

TALLINN UNIVERSITY OF TECHNOLOGY

School of Business and Governance

Department of Finance

Viivi Vuori

SAVING AND INVESTING BEHAVIOUR OF NORDIC BANK EMPLOYEES

A comparison between Estonian and Finnish branches

Bachelor's thesis

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Supervisor: Kalle Ahi

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I hereby declare that I have compiled the thesis independently and all works, important standpoints and data by other authors have been properly referenced and the same paper has not been previously presented for grading. The document length is 10 500 words from the introduction to the end of conclusion.

Viiivi Vuori.....

(signature, date)

Student code: 177743TVTB

Student e-mail address: vuoriviivi@gmail.com

Supervisor: Kalle Ahi:

The paper conforms to requirements in force

.....

(signature, date)

Co-supervisor:

The paper conforms to requirements in force

.....

(signature, date)

Chairman of the Defence Committee:

Permitted to the defence

.....

(name, signature, date)

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## **ABSTRACT**

The aim of this study is to explore the differences arising between a large Nordic banks Estonian and Finnish branch employees saving and investing behaviour as well as their financial literacy. The data were gathered by an online survey of 917 employees. The original sample size consisted of 182, a response rate of 19.8 % The data was collected from bank employees via the banks internal email and analysed statistically with descriptive and multivariate methods. The findings demonstrate that bank employees are financially literate and that a majority of 88% of the employees invest and save frequently and regularly. Nevertheless, the study is interested in the differences between the branch locations, not nationalities. In the future research, however, it might be interesting to also consider nationalities impact on the branches employees' behaviour. The practical future implications of this study contribute to future research of the employer enabling the employees to save and invest more, by “nudging” the employees towards investing and benefiting from this action through the employees financial stability, new knowledge and future well-being.

Keywords: Financial behaviour, saving, investing, bank employees

## INTRODUCTION

The aim of this study is to examine the differences arising in bank employees saving and investing behaviour as well as their financial literacy. Strategically, the topic is a crucial for banks service quality: the more employees have knowledge of saving, investing and financial literacy the more satisfied customers are. Nevertheless, this research has not been a popular genre so much yet. According to our information retrieval there are only a few studies about the saving and investing habits of bank employees, but other studies with multiple approaches. Likewise, most of the studies view this behaviour as a certain demographic factor. For instance, Croson & Gneezy (2009) focus on the gender influence on the person's investing decisions. The approach of my study is different: gender and education are not expected to be key parameters. Also, the differences between two different branches, Estonian and Finnish, are taken into closer examination.

Due to this it is quite impossible to set a hypothesis for this research, since there are only a few previous studies conducted of this topic. Therefore, my research focuses on the explorative analysis of bank employees saving and investing habits and their financial literacy. Most importantly, the objective of the research is to find out the potential differences arising in asset choice, risk taking, and financial literacy of people who are employed in a financial institution, and the potential distinctions within the large Nordic bank's separate branches employees. The concept of investing is usually associated with high risk. Interestingly, it seems that knowledge driven bank employees of the financial markets will more likely have the tools to handle the risk and understand the consequences of the risk in the long as well as in the short run.

This tentative study is inspired by Thaler & Sunstein (2008) The Nudge theory, that overlooks all the different concepts of financial behaviour. Scientific analysis exploits the theory and its biases of financial behaviour in order to explore its potential for understanding of bank employee's financial behaviour.

This topic is important for many reasons. First, the people who work for financial institutions are more involved in such concepts as saving and investing in their daily working environment, than people who are not working in a bank. Therefore, financial institutions employees are supposed to have better understanding economic environment of incentives for saving and investing than people who are not employed in a bank. Secondly, genuinely pioneering would be if these findings could be used for the institution's advantage in the expertise development in a bank sector. In particular, institutions advantage, with consistently tested "nudging" positive reinforcement. In a sum, how can the employer exploit this information in order to make their employee's save and invest more, but avoiding Sunstein's & Thaler's (2008) libertarian paternalism?

This research explores the answers for the following:

1. How investment behaviour manifests itself among bank employees in large multinational commercial bank in Estonian and Finnish branches?
2. What is the most common investment behaviour among Estonian branch and Finnish branch employees?
3. For future research the discussion concerning, how the employees could be encouraged to save and invest more in the future?

Related to research questions, the question of whether bank employees are financially literate is addressed in this study to some extent as well, because The Nudge theory Thaler and Sunstein (2008) explores humans and "econs" differences. The term econ stands for a more financially literate person, able to make wiser financial decisions when it comes to spending and saving money. Thaler & Sunstein (2008) ignores in their theory the financial literacy of bank sector employees or in generally people who are employed in a financial institution.

This research is based on empirical survey data gathered among the large Nordic banks employees within two different branches, Estonian and Finnish in 2020. The questionnaire was sent through the internal email of the financial institution to 971 employees in March. Out of those 184 employees answered, and from those 182 employees work in either the Finnish or the Estonian branch. The final sample (n=182) was taken into closer consideration statistically with descriptive and multivariate methods. The Nudge theory provides a theoretical framework for understanding how employee's saving and investing habits differ in a large Nordic bank the Estonian and Finnish branches. Bank employees be considered to be more financially literate than people who are not employed in a bank. The financial literacy section of this study is based on earlier research

questions created by INFE, O. (2011). Measuring financial literacy: Questionnaire and guidance notes for conducting an internationally comparable survey of financial literacy.

This study is constructed as follows. Chapter one and two overlook the financial behaviour conceptuality, as well as the biases formed in the theories of financial behaviour. The previous studies of bank employee's financial behaviour have also been gathered and analysed. Section three explains the methodology and data used in the research. Finally, the fourth section takes together the results and the practical implications for future research. Conclusions brings together the main findings.

# 1. LITERATURE REVIEW

This chapter describes and analyses the factors affecting bank employees saving and investing behaviour. The analysis of the financial literacy covers also the factor how working for a financial institution contributes to a person being more financially literate.

## 1.1 Financial behaviour

Camerer et al.(2004) define behavioural economics as follows; “Behavioural economics increases the explanatory power of economics by providing it with more realistic psychological foundations.” (ibid., 3) Similarly, Ricciardi & Simon (2000) specify behavioural finance to concentrate on the cognitive factors and the emotional issues affecting the decision-making of organizations, groups as well as individuals. Over fifty years ago, Tversky & Kahneman (1988) demonstrated that in choice, people as decision makers select option from on offered set of two or more alternatives (cf. do I save or not?). Kahneman & Tversky worked with this “idea of behavioural economics “ for decades. About decade ago, Kahneman concluded: choices we make are either fast, emotional and instinctive or slow, delimitative or logical (Kahneman 2011). This raises the question in a frame of banks, private ones particularly, are they for “gamblers” or “voluntary pension insurance”? What happens if people choose consuming, not saving as a way of life? Why economists have a tremendous problem in trying to say anything rational about the stock-market investors?

For these questions, at least to some extent, Thaler & Sunstein (2008) answered in their Nudge Theory in a frame of positive reinforcement. In brief, they said that people’s behaviour needs to be nudged in their choices for better life, but not in restricting any options or changing their economic incentives dramatically. Obviously, the theory is criticized, it has been said that it is not evaluable as a theory in practice and that, it highlights ideologically an individualistic freedom of choice (see e.g. Kusters & Van der Heijden 2015). Nevertheless, private banks have been interested in Nudge theory (see Longhini 2017). Interestingly, such a criticism as what banks do not want to



you to know as employee, investor or taxpayer about rational insanity emphasizes the importance of the Nudge Theory (Bullough 2018, Hardford 2005).

The researchers have defined financial behaviour in exceptionally different ways (see Lewellen (1977), Ritter (2003), Thaler & Sunstein (2008), Thaler (2015), Özen & Ersoy (2019)). Most of them define it as an approach arguing that sociological, technological and psychological factors should all be considered along with the economics models when explaining and foreseeing certain purchasing activities. In their nudge theory of health, wealth and happiness Thaler & Sunstein (2008) emphasize all the factors connected to these traits, and they are inspected in a detailed approach. The pivotal reason why I chose nudge theory for analysing the concepts of behavioural finance is very simple. The theory takes into consideration all the aspects that are expected to define financial behaviour Thaler & Sunstein (2008). Conventionally, investing and saving has been studied in many different contexts (see e.g. Lewellen et al. 1977). However, the studies of financial behaviour have mainly focused on the impact of demographic factors such as age, gender and education on saving and investing. In the Nudge Theory Thaler & Sunstein (2008) focus on the importance of individuals saving plans and investments, they also give examples and strategies how a private organization can change one's financial behaviour. Also known as saving and investing behaviour, through various forms of "nudging" the employee to the right direction. However, Thaler & Sunstein(2008) Nudge theory has been criticized by Kusters & Van der Heijden (2015) stating that The Nudge theory can be highly normative as well as ideologically driven, they forget to pay attention to more practical aspects of the theory. Kusters & Van der Heijden (2015) question if the Nudge theory has been applied to governance interventions, and whether or not there has been any success with applying the theory in practice.

For instance, Barber & Odean (2001) studied how financial behaviour differs according to gender. In their findings they concluded that humans do not always behave rationally hence why financial behaviour requires deeper analysis and should not be seen solely as the same concept as financial economics. In addition, Thaler & Sunstein (2008) explains multiple factors affecting one's economical behaviour through various examples concerning overconfidence, heuristics, mental accounting, gains and losses, status quo bias and framing. They also bring out the importance of needing a nudge, a nudge is defined as a light push or an alert or reminder of something. According to Ritter (2003) in behavioural finance there are two different principles: cognitive psychology and the limits to arbitrage. Ritter (2003) quotes the same biases as Thaler & Sunstein (2008) in his literature, but also expresses one of the major criticisms in behavioural finance being the difficulty

of which of these biases to emphasize to avoid over- and under emphasizing one of them. Thaler & Ganser (2015) describe comprehensively how behavioural finance has become what it is today in the 21<sup>st</sup> century. Concluding that financial behaviour had thrived for two specific reasons, first, the law of price and second all the data of stock markets fluctuating over the years back to the year 1926.

Herbert A. Simon (1957) agrees with Thaler & Sunstein (2008) in the sense that there is a presumption of humans being rational in their economic behaviour. Simon (1957) constructed different definitions for what is presumed to be a “rational choice” in organizational decision making. In his research he suggests that human’s rational adjustment may operate in various levels. Simon (1957) proposes that the bounded rationality concept determines that humans act purposefully but not necessarily perfectly rational in definition. There were three different constraints tied to his theory. Firstly, limited, unreliable information towards the possible future outcomes of their action’s consequences. Secondly, human minds limited ability to process as well as evaluate the information at hand and thirdly, the time constraints. The basis of the idea behind in bounded rationality is that humans take so called “short-cuts” that are possibly to lead to suboptimal decision making. Thaler & Sunstein (2008) explore a solution to this problem by the “nudging” effect, this would result in better decision-making in the future. In investing and saving this makes sense, because options for choices provided by different financial institutions have been increased globally.

Furthermore, Wilkinson & Klaes (2017) discuss economic rationality in their literature. They claim that the standard modern view of rationality is presumed as normative as well as descriptive, in the other hand meaning the model is supposed to both accurately describe how humans behave and also to prescribe how they should behave in order to achieve a certain goal.

The open question of nudging effect still is: should we nudge men and women differently? Embrey & Fox (1997) conducted research concerning the investment decision making process and the differences between the genders, their findings suggest that women are more risk-averse than men. However, it is stated that instead of the gender being one major determinant for investment decisions they discovered that wealth and future expectation of inheritance played a remarkable role in their investment decisions. This research sample was formed of single women and men and a pattern was discovered in women’s investment decisions. Embrey & Fox (1997) state claim that single women can be expected to have more long-term financial needs, due to the fact they do not

have a partner to “lean on”. Therefore, women invest more into assets which have a higher long-run expected returns, hence women might be considered as risk-averse.

Nonetheless, different factors such as women being mostly in charge of the household and having lower paid occupations was also stated to be a determinant of this investment behaviour. Bajtelsmit & Bernasek (1996) in their research discovered women to be more risk-averse and men tend to invest more. Graham et al. (2002) studied investment strategies in an information processing perspective. They discovered that gender creates differences in information processing, hence this should be kept in mind when for example marketing different financial services to men and women. Graham et al. (2002) also explored the factor of women trading less often than men and that this factor could possibly be used as an advantage in the future. It seems that by making it possible for the women to have a moderating effect on the stock market by increasing the women’s participation in the market.

## **1.2 Biases of financial behaviour**

As mentioned earlier Thaler & Sunstein (2008) focuses for instance on Thaler (1999) biases that are associated with financial behaviour, these biases have also been quoted by Ritter (2003) as well as Tversky & Kahneman (1974). According to Thaler & Sunstein (2008) they brought out the psychological theory which leads into these biases forming. How can humans be so smart and dumb at the same time? Thaler & Sunstein (2008) found an answer for this question through their research, concluding that people have two ways of thinking intuitive and automatic. This theory explains the biases and the behaviour associated with those biases; people make mistakes by only using their automatic system instead of their reflective system when it comes to making rapid decisions.

When looking at literature concerning behavioural finance, overconfidence is one of the most common biases mentioned by Ritter (2003), Thaler & Sunstein (2008), Özen & Ersoy (2009). According to Ritter (2003) overconfidence can manifest itself in a number of different phenomena, one of them is poor diversification of investments. Ritter (2003) also enlightens the fact that people tend to invest into companies that they work for, leaving too little room for diversification in order to create loss aversion. However, Barber & Odean (2001) found in their study of the overconfidence’s differences between men and women than men tend to be more overconfident

that women when it comes to trading with discount brokerage accounts. According to Barber & Odean (2001) men traded more in this case which also lead to greater losses for them compared to the other investors trading. Thaler & Sunstein (2008) state that people have a strong tendency to be more optimistic and overconfident when the stakes are high. Comparing this statement to an example given by Thaler & Sunstein (2008) of people who are getting married. It has been stated that 50 percent of marriages end in divorce and still almost all of the couples who are getting married believe there is no possibility of them getting divorced in the future. People are unrealistically optimistic in this case. Samson (2014) agrees with the bias of overconfidence and describes it as the peoples' tendency to have a greater belief in their own abilities of succeeding at something. Thaler & Sunstein (2008) bring out an interesting quality of unrealistic optimism, this feature includes nearly all of the people in most social classes. When people exaggerate their personal immunity towards accidents and harm, people also fail to make rational decisions. As Samson (2014) states that the overconfidence bias is closely connected to the optimism bias.

Thaler & Sunstein (2008) found out that the rules of thumb also known as heuristics could potentially lead to systematic biases. The first version of the theory of heuristics was created by Tversky & Kahneman (1974). In their research they defined the three heuristics, known as anchoring, availability and representativeness. It has been realised that the heuristics and biases are intertwined with the automatic and the reflective system.

Firstly, anchoring according to Thaler & Kahneman (2008) is defined as follows: when someone asks you, a question concerning something you will immediately try to find something you know about the subject at question. The person will start with some number or fact they know already and associate this fact with subject at question, the process is known as "anchoring and adjustment". Thaler & Sunstein (2008) states that the bias in this process occurs when the persons adjustments are in most cases insufficient and they lead to the wrong direction. In other words, bounded rationality (Simon 1957) justifies this idea by bringing into light the fact that most of the humans thinking capacity is limited as well as the available information and time. Anchors can influence different areas of life, in one of Thaler & Sunstein (2008) examples they questioned students concerning their happiness and whether they were dating or not, these questions were asked in a different order asking about dating first and after this a question concerning their happiness was presented, the order of the questions significantly modified the correlation between these two factors. Samson (2014) agrees with the definition of this bias, and states that peoples' perceptions are influenced strongly by the reference points they use. According to Thaler &

Sunstein (2008) this phenomenon occurs, because people automatically associate their happiness with the fact whether they are currently dating or not, when the question of dating is asked first instead of the question about happiness. Ritter (2003) study defined anchoring as conservatism, and notes it to be hard for people to adapt to changes, when things change it takes a while for the people to learn a new way of working, the basic idea behind anchoring and conservatism intertwines in these two different definitions by Thaler & Sunstein (2008) and (Ritter, 2003).

The second factor of heuristics is availability Tversky & Kahneman (1974). Availability is explained by Thaler & Sunstein (2008) with the following scenario, a person will take a risk more seriously when the risk is something that they themselves are familiar with. If a person can think of actual physical examples of risks they are also more frightened of this risk. Thaler & Sunstein (2008) bring out the important finding behind the theory of availability, if one has personally suffered an earthquake for example they also automatically think that an earthquake is more likely than it in reality is. Person's recent life events have a far greater impact on the person's behaviour than events that have occurred in the past. Tversky & Kahneman (1974) give out an example how the investors decision to invest will be affected by the information that was recently presented in the news forgetting to check the facts of the case.

The third component of heuristics is representativeness. The idea of representativeness is that people have a tendency to see patterns in behaviour when there are none. Samson (2014) explains that this event occurs when there are results of errors in a person's information processing. Thaler & Sunstein (2008) give an example of a basketball player who has made two shots into the basket in a row the audience believes that he is then more likely to also make the third shot, even though this isn't true. Thaler & Sunstein (2008) in their research found out that it is actually less likely for the player to make the third shot after he has already made two in a row earlier. The bias in the representativeness heuristics is stated to be in the theory that people will confuse random fluctuations with causal patterns when making their predictions and decisions Thaler & Sunstein (2008). (Ritter, 2003) refers to representativeness as the "law of small numbers". Concluding that people do underweight long term averages.

Ritter (2003) considers mental accounting as one of the behavioural finance's biases, whereas Thaler & Sunstein (2008) bring mental accounting into consideration when discussing resisting temptation when making financial decisions in daily life. Ritter (2003) highlights the fact that

people tend to separate budget decisions when they should be combined. Giving an example of a household having a budget for food and a different budget for entertaining. However, there is a contradiction involved, since the household will not consume any so-called luxurious food products at home, like lobster etc. But the household will consume those products when eating out in a restaurant. The household thinks of separately at the food consumption at home and food consumption at a restaurant Ritter (2003). Thaler & Sunstein (2008) view of mental accounting proposes that mental accounts are valuable tools for many people, and they make people's lives more secure and fun. Samson (2014) describes mental accounting in a way that people treat money differently by labelling it, the label determinants being for example the origin of the money, intended use and so on. Thaler (1999) defines mental accounting as a cognitive operation used by individuals and households, for evaluates, organizing and keeping track of their own finances. He discovered that mental accounting consists of three different accounts, first known as the *ex-ante* and *ex post* cost-benefit analyses, second expenditures grouped into their own categories, such as; food, housing etc. The third was known as frequency, how often the evaluated.

Kahneman & Tversky (2013, 279)) state that the loss-aversion bias is a crucial concept of the prospect theory, expressed as "losses loom larger than gains". On the contrary, Thaler & Sunstein (2008) describe people in general to be "loss averse". Justifying this argument with their research among students. Half of the class were given coffee mugs, the other half who did not receive a mug are asked to take a closer look at the mugs. After this the students who have the mugs in their possession are asked to sell their mugs and the students without the mugs are asked to buy them. During the experiment it was realised that the students who had the mugs were not willing to sell them and the students who did not have one were not willing to buy the mugs. The same scenario had been tested with different mugs many times and the results were always the same. Thaler & Sunstein (2008) state that once a person has a mug, they do not want to give it up. But when they do not have the mug they are reluctant to buy one. People are more hurt to give up something than to gain the very same thing they would have to give up, as Kahneman & Tversky (2013) mentioned earlier. This loss-aversion is the one factor to produce inertia, known as a strong aspire to stick with your current investments Thaler & Sunstein (2008). Thaler & Johnson (1990) evaluate the peoples willingness to take risks by using the framework based on Tversky & Kahneman (1974) theory. Concluding in their study that generalizing peoples risk-taking preferences is difficult.

Thaler & Sunstein (2008) point out the theory behind inertia developed by Tversky & Kahneman (1974) in which they have studied the “status quo bias” with multiple scenarios. This is demonstrated by a study conducted among college professors, and their changes to their personal pension funds, the study revealed that the professors made zero number of changes to their asset allocation in the pension plan during their lifetime. Thaler & Sunstein (2008) state that status quo bias is mostly caused by lack of attention.

Framing is one part of Kahneman & Tversky (2013) prospect theory. Ritter (2003) defines framing as a certain formatting of a matter. To quote Thaler & Sunstein (2008) there is difference between saying “ Of one hundred patients who have this operation, ninety are alive in five years” than saying” Of one hundred patients who have this operation ten are dead after five years” (*ibid.*, 36). Thaler & Sunstein (2008,) state that framing works due to the fact that people tend to fall into the category of mindless, passive decision makers. Their reflective system is not usually a part of deciding whether the framed matter could produce a different answer when the questions frame is changed.

## **2. FINANCIAL LITERACY**

Fernandes et al. (2014) define financial literacy as follows; “Financial literacy is a measure of the degree to which one understands the key financial concepts and possesses the ability and confidence to manage personal finances through appropriate short-term decision-making and sound, long-range financial planning.” (*ibid.*, 1826)

Financial literacy and its cognitive biases research were conducted by Özen & Ersoy (2019). The aim of their study was to analyse the effect of financial literacy of the individual’s psychological biases concerning financial investments. Fernandes et al. (2014) conducted meta-analysis that covered 186 different papers covering all together 201 studies carried out earlier concerning financial education, financial literacy and financial behaviour. In their analysis they discovered that most of the financial education is carried out as interventions in schools the intervention is found as an ineffective way of educating. Fernandes et. al (2014) also discuss the possibilities behind Thaler & Sunstein (2008) nudge theory, and how those nudges can be used as a positive

advantage when it comes to delivering financial education to people in an effective manner. Huston (2010) notes the same difficulties in the financial education provided by school as it is found ineffective in many cases. Hastings et al. (2013) conducted a study of financial literacy and the economic outcomes of not being financially literate. They used data collected by National Financial Capability Study (NFCS) in 2009 in the United states. Hastings et al. (2013) conclude in their article that financial education might not always be the correct way to approach to increase financial literacy. They suggest that different kind of approaches work for different matters, such as the employer providing its employees a saving plan opportunity which will also lead to increase an individual's interest towards financial matters and would be in most cases more cost-effective than a financial education program.

The literature review with the key concepts of financial literacy such as financial education, financial knowledge, personal finance, household finance was conducted also with Web of Science when searching with the key concept financial literacy there was 2 589 results, and after adding in a keyword of bank employee there were only three results available none of them fitting the study description. Emerald data base gave us 338 results, with key words such as financial literacy, financial behaviour, saving, investing and bank employees. The results were not however, either relevant to this subject in question and consistent of different type of problems.

## **2.1 Financial behaviour of bank employees**

This research topic is particularly intriguing, because bank employees are associated with financial markets and its products in their day to day work. Likewise, we can presume these employees saving and investing habits differ from the people who are not employed in a bank, due to the fact that they have a greater understanding of these matters than the rest of the people. The research on financial behaviour of bank employees reveals the differences in their saving and investing behaviour. Ramanathan & Meenakshisundaram (2015) research they discovered for example that demographic factors such as age, gender, marital status and educational background did not have a significant effect on the basis of the employees investing habits.



The financial behaviour of bank employees research has been conducted by Rapp & Aubert (2011) in a study concentrated on a retail banking group and its employees in France (see Table 1.). It focuses on the factors affecting the amount of investment into the plan and secondly to study the associations between wanting to invest more. Rapp & Aubert (2011) included four different parameters into their research, being: liquidity constraints, imperfect knowledge of the plan, asset choice and transaction costs. However, this study conducted concentrates on the Employee Stock Purchase Plan known as ESPP. Surprisingly, it does not cover the employees individual saving and investing habits. ESPP can be assumed to differ from other investors since the employee's possess more motives to buy their own company's stock. Furthermore, some of the employee's also chose to invest in their own company in order to become a larger shareholder to affect the organizations management. In addition, people's loyalty towards the company was one of the factors affecting their decision. (Rapp, Aubert 2011).

The analyses of bank employees saving and investing habits show there has been a scarce availability of research and articles of the subject that are summarized in Table 1. The literature search was conducted with key concepts such as saving, investing, bank employees, financial institution employee's and financial behaviour. Google scholar gives out a wide range, in search for the mentioned keywords, in total 58, 300 results. Fortunately, it is possible to find Kathuria & Singhania (2012) and Ramanathan & Meenakshisundaram (2015) and Gebre (2019) by going through the 62 first search pages. For this reason, it made sense of to do other information retrievals. From Web of science the keywords "bank employee" and "saving and investing" only brought out 5 articles and only one of them was suitable into this specific topic, Rapp & Aubert (2011). Emerald produced another result as well, Rad et al. (2013) studied the loan officers' assessment of Small-and-Medium-sized enterprises (SME's) loan applications, but this study is not directly proportional to my study field. Furthermore, two more studies were found Ramanathan & Meenakshisundaram (2015), Gebre (2019), however their sample sizes are significantly smaller, and the studies have been conducted in third world countries so the results could have a high possibility of being biased.

Table 1. The studies of bank employees financial behaviour

<b>Authors</b>	<b>Research</b>	<b>n</b>	<b>Country</b>	<b>Organization</b>	<b>Key findings</b>
Thomas Rapp & Nicolas Aubert, 2011	Bank employee incentives and	43,362	France	A large retail bank	-ESPP investors different to other investors

	Stock Purchase Plans participation				- have stronger motive to buy their own company's stocks
K.V. Ramanathan & Dr K.S. Meenakshisundaram, 2015	A study of The Investment pattern of bank employees	130	India	People employed in the bank of Chennai	-Income and investment positively correlated. -People are aware of the selection basis of their investment.
Birhanu Alemu Gebre, 2019	Saving and Investment Practice of Commercial Bank of Ethiopia Wolaita Sodo Branch Workers	50	Ethiopia	Commercial bank	-Majority of respondents save more than 10% of their monthly income in a regular manner -Most of their saving experience is only from one to five years.
Nicolas Aubert & Thomas Rapp, 2010	Employee's investment behaviors in a company-based savings plan	44,649	France	CAC 40 listed bank	-Employees consider company stock as a different saving category -Many people do not invest in company stocks -Gender differences, overconfidence more adopted by men
Kathuria, L. M., & Singhania, K. (2012)	Investment Decision Making: A Gender-Based Study of Private Sector Bank Employees	150	India	Private sector banks in Ludhiana	-60% of respondents had moderate awareness of investing -investing a lot in safe and risk-free investments

Source: Author's findings

To sum up, the empirical studies concerning bank employees saving and investing behaviour reveal that an employee's investing motivations might differ when the investment is made into the own company's stock Rapp & Aubert (2011). The research does not encompass the incentives when employee is investing and saving without any constraints' associated with it. Rapp & Aubert (2011) defined two constraints, liquidity constraint and imperfect knowledge of the plan. The same

constraints not being applicable when an employee is studied as an individual investor and they have access to more knowledge from the financial markets as a whole, when employed in a bank. As Thaler & Sunstein. (2008) refer to “econs” the people employed in a bank could be considered as them into some extent. Kathuria & Singhania (2012) research was conducted in India, in their findings they pointed out that 60% of the employees had more awareness of investing. However, they also found results that indicated that most of the banks employees invested and saved into safe and risk-free products.

## **2.2 The basic assumptions of the research**

The hypothesis of this study is quite difficult to set, because there is not a large amount of consistent data and studies available. Therefore, we should rather talk about assumptions than hypothesis in an explorative sense. Thus, we are going to use the well-defined sample of bank employees to test are their financial literacy, saving and investing habits are connected to their employment in a bank.

Özen & Ersoy (2019) state that so called professionals need to be aware of their own personal financial behaviour biases when it comes to their financial behaviour, especially the bias of overconfidence was stated to be a common bias among the more financially literate people. These people are referred to as professionals and the bank employees could be considered into this particular group. Özen & Ersoy (2019) state in their findings that high level of financial literacy will also minimize these biases such as overconfidence. The studies of Rapp & Aubert (2011), K.V. Ramanathan & Meenakshisundaram (2015), Gebre (2019) and Aubert & Rapp (2010) have not considered the bank employee’s saving and investing behaviour and financial literacy in an individual level.

Therefore, the framework of the study will be developed on the basis of the assumptions that there is a positive association with person’s financial literacy and their employment in a bank as well as their saving and investing habits and their interest towards it. Before we set our hypothesis more precisely, we need to investigate them in the frame of data and research design.

## **3. METHODOLOGY AND DATA**

### **3.1. Data and theoretical framework**

The aim of the study is to explore the financial institution's employee's saving and investing behaviour differences in Estonian and Finnish branches. We would expect it is the same but if there are differences these could be exploited for the future research on this area. It is also interesting to see if the Soviet background of Estonia has any effect on the financial behaviour of the people. This data is quite unique, because it has been gathered from a large Nordic commercial Bank branches operating in Scandinavian countries Estonian and Finnish.

- 1) How investment behaviour manifests itself among bank employees in large multinational commercial bank in Estonian and Finnish branches?
- 2) What is the most common investment behaviour among Estonian branch and Finnish branch employees?
- 3) How these differences could be exploited in the future research on the area, by encouraging the employees to save and invest more?

This study was conducted through a survey-based questionnaire in Microsoft Forms in 2020 through a large Nordic banks internal email. The survey was mailed to bank employee's (N=917), and out of those employees 182 sample size was taken into examination. The response rate of the questionnaire was 20.06%. The aim of the questionnaire was to explore the differences arising between the Estonian and Finnish branch employees the final data is based 182 respondents. The questionnaire was constructed with three different main parts (See Appendix 1.). The first was about individual characteristics such as age, gender, education, time of employment, marital status, household size and income were considered. Table.2 is indicating the branch of employment and the age of the respondents, the sample in this table is n=182.

Table. 2 The sample of bank employees

<i>Commercial bank employees N=182</i>	<i>Estonian branch n=75</i>		<i>Finnish branch n=107</i>		<i>Total count %</i>
	<i>Age</i>		<i>Age</i>		
	<i>Under 31</i>	<i>31 and over</i>	<i>Under 31</i>	<i>31 and over</i>	
<i>Behaviour</i>	<i>Count</i>	<i>Count</i>	<i>Count</i>	<i>Count</i>	
	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	
<i>Saver and investor</i>	32	30	55	42	159
	17.5	16.5	30.3	23.0	87.5
<i>Not saver and investor</i>	6	7	6	4	23
	3.3	13.9	3.3	2.2	12.5
<i>Total count</i>	38	37	61	46	182
<i>%</i>	20.8	20.4	33.6	25.2	100

Source: Author's calculations

In Appendix 2. The table illustrates the demographic factors of the respondents. The highest education level among the employee's is bachelor's degree (61.54%). The age groups are distributed quite evenly between the employee's (see. Appendix 1.). As well as the duration of employment a majority for the employee's (52.75%) is one to five years.

Table 3. Employees reasons why they do not save and invest.

<i>Reason for not saving and investing</i>	<i>Lack of income</i>	<i>Not interested</i>	<i>Lack of knowledge</i>	<i>Reason not stated</i>
<i>Estonian branch</i>	34.78%	13.04%	4.35%	4.33%
<i>Finnish branch</i>	26.08%	4.35%	8.69%	22.38%

Source: Author's calculations

The data collected reveals that only 159 employees answered "yes" when they were asked if they save or invest themselves, 23 out of 182 employees answered "no" (see Table 3.). The sample size in table 3. is n=23. The reasons given for not investing or saving were the following ones: lack of income (60.83%), not interested in saving and investing (17.39%), lack of knowledge (13.04%) and other reason not stated (8.74%). In total 88% of the employees answered they are investing and saving regularly.

### 3.2. Methods

The data was analysed statistically with descriptive and multivariate methods. First we analysed with cross-tabulations, frequencies and percentiles the differences between Estonian and Finnish branch with underlying variables (age, educations etc.). We dropped out couple of underlying variables, because data was mainly similar in both branches. (e.g. education). Our analysis in case of descriptive statistics was anchored by saving and investing, not financial literacy.

The Mann-Whitney U test is a non-parametric test it allows us to compare to independent populations with each other (Abdiasis 2020). We used Mann-Whitney U test to find out the differences underlying between the Estonian and Finnish branch employees characteristics. The Mann-Whitney U test was calculated in this research as follows (Abdiasis 2020).

Formula 1. Mann-Whitney U test

$$U = \min(U1, U2)$$

Where

$$\begin{aligned} U1 &= n1n2 + n1(n1 + 1) / 2 - \sum R1 \\ U2 &= n1n2 + n2(n2 + 1) / 2 - \sum R2 \end{aligned} \quad (1)$$

Where the U1 stand for the Finnish branch and the U2 for the Estonian branch. In the formula n1 is the sample size of for the Finnish branch and n2 is the sample size for the Estonian branch. Whereas, the R1 represents the sum of ranks in the first sample (Finnish) and the R2 the sum of ranks in the second sample (Estonian). From this we can set the following hypothesis:

*H0: There are no differences between the Estonian and Finnish branches of the bank.*

If this hypothesis gets rejected we can assume that there is a statistical difference between these two branches of employment (Abdiasis 2020). The Mann-Whitney U test was calculated in SPSS. Taking into analysis different variables such as, gender, saving or investing, age, education and so on. This analysis was conducted in order to find out if there are major differences between these two branches employees. If the significance is  $> 0.05$  then we can assume that the differences are present, whereas if the significance level of the test is  $\leq 0.05$ , we can assume that there are no differences between the two populations (Heikkilä 2014).

## **4. RESULTS**

This following section will provide an overview of the results of this research with descriptive statistics methods and the Mann-Whitney U test. The most important findings are displayed in the following tables and figures as well as the description presented. The final section provides discussion of the future research possibilities of this topic.

### **4.1 Empirical analysis of the results**

As mentioned earlier, the questionnaire was constructed of three different parts. The first part of the questionnaire covered the individual characteristics of the respondents. The second part was constructed based on the questionnaire design for measuring financial literacy, INFE, O. Measuring financial literacy: Questionnaire and guidance notes for conducting an internationally comparable survey of financial literacy (2011). This framework has been used in multiple countries when measuring financial literacy. Through this data collected it will be possible to analyse if bank employees are more financially literate than ordinary people who are not employed in a bank, by comparison of the results with previous studies concerning financial literacy such as Hastings et al. (2013).

The third part of the questionnaire consisted of questions of the employee's saving and investing preferences such as, products of investment, frequency, time horizon of investments, average saving and investing percentage per month and a separate Likert-scale analysis why the employee's find investing and saving important. These questions have been used in previous studies of analysing saving and investing behaviour as well as saving motives, the saving motives have been studied by Canova et al. (2005). The Likert-scale analysis in the last part of the investing and saving section of the survey was based on the motivation why one finds saving and investing important, different reasons were given such as, saving and investing for retirement is.. 1) Unimportant 2) slightly important 3) Moderately important 4) Important 5) Very important. We are able to analyse if bank employees saving and investing habits differ between these two branches of employment, by analysing their different factors such as disposable income, duration of employment, monthly average saving percentage, and whether they invest or save at al. As well as to inspect what are the main motives behind their saving and

investing behaviour. By answering these questions, we may reveal new understanding about how these differences can be exploited in a strategic planning of employee experience development in this bank.

The most common investment among the bank employees was a regular savings account, (see Figure 1). This finding indicates a tendency for the employee's financial security want to have during investing and saving. This factor was also amongst the most popular motives for saving and investing. Obviously, when financial crisis produced uncertainty in the financial markets, people might feel more comfortable saving into a regular savings account with for instance a one percent annual interest, with no risk of losing your assets, and still being able to beat the inflation at the time at least to some extent. Kathuria & Singhanian (2012) concluded in their findings that the bank employees had a tendency to invest into risk-free and safe investments. This might also be true in this case at least to some extent. When the respondents of the study were questioned concerning their willingness to take risks when investing 66.9% of the respondents indicated to agree with taking risks. When the employee's frequency of investing and saving was analysed it was clear that a majority of 77.17 % of the employees stated that they save and invest once a month. The time horizon of the employee's investments and savings was split more evenly, for long-term (54.35%) defined as more than ten years, and in the second place was medium term (29.35%) including a time period of 5-10 years.

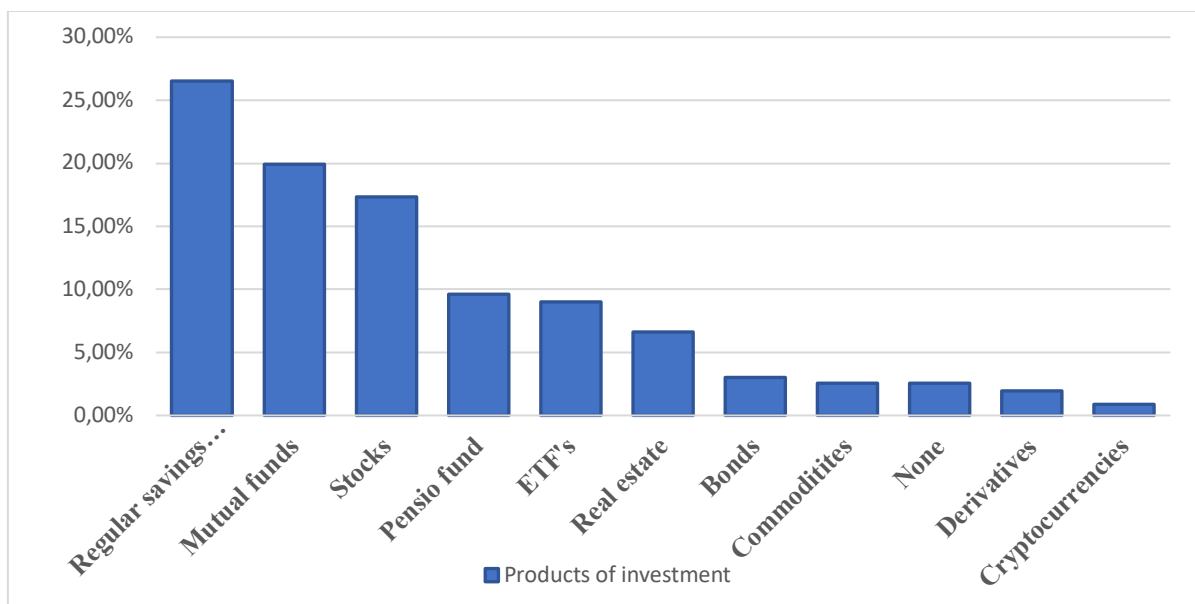


Figure 1. The products of investment among bank employees

Source: Author's calculations



Figure 2. describes the differences of the average saving percentage among the Estonian and Finnish branch employees. Unquestionably, the majority of employees indicated their percentage to be 6-15%. The differences of two branches are apparently produced by the monthly income received put into perspective with the living expenses in each country and the employee's different positions and monthly salaries available. If the person's level of income is low, it very likely leads to a lower saving and investing percentage from the disposable income. The propensity to save would be likely to increase if their monthly income increases as well. As Ramanathan & Meenakshisundaram (2015) discovered in their research of financial behaviour of bank employees investment and income were clearly correlated. However, the correlation analysis has not been conducted in my research, so the relationship is only presumed to exist.

The total amount of respondents in Finnish branch employees was 58.15% and the Estonian Branch was 41.85%. Finnish branch employees seem to be more careful with their investments and saving, the majority of Finnish respondents chose between the first three groups of 2-5%, 6-15% and 16-20%. The larger saving percentage groups such as 21-30%, 31-40% and 41-50% had a larger portion of Estonian branch employees.

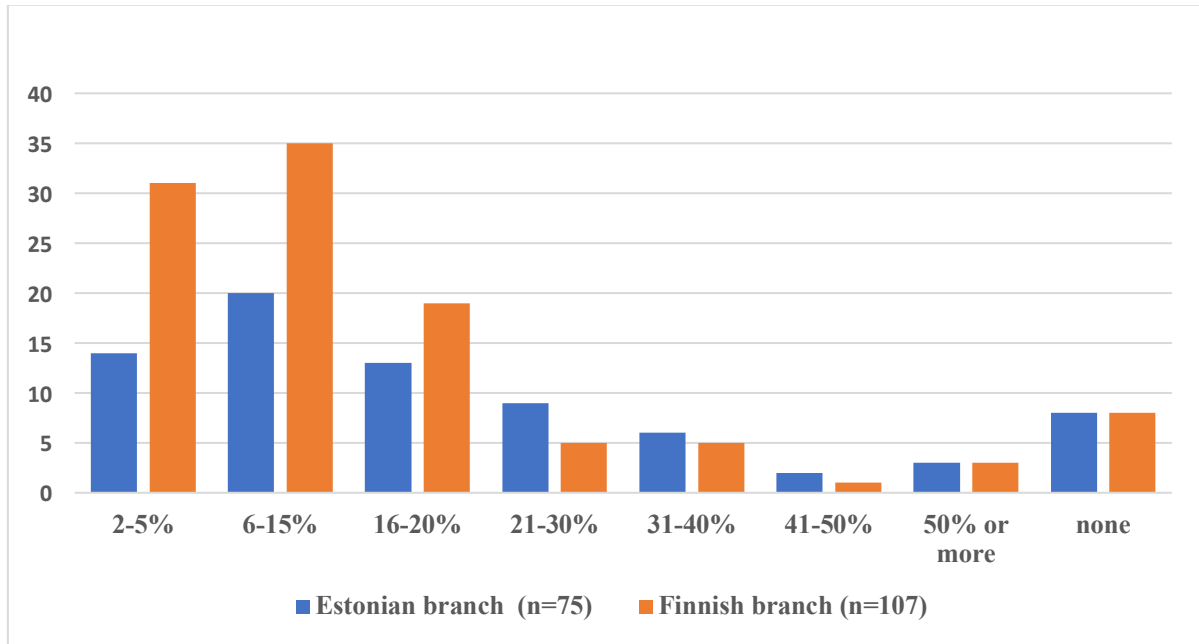


Figure 2. Average percentage of saving and investing of the bank employee's (n=182) disposable monthly income.

Source: Author's calculations

The saving and investing section of the questionnaire consisted of Likert-scale questions why people find saving and investing important in their own lives (See Table 4. and Table 5.). These questions contained the following motives for saving and investing; retirement, financial security, home purchase, hobbies and holidays, wealth creation, purchases, money availability and to avoid debt. Intriguingly, money availability is almost 12 % more important Finnish branch employees than their Estonian counterparts. Canova et al. (2005) mentioned these motives in their research, as well. They identified some of these reasons for investing and saving to be in the bottom hierarchy and some of them in the top. The bottom hierarchy includes goals such as holidays, purchase and money availability and the higher hierarchy some more abstract points such as self-esteem and self-gratification (Canova et al. 2005). The top hierarchy goals of the bank employees were; 1. financial security, 2. retirement and 3. Wealth creation. The rest of the motives clearly classify themselves into the bottom hierarchy. There was an additional question added in the end of the survey, in case some of the respondents had something to add to the matter concerning saving and investing. One subject that gained a lot of attention in several employee's answers to this open question, gaining financial independence. It is obvious that many people at least in the banking sector value the ability of being financially independent.

Table.4 Estonian branch employees saving and investing motives (numbers in the table are indicated in percentages)

<b>Saving and investing motives</b>	<b>Hobbies and holidays</b>	<b>Money availability</b>	<b>Retirement</b>	<b>Home purchase</b>
<i><u>Estonian branch</u></i>				
1.Unimportant	10.66	2.67	2.66	6.67
2.Slightly important	14.67	4.00	1.33	6.67
3.Moderately important	25.34	26.66	13.36	33.33
4.Important	26.66	36.00	37.32	24.00
5.Very important	10.67	17.33	33.33	17.33
6.No answer	12.00	13.33	12.00	12.00
Total	100	100	100	100

Source: Author's calculations

Table 5. Finnish branch employees saving and investing motives (numbers in the table are indicated in percentages)

<b>Saving and investing motives</b>	<b>Hobbies and holidays</b>	<b>Money availability</b>	<b>Retirement</b>	<b>Home purchase</b>
<i>Finnish branch</i>				
1.Unimportant	2.9	2.9	2.9	0.93
2.Slightly important	12.15	7.48	2.8	8.41
3.Moderately important	26.17	21.49	15.89	14.02
4.Important	36.44	47.66	37.38	43.00
5.Very important	14.02	12.15	32.71	25.23
No answer	8.41	8.41	8.41	8.41
Total	100	100	100	100

Source: Author's calculations

The analysis of the respondents answers on the basis of INFE O. (2011) model, show that a majority of the employee's answered the questions in the correct way. They indicated, that they are financially literate, which could be also presumed by the fact that the respondents are all employed in a financial institution. The one of the questions contained an assumption about inflation and how it affects money value: 70.65% of the respondent's answered this question right. The question of how diversification reduces the risk was answered correctly by 93% of the employee's in question. The one general question that contained a risk versus return scenario was answered correctly by 99% of the bank's employees. Fernandes et al. (2014) conducted an overview analysis of financial literacy and education, however their study was more concentrated on the interventions at school and their ineffectiveness.

Hastings et al. (2013) studied a large National Financial Capability Study NFCS) conducted in the United States in 2009. It was found that only 5 to 20% of respondents in seven different age groups were able to answer the big five financial literacy questions correct. These questions have been formed in the knowledge, capability of dealing with financial matters and mathematical knowledge. The self -assessed financial knowledge was brought up in a way that the person can indicate in a liker-scale answer do they feel that they are a skilful investor. A majority of people 39% percent agree that they consider themselves to be a skilled investor and to contain overall knowledge of the market. a smaller group of 8% strongly agreed, and the rest 18.7% was undecided, 28.3% disagreed and 5.9% strongly disagreed. Comparing the results gained in NFCS (2009) with the results gained from the data in this particular environment we can presume there is a link between the persons financial literacy and their employment at the bank.

As Fernandes et al. (2014) defined in their research financial literacy is consists of the ability for the person being able to keep track of their personal finances. In Figure 3. Indicates the answers of the Likert-scale question from the financial literacy section. A majority of 62.09% of the bank employee's keep track of their personal finances always. As well as the second largest group of 35.16% of employees keep track of their personal finances often. When it comes to the differences between Finnish and Estonian branch employees their answers do not differ significantly, since the sample of Finnish employees is larger by 32 employees. This difference could be interpreted as proportional. Thaler & Sunstein (2008) consider mental accounting as an important part of a person's financial behaviour. From Figure 3. it is possible to make the assumption that the bank employee's apply mental accounting in their daily lives.

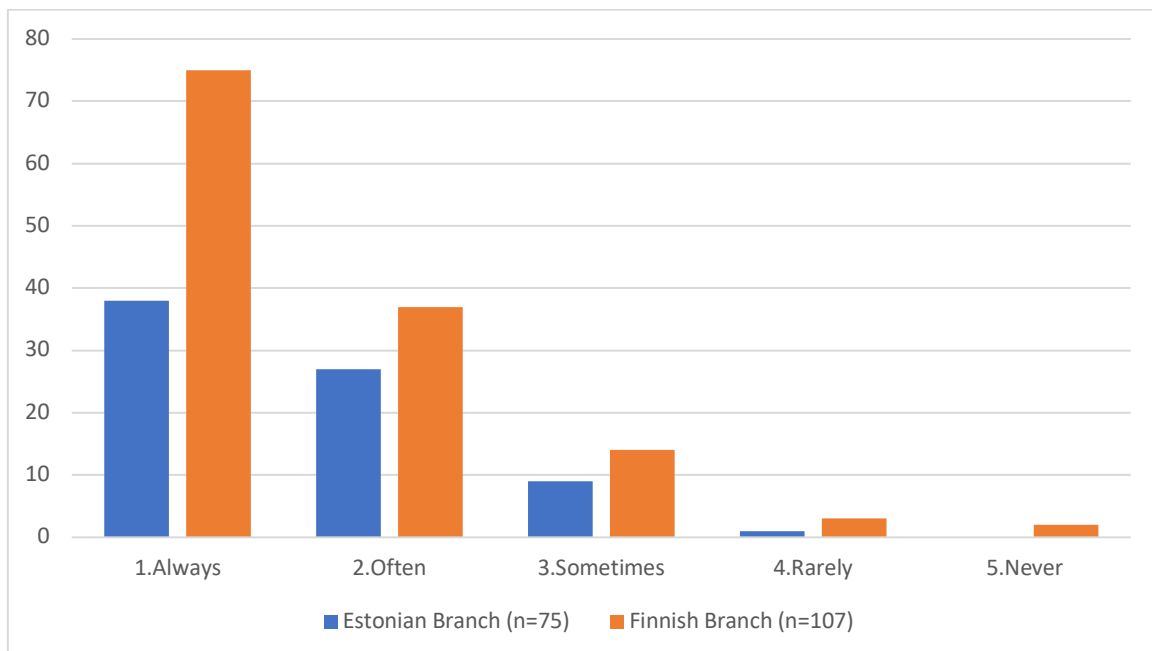


Figure 3. Indication of how often the bank employees keep track of their personal finances.  
Source: Author's calculations

Figure 4. implies that a majority of the bank's employees feel that they have gained more knowledge of financial markets and its products during their time of employment. This could also be presumed to be the case, when a person works closely with financial products and the market they are bound to gain more knowledge. All together 84% of the employee's felt that they have probably and possibly gained more knowledge of these matters while working for the

financial institution. Figure 4. Provides comparison between the Estonian branch and the Finnish branch employees.

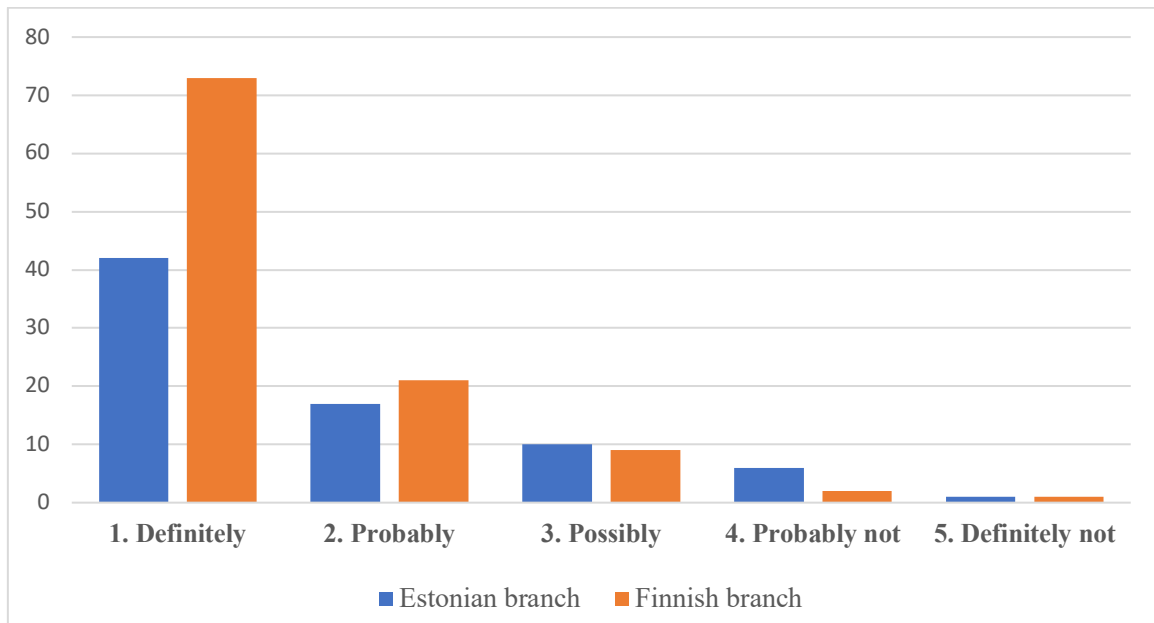


Figure 4. Do the bank employees feel that they have gained more knowledge of the financial markets and its products during their employment? (n=182)

Source: Author's calculations

Risk-aversion is claimed to be more common when it comes to females (Embrey, Fox 1997). Figure 5. illustrates the bank employees risk-taking behaviour of their investments. The employees were asked whether they are ready to take risks when investing their money. The results show that a majority of the male respondents answered they strongly agree or agree to take risks when investing their capital. The Estonian branches women are more evenly distributed between the different Likert-scale options. Moreover, the Finnish branch women bank employees can't be distinguished as very risk-averse since a majority 39 employees (54,16%) out of 72 Finnish branch women employees strongly agree with risking their capital when investing. Furthermore, there is evidence of risk-aversion at least to some extent since the only respondents who strongly disagree in their answers are women employees of the branches.

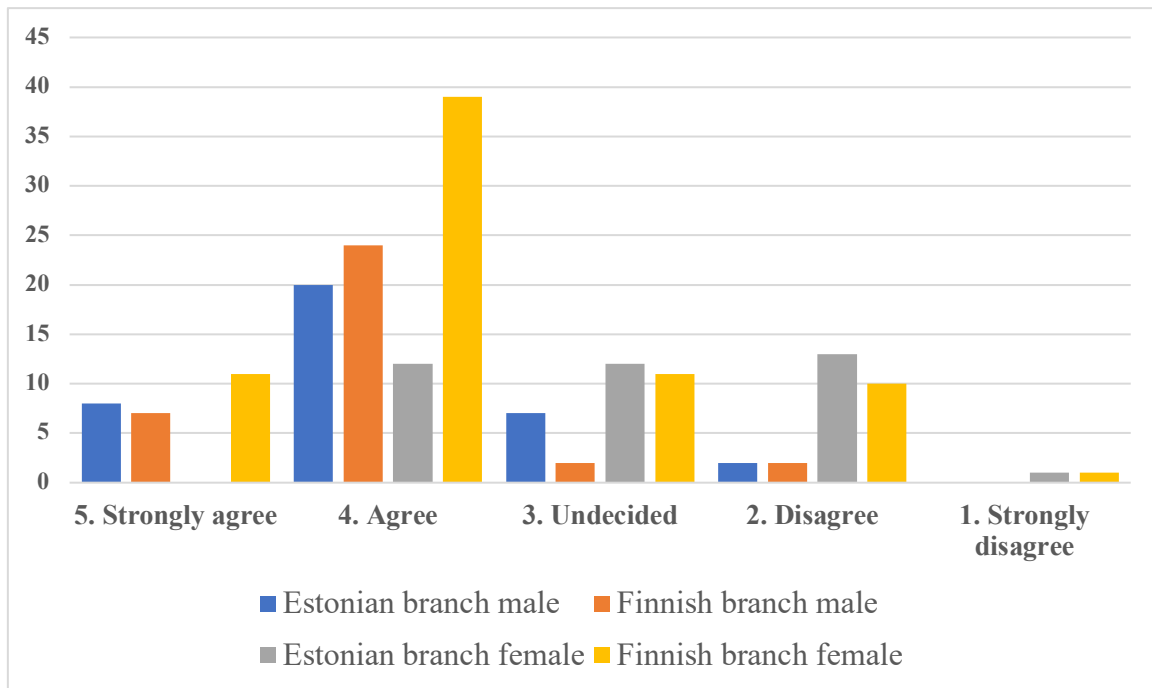


Figure 5. Are the bank employees ready to take risks when investing their money? (n=182)

Source: Author's calculations

As far as investing is concerned, there is always a risk involved, but the size of it depends of course on what exactly you are investing your capital into ( Figure 5.). Similarly, the survey the question whether people are willing to take risks when investing their money. These results reveal that most of the respondents are not as risk averse as one might presume: 15% strongly agreed with taking risks, 51.9% agreed, 17.6% were undecided, 14.4% disagreed and only 1.1% strongly disagreed. According to Barber & Odean (2001) suggested that men have a tendency to be more overconfident than women. Equally, we can find the same kind of tendency among 59.89% of women employee's and 39.56% male employee's (Figure 5). The women employees are more evenly distributed over all the categories of taking risks, when the men employees are more evenly distributed among the "strongly agree" and "agree sections of willing to take risks. Ritter (2003), Thaler & Sunstein (2008), Özen & Ersoy (2009). also stated overconfidence as one of the most biases of financial behaviour. This study does not produce enough the knowledge of the diversification of investments, but we may speculate about a possible link between the risk-taking and overconfidence. Barber & Odean (2001) states as well that men tend to be more overconfident than women and risk more of their assets. When we take a look at the risk-aversion of women compared to men there is a presumable similarity in this research as well. The women employees in the branches differ from each other quite significantly, this may

be because there were 38 of Estonian branch female respondents and 72 Finnish respondents so the difference between in the results can be mainly resulted of this factor.

In Table 6. the results of the Mann-Whitney U test results for the investing and saving variables. Table 6. shows the similarity between these factors in the two branches Estonian and Finnish are quite low. Presumably, the saving behaviour in these too branches does not differ. The only variable that seem to differ is the frequency of investing and saving which indicates that the other branches employees save and invest more or less frequently than the others. There is no reason to describe specifics of the ranks of Mann-Whitney U test as well as the Z-values of the analysis (see Appendix 3.).

Table 6. U test results for the saving and investing variables

<b>Variables</b>	<b>P-value of the U test</b>	<b>Significant differences</b>
Average monthly saving-%	0.610	No
Time horizon of the investments	0.976	No
Frequency of investing/saving	0.006	Yes
Belief of being a skilled investor	0.169	No
Products of investment	0.590	No

Source: Author's calculations

In Table 7. it is clear that only. A few variables produce differences between the two branches. The gender differences as well as the knowledge gained during their employment differ between the Estonian and the Finnish branches. With the information of these Tables 6. and 7. provide us we can reject the hypothesis:  $H_0$ : *There are no differences between the Estonian and Finnish branches of the bank*. Since we can see that a few differences between some of the variables are demonstrated. For the financial literacy section there were no differences between the branches employees since the p-value was in each case  $> 0.05$ .

Table 7. U test result for the individual characteristics variables

<b>Variables</b>	<b>P-value of the U test</b>	<b>Significant differences</b>
Gender	0.040	Yes
Disposable monthly income	0.323	No
Duration of employment	0.357	No
More knowledge gained during the employment	0.025	Yes

Source: Author's calculations

Data was analysed statistically with multivariate methods, logistic regression analysis. Unfortunately, the analysis did not produce any significant results. Apparently and as far as we understand, this is related to the inconsistent findings of the previous few studies in which multivariate methods were not used at all. (cf. the validation of questionnaire, culture and policy domain differences etc.). For this reason we used the U-test was used in the comparison between Estonian and Finnish employees.

## **4.2 Discussion of the results**

Parihar & Sharma (2012) studied the investment preferences of salaried employees and discovered that a majority of the salaried employees choose to invest into safe investments. Parihar & Sharma (2012) also conclude that demographic factors, such as gender, age and income had a significant effect in their investment decisions. To some extent, the same conclusions could be made on the basis of this study. Since the most popular investment appeared to be a regular savings account, but in the other hand the bank employees were allowed to choose many of these products when indicating their answers. When it comes to demographic factors such as education a majority (61,41%) of the employees fall into the bachelor's degree category.

How can these findings of the employee's financial behaviour be used in the organizations advantage? Implications for future research are based into Thaler & Benartzi (2004) research. They studied so called low-saving workers and developed a program how to save more known as Save More Tomorrow (SMarT). The basic theory behind this program was to make employees commit to a plan to increase their personal savings in a continuous rate aligned with their raises in the future. Every time the employee receives a raise, they increase their saving rate along with the received raise. Thaler & Benartzi (2004) discovered the SMarT plan to be successful, a majority of the employees had chosen to use it and these employees also committed to it. The reason behind the success of the plan was the following, the plan uses the exactly same behavioural tendency that makes people postpone their saving, known also as procrastination and inertia, this plan puts these into use (Thaler, Benartzi 2004). It is stated that the employees who took part in SMarT quadrupled their saving rates.

This program is brought out in Thaler's later work as well, The Nudge theory (2008). The program is mentioned in association with the employer being able to nudge his/her employees towards



saving and investing through this SMarT plan. In the data collected in this research it is clearly shown that a majority of the bank employees are already engaged in saving and investing in a regular basis. Moreover, this might not be the case in every organization, especially if the organization is not in the financial district. Those 23 employees who answered “no” when they were asked if they save and invest in a regular basis, a majority of them indicated the lack of income (60,83%) as a reason to not invest and save. Yet a few of the employees (17,39%) stated the reason to be the lack of interest towards investing and saving and (13,04%) indicated lack of knowledge. One could state these 17,39% and 13,04% need to be nudged towards saving and investing. This could be made possible through implementing a model of Thaler & Benartzi (2004) SMarT program.

How does the employer and the economy benefit from this nudge? When the employee takes a part into this kind of program for example like SMarT it can be presumed, they might become more satisfied since they are financially more secure. In my research when the employees were asked the motivational factors behind their saving and investing behaviour financial security came first in the importance hierarchy of all the available options. It could be presumed the employees would also appreciate the organizations efforts towards their wellbeing, which would contribute to the factor that the employees want to stay longer with the organization. This could probably even produce better results at work. The survey we conducted contained the one open question in the end, the employees were asked whether they would like to add something regards to saving and investing. One of the answers could be linked into the wellbeing factor of a person that has saved for a rainy day. To quote one of the answers in my survey *“Money cannot buy happiness but if you do not have money, you are most likely unhappy.”*

Thaler & Benartzi (2004) discovered that in the SMarT program age and gender didn't seem to determine the employee's participation rates to the program, so the program could be effortlessly implemented into the whole organization and the likelihood of people gaining more insight and understanding of saving and investing would be inevitable. Sunstein & Thaler (2003) clarify that there is a possibility to provide freedom of choice and meanwhile for the public institutions to influence behaviour. This phenomenon is named as libertarian paternalism by Sunstein & Thaler (2003). They want to encourage public institutions to “nudge” their employees towards a saving plan with still keeping the freedom of choice alive in the process Sunstein & Thaler (2003). They want to encourage public institutions to “nudge” their employees towards a saving plan with still keeping the freedom of choice alive in the process.

## CONCLUSION

One of the key findings indicates that a large majority of bank employees, 88% in total save and invest regularly. Compared to the data gathered by Gebre (2019) the percentage is significantly different to the findings of the study conducted in Ethiopia. In comparison of two different societies and countries it is however hard to compare the statistics of financial behaviour because different countries define saving and investing in a different manor. A question of reliability of the study conducted in a third world country also arises.

The Mann-Whiney U test demonstrated results of differences between the Estonian and Finnish branches employees and their saving behaviour. With this test we could reject the hypothesis of: There are no differences between the Estonian and Finnish branches of the bank. As a result of the analysis two variables can be distinguished as being different among these two branches of the bank. These variables were gender, the frequency of saving and investing as well as the belief of more knowledge gained during the employment. From this analysis it is possible to assume that the saving and investing behaviour between the two different branches of the same large Nordic bank does in fact differ, at least to some extent. Above all, we can also say that the employment in a bank increases the knowledge concerning saving and investing.

How did the investing behaviour manifest itself among the two different branches employees? As mentioned earlier a majority of 88% of the employees save and invest regularly. The most popular motives behind their investments for both branches were: 1. financial security, 2. retirement and 3. Wealth creation. Accordingly, the employees in the Estonian as well as the Finnish branch seem to share their values and motives for why they choose to save and invest. The most common investments among the employees were 1. Regular savings account, 2. Mutual funds and 3. Stocks. A regular savings account can be used for example for collecting a financial “bumper” for yourself, so you do not have to liquidate all of your investments in case there is a quick need for cash. When

it comes to the risk-aversion and over-confidence women bank employees still appear to be more risk-averse than the men, as they are distributed more evenly over all of the different categories when a majority of the male employees all agree with taking risks so this could be a result of overconfidence.

How the employer could encourage the employees to save and invest more in the future? These findings could be used as the advantage of the employer in future research, by educating the employees concerning their saving and investing habits and “nudge” them toward better decisions in the future. Also known as positive reinforcement. There is potential to the future research regarding this field specifically Thaler’s program known as Save More for Tomorrow could be exploited in this kind of research (Thaler, Benartzi 2004). Sounds good doesn’t it? But who really knows how many of us are really so smart that they are willing save anything for the next generation? Supposedly, those are “supernudged” personalities, aren’t they?

## LIST OF REFERENCES

- Abdiasis Abdallah Jama Abdiasis (2020), *Statistics guide for student and researches, with SPSS illustrations*, published in Somalia, Publisher not states
- Aubert, N., & Rapp, T. (2010). Employee's investment behaviors in a company-based savings plan. *Finance*, 31(1), 5-32.
- Bajtelsmit, V. L., & Bernasek, A. (1996). Why do women invest differently than men?. *Financial Counseling and Planning*, 7.
- Barber, B. M., & Odean, T. (2001). Boys will be boys: Gender, overconfidence, and common stock investment. *The quarterly journal of economics*, 116(1), 261-292.
- Bullough, O. (2018). *Moneyland: Why Thieves and Crooks Now Rule the World and How to Take It Back*. First published in Great Britain by Profile Books in 2018
- Camerer, C. F., Loewenstein, G., & Rabin, M. (Eds.). (2004). *Advances in behavioral economics*. Princeton university press
- Canova, L., Rattazzi, A. M. M., & Webley, P. (2005). The hierarchical structure of saving motives. *Journal of Economic Psychology*, 26(1), 21-34.
- Croson, R., & Gneezy, U. (2009). Gender differences in preferences. *Journal of Economic literature*, 47(2), 448-74.
- Embrey, L. L., & Fox, J. J. (1997). Gender differences in the investment decision-making process. *Financial Counseling and Planning*, 8(2), 33-40.
- Fernandes, D., Lynch Jr, J. G., & Netemeyer, R. G. (2014). Financial literacy, financial education, and downstream financial behaviors. *Management Science*, 60(8), 1861-1883.
- Gebre, B. A. (2019). Saving and Investment Practice of Bank Workers: Case of Commercial Bank of Ethiopia Wolaita Sodo Branch Workers.
- Graham, J. F., Stendardi, E. J., Myers, J. K., & Graham, M. J. (2002). Gender differences in investment strategies: an information processing perspective. *International journal of bank marketing*.
- Harford, T. (2010). *The undercover economist*. Hachette UK. Published by Abacus in 2011.
- Hastings, J. S., Madrian, B. C., & Skimmyhorn, W. L. (2013). Financial literacy, financial education, and economic outcomes. *Annu. Rev. Econ.*, 5(1), 347-373.
- Heikkilä Tarja (2014), *Muuttujien väliset riippuvuudet- esimerkkejä*, Helsinki; Edita Publishing Oy

- Huston, S. J. (2010). Measuring financial literacy. *Journal of Consumer Affairs*, 44(2), 296-316.
- Hsieh, F. Y., Bloch, D. A., & Larsen, M. D. (1998). A simple method of sample size calculation for linear and logistic regression. *Statistics in medicine*, 17(14), 1623-1634.
- INFE, O. (2011). Measuring financial literacy: Questionnaire and guidance notes for conducting an internationally comparable survey of financial literacy. *Periodical Measuring Financial Literacy: Questionnaire and Guidance Notes for conducting an Internationally Comparable Survey of Financial Literacy*.
- Jokivuori, P., & Hietala, R. (2007). *Määrällisiä tarinoita: Monimuuttujamenetelmien käyttö ja tulkinta*. WSOY.
- Kahneman, D. (2011). *Thinking, fast and slow*. Macmillan, First Published in the United States of America by Farrar, Straus and Giroux in 2011
- Kahneman, D., & Tversky, A. (2013). Prospect theory: An analysis of decision under risk. In *Handbook of the fundamentals of financial decision making: Part I* (pp. 99-127).
- Kathuria, L. M., & Singhanian, K. (2012). Investment Decision Making: A Gender-Based Study of Private Sector Bank Employees. *IUP Journal of Behavioral Finance*.
- Kosters, M., & Van der Heijden, J. (2015). From mechanism to virtue: Evaluating Nudge theory. *Evaluation*, 21(3), 276-291.
- Lewellen, W. G., Lease, R. C., & Schlarbaum, G. G. (1977). Patterns of investment strategy and behavior among individual investors. *The Journal of Business*, 50(3), 296-333.
- Longhini Michel (2017), Newsroom: Applying nudge theory to private banking <https://www.ubp.com/en/newsroom/applying-nudge-theory-to-private-banking> (Retrieved 16.4.2020)
- Parihar, B. B. S., & Sharma, K. K. (2012). An Empirical Study of the Investment Preferences of Salaried Employees. *Technoface-A Journal of Multidisciplinary Advance Research*, 1(2), 39-48.
- Rad, A., Yazdanfar, D., & Öhman, P. (2014). Female and male risk aversion. *International Journal of Gender and Entrepreneurship*.
- Ramanathan, K. V., & Meenakshisundaram, K. S. (2015). A study of the investment pattern of bank employees. In *Proceedings of International Conference on Management Finance Economics* (pp. 156-162).
- Rapp, T., & Aubert, N. (2011). Bank employee incentives and stock purchase plans participation. *Journal of Financial Services Research*, 40(3), 185-203.
- Ricciardi, V., & Simon, H. K. (2000). What is behavioral finance?. *Business, Education & Technology Journal*, 2(2), 1-9.

- Ritter, J. R. (2003). Behavioral finance. *Pacific-Basin finance journal*, 11(4), 429-437
- Samson, A. (2014). *The Behavioral Economics Guide*. (with a foreword by George Loewenstein and Rory Sutherland) (1st ed.) <http://www.behavioraleconomics.com>. (Retrieved 10.5.2020)
- Simon, H. (1957). A behavioral model of rational choice. *Models of man, social and rational: Mathematical essays on rational human behavior in a social setting*, 241-260.
- Sunstein, C. R., & Thaler, R. H. (2003). Libertarian paternalism is not an oxymoron. *The University of Chicago Law Review*, 1159-1202.
- Thaler, R. H. (1999). Mental accounting matters. *Journal of Behavioral decision making*, 12(3), 183-206.
- Thaler, R. H., & Benartzi, S. (2004). Save more tomorrow™: Using behavioral economics to increase employee saving. *Journal of political Economy*, 112(S1), S164-S187.
- Thaler, R. H., & Ganser, L. J. (2015). *Misbehaving: The making of behavioral economics*. New York: WW Norton.
- Thaler, R. H., & Johnson, E. J. (1990). Gambling with the house money and trying to break even: The effects of prior outcomes on risky choice. *Management science*, 36(6), 643-660.
- Thaler, R. H., & Sunstein, C. R. (2008). *Nudge: Improving decisions about health, wealth, and happiness*. UK; Penguin.
- Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *science*, 185(4157), 1124-1131.
- Wilkinson, N., & Klaes, M. (2017). *An introduction to behavioral economics*. Macmillan International Higher Education.
- Özen, E., & Ersoy, G. (2019). The Impact of Financial Literacy on Cognitive Biases of Individual Investors'. *Contemporary Issues in Behavioral Finance (Contemporary Studies in Economic and Financial Analysis, Volume 101)*. Emerald Publishing Limited, 77-95.



# APPENDICES

## Appendix 1. Questionnaire

### SECTION 1: INDIVIDUAL CHARACTERISTICS

Q1. Age

- 18-23
- 24-26
- 27-31
- 32-41
- 42-50
- 50 and above

Q2. What is your gender?

- Female
- Male
- Other

Q3. Are you employed in the Finnish or Estonian branch of Nordea?

- Finnish
- Estonian
- Other

Q4. What is the highest education level you have attended?

- Doctoral studies
- Master's degree
- Bachelor's degree
- Technical /Vocational education
- Complete secondary school
- Some secondary school

Q5. What is your marital status?

- Single
- Domestic partner (living as a couple)
- Married



- Separated
- Divorced
- Widowed

Q6. How do you think your household income is going to change in the next five years? Please take into consideration all sources of income.

- 1. Increase a lot
- 2. Increase a little
- 3. Decrease a little
- 4. Decrease a lot

Q7. What is the disposable monthly income of your household after regular costs (i.e. after deducting housing costs, food, bills, etc.)?

- 0-500
- 501-1000
- 1001-1500
- 1501-2000
- 2001-5000
- 5001 or more
- Don't know

Q8. What is the size of your household?

- 1 person
- 2 people
- 3 people
- 4 people or more

Q9. How long have you been employed at this Bank?

- Under a year
- 1-5 years
- 6-10 years
- 11-30 years
- 31 years or more

Q10. Do you feel that during your employment you have gained more knowledge of financial markets and its products?

- 1. Definitely
- 2. Probably
- 3. Possibly
- 4. Probably not
- 5. Definitely not

## **SECTION 2: FINANCIAL LITERACY**

Q11. I believe I am a skilled investor and have a lot of knowledge of financial markets and its products.

- 1.Strongly disagree
- 2.Disagree
- 3.Undecided
- 4.Agree
- 5.Strongly agree

Q12.Before I purchase a product I consider whether it is something I can afford.

- 1.Always
- 2.Often
- 3.Sometimes
- 4.Rarely
- 5.Never

Q13. Where do you get the information for your investments?

- TV and Radio
- Organization reports
- Journals and magazines
- Agents and advisors
- Social media
- Family members and colleagues
- None of the above

Q14. I find it more satisfying to spend money than save it for the long run.

- 1.Strongly disagree
- 2.Disagree
- 3.Undecided
- 4.Agree
- 5.Strongly agree

Q15. I am ready to take risks when investing my money.

- 1.Strongly disagree
- 2.Disagree
- 3.Undecided
- 4.Agree

- 5.Strongly agree

Q16. I keep track of my personal finances.

- 1.Never
- 2.Rarely
- 3.Sometimes
- 4.Often
- 5.Always

Q17. Imagine that you will get 1000 euro, and the inflation stays at 2%. In one year's time you will be able to buy:

- Buy more with the same amount of money than you could today
- Buy the same amount than you could today
- Buy less than you could buy today
- It depends on the type of things you are buying
- Don't know
- Refuse to answer

Q18. An investment with a higher return generally has also higher risk.

- True
- False

Q19. It is usually possible to reduce the risk of investing in the stock market by buying a wide range of stocks and other financial instruments.

- True
- False

### **SECTION 3: SAVING AND INVESTING BEHAVIOUR**

Q20. Do you invest or save regularly?

- Yes
- No

Q21. If you selected NO, in the previous question please indicate your reason. If you answered YES, please skip this part.

- Lack of income
- Not interested in saving or investing
- Lack of knowledge
- Other:

Q22. Have you invested into some of the following products in the past 12 months? Please select all of the products you have invested in.

- Regular savings account
- Mutual funds
- Stocks
- Bonds
- Derivatives
- ETFs
- Pension fund
- Real estate
- Commodities
- Cryptocurrencies
- None of the above

Q23. How frequently do you save and invest?

- Once a week
- Once a month
- Every half a year
- Yearly
- None of the above

Q24. What is the average percentage of your monthly saving and investing from your disposable income?

- 2-5%
- 10-15%
- 15-20%
- 20-30%
- 30-40%
- 50% or more
- None of the above

Q25. What is the time horizon of your investments generally? Please select one.

- Long-term (More than 10 years)
- Medium-term (5-10 years)
- Short-term (1-5 years)
- Very Short-term (Less than one year)
- None of the above

Q26. Why do you save and invest? Please indicate the answers in a way which of the options you find important to save and invest your own money into. (Ask only from people who selected yes for Q1).

27 Retirement

1. Unimportant
2. Slightly Important
3. Moderately Important
4. Important
5. Very important

28 Security

1. Unimportant
2. Slightly Important
3. Moderately Important
4. Important
5. Very important

29 Home purchase

1. Unimportant
2. Slightly Important
3. Moderately Important
4. Important
5. Very important

30 Hobbies and Holidays

1. Unimportant
2. Slightly Important
3. Moderately Important
4. Important
5. Very important

31 Wealth creation

1. Unimportant
2. Slightly Important
3. Moderately Important
4. Important
5. Very important

32 Purchases

1. Unimportant
2. Slightly Important
3. Moderately Important
4. Important
5. Very important

33 Money availability

1. Unimportant
2. Slightly Important
3. Moderately Important

4. Important
5. Very important

34 To avoid debt

1. Unimportant
2. Slightly Important
3. Moderately Important
4. Important
5. Very important

Q28. Is there anything else you would like to add regarding saving and investing?

## Appendix 2. Demographic characteristics of the bank employee's

Variable		No of employees	%
<b>Gender</b>	Male	72	39.56%
	Female	109	59.89%
<b>Age</b>	18-23	25	13.74%
	24-26	35	19.23%
	27-31	37	20.33%
	32-41	44	24.17%
	42-50	19	10.44%
	50 and above	21	11.54%
	<b>Highest education level</b>	Doctoral studies	1
	Master's degree	37	20.33%
	Bachelor's degree	112	61.54%
	Technical/vocational school	17	9.34%
	Complete secondary school	12	6.59%
	Some secondary school	3	1.65%
<b>Marital status</b>	Single	68	37.36%
	Domestic partner	62	34.06%
	Married	46	25.27%
	Separated	3	1.65%
	Divorced	3	1.65%
<b>Size of the household</b>	1 person	63	34.61%
	2 people	69	37.91%
	3 people	27	14.83%
	4 people or more	23	12.64%
<b>Duration of employment</b>	Under a year	41	22.53%
	1-5 years	96	52.75%
	6-10 years	20	10.99%
	11-30 years	13	7.14%
	31 or more years	12	6.59%
<b>Branch of employment</b>	Estonian branch	75	41.21%
	Finnish branch	107	58.79%
<b>Disposable monthly income</b>	0-500 eur	40	21.98%
	501-1000 eur	75	41.21%

	1001-1500 eur	31	17.03%
	1501-2000 eur	10	5.49%
	2001-5000 eur	18	9.89%
	5001 or more	3	1.65%

Source: Author's calculations



### Appendix 3. Mann-Whitney U tests ranks and Test statistics

Variable	Branch of employment	N	Mean Rank	Sum of ranks
<b>Average monthly saving %</b>	Estonian	75	93.82	7036.50
	Finnish	107	89.87	9616.50
	Total	182		
<b>Time horizon of the investments</b>	Estonian	75	91.37	6853.00
	Finnish	107	91.59	9800.00
	total	182		
<b>Frequency of saving and investing</b>	Estonian	75	82.22	6166.50
	Finnish	107	98.00	10486.50
	Total	182		
<b>Belief of being a skilled investor</b>	Estonian	75	85.39	6404.50
	Finnish	107	95.78	10248.50
	Total	182		
<b>Products of investment</b>	Estonian	75	88.99	6674.50
	Finnish	107	93.26	9978.50
	Total	182		

TEST STATISTICS	Average saving%	Time horizon	Frequency	Skilled investor	Products
<b>Mann-Whitney U</b>	3838.500	4003.000	3316.500	3554.500	3824.500
<b>Wilcoxon. W</b>	9616.500	6853.000	6166.500	6404.500	6674.500
<b>Z</b>	-.510	-.030	-2.723	-1.376	-.539
<b>Asymp. Sig. (2-tailed)</b>	.610	.976	.006	.169	.590

Source: Author's calculations

<b>Variable</b>	<b>Branch of employment</b>	<b>N</b>	<b>Mean Rank</b>	<b>Sum of ranks</b>
<b>Gender</b>	Estonian	75	99.65	7473.50
	Finnish	107	85.79	9179.50
	Total	182		
<b>Disposable monthly income</b>	Estonian	75	95.91	7193.00
	Finnish	107	88.41	9460.00
	total	182		
<b>Duration of employment</b>	Estonian	75	95.43	7157.50
	Finnish	107	88.74	9495.50
	Total	182		
<b>Belief of gaining more knowledge during the employment</b>	Estonian	75	100.47	7535.00
	Finnish	107	85.21	9118.00
	Total	182		
<b>TEST STATISTICS</b>	<b>Gender</b>	<b>Disposable monthly income</b>	<b>Duration of employment</b>	<b>Belief on knowledge gained during employment</b>
<b>Mann-Whitney U</b>	3401.500	3682.000	3717.500	3340.000
<b>Wilcoxon. W</b>	9179.500	9460.00	9495.500	9118.000
<b>Z</b>	-2.054	-.989	-.920	-2.239
<b>Asymp. Sig. (2-tailed)</b>	.040	.323	.357	.025

Source: Author's calculations

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