objective measurements and the mathematical, statistical, or numerical analysis of data collected through questionnaires, polls and surveys, or by manipulating pre-existing statistical data using computational techniques. Quantitative research focuses on gathering numerical data and generalizing it across groups of people or to explain a particular phenomenon (Babbie, 2010). This research attempts to examine investor behaviour and the data is collected through an online survey. The results are presented statistically in chapter 4. When quantitative research is performed correctly, an analysis allows researcher to make predictions and generalizations to larger, more universal populations outside the test sample. Quantitative studies are relatable in the sense that they are designed to make predictions, discover facts and test existing hypotheses. Quantitative method can be used to test theories about how or why certain events occur by finding evidence that supports or disproves the theories. Quantitative results can be clearly communicated using unbiased statistics. Since the aim was to collect a large number of answers to support the theoretical framework, quantitative method was chosen as the main research method.

In addition to quantitative method a qualitative method is used. A qualitative method collects and analyzes non-numerical data to understand concepts, opinions, or experiences. This approach is used to gather in-depth insights into a

problem or generate new ideas for research (Bryman, 2012, pp. 14). There are two open-ended questions in the survey that serves to enlighten new perspectives about the study. A qualitative method cannot be used to make general perceptions. The study thus uses both qualitative and quantitative methods since the two approaches support each other and create more reliable results.

3.2 Sampling

As the primary research method for this study, an online survey was chosen over individual interviews for numerous reasons. With the survey, it is possible to receive a large study group and high number of answers. The structured survey has the same questions for every respondent. Statistical analyzes have been developed for data processing of the survey binding and reporting formats but interpreting the results can be difficult.

Limitations of the survey were also found in this study. The potential limitations are the possibilities of misunderstanding, lack of answers and uncertainty about the competence of the respondents to answer precise questions. The study was carried out as a cross-sectional study, meaning that investors behavior was studied over a certain period of time.

3.3 Survey instrument

The survey data was collected via an online survey platform called Webropol. This specific software was mainly chosen since it is easy to use, and it protects the anonymity of the respondents. The survey was distributed with an online link through Facebook and WhatsApp.

Previous research of investor biases was relatively easy to find, however the survey used in this study was an original survey.

The survey begins with a set of questions to determine the basic characteristics of the respondents. The first question is about the age of the respondent since the research question is particularly interested in the biases of people under 30. The following question is the respondent's gender, which was also an important demographic considering the research question. The first set of questions has also simple

Yes or No questions about investment history and strategy. These questions helped to determine if the respondents had a long history in investing, whether they have an investment strategy or not and whether they had a financial advisor. The question about the financial advisors was important since the purpose of the study is to examine investor biases not professionals.

The next set of questions were in a 5-point Likert scale from “strongly agree” to “strongly disagree”, to gain understanding about the investor’s strategy and beliefs. This set of questions focused on the investor behaviour in 2022, trying to gain valuable information about common biases during this year. The final set of questions examined the effect of the Russia-Ukraine war on investment decisions. The questions were simple Yes or No questions and a 5-point Likert scale from strongly agree to strongly disagree. There were also two open-ended and optional questions to gain better understanding of the respondents’ beliefs and actions.

This was the most important set of questions, since it helped to gain deeper understanding about the general thoughts of investors during a crisis.

More specifically, it aimed to find out, for example, how the investors think they have performed, what has affected their investment decision-making and what type of actions they have taken. The survey was purposely short, since it was crucial to receive a high number of answers and a short survey is easy to approach.

3.4 Participants

The participants had only one criterion:

1. The respondent had experience in investing

There was only one criterion for the participants, since the goal was to acquire as much data as possible. Other criteria for the participants could have been age, since the research problem is especially interested in people under 30. The criteria were not chosen since it would have limited the possible answers and prevented comparing the differences between age-groups.

The survey was distributed via WhatsApp to a group of people under the age of 30 as well as in a Facebook group *Sijoituskerho*.

3.5 Limitations of the methodology

One of the limitations of the study is the language of the questionnaire which was English. Most of the respondents were presumably Finnish, since the survey was distributed to Finnish groups. Hence the language barrier might have limited the capabilities to answer and understand the questionnaire properly. This risk was reduced by stating that the open-ended questions could be answered either in English or Finnish.

The study considered only investors since the goal was to acquire information about investor biases. This excludes non-investors, who might have valuable insight and knowledge about the financial markets. However, it was necessary to exclude non-investors since the aim of the study was to focus on investor biases.

Another limitation is the distribution of the survey. The survey was distributed only in two different channels resulting, that most of the respondents were male and under 30-year-old. The distribution also limited out other nationalities, since it was distributed in channels that were known to have Finnish participants. However, the purpose was to examine Finnish investor behaviour. The variety of the respondents could have been better, and more answers would have provided a more reliable study.

Finally, as there aren't many previous similar research due to the recency of the topic and the lack of research about investor biases during financial crises in general, the significance of the questions could not be connected to examples from earlier research. On the other hand, the questions were conducted based on variety of previous research considering the important things needed to measure to gather valuable data about the behavioural biases present during Russia-Ukraine war.

4 Findings

4.1 Demographical variables

The survey was completed by a total of 168 people meeting the requirement set for answering. The data collection period lasted a total of 10 days. 34% (N=58) of the respondents were 18-24 years old, 37% (N=62) 25-30 years old and 29% (N=48) were older than 30 years old (Figure 1). Out of the 168 respondents, approximately 72% (N=121) were men, 27% (N=46) were women and the rest 1% (N=1) either preferred not to say their gender or had some other gender (Figure 2).

Regarding the education, most respondents 45% (N=75) have a bachelor's degree. 31% (N=53) of the respondents have a master's degree, 18% (N=30) upper secondary education and 6% (N=10) has a comprehensive education (Figure 3).

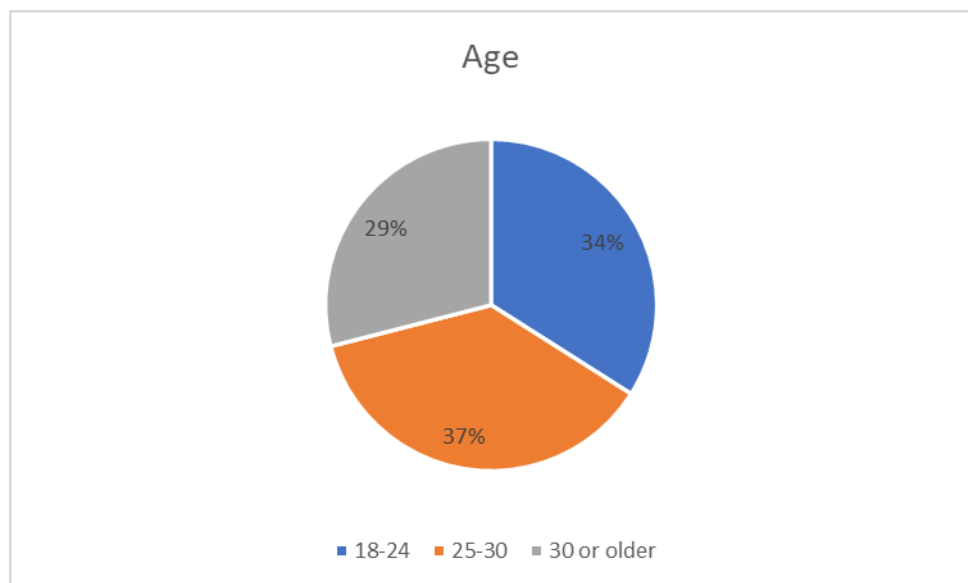


Figure 1. Pie chart of the age of the respondents.

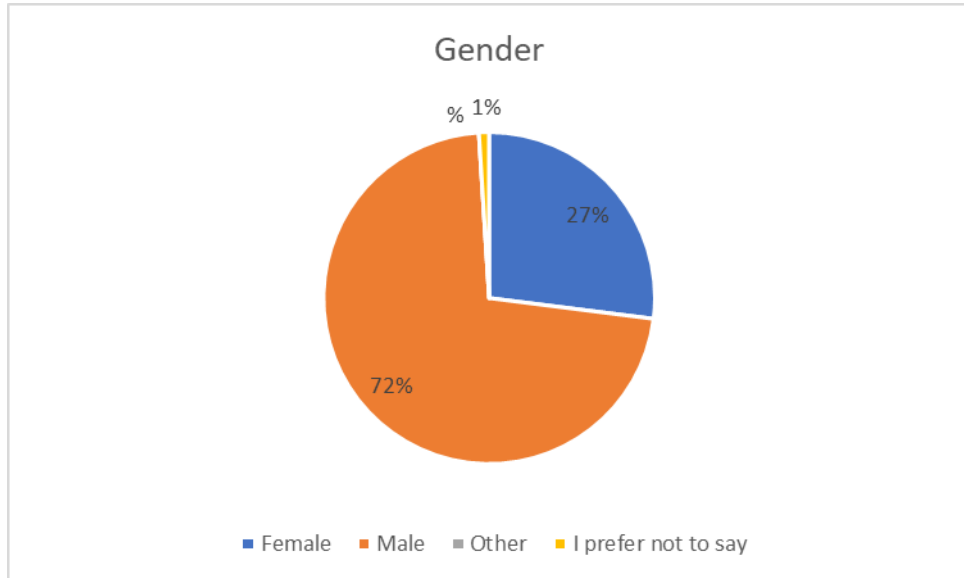


Figure 2. Pie chart of the gender of the respondents

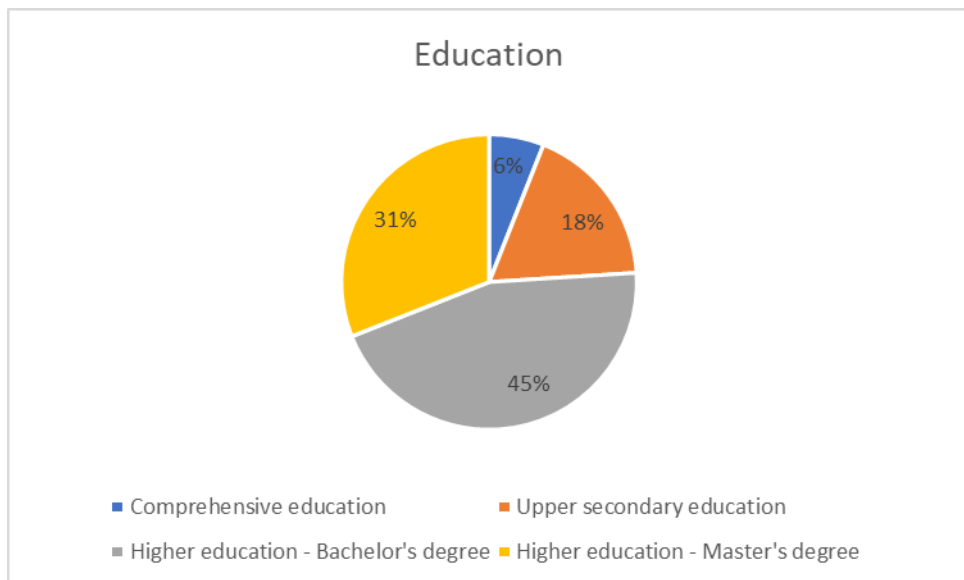


Figure 3. Pie chart of the education of the respondents

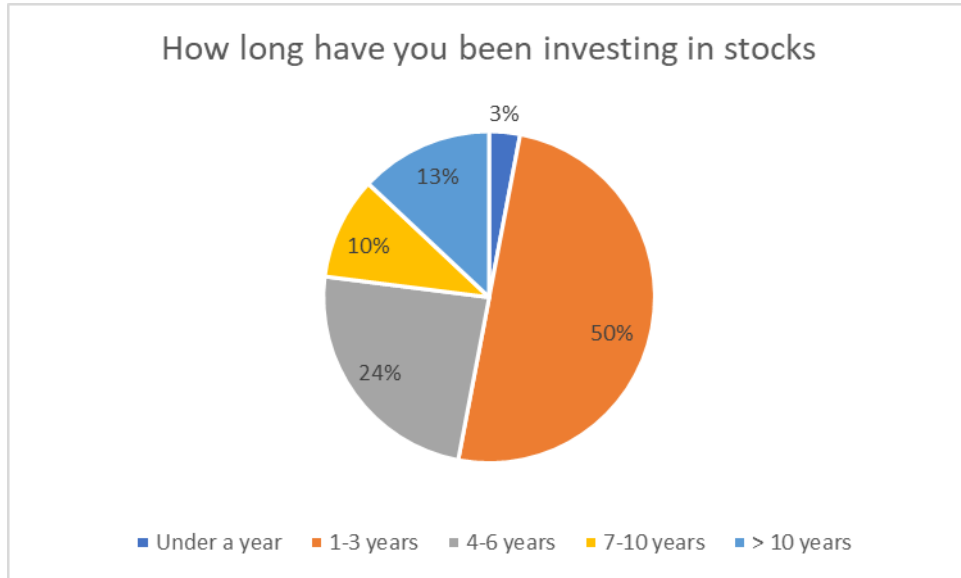


Figure 4. Pie chart of investing experience of the respondents

50% (N=84) of the respondents had invested in stocks 1-3 years, 24% (N=) 4-6 years, 10% 7-10 years, 13% (N=) over 10 years and finally only 3% (N=) under a year. It is logical that 1-3 years was the most common answer, since the respondents were mostly under 30 years old. This also means that most of the respondents have experienced a financial crisis, since Covid-19 created a market crash merely two years ago.

4.2 Quantative data

4.2.1 Investor bias related data

The second set of questions in the survey examined investor biases during 2022. Investor bias related data was questioned by a 5-point Likert scale from “strongly agree” to “strongly disagree”. The questions included questions to gain understanding about the investor’s strategy and beliefs. This set of questions focused on seven different biases: Overconfidence, Self-Attribution, Representativeness, Herding bias, Familiarity, and confirmation bias. The results are in a 5-point Likert scale with percentages of the answers as well as medians and average.

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree	Average	Median
I am well educated	16,1%	53,6%	22,0%	7,7%	,6%	2,2	2,0
I feel like I make better investment decisions than other people	2,4%	15,5%	41,0%	37,5%	3,6%	3,2	3,0

Figure 5. Overconfidence

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree	Average	Median
I feel like bad investments are outcomes of external factors rather than my own actions	4,2%	22,6%	36,3%	32,7%	4,2%	3,1	3,0
I feel like I can handle risk well	31,0%	48,8%	13,7%	5,9%	,6%	2,0	2,0

Figure 6. Self-Attribution

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree	Average	Median
I value firms recent performance over its historical performance	5,9%	40,5%	26,8%	26,8%	,0%	2,7	3,0

Figure 7. Representativeness

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree	Average	Median
I feel public opinion about investments is often correct	,0%	19,0%	39,9%	36,9%	4,2%	3,3	3,0
I tend to follow advice from family, friends (not professionals)	3,0%	17,8%	17,9%	40,5%	20,8%	3,6	4,0

Figure 8. Herding behaviour

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree	Average	Median
I prefer to invest in local and familiar firms	9,5%	43,4%	28,0%	16,7%	2,4%	2,6	2,0
I feel like I have a diversified portfolio	20,8%	51,8%	20,2%	6,6%	,6%	2,1	2,0

Figure 9. Familiarity

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree	Average	Median
I feel like I make investment decisions based on my own beliefs and values rather than actual information	2,4%	23,8%	25,0%	43,4%	5,4%	3,3	3,0

Figure 10. Confirmation bias

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree	Average	Median
I tend to react more to losses than to gains	5,4%	31,0%	26,2%	31,5%	5,9%	3,0	3,0

Figure 11. Loss aversion

4.2.2 Investor behaviour during Ukraine-Russia crisis related data

The third set of questions examined investor biases and strategy during Ukraine-Russia crisis.

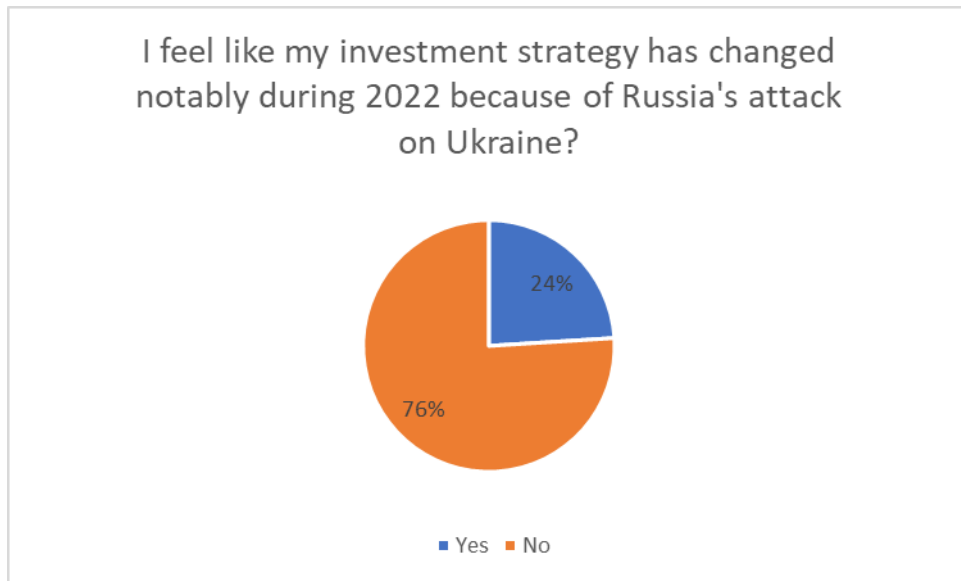


Figure 12. Pie chart of investment strategy changing during the crisis

24% (N=41) of the respondents felt like their investment strategy had changed notably during 2022 because of Russia's attack on Ukraine. 76% (N=127) said that their investment strategy had not changed because of the attack.

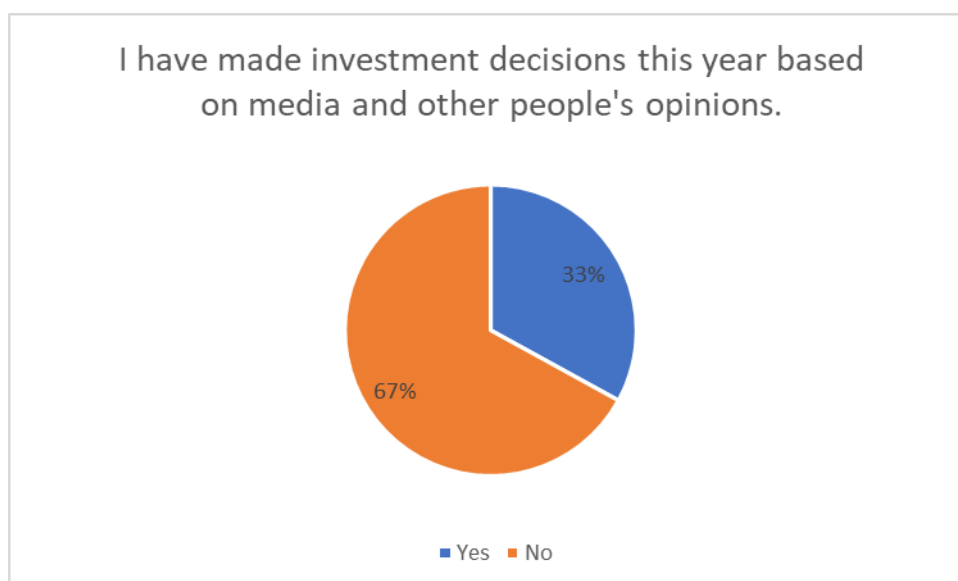


Figure 13. Pie chart of making investment decision based on media or other people opinions

33% (N=56) of the respondents answered that they had made investments decisions based on media and other people's opinions. 67% (N=112) of the respondents answered that they had not made investment decisions based on media or other people's opinion.



Figure 14. Pie chart of making profit in the market situation

62% (N=104) of the respondents felt like they can make profit in this market situation.

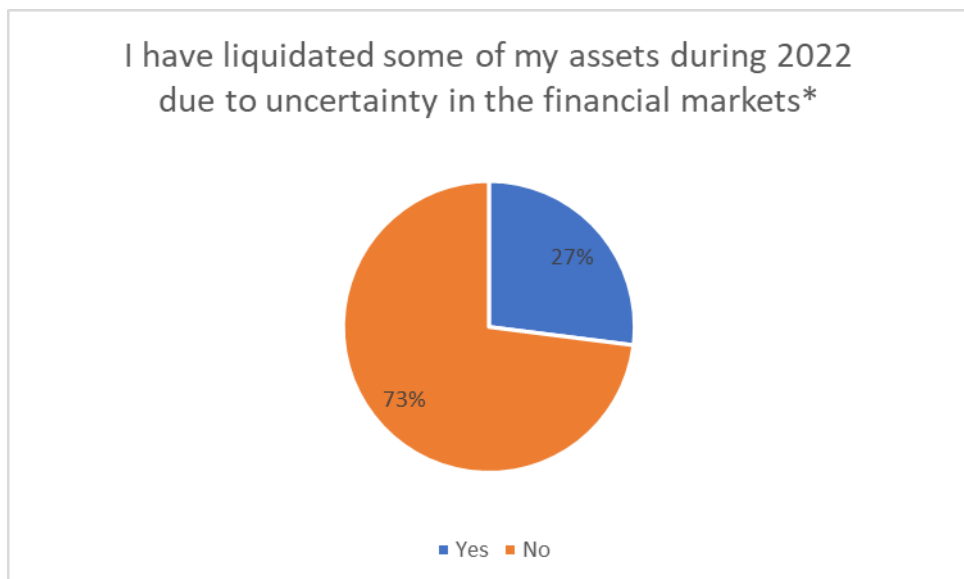


Figure 15. Pie chart of liquidating assets

73% (N=123) had not liquidated their assets during 2022. 27% (N=45) had liquidated some of their assets.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Average	Median
I have felt the need to sell some of my assets because of Russia's attack to Ukraine	8,3%	18,5%	10,7%	33,9%	28,6%	3,6	4,0

Figure 16. Disposition effect

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Average	Median
I blame myself for the losses I have experienced in 2022	1,8%	13,1%	18,4%	42,3%	24,4%	3,7	4,0
I feel like the stock market is becoming continuously more volatile	9,5%	47,6%	31,0%	11,3%	,6%	2,5	2,0

Figure 17. Loss Aversion

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Average	Median
I feel I have gained confidence due to my investment decisions in 2022	7,1%	35,7%	30,4%	24,4%	2,4%	2,8	3,0

Figure 18. Overconfidence

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Average	Median
I feel I have diversified my portfolio during 2022	7,7%	29,2%	32,7%	25,6%	4,8%	2,9	3,0

Figure 19. Familiarity

4.2.3 Correlations

The correlation coefficient is an indicator of the strength of the linear dependence. The correlations between the survey questions were measured with Excel with the function CORREL (CORRELATION). The first output of the function is a reference to the values of the first variable, and the second output is a reference to the values of the second variable. To test the significance of the correlation coefficient, the p-value was calculated.

The smaller the p-value is, the more the generalization of the correlation to the base population is supported. According to established practice, a p-value of less than 0.05 (5%) is considered sufficient evidence for a correlation in the population (Wasserstein and Lazar 2016, pp.129–133).

The value of the correlation coefficient can be anything between -1 and +1. Coefficients close to zero are associated with situations where there is no linear dependence. Coefficients close to +1 indicate positive dependence (increasing cluster of points in the scatter plot) and coefficients close to -1 indicate negative dependence.

Only the most significant and useful for answering the research questions of this study were chosen to be presented.

I have gained confidence due to my investment decisions in 2022	“I feel like I make better investment decisions than other people”
Multiple R	0,692102703
Sigificance F	2,79E-25

Figure 20. correlation between gaining confidence in 2022 and making better investment decision than others

Gaining confidence in 2022 and the feeling of making better investment decisions than others correlated highly with $R=0,692$, $p<0,01$

“I feel like I have a diversified portfolio”	“I feel I have diversified my portfolio during 2022”
Multiple R	0,496683
Sigificance F	7,52E-12

Figure 21. correlation between diversification of portfolios in 2022

Having a diversified portfolio correlated with diversifying portfolio during 2022 correlated moderately with $R=0,497$, $p<0,01$

“I feel public opinion about investments is often correct”	“I tend to follow advice from family, friends (not professionals)”
Multiple R	0,647946
Sigfican F	2,24E-21

Figure 22. correlation between public opinion and following advice from family and friends

Trusting public opinion and following advice from friends and family correlated highly with $R=0,648$, $p<0,01$.

““I am well educated”	““I feel I have gained confidence due to my investment decisions in 2022””
Multiple R	0,742232703
Sigificant F	1,15E-30

Figure 23. between education and confidence

Being well educated and gaining confidence from one’s investment decisions in 2022 correlated highly with $R=0,742$, $p<0,01$

4.2.4 Qualitative data

In addition to the quantitative approach, the survey included two open-ended questions about investment strategy and investment decisions. The first open-ended question was a follow-up question to question 8 “I feel like my investment strategy has changed notably during 2022 because of Russia's attack on Ukraine?” 41 respondents answered yes to question 8 and 36 people gave an answer to the open-ended question 9; “ If you answered yes to the previous question (8), please explain shortly how your investment strategy has changed and why?” There were 33 usable answers, and they were divided in six different categories.



Figure 24. Answers to open-ended question 9.

At the end of the survey, there was another open-ended question *"OPTIONAL. Describe shortly how the Russia-Ukraine crisis has affected your investment decisions in 2022."*

This question received total of 58 answers but only 55 were usable for the purpose of this study. The answers were divided in six different categories. Most of the respondents (N=21) stated that their investment strategy had not changed. Other responses were avoiding risks by selling volatile stocks (N=7), not wanting to support Russia or Russia-related companies (N=5), not investing as much as usual (N=5), waiting for the prices to drop and then buying (N=1) and having bought more stocks since the prices have been low (N=7).

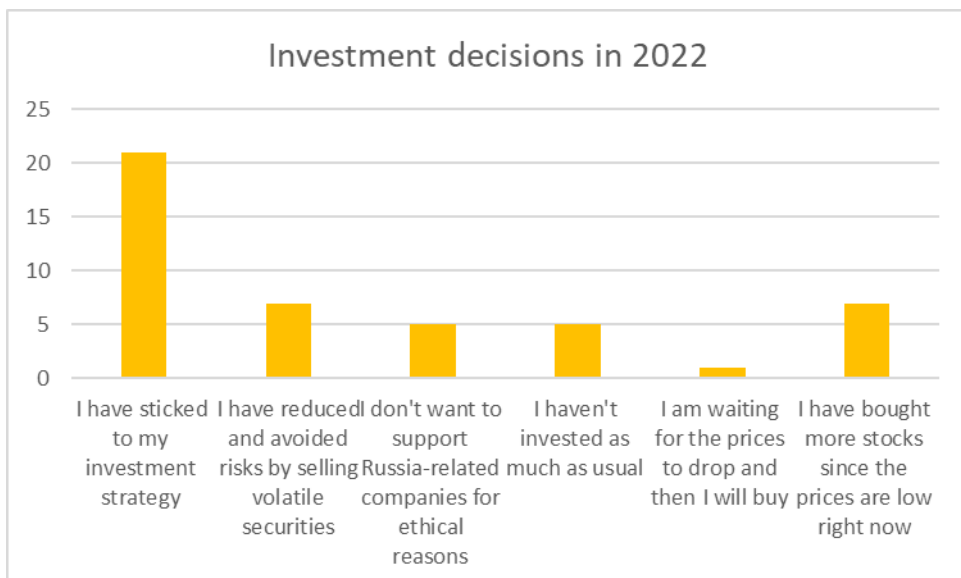


Figure 25. Answers to open-ended question 14.

4.2.5 Additional data

The survey also included a question about financial advisor since the aim was to examine non-professional investors. 95% (N=159) of the respondents did not have financial advisor and 9% (N=9) had a financial advisor. The survey included a question whether the respondents had an investment strategy. 81% (N=136) had an investment strategy while 19% (N=32) did not.



Figure 26. Pie chart of having a financial advisor

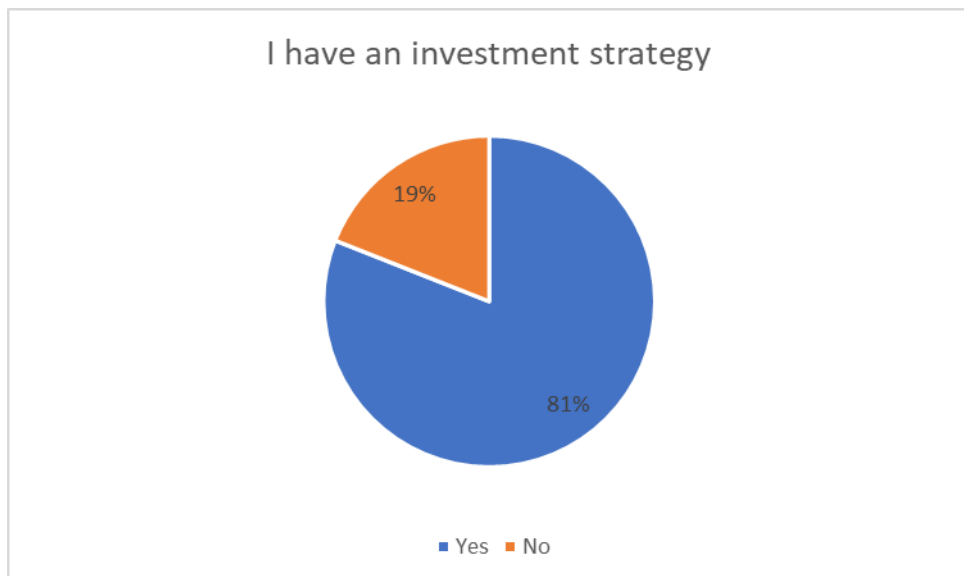


Figure 27. Pie chart of investment strategy

5 Discussions and analysis

5.1 Research question 1.

IQ 1. What are the common behavioural biases during Ukraine-Russia crisis?

According to the survey, all biases presented were experienced among the respondents. Familiarity and representativeness bias proved to be the most significant, overconfidence, loss aversion, disposition effect herd behaviour self-attribution and confirmation bias were all moderate.

Visualized in Figure 5. showed that 16% of respondents felt like they made better investment decisions than others. This doesn't indicate a high overconfidence bias among the respondents. However, 41% either agreed or strongly agreed that they had gained confidence during 2022 with their investment decision (Figure 18) This indicates that the respondents had made good investment decisions despite the stock market being volatile and index dropping from February to March over 10 percent. The results signals that the respondents had succeeded in their investment decisions, but they experienced overconfidence moderately. 33% of the respondents, however, felt like they could make profit in this market situation indicating that there is some overconfidence bias or self-attribution bias among the respondents (Figure 14). Correlations between the questions was measured and as seen in Figure 20, these answers correlated highly. This indicates that the if the respondent showed overconfidence in the first question, it is likely that they showed overconfidence later on the survey. Priem's 2022 study also found overconfidence among Belgian investors during the war, which supports the findings in this study.

The findings of herd behaviour were moderate, since only 19% of the respondents agreed that public opinion about investments is often correct and 21% percent said that they tend to follow advice from friends and family (Figure 8). There was a correlation between these two answers seen in Figure 22. The correlations indicate that the respondents stayed consistent with their answers. Herd behaviour is a common bias in crises, so the results of the survey were surprising. Despite the moderate herding behaviour detected in Figure 8, Figure 13 shows that 33% of the respondents had made investment decision this year based on media or other people opinions. Hence, it can be stated that there was moderate herd behaviour among the respondents. When faced with uncertainty, people often copy the behavior of others. The stock market during the Russia Ukraine war provides a great

example. While the results indicate a moderate herd behaviour, it is possible that the respondents have in fact experienced herding unconsciously.

Familiarity bias occurs when an investor prefers local assets which they are more familiar with (Baker and Ricciardi, 2014). Seen in Figure 9, 52% of the respondents preferred to invest in local and familiar firms. This indicates strong familiarity bias among the respondents. However, 73% of the respondents either agreed or strongly agreed that they have a diversified portfolio. Due to limitations of the research, it is difficult to state whether there is a conflict between the answer or if the respondents just preferred local and familiar firms with moderate effect on the diversity of their portfolio. In Figure 19, 37% of the respondents stated that they have diversified their portfolio during 2022. The correlation is moderate between having a diversified and diversifying portfolio during 2022. This could mean that respondents already had well diversified portfolios to begin with and the Russia-Ukraine war led to more diversification. Since many of the investor biases are closely related to each other, these answers could also indicate overconfidence or self-attribution, since the respondent may analyze their portfolios biased. The findings are however interesting, since the Russia-Ukraine war has affected Finnish companies greatly and underlined the importance of ethical and transparent companies. It will be interesting to see if research is conducted in the future examining investor biases during the war and whether familiarity is one of the most experienced biases in countries close to Russia.

Representativeness was measured with one question. Seen in Figure 7, 47% of the respondents either agreed or strongly agreed that they value firms' recent performance over its historical performance. Since there was only one question covering representativeness, it is difficult to generalize the findings. Nevertheless, representativeness seems to be highly experienced among the respondents. This could be explained by the uncertainty of the Russia-Ukraine war that affects companies' performance. Investors might feel that the history of the firm does not matter in this market situation since the stock market has been unpredictable this year. This could also indicate that Covid-19 enhanced the importance of a firm's recent performance, since the pandemic revealed weaknesses in "secure" industries such as traveling and entertainment.

Moving on to confirmation bias, the results in Figure 10 shows that there is

moderate confirmation bias among the respondents with 26% agreeing or strongly agreeing that they make investment decisions based on their own values and beliefs. The concept of the confirmation bias is when traders have any belief then they tend to overestimate, look for and pay attention to information that confirms their theory and deny, reduce the importance of information that contradicts it (Pompian, 2012 pp. 28-29). There were no further questions considering confirmation bias that could further examine how common bias it has been during 2022. Nevertheless, confirmation bias could be relevant in investigating investor behaviour during the war, since ethics and moral of firms are more and more significant to investors. As seen in Figure 25, 5 out of 55 respondents, stated that they don't want to support Russia or Russia-related companies.

As discussed earlier, self-attribution bias refers to the tendency of investors to attribute successful outcomes to their own actions and unwanted outcomes to external factors (Baker and Ricciardi, 2014). 27% of the respondents felt like bad investments are outcomes of external factors rather than their own actions (Figure 6). Self-Attribution and overconfidence bias are closely related and seen in Figure 15; respondents felt like they could make profit in this market situation. These results confirms that the respondents experience self-attribution bias moderately.

Disposition effect is the tendency of selling stocks that have increased in value since purchasing too early and holding on to losing stocks too long. Loss aversion is a bias in behavioural finance where investors assign more significance to losses than to gains. This means, that investors are focusing more on trying to prevent losses than making gains. Loss aversion leads investor to hold on to their stocks for too long resulting a lower rate of returns (Baker and Ricciardi, 2014).

Disposition effect and loss aversion are closely related; hence the results of the biases are both presented in the same paragraph.

36% of the respondents stated that they tend to react more to losses than to gains, which shows that they experience loss aversion and disposition effect moderately (Figure 10). 27% had felt the need to sell some of their assets due to Russia's attack to Ukraine (Figure 15).

The qualitative data showed that a high number of respondents have avoided and continues to avoid risk during 2022 and have diversified their portfolios. Priem's 2022 study also found that Belgian investors were more risk-averse than

before the war. A significant amount, 22, of the respondents stated that they have stuck with their investment strategy, indicating that they felt like they have a secure portfolio even in a crisis. This could be since Covid-19 market crash is such a recent crisis that made investors familiar with uncertainty and the importance of diversified portfolio (Figure 23, Figure 24).

Despite the moderate findings in biases, investors faced and subconsciously experienced almost all types of biases discussed in the thesis. However, the results could have been different if the survey had taken place in the spring when Russia had just invaded Ukraine.

5.2 Research Question 2.

The second research question is: "How different demographics affect investor biases and behaviour?"

The empirical part of the thesis measured investor biases and the first set of questions was to categorize characteristics of the respondents. The question about the respondents age was purposely narrowed to 18-24, 25-30 or older than 30, since the goal was to receive answers from a homogenous group. Investors under 30 are interesting, since they have most likely experienced only one major financial crisis; Covid-19 market crash. The majority 72% of the respondents were male and 71% percent were between the ages of 18-30. Hence it can be suggested that men under 30 tend to experience familiarity bias and representativeness. Figure 22 shows a correlation between confidence and education, indicating that investors with high education avoid overconfidence.

However, the purpose of the survey was to examine investor biases and it did not focus on measuring the correlation between demographics and biases.

Nevertheless, the section 2.2 examines multiple studies considering the correlation between investor biases and demographical variables. The studies found that for example, age, gender, education, occupation, and investment experience affect investor biases. The theoretical framework around demographical variables and biases showed that men tend to be more overconfident than women and more experienced investors experience less herding behaviour. A study by Baker et. al. (2018) argues that age, gender, occupation and investment experience are the most important demographic variables that relate to the behavioral biases of individual investors.

5.3 Research question 3.

IQ 3. How can the investor behaviour be explained from the point of view of behavioural finance?

This research question combines IQ1 and IQ2 together and is partially answered in earlier sections.

As discussed earlier, behavioral finance is about identifying and explaining irrationalities in financial markets. Behavioral financial theories are crucial for individual investors since biases in behavior and psychological differences play a key role in investment decision making process (Pompian, 2012 pp. 25-27).

Today, behavioral finance researchers are questioning even the most basic of finance laws as researchers attempt to find out how investor biases and the limits the efficiency of capital markets. Behavioral finance suggests that rather than being perfectly rational, people often make financial decisions based on emotions and cognitive biases. For instance, investors often hold losing positions rather than feel the discomfort associated with taking a loss.

Since the study is focused on the financial side of behavioural finance rather than the complex psychology behind investor behaviour, the research question is answered through a financial point of view.

The theoretical framework of the thesis showed that investor's experience investor biases intentionally or unintentionally. These biases occur for different reasons. For example, overconfidence bias may occur because of good luck that has convinced the investor that they make better investment decision than others. The biases investors experience may happen because of earlier experiences, values or emotions.

These biases could lead to market bubbles, bad investment decisions and unnecessary losses. Behavioural finance explains why investors behave irrationally and experience biases. The survey by the author also shows that investors experience investor biases and thus behave irrationally, further providing data that behavioural finance theories are relevant in understanding investor behaviour.

6 Conclusions

To conclude the thesis, one can state that behavioural finance and investor behaviour is a relevant contradictory to efficient market theory. Especially in uncertain market situations such as the Ukraine-Russia war, behavioural finance theory is a great way to examine market reaction and investor behaviour. The aim of the study was to examine investor biases during the Russia-Ukraine war. The study found that investors experience all biases discussed in the thesis, but the most significantly familiarity and representativeness bias. The research questions are answered, and the aim of the research is achieved.

This thesis is helpful to individual investors as in they could learn to avoid biases as well as institutional investors to understand market reactions in a crisis.

6.1 Key findings

The research conducted by this thesis suggesting that investor experience biases during the Russia-Ukraine war was a successful study. First, theoretical framework was conducted of behavioural finance to ensure a strong base for the study. When examining behavioural finance and investor biases, it was clear that behavioural finance offered a relevant perspective in investor behaviour and explained the irrationalities investors have. Moreover, the theory offered insight on how different demographics correlate with different biases and this section showed significant results further proving the importance of future research and behavioural finance.

The research conducted for this thesis showed that the most common investor biases experienced were familiarity and representativeness. Additionally, all presented investor biases were experienced by the respondents which signals that the investors behave irrationally during a war.

Finally, the results were further discussed to seek answers to why these biases were experienced. All in all, the research suggested that: firstly, the unprecedented level of uncertainty on financial markets throughout the period amplified familiarity and representativeness. In addition, the research suggested that investors have become pessimistic and risk averse.

6.2 Suggestion for future research

As mentioned in the earlier chapters, there is exquisite literature on behavioural finance but quite a few academic research in the area. Therefore, future research is needed

especially capturing investor behaviour before, during and after a crisis. Future studies could examine whether the risk-taking behavior of experienced individuals changed during the invasion period.

Moreover, there is room for future study of the effect of demographic variables on the decisions of retail investors. Especially studies focusing on millennials and centennials (also called Generation Y and Z) behavioral biases could help companies and investors to plan their future strategies, since they can be anticipated to be active in the stock market for the foreseeable future. Due to this, the present study focused on millennials' behavioral biases and their influence on trading activity during the Russia-Ukraine war.

6.3 Validity, Reliability and Relevance

Due to the recency of the war, earlier research on the topic is sparse, and the established theory is mostly covering investor behaviour on normal and stable conditions. Hence the results are arguably questionable. This thesis can only offer suggestions on the biases experienced, and the influence the war phenomenon might have had. As such, while all the research presented on this thesis is grounded on established theory and reliable sources, the nature of the topic demands a level of speculation, as especially investor behaviour is notoriously hard to measure, and any attempts to do so properly would be well beyond the scope of this thesis. Therefore, the research itself is mostly of descriptive nature.

6.4 Reflection on learning

Before the topic discussed in this thesis, I struggled to find a relevant phenomenon that I could examine and spent most of the summer contemplating a relevant thesis topic. I knew that I wanted to investigate behavioural finance theory, however it was surprisingly difficult to find a point of view that I could investigate further. Then, during the fall, the newspapers were filled with articles about inflation, Russia-Ukraine war and a general uncertainty in the financial markets, I decided to examine the effects of the war through behavioural finance. The topic was also discussed with my thesis supervisor. After the topic was selected, I started to write the thesis in the beginning of fall 2022 with a clear goal in my mind.

The writing process was time-consuming and at times, it was difficult to combine work and this project. However, I managed to write the thesis in three months' time as scheduled, since I had a strict plan to follow. Most challenging part of the thesis, was the lack of previous studies, so it was difficult to find a meaningful approach to the topic.

Conversing the data from the survey to Excel was also challenging and I spend many hours learning about different functions on Excel. I learned tremendously about behavioural finance and gained knowledge of the ongoing market situation. Additionally, I believe the thesis made me a better investor, since I now have some insight on common investor biases and how to avoid them.

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Appendices

Appendix 1. Survey

Investor Behaviour in 2022

 Mandatory questions are marked with a star (*)

Informed Consent

The intent of this survey is to gain better understanding about the behavioural investing biases during a crisis. This survey focuses specifically on the Russia-Ukraine crisis and its effects on the stock market.

This survey will be solely used for my bachelor's thesis in Haaga-Helia University of Applied Sciences, and it will not be shared. The survey is anonymous and voluntary. You may submit your written answers either in Finnish or English.

By answering the questions, you are indicating that you have read the description of the study and that you agree to the terms as described.

I sincerely appreciate you taking your time and participating in the survey. This survey will take about 3-5 minutes to fill out. Thank you in advance!

For any questions or feedback, feel free to contact me: noona.kantomaa@myy.haaga-helia.fi.

Questions about investor characteristics.

1. Age *

- 18-24
- 25-30
- 30 or older

2. Gender *

- Female
- Male
- Other

I prefer not to say

3. Education *

- Comprehensive education
- Upper secondary education
- Higher education - Bachelor's degree
- Higher education - Master's degree

4. How long have you been investing in stocks *

- Under a year
- 1-3 years
- 4-6 years
- 7-10 years
- > 10 years

5. I have a financial advisor *

- Yes
- No

6. I have an investment strategy *

- Yes
- No

Statements about investor behaviour.

7. Please answer the following statements and try to reflect on your behaviour during 2022. Do not spend too much time on any statement.

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
I feel like I can handle risk well *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like bad investments are outcomes of external factors rather than my own actions *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I value firms recent performance over its historical performance *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I prefer to invest in local and familiar firms *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel public opinion about investments is often correct *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tend to follow advice from family, friends (not professionals) *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am well educated *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like my investments profits are luck related *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like I make investment decisions based on my own beliefs and values rather than actual information *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like I make better investment decisions than other people *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tend to react more to losses than to gains *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like my emotions affect my investment decisions too much *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like I have a diversified portfolio *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The following set of questions examines the effect of the Russia-Ukraine crisis on investment decisions.

8. I feel like my investment strategy has changed notably during 2022 because of Russia's attack on Ukraine? *

Yes

No

9. If you answered yes to the previous question (8), please explain shortly how your investment strategy has changed and why?

10. I have made investment decisions this year based on media and other people's opinions. *

Yes

No

11. I feel I can make profit with my investment decisions in this market situation? *

Yes

No

12. I have liquidated some of my assets during 2022 due to uncertainty in the financial markets*

Yes

No

13. Please answer the following questions. Do not spend too much time on any statement.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I have felt the need to sell some of my assets because of Russia's attack to Ukraine *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I blame myself for the losses I have experienced in 2022 *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like the stock market is becoming continuously more volatile *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel I have diversified my portfolio during 2022 *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel I have gained confidence due to my investment decisions in 2022 *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. OPTIONAL! Describe shortly how the Russia-Ukraine crisis has affected your investment decisions in 2022.
