UMEÅ UNIVERSITY

Financial Literacy & Rational Financial Decision Making

A study of university students in Sweden

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Abstract

The importance of a high level of financial literacy and skills in the area of personal finance is of constant relevance, especially for young people and students. This research aims to determine if there are differences between the students at the different faculties at Umeå University concerning financial literacy and rational financial decision making. This will be done based on a framework consisting of previous studies and research concerning financial literacy, utility and rationality. A quantitative study was made by gathering data through an online survey. Two comparisons were made between the reference group Business Administration students, and each of the four faculties. The first comparison concerned financial literacy and the second one concerned rational financial decision making. The results show that the reference group have a higher financial literacy but at the same time, they are not different concerning rational financial decision making. The study further investigated the relationship between financial literacy and rational financial decision making. A correlation test was carried out on these two variables and the results showed that they were independent of each other.

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Table of Contents

1.Introduction

In this chapter the research topic will be introduced and details will be defined in order to provide the reader with a better understanding about the topic. The background will also be introduced, and an explanation is made concerning what the researchers expect to contribute with by writing this thesis. Additionally, limitations and delimitations that are connected to this study will be specified.

1.1 Problem Background

Personal finance is a subject that is of constant relevance. One could claim that the subject affects everybody we meet in our everyday life. While a well handled personal finance can mean large opportunities for an individual, a poorly handled personal finance can on the other hand bring large problems. In today's society, the ways to end up in economic distress are plenty and often fast as well. Before choosing the subject of this thesis, the researchers had the opportunity to talk to representatives of two Swedish banks. This helped to develop an understanding about the impression that these representatives had gotten of young people and their relationship to personal finance.

Helene Hedman is at the time of writing the deputy office manager at Handelsbanken in Umeå. During a meeting with her, she brought up that they recently have seen an increase in the amount of young people with economic problems. On this issue, she wanted to highlight the fact that it nowadays is very easy to receive loans via a text message or through a fast process online. These loans, so called "instant loans", can be received without any security, which means that the requirements to receive these loans are very low. Additionally, it was also mentioned that the interest rates of these loans are often very high, which makes them especially dangerous for young people who may have not yet gained good knowledge concerning how these loans work and which economic effects that can occur if they are not careful (H. Hedman, personal communication, February 14, 2020).

Therese Wiklund is a private advisor at Swedbank. Over the last couple of years, she has also worked with social initiatives driven by the bank. Through one of these initiatives, she regularly meets pupils in the range from middle school, to secondary high school, in order to educate them about personal finance (T. Wiklund, personal communication, 28 February, 2020). Through these meetings, she has noticed that the knowledge about personal finance can differ quite a lot between different individuals and also that the quality of education can vary depending on teachers (T. Wiklund, personal communication, 28 February, 2020) Her impression is that the variation in level of knowledge have looked the same over time. Furthermore, she means that there is a need for improvement and underlines this statement by saying that the background of the students should not have to decide their ability to be financially literate. She mentions that the teaching of personal finance is a mandatory part both in high school and in secondary high school (T. Wiklund, personal communication, 28 February, 2020) Further, she states that the schools carry a large responsibility in making sure that their students receive the proper education, but that other actors, such as themselves, can step in and also take a responsibility in this question. T. Wiklund (personal communication, 28 February, 2020) wants to highlight that some teachers really puts thought and effort into the teaching occasions of personal finance and that it is important that this type of education is carried out in high school, as well as in secondary high school.

On the web page of Swedish National Agency of Education, it is stated that personal finance is a part of the tutoring plan (Swedish National Agency of Education, 2020). In the regulatory documents of the Swedish National Agency of Education, *Gymnasieskola 2011*, it is stated that the education about personal finance is included in the courses that are in common for all secondary high schools. Mainly, this repetition takes place in social science courses. Further it is stated that students on vocational programmes read 50 points of these social science courses, while students within programmes preparing for university are obligated to read 100 points (Swedish National Agency of Education, 2011, p. 36-37). One point corresponds to around 1 hour of class. The courses exemplified by Swedish National Agency of Education is social science 1a1 and 1b. The study plan for social science within secondary high school also show that these courses contain an element of personal finance (Swedish National Agency of Education, 2011, p. 37). However, the 50 point course contains seven other focal areas and the 100 point course contains ten other focal areas. These focal areas stretch all the way from political systems to human rights and source criticism (Swedish National Agency of Education, 2010).

In a study retrieved from Intrum, people in the ages ranging from 16-24 answered questions concerning personal finance. 13 % of these persons answered that they had learned how to handle their own personal finance from school tutoring. 34% answered that they had learned through school, but that they would like more knowledge in the issue. In total, 47% answered that they hadn't learned how to handle their personal finance in school and 6% didn't know whether this was the case or not (Intrum, 2020).

The respondents in the ages 18-24 were further asked about whether they had learned personal finance well enough from school in order to be able to manage their own life as an adult and move away from home. 21% of the respondents answered that they had learned enough, while 25% thought that they would get by with some help from parents or other adults in close relation to them. 43% however, claimed that they hadn't learned enough from school, while 3% didn't know and 9% thought that they would need quite a lot of help from their parents or other adults in close relation to them (Intrum, 2019).

Even though personal finance is tutored in both high school and secondary high school, there's a risk that some students may be insufficiently prepared when they graduate and go into adulthood. The university environment consists of students with a large variation of backgrounds. While some have gained financial stability from work life or a good financial understanding from their home or school, others may be entering the university sphere without any of the previously mentioned attributes. It can therefore be of use to gain an understanding about students financial literacy and to be able to define and investigate their rationality in a financial context. Relevant topics in particular are their knowledge and behaviors concerning finance, savings and consumption. These are crucial parts of managing one's personal finance for individuals in today's society. This knowledge can be valuable in order to better understand the group defined as students and in extension also be used in the work towards improving the study environment.

1.2 Problematization

Digitalization and smartphones are constantly impacting the economic landscape and the accessibility of economic services is also constantly improving. To receive a bank loan has become easier over the recent years and nowadays many financial institutions offer

the possibility to get a private loan without investing a significant amount of time into it. In order to receive a loan with an interest rate in the higher ranges, the act of physically going to the bank to declare for ones financial abilities is nowadays optional. However, this easy accessibility also comes with a risk that people act without thinking their decisions through. These easily accessible instant loans, combined with high interest rates, can in the extension lead to debt that can be hard for the debtor to get free from.

The Enforcement Authority is a Swedish government agency consisting of lawyers, analysts, system developers, economists, PR officers and customer service employees. The role of The Enforcement Authority is to register, monitor and collect debt (The Enforcement Authority, 2020). Johan Krantz, working as an analyst at The Enforcement Authority, sees risks concerning young people and the simplicity of taking out loans in today's society (J. Krantz, personal communication, 5 March, 2020). He stresses the growing problem with the credit and loan behaviour of young adults in today's society. He perceives payments on credit, via payment services to be occurring in an increasing frequency. Furthermore, he stresses that the loans for consumption that are issued by niche banks is increasing in size. He believes that this comes from aggressive marketing, which persuades young people into thinking the loan is low risk, or risk free (Krantz, 2020).

Furthermore, the actual level of financial literacy in Sweden is something that as for now is hard to determine. Even though personal interest for finance plays a role, there is most certainly more underlying factors that influence financial literacy. When it comes to young people, H. Hedman (personal communication, February 14, 2020) meant that she in general experienced that a higher financial literacy often derived from how well personal finance has been discussed in the home environment of young people. This can also be seen in research made by Intrum (2019), where only 13% of the respondents state that they have received enough information in school about financial literacy. While discussing the subject of financial literacy amongst young people, with Therese Wiklund, she stated that the family circumstances should not have to be a limiting factor for a person's ability to create financial stability (T.Wiklund, personal communication, 28 February, 2020).

H. Hedman (personal communication, February 14, 2020) further stated that even though the school has general guidelines for tutoring personal finance, the actual tutoring varies, depending on the knowledge the teacher has and his/her level of commitment towards the subject. This statement can be interpreted as a acknowledging a risk that some students get a good education in the subject of personal finance, while others do not.

Umeå University consists of the four following faculties; the Faculty of Arts & Humanities, the Faculty of Medicine, the Faculty of Technology & Innovation and the Faculty of Social Science. In order to create a comprehensive overview of the entire university, this study will cover every faculty. The faculty mentioned last contains the Business Administration students, who are studying a wide spectra of subjects that are closely related to personal finance. One can assume that the learning opportunities that is made available from the finance courses will lead to a superior financial literacy, which makes these students relevant as a reference group. Thus, the researchers will separate the Business Administration students from the Faculty of Social Science and use them as a reference group. Thus, the researchers will create knowledge concerning how the level of financial literacy compare between this group of students, that are studying subjects

closely related to personal finance and students of the four faculties of Umeå University. Noteworthy is that the Faculty of Science & Innovation also contains the Programme of Industrial Economy.

By establishing how rational the students at Umeå University act in their economic decisions, the researchers can create a deeper understanding about what may be one of the factors that is increasing the debt. Rationality is defined by the Cambridge dictionary as "the existence of reasons or intentions for a particular set of thoughts or actions; reason:" (Cambridge Dictionary, 2020). In order to build a framework based on rationality, the researchers turn to Rational Choice Theory (henceforth abbreviated RCT). According to Eriksson (2011, p. 16), RCT can be used as a basis for formulating questions and finding out what kind of answers that is needed, as well as outlining how these answers are to be found.

Utility is a term used in several research areas, and can be used in different ways. One interpretation for the term is to maximize utility across a defined group of individuals (Jevons, 1911, p. 27). Although this definition may be the most established one, it is both subjective and very hard to measure in a quantitative way. On the contrary, in economics, the term is defined as a way to maximize the wealth (Eriksson, 2011, p. 18-20). Jevons (1911, p. 29) defines this on a personal level: "The calculus of utility aims at supplying the ordinary wants of man at the least cost of labour. Each labourer, in the absence of other motives, is supposed to devote his energy to the accumulation of wealth.". Based on this, in can be inferred that to maximize the financial gain is to maximize utility. Further definitions of utility will be discussed in the conceptual framework.

With the basis of previous definitions of rationality and utility, a rational economic decision will be conceptualized, which is going to be investigated in this thesis. The concept will combine utility and rationality. For a decision to be rational and economic, it must both have a strong reasoning behind it and have the end objective to maximize economical gain. These terms will in the conceptual framework be used to conceptualize a rational financial decision.

As for right now Sweden is facing economic challenges as an effect of the ongoing Covid-19 pandemic. Prior to the current situation, there were several years of economic growth. In spite of this economic growth the total amount of debt to The Enforcement Authority has been increasing lately. Between 2017 until 2019, the total debt increased from 78,7 billion SEK to 82,6 billion SEK. This is an increase of about 3,9 billion SEK, or 4,99% (The Enforcement Authority, 2019). When looking at figures from the same institution, what also can be seen is an increase of the total amount that is classified as payment defaults, which is a lower grade of debt control. The total amount of payment defaults increased with 32%, from 12,4 billion SEK to 16,3 billion SEK between the years of 2016 and 2018 (The Enforcement Authority, 2018).

In addition to the increase in the total amount of debt to The Enforcement Authority, H. Hedman (personal communication, February 14, 2020) claimed to experience an increase of people getting into financial distress. This recent increase in the amount of debt towards The Enforcement Authority is something that according to the perception of the researchers can be interpreted as a risk and a poor outlook for the amount of debt in the coming years. Young people's ability to make RFD's could play a part in whether this picture will look the same, better or worse in the future.

80 000 people have one or more defaulted debts because of the swedish student loan (CSN) This could be related to the total amount of people in debt at the institution in 2019, which is approximately 410 000. This is about 20% of the amount of people that is in debt at The Enforcement Authority (J. Krantz, personal communication, 5 March, 2020). The population investigated in this thesis is students, whom can be considered as the educated people of the future. Therefore, it is of utmost importance to know the level of rationality in the population´s decisions.

By exploring the knowledge gap of financial literacy and rationality concerning financial decisions amongst young people, understanding about this issue can be deepened and gathered data can contribute with more clues towards understanding why the monetary amount of debt in Sweden is increasing.

1.3 Research Purpose

Our main purpose is to determine if there is a difference between the faculties at Umeå University concerning their financial literacy and their level of financial rationality. In order to gain this knowledge, a survey will be conducted, through a questionnaire that will be handed out digitally to students of the four different faculties of the university. The students get to answer questions related to their financial knowledge and their own financial decision making.

The secondary purpose of this thesis is to investigate if students at Umeå University are rational in their decision making, concerning their personal finance. Using the questions mentioned above, answers concerning rationality will be collected. To be able to interpret the economic rationality within the collected answers, a framework will be created through theories and definitions concerning rationality and established theories connected to utility.

Our third purpose also includes creating knowledge that can be useful in order to further improve the study environment within Swedish universities. Though this question may not be answered directly in this thesis, it is something that has triggered the researchers interest for this chosen subject. Specifically whether this research can help create knowledge that in the future can act as a base for making further improvements of the conditions for students. Also, improving knowledge about financial decision making, so that more rational financial decisions can be made. Lastly, by acquiring this knowledge, a contribution can also be made towards a better understanding concerning what drives the increasing default of debt payments.

1.4 Research Question

The researchers will investigate whether students of Umeå University make rational decisions concerning their personal finance. Further, the level of financial literacy wil be assessed. This will be done by answering the following research question:

> *"Does student financial literacy and economic rationality differ between different faculties at Umeå university?"*

1.5 Expected Theoretical Contributions

The researchers expect that this thesis will contribute to the discussion about the presence of personal finance within universities in Sweden. The contribution to this discussion will consist of the knowledge the researchers aim to build concerning students financial literacy and the degree of rationality behind their decision making within the field of personal finance. By using a framework developed for this study; *Rational Financial Decision* (henceforth abbreviated *RFD*), the researchers aim to evaluate the rationality of the respondents' financial decisions.

There is a possibility that this study shows results suggesting that student's financial literacy is to be considered as deficient, or that their financial decisions are lacking in rationality. From our findings, the expectations is that this study will contribute to raising the interest towards gaining further knowledge in the field. If the research show findings of value in order to know what could improve the study environment within universities, other researchers can provide extended research in this field.

Moreover, our study can create knowledge that act as a base for further research about the level of importance to effectively teach personal finance. As mentioned in the background, there is a lot of people in debt to The Enforcement Authority (2018). The study conducted by Intrum (2019) shows that a majority of the participants between 18-24 thought that they needed further guidance in order to manage their own personal finance (Intrum, 2019). A causality could be that there is not enough economic guidance for young people. Whether or not this is the case, will not be answered in this study, although it may very well provide a contribution that leads in the direction towards finding an answer.

This study aims to inspire towards further investigating how to approach potential problems or opportunities that may arise related to the research question and the complementary purposes of this study. This contribution could potentially be of value to researchers and in the extension also institutions in other countries than Sweden.

1.6 Expected Practical Contributions

With a framework created based on previous research, this study aims to create deeper knowledge about students rationality concerning financial decisions and their knowledge about personal finance. Through this study, the researchers aims to be able to contribute in such a way that this study in the future ends up being a stepping stone towards facilitating decision making within scholarly institutions, such as universities.

Whether or not it shows that students lack important financial knowledge or the ability to make rational financial decisions, institutions like the Swedish National Agency of Education and universities around Sweden could find this information to be useful. In the case of the Swedish National Agency of Education, this study can be used to either confirm that the financial knowledge and the rationality within financial decision making among students are good and that they're currently doing enough in this aspect. On the contrary, if this study shows the opposite, there is a value in further investigating these issues in order to facilitate adjustments to their education plans. Universities could also benefit from this information in their efforts to attract students. If it can be concluded that many people have issues in the area, efforts could be made to develop an office for

financial guidance at the school. It could be a unique selling point for the university to be able to offer this service to students that needs it.

1.7 Choice of Subject and Preconceptions

We are two students at Umeå School of Business, Economics and Statistics, both studying Business Administration. For now, we are conducting our degree project, which will lead us to a Master in Business Administration. Both of us authors come from families that have been very careful with money. We have brought this financial side into our adulthood and see ourselves as rational consumers. This has led us to this mutual interest of looking into personal finance for our thesis.

Our shared view is that despite our well-developed school system, there is still a need for providing better financial tutoring, especially since not everybody share the privilege of being raised in families with a wide knowledge of personal finance. Though we may not consider our own financial behavior as a 100% consistent in terms of rationality, the level of financial rationality in our actions is still something we reflect upon. Our view is that young people often seem to have a hard time understanding the value of savings and making rational financial choices. According to Intrum (2019), only 11% of the people prioritize to invest their saved money in the stock market/in funds, when choosing between spending and investing for future value growth.

Before choosing the subject of this thesis, we had the privilege to talk to Helene Hedman, deputy office director at Handelsbanken and Johan Krantz, analyst at The Enforcement Authority about what their picture was concerning the issue of debt amongst young people. H. Hedman (personal communication, February 14, 2020) and J. Krantz (personal communication, 5 March, 2020) shared a mutual view concerning the driving factors behind debt. They both highlighted how debt due to instant loans have become a more and more common driver behind financial problems amongst young people. H. Hedman (personal communication, February 14, 2020) further stated that the process of receiving these kinds of loans are easy as compared to how loans were received in the past, and that this digital era has the potential to cause harm to young people. Both H. Hedman (personal communication, February 14, 2020) and J. Krantz (personal communication, 5 March, 2020) stress the importance of looking into this issue, in order to understand why this phenomena is occurring and how to act to limit it. This rapidly changing climate within personal finance is another reason behind why we wanted to look into the subject of financial literacy and *RFD* within personal finance.

We also had the opportunity to talk to Therese Wiklund, a private advisor at Swedbank, about the role that Swedish schools possess in providing knowledge within personal finance (T. Wiklund, personal communication, 28 February, 2020). Furthermore, a social initiative provided by Swedbank in order to help schools to educate their pupils within this subject was also discussed. Through this meeting, we were presented with press releases that Swedbank had previously made concerning this subject. In a press release from Arques (2019), he states that seven out of ten young people thinks that the school should take a larger responsibility in tutoring personal finance.

People around us, both employed and students, are often talking about their stress concerning economic issues and that it becomes even more significant the last couple of days before the student loan and/or the paycheck comes. What has been most remarkable

to us, is that it seems like this is an ongoing problem in the context within which we socialize and this has made us interested in looking at literacy and rationality amongst young people in the field of personal finance.

1.8 Delimitations & Limitations

Below are the delimitations and limitations that will be connected to the process of writing and obtaining data for this thesis. These will be taken into account throughout the whole process of collecting data, writing the thesis and making the necessary analyses of the findings.

Firstly, the population looked at is not the whole world. Instead, the chosen population is students at Umeå University. Thus, it is likely that the results of this study will not be generalizable to a large number of countries other than Sweden. This is partly due to the fact that the conditions of students can vary quite a lot between different countries. Even though this study may not be generalizable to any given country, or study environment in the world, the researchers believe that conclusions can be drawn about Swedish students in general. This is because of the fact that there is a big part of the students at Umeå University that has moved from another part of Sweden to study here, which spreads the types of people and cultures that will be in the sample.

Secondly, this thesis is written during a period of time when the Covid-19 pandemic is a present factor all over the world, including Umeå. As an effect of the global pandemic, Umeå University has shut down most of their location based education. The data collection will be conducted through a survey which will be distributed during April 2020. Thus, gathering of data cannot be made in lecture halls and classrooms, as originally planned. Instead, the data collection process will be made through the social media platform Facebook. This will limit our ability to answer questions concerning the survey, which will increase the risk of incorrect interpretations and also risk a decrease in the reliability of our findings. In the extension the researchers also have to be aware of the risk that these circumstances can affect whether or not the hypothesis can be confirmed or dismissed.

Furthermore, there is a risk that some answers received on the evaluative questions may not be correct because of respondents not wanting to spend time and effort on answering the survey in detail and reading the questions carefully. This is called satisficing, and may have an effect on the answers in a positive, or socially desirable way (Interaction Design, 2020). Satisficing is even harder to control and limit when having to collect data digitally. The planned course of action was for the researchers to be present in the room in order to limit the effect of satisficing.

Moreover, there is a risk that a high rate of nonresponse is received, which will lead to a bad sample and have a negative effect on the validity of the thesis´ findings (Collis & Hussey, 2014, p.53). It can also be assumed that the nonresponse rate is even higher when the researchers are not physically present while the survey is being conducted. This is mainly due to a lower social pressure to provide answers at home than when setting aside time from the lecture to answer the survey.

Another limitation the researchers can see within the process of our thesis work is the time. Because of the time span of this thesis period, the gathering of data through the

survey will be over a time frame of around one month. If more time was allowed, it is believed that there would be a greater possibility to discover stronger and more distinct patterns.

The dividing of the chosen population has not been program specific, but instead divided into the four faculties at Umeå University; the Faculty of Social Sciences (separating Business Administration students), the Faculty of Medicine, the Faculty of Arts, and the Faculty of Science and Technology. These faculties will be compared to our reference group; the Business Administration students. This means that the inferences will be limited to the comparison of faculties, and will not be program specific. The delimitation is made because of the time span in which this thesis will be written.

There is a great number of theories concerning rationality and utility. In this study, the researchers have chosen to rely on a definition of utility, given by Jevons (1911) and a summary over the axioms of the theory of expected utility, given by Gelengül (2019). The definition of rationality is a product of the previously mentioned utility theories and the book "Rational Choice Theory", by Eriksson (2011). Furthermore, evaluation of the responses of the survey will only consider factors related to rationality and financial literacy. Thus, the researchers will not evaluate any ethical aspects of the responses given in the survey.

Lastly, spending patterns are likely to differ depending on for example holidays and how recent the latest wage payment was. The ongoing pandemic is also likely to have an impact on spending patterns. It can be suspected that student's assessment of their own way of spending may vary slightly depending on which period of time they are asked concerning the issue. Even though the research will be conducted during a small time frame, it is still reasonable to believe that, by carefully formulating the questions, the students' self-perception can be captured well enough for the conclusion to be representative for the population.

2. Conceptual Framework

In order to give an overview of previous knowledge related to the subject, this chapter will be devoted to the theories, concepts and definitions that are fundamental to this study. Further, the researchers will integrate established theories and concepts in order to conceptualize them. This will form the framework needed in order to assess financial literacy and RFD.

2.1 Students

To be able to make research on a population of students, first have to define what distinguishes a student from other people. According to research made by the Swedish Council for Higher Education (2015, p. 7), a full time student in Sweden has an average income of 10700 kr, this is including both the student loan, part time wages, scholarships, own savings, and money from friends or family (Swedish Council for Higher Education, 2015, p. 7). It can be concluded that this is much lower than the average gross wage in Sweden 2018, which is 34600 kr (Statistics Sweden, 2018). After tax reduction of 33%, which is an approximate of the swedish income tax, the average net wage is

approximately 23180 kr. To conclude, it can be inferred that students have a significantly lower income than the working population in Sweden.

Another significant difference between students and the working population in Sweden is the age. According to the survey from the Swedish Council for Higher Education (2015), the median of a full time student is 24 years old. Thus, students as a population can be considered as a young group of people.

Research has been made on the characteristics of students in Canada. The students were able to self assess themselves, and answered to a qualitative study with interviews as data gathering method (Cowley & Kanuka, 2017). The analysis was based on 30 respondents and was made in 2017. The personality traits that were most common in the interviews were "*Self directed*" and "*Engaged citizen*", which were observed by all respondents (Cowley & Kanuka, 2017, p. 69). Only 10/30 answered that they would see themselves as risk takers (Cowley & Kanuka, 2017, p. 70). This is interesting to have in mind for the research, because of the known relationship with expected return and risk taking (Investopedia, 2020).

Lastly, students are one of the groups of future taxpayers in Sweden. This makes it interesting to conduct research on students, as they can be seen as an important part of the future providers of the Swedish wealth system. Without them making good and rational financial decisions, the society won´t function as well as it could be doing. Therefore, research in this field and on this group of people is valuable.

2.2 Personal Finance

The concept of personal finance is one of highest relevance. According to Cambridge Dictionary (2020, b), it is defined as: "the activity of managing your own money". Another, longer and more descriptive definition is;

"Use of the principles and techniques of corporate finance in an individual's money affairs, especially the methods of allocation of financial resources. Its objective is financial security and independence so that an individual or a family can meet expected expenses and withstand monetary emergencies. It involves making prudent financial decisions, budgeting, saving, investing, insurance, tax planning, retirement planning, and estate planning" (Business Dictionary, 2020).

Personal finance is the act of managing your money and applying financial literacy in a personal context. There is, from governments, and according to Gerrans & Heaney (2019, p. 1) a growing concern whether individuals can make good personal finance decisions in today's society. One of the most important methods for governments to facilitate and better consumer outcomes is to improve financial literacy (Gerrans & Heaney, 2019, p. 2) which the researchers will explain further downwards.

2.3 Financial Literacy

As the concept of Financial Literacy is a broad subject, several definitions of the term can be found. The objective and non-profit research organization Rand Corporation has made a summary of several definitions of the term Financial Literacy. (Hung et.al, 2009, p. 6). The definitions are focused on different areas of knowledge that can be obtained in the

area of Financial Literacy. Some of the definitions seem to be more concentrated to certain parts of financial literacy, like this definition, given by Lusardi & Tufano (Hung et.al, 2009, p. 6);

"Focus on debt literacy, a component of financial literacy, defining it as "the ability to make simple decisions regarding debt contracts, in particular how one applies basic knowledge about interest compounding, measured in the context of everyday financial choices"

Other definitions however, are focused on a broader, more everyday approach, like the following one given by ANZ Bank (Hung et.al, 2009, p. 6); *"The ability to make informed judgements and to take effective decisions regarding the use and management of money"* The researchers see it as important to have read them for an improved insight and knowledge of the stated concept. Since this research aims to cover a broader spectrum of financial literacy, the latter mentioned definition from ANZ Bank will be used. More research has been made in the subject of financial literacy.

2.3.1 The Importance of Financial Literacy

Finance is a subject that in many eyes can seem very complicated, but at the same time, it is a present factor in everyone's life and in many parts of today's society. Knowledge and understanding of the subject of finance can increase the possibility of making good and rational economic decisions (Lusardi, 2008, p. 19-20). A greater knowledge can contribute to the degree of savings, and increased savings to pension accounts. Lusardi (2008, p. 19) also states that a lack of knowledge about basic economic principles can impact both the amount of loans taken and the engagement in stock market investments. According to Lusardi (2008, p. 20), financial literacy is therefore an helpful tool to improve the base of which consumers make their consumption decisions.

This concept is the core of this research and the researchers will further in this thesis analyze the financial literacy of students at Umeå University. This will be done with practical questions that deal with a wide span of financial literacy questions, to effectively map the student's knowledge and rationality within this area.

2.3.2 Assessment of Financial Literacy

The subject of financial literacy is truly a wide subject and has been studied earlier, both in Sweden and internationally. The subject at point is one where knowledge truly matters, for being able to make good, and rational decisions. There are different perspectives on measuring financial literacy. One common test to assess the knowledge in the subject is the Test of Financial Literacy by the American Council of Economic Education. It is used for educational purposes, to be able to measure financial knowledge in the U.S.A. The test is different depending on the age of the respondents, and there are three different tests. (Walstad & Rebeck, 2016)

The survey conducted by the American Council of Education is adapted to an American environment, and many of the questions can therefore not be directly translated to be used in a Swedish context. Although inspiration has been taken from this test, such as dividing the questions into different categories, to effectively benchmark and implement every part of the financial literacy (Walstad & Rebeck, 2016).

Another, perhaps more internationally known test to assess financial literacy, is the OECD PISA test for 15-year olds. It assesses financial knowledge through a survey handed out in schools, and compares countries with each other. The latest survey was completed in 2015 with the report coming out in 2017. The questions are formulated to fit in an international context, and to be applicable to most countries in the world, both developed and undeveloped. (OECD, 2017)

The questions used in the OECD (2017) report has therefore been a strong inspiration in the development of our framework of assessment. Although, as the questions are formulated to younger people than the population that we are looking at, we have not used the questions as they are, but instead altered the questions for adapting better to the perceived level of expected knowledge at our population, students at Umeå University.

2.3.3 Earlier Study of Financial Literacy in Sweden

Intrum (2019) conducted a survey about young peoples financial behaviour and their own perspectives on their knowledge and decision making. The survey had 1046 respondents. The study shows that a majority of the participants between 18-24 thought that they needed further guidance in order to manage their own personal finance (Intrum, 2019). The apparent need of guidance is one reason that the researchers chose to to study the level of financial literacy, and in the end, to understand if the respondents from the survey (Intrum, 2019) has a perception that aligns with the actual level of financial literacy amongst young people.

Further, it seems like young people nowadays have a hard time understanding the value of savings and making rational financial decisions. According to Intrum (2019), only 11% of the people prioritize investing their saved money in the stock market/in funds, when choosing between spending and investing for future value growth. The value of investing therefore does not seem to be very apparent to young people. 35% of the respondents instead prioritize to save for travelling, or consumption (Intrum, 2019). Though the reasoning behind these decisions are unknown, the results of this survey may suggest that there is some amount of irrationality related to the financial decision making of the respondents. The researchers perceive this to be one further reason to look at rationality within financial decision making, and assess the level of rationality amongst young financial decision makers.

2.4 Rationality

2.4.1 Theory of Utility

Jevons (1911, p.28) states that according to the utilitarian theory pleasure and pain is present in everything that has an influence in our mind. In order to connect these pleasures and pains with economical aspects, Jevons (1911, p. 29) describes that there is a need to sort these pleasures and pains to clarify the hierarchy between them. As previously mentioned, Jevons (1911, p. 29) states that "The calculus of utility aims at supplying the ordinary wants of man at the least cost of labour. Each labourer, in the absence of other motives, is supposed to devote his energy to the accumulation of wealth.".

Further he claims that in order to show how an individual in the best possible way could distribute this wealth to him-/herself as well as to others, an even higher calculus of moral would be needed. However, taking this higher calculus into consideration would according to Jevons (1911, p. 29) mean that there would be no limits concerning how far one could go in reasoning around what would mean the highest amount of wealth. Thus, this lower calculus, focusing on the individuals maximization of wealth allows for the theory of utility to be used within matters where moral is not a deciding factor (Jevons, 1911, p. 29).

In order to estimate the strength and impact of pleasure and pain, Jevons (1911, p. 30) relies on the four circumstances listed below and states that the self perceived value of these circumstances is what decides the level of pleasure or pain.
1. Its intensity.
2. Its duration
3. Its certainty or uncertainty
4. Its propinquity or remoteness

Thus, through these four circumstances, the goal of the economic calculus is to maximize pleasure. Anything that can produce pleasure or prevent pain in the economic aspect can qualify as circumstances of utility. However, the word "utility" must be separated from any considerations regarding moral (Jevons, 1911, p. 40-41).

2.4.2 The Axioms of The Theory of Expected Utility

Gelengül (2019, p. 536) explains how the theory of expected utility states that decision makers compare the expected utility values in order to make choices between risky prospects. In mathematical terms, these expected utility values are equal to the probability of an outcome multiplied with the value of the outcome. This is then added together with further outcomes that have been multiplied with its respective probability. This can be illustrated by the function below, where x and y are the expected outcomes and p_x is the probability of x occurring and p_y is the probability of y occurring. *EU* stands for expected utility and Q is a specific event (Gelengül, 2019, p. 536).

EU(Q) = x p_x + y p_y

Gelengül (2019, p. 538) states that the theory of expected utility rests on a number of axioms. These different axioms will be summarized and explained shortly below.

Invariance: the framing of a prospect does not affect the preferences of the decision maker (Gelengül, 2019, p. 538).

Completeness: In order for a decision maker's preferences to be seen as complete, the decision maker has to be able to make a comparison between the different options (Gelengül, 2019, p. 538).

Transitivity: The decision maker needs to be able to arrange the end products that are of relevance for his/her decision, without any cycles appearing. To exemplify this, A is of greater expected utility then B, which in turn is of greater expected utility then C. Thus, A also has to be of a greater expected value then C (Gelengül, 2019, p. 538).

Continuity: If the decision maker arranges the options with the highest positive utility in the following order; A over B, over C, then there is some probability that the decision maker would be indifferent when facing the option to choose between a certain outcome of B and a lottery where P (0<P<1) is the probability of A and 1-P is the probability for C (Gelengül, 2019, p. 539).

Archimedean: According to this axiom, if the decision maker is presented with a sufficient number of one option, such as the lottery suggested above, versus option B, the perceived utility of the less preferred option will at some point outweigh the perceived utility of the more preferred option (Gelengül, 2019, p. 539).

Monotonicity: A higher level of utility is preferred over a lower level of utility (Gelengül, 2019, p. 540).

Substitution: This axiom relates to the options being independent to other options. This means that if A is preferred to B, then A is also preferred to B even if these options were to be combined with the option C (Gelengül, 2019, p. 540).

Thus, in order for a decision to be assessed as rational, these preferences of the decision maker should match the previously mentioned axioms and the decisions themselves should also reflect these preferences (Gelengül, 2019, p. 537).

2.4.3 Rational Choice Theory

In order to understand the concept of rationality the researchers have chosen to look into *Rational choice theory* (Henceforth abbreviated "RCT"). According to Eriksson (2011, p. 16-17), there are several different interpretations of what factors should be included to the RCT framework. Below, the factors that she claims to be the most commonly acknowledged ones will be listed and explained.

Consistent preferences: In order to maximize utility, the decision maker has set preferences concerning in order to be able to rank a number of alternatives. As discussed concerning the theory of expected utility, the axioms of completeness and transitivity is present also within rational choice theory. When completeness is fulfilled, the decision maker possesses preferences and when transitivity is fulfilled, the preferences themselves make sense. Thus, in order for the decision maker to maximize expected utility, the highest ranked alternative has to be chosen (Eriksson, 2011, p. 17).

Eriksson (2011, p. 17-18) explains that the concept of "preferences" can have different interpretations, she refers to them as p_1, p_2 and p_3. P_1 has the meaning that the decision maker has a subjective preference concerning which option that is to be considered the best. The decision maker takes in factors such as expected outcome in his/her evaluation. In p_2 on the other hand, the decision maker does not take in any judgment of the given options. Instead this interpretation represents a reconstructed version of the decision makers choice pattern. P_3 relies on how good the decision maker perceives the given options to be. However, this notion is not comparative. Also, interpretation does not take into account the likeliness of a positive outcome (Eriksson, 2011, p. 17-18).

Utility: The concept of maximizing utility derives from economics. The term "utility" can be interpreted in different ways, depending on how one chooses to interpret the meaning of "preferences". "Utility" also has different meanings within different versions of the RCT. Though some RCT models integrate moral and subjectivity, much of today's work, however, rests on the notion that to maximize utility is to maximize ones wealth (Eriksson, 2011, p. 18-19)

Instrumental rationality: This notion rests on how the decision maker perceives different options to lead up to the achievement of an end goal. Thus, if presented with a number of options, the decision maker would prefer the option that ranks the best in terms of being able to provide a way to the end goal (Eriksson 2011, p. 20-21).

Calculative and/or strategic decision making: Complementary to the previous assumptions is the assumption that decision makers reason strategically, or calculate the consequences of each option in order to gain an understanding of how likely and how desirable different outcomes are. The criterias of these assumptions can vary from demanding that the decision maker performs advanced theoretical reasoning, to only demanding the execution of less advanced reasoning, such as an awareness that the decisions that one make also affect the actions of others (Eriksson, 2011, p. 22).

Self-interest: In order to be able to make explanations and predictions within the frame of the RCT, an assumption of human behavior is needed. Self-interest relates closely to how decision makers rank their options, thus the notion of self-interest is more prominent when the p_1 interpretation is made concerning the notion of preferences. When preferences are interpreted as in p_2, where they merely concern choice patterns (Eriksson 2011, p. 22-24). As previously mentioned, the p_3 interpretation of preferences is not concerned with ranking of different options (Eriksson 2011, p. 18)

The RCT does not take into account either social psychology, cognition or the level of consciousness that is put into a decision. Thus, this model does not show for the reasoning behind people's decisions. Instead, it is the choices themselves that are used in order to explain the behavior of people and populations. Since the RCT is moldable into several different versions, and the number of possible motivations behind a decision can be countless, it is only possible to take a very limited number of these motivations into consideration. In the end, it is the researcher's approach to the RCT that dictates how the observed phenomenon will be explained (Eriksson, 2011, p. 54-55).

2.4.4 Rational Financial Decision (RFD)

In order to conceptualize a *RFD*, the researchers have used the previously mentioned research and theories about utility and rationality. A framework will be created in order to combine the two terms so that a basis for knowledge creation is established.

As mentioned by Eriksson (2011), most of the more recent work that is based on RCT rests on the assumption that to maximize utility is equal to the maximization of one's wealth. This is also in line with the previously mentioned definition given by Jevons (1911, p. 29), stating that; "Each labourer, in the absence of other motives, is supposed to devote his energy to the accumulation of wealth". This assumption will serve as part of the foundation for the definition of *RFD*. Within the concept of *RFD*, striving for maximum utility will be achieved by making the decisions that give the highest probability in order to maximize one's wealth.

Furthermore Eriksson (2011, p. 18) describes assumptions of human behavior as a necessity in order to make explanations within the frame of the RCT. The assumption of self-interest relates to the way that people rank their alternatives (Eriksson, 2011, p. 18). In order to make assumptions according to the *RFD* framework, presented in this study, the researchers will rely on the assumption in self-interest. This allows for the researchers to make assessments of the rationality tied to respondents decisions. In case no assumption of self-interest was to be made, the span of possible interpretations concerning what can be considered as an *RFD* would be too wide to draw any conclusions from.

The concept of *RFD* will rest upon the assumption that a *RFD* is made when the financial decision that has been taken, also corresponds to what the person believes to render in maximized wealth relative to the given situation. Since it is not always possible to know the outcome of one's economic decisions, the expected utility of these decisions become relevant. As previously demonstrated, Gelengül (2019, p. 536) explains this through a formula where one of the key factors is probability. In this study, the probability will also serve as a key factor by acting as a base for what results to expect out of certain financial decisions. If a person is aware of what is most likely to have the best financial outcome out of a certain number of options, then the person possesses the knowledge to make a well-founded decision. The knowledge of the person plays a role in the sense that if they believe that their actions are likely to lead to the best financial outcome, given the situation, the decision itself qualifies as a *RFD*.

To conclude; For a decision to qualify as an *RFD*, it must both have a reasoning behind it and have the end objective to maximize economical gain. With a well formulated survey, the researchers aim to determine the level of rationality behind the answers given by the respondents. The answers will be analyzed and assessed using the concept of *RFD*, in order to create knowledge and answer the chosen research question.

3. Scientific Method

In this section we will describe the scientific method used and the decisions that has been made in the research philosophy, approach and design. Further, we will explain our method for searching existing literature, the possible criticism for the information sources used and finish with relevant societal and ethical considerations regarding the study.

3.1 Research Philosophy

In the process of writing scientific research, it is crucial to define the paradigm of the research. A research paradigm is according to Collis & Hussey (2014, p. 43) "a philosophical framework that guides how scientific research should be conducted". The paradigm will guide the authors in which way the research should be made and from which perspective it should be looked upon.

3.1.1 Epistemology

The cornerstone of the epistemological assumption is valid knowledge and what is considered to qualify as such. Within epistemology, the researcher and the research objects become central. Depending on which paradigm that dominates the study, different relationships between these two can occur on the road towards creating valid knowledge (Collis & Hussey, 2014, p. 47). These different views of valid knowledge are the scientific paradigms of positivism and interpretivism, that will be discussed below.

Positivism is the objective, logical and systematic way of looking at scientific research. It has been and is still widely used by researchers in the field of natural sciences. According to this perspective, the social reality is only one and it is not affected by the act of investigating it (Collis & Hussey, 2014, p. 43). The main objective is to discover

new theories and models, based upon scientifically verified information. This is closely related to deductive research, which is explained further, later on in the thesis. This verification should not be based upon interpretation, but derived from logical or mathematical explanations, alternatively from objective and precise observations, where it is of high importance for the researchers to remain independent towards the research. Thus, positivists mean that valid knowledge consists only of that which is possible to observe and measure. Because of this, the positivist paradigm is often associated with quantitative research methods (Collis & Hussey, 2014, p. 44-47).

Interpretivism emerged out of social scientists desires to find a research paradigm which could meet up to their needs in a way that positivism was not able to do. One of the factors that has contributed to this gap towards the perceived needs of social scientists, is that a positivist view, meaning that people can be separated from their social contexts. Interpretivism emerged in order to bridge this gap, by watching social reality as something that's subjectively shaped by our perceptions instead of something objective. Interpretivism sets out to gain interpretive understanding, through examining social phenomenons and their often advanced nature. The interpretivist tries to find the meaning of the observations, rather then finding the frequency of which it occurs. The findings of interpretivist studies emerges through qualitative research data and the researchers interpretations of this data (Collis & Hussey, 2014, p. 44-45). Instead of separating themselves as much as possible from the test subject, interpretivists instead aim to get as close and involved as possible to the research being conducted. The reason behind this is that the interpretivist perspective rely on the perception of the observed occurrences in order to establish what findings that can be accepted as facts (Collis & Hussey, 2014, p. 47).

Collis & Hussey (2014, p. 45-46) further states that both positivism and interpretivism can be watched as two opposite extremes on a continuous line of paradigms and that it is good to bare in mind that these paradigms are seldom used in their purest form. They also mean that the term "paradigm" can be used differently depending on the context, since it has different meanings depending on factors such as time, place and discipline.

In this study, the researchers have chosen to work according to the positivist paradigm. Information will be gathered through a survey, which will contain questions formulated in order to assess the respondents financial literacy and rational financial decision making. Rather than explaining the behaviors behind the data collected, this study's main focus is directed towards collecting data that can be summarized quantitatively and create knowledge from it. By implementing this research process in a systematic and logic way, under the assumption that social reality is to be considered as objective, generalizations can be made. Through this positivist approach, the researchers aim to answer the research question.

3.1.2 Ontology

The concern within the ontological assumption lies in what is real, and what exists. An interpretivist perspective on ontology views social reality as both subjective and socially constructed. Through the positivist paradigm, the social reality is instead objective, not interpretable and the same for everyone. By these logics, the two paradigms also differ in the way they view reality. The positivist paradigm see only one reality, whereas the interpretivist paradigm see multiple realities (Collis & Hussey, 2014, p. 46).

Within the frames of the ontological perspective, the researchers aim to take an objective approach to this study. The data will be collected through a questionnaire, meaning that the data collection will not be depending on verbal communication between researchers and respondents. The respondents will communicate their responses through closed answering options, which means that the researchers does not have to make interpretations of the given answers. Thus, by being an external viewer of the investigated phenomena, the conditions for conducting an objective study are well maintained. The data gathered will be used to make generalizations about a population. This is in line with the positivist view mentioned earlier, stating that the social reality is viewed as objective and therefore generalizations can be made.

3.2 Research Approach

There are different approaches considering the methods on how to come up with new knowledge by doing research. This is an important choice for effectively relating the theory with the research and data collection. The most common research approaches are deductive and inductive approaches. These are distinctive and differentiated in several ways. (Bryman & Bell, 2011, p. 55).

3.2.1 Deductive Research

This research approach is based on one or more theories, which will be the base of a theoretical framework. The framework is then linked to an hypothesis or research question. (Bryman & Bell, 2011, p. 55). This hypothesis need to be tested and operationalized. This is done by first collecting and analyzing data. With help of the findings, the hypothesis is tested against the theories, so that one or more conclusions can be made. Lastly, the findings is implicated back to the theoretical framework. This will increase the amount of knowledge in that particular field of studies, which may be used by later researchers (Bryman & Bell, 2011, p. 55). This is the most common methodological approach when having an positivist approach (Collis & Hussey, 2014, p. 47).

However, there are some things that researchers have to be aware of, when using a deductive method. Although the deductive process may seem linear, the process is not automatically that predictable. Instead, it is common that the process goes between the stages throughout the process. Since deduction builds from theory, there is always a possibility that new theory will arise during the ongoing research process. This may lead to the theories that are being used becoming less relevant. There's also a risk that the data that is collected doesn't match up with the hypothesis that's being presented. Some data may also have to be collected before the researcher learns that it is being relevant to the study (Bryman & Bell, 2011, p. 56).

The process of deduction

1. Theory

2. Hypothesis

3. Data collection

4. Findings

5. Hypotheses confirmed or rejected

6. Revision of theory
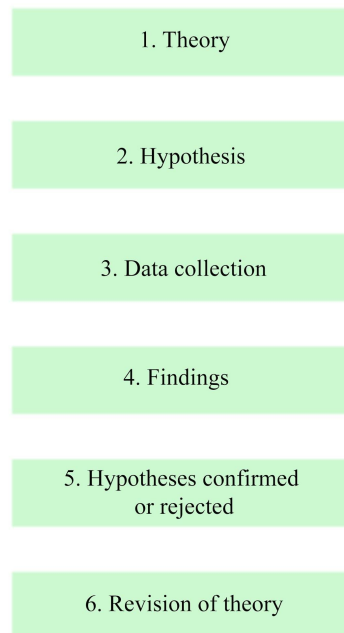
The process of deduction (Bryman & Bell, 2014, p.55).

According to Bryman & Bell (2014, p.55), the starting point for the process of deduction is theory, which is linked with data to be able to reject or confirm the chosen hypothesis. The purpose of this thesis is to use existing theories and definitions to answer the research question. The researchers will do this by operationalizing the research question with the help of a survey. With a base in theory, conclusions are expected to be drawn concerning the level of financial rationality amongst young people in Umeå University. These conclusions are drawn through the lens of *RFD*. Thus, a deductive approach is therefore the best option to choose.

3.2.2 Inductive Research

The inductive method can be said to be the reversed from that of the deductive method. Further, it can be seen as translating specific occurrences to general laws or statements. The development of theories based on the inductive method takes place through observing empirical reality, which may consist of specific events, in order to find explanations and meanings behind these events (Collis & Hussey, 2014, p.7-8). This is the most common methodological approach when having an interpretive approach (Collis & Hussey, 2014, p. 47).

The researchers will begin with the already developed theories in the subject of financial literacy and rationality, in order to create the *RFD* framework. This will be used to assess the level of rationality and knowledge in the subject of personal finance. The researchers will not try to develop new theories from the data collected. Taking this theoretical base into consideration, the choice to not use an inductive research method has been made.

3.3 Research Design

Collis and Hussey (2014, p. 4) states that research can be classified in line with what purpose it upholds. Research can thus be either exploratory, descriptive, analytical or predictive. Exploratory studies are carried out in areas of research where there is very few or even no other previous studies to go to in order to retrieve information about the subject of matter. The goal of exploratory studies is to develop a hypothesis through observing patterns.

Through descriptive research, the researcher takes it a step further, since the aim with descriptive research is to establish and describe the chosen phenomena. To take it another step further, there is analytical research, which aims not only to describe the phenomena, but also to explain how and why it occurs (Collis & Hussey, 2014, p. 4-5).

At last we have predictive research, which takes upon itself to make predictions concerning the studied phenomenon and the possibilities of it reoccuring. In case a predictive study is able to find a clear understanding upon what is causing a particular phenomenon, and further is able to deliver a solution that's both valid and solid, the solution might also be possible to apply on similar problems in other situations (Collis & Hussey, 2014, p. 4-5)

This thesis aims to gather information in order to assess the financial literacy of students at Umeå University and whether or not their financial decisions can be seen as rational. Some elements that would be of interest if one were to conduct an exploratory study are also included in order to provide the reader with a background to why this subject is being studied. These elements consist of interviews with experts in the area of personal finance. However, these qualitative interviews will not be scientifically tested in order to find casualties, therefore conclusions on an explanatory level will not be drawn. Instead, this study is exploratory in the sense that it aims to gather information on the previously unknown ground that is RFD among students. The information gathered will not be used in order to draw specific conclusions, instead results will be presented in a descriptive way, thus, this study is both exploratory and descriptive.

3.4 Research Strategy

Research tends to differ because of its approach. While some researchers prefer to conduct quantitative research, others prefer the method of qualitative research. Amongst the more prominent factors are whether the researchers choose to take an ontological or epistemological standpoint. Positivism and interpretivism can also play a role in the sense that the positivist, for example leans more towards trusting scientific findings which lives up to the criteria of significance (Bryman and Bell, 2014, p. 68). Further, Bryman and Bell (2014. p. 104), means that it is easy to confuse the difference between these methods, by saying that qualitative research focuses on words, while quantitative research focus on numbers (Bryman and Bell 2014. p. 104).

3.4.1 Quantitative Research

The quantitative research approach relies on data that in itself is possible to quantify. The data can be gathered through the collection of new data or the use of already existing data, that can be analyzed through statistics. Quantitative data can also be created through collecting qualitative data in order to quantify it and analyze it, using statistical methods

(Collis and Hussey, 2011, p. 5-6). Quantitative research generally starts out in theory, from which one or more hypotheses are deduced. This does not always have to be the case, since theory is there to help underlining the approach that the researcher has to the data collection. The deductive process that leads from theory to a hypothesis, is however very likely to be used in a research of experimental character (Bryman and Bell 2014, ch 5, p. 105).

3.4.2 Qualitative Research

This research approach relies on collecting qualitative data that the researchers interpret, in order to make their analysis of it. Qualitative data can for an example consist in the respondents own explanations of how they are experiencing a particular situation, without actually grading their experience in a quantitative way (Collis and Hussey, 2014, p. 6). In qualitative research, it is likely that the inductive approach is taken. By doing so, concepts and theories are elaborated from the data collected (Bryman and Bell 2014, p. 109)

3.4.3 The Complimentary Option

Even though the two research approaches discussed above are different in their nature, they can be also be incorporated into each other, for example by quantifying qualitative data. In social science, these two approaches are often considered to be needed, in order to provide the proper understanding of the subject being studied. Thus, it is quite common that researchers conducting larger studies often chooses to use both of these two approaches in order for them to work as complementary of each other (Collis and Hussey, 2014, p. 5-6).

3.4.4 The Chosen Approach

In this study, a quantitative research approach will be taken. Even though the data collected, in itself is quantitative, this study can not be seen as quantitative in its purest form. The reason to this is that the assessment of the respondents abilities to make *RFD´s*, will rely on both their responses on questions concerning their knowledge and also how they claim to act concerning their own personal finance. From a framework created by the researchers, these answers will then be combined in order to see whether the respondents act according to what they know and thus, assess their abilities to make *RFD*'s. This framework in itself are built up by qualitative assessments of what actions that can be seen as rational.

3.5 Problems Concerning Quantitative Data

There is problems regarding the use of the quantitative method in research. Together with its epistemological and ontological assumptions, several aspects have been brought up as criticism to the use of quantitative data. Further, the research design that is closely associated with the quantitative method has been criticised. Some of this criticism will be brought up downwards.

3.5.1 The Overlooking of Difference in Perspectives

Quantitative research often fails to interpret correctly how the world is. It consciously overlooks the fact that there are differences in people's perspectives and how they are different interpretations of the same question (Bryman & Bell, 2014, p. 116). This is often not a problem with research in the field of natural sciences, but can be problematic when using the method in a more reflective and broad sense, for example in research in the field of social sciences. It is therefore important to have this in mind when conducting research in these fields (Bryman & Bell, 2014, p. 116).

3.5.2 The Respondents Knowledge

Another important aspect to have in mind when using a quantitative method is the fact that not all respondents always have the correct information to answer the question. This can lead to wrongly answered responses and incorrect information. In the end, conclusions can be wrongly made, and has to be taken into account when conducting research in the field of social sciences. (Bryman & Bell, 2014, p. 116).

3.5.3 The risk of incorrect causality and correlation

There is also a risk that the factors independent variables can correlate with each other because of the fact that they have adapted themselves to be similar to each other. When looking at quantitative data, it is a common pitfall to not realize that there can be correlations because of the nature of the relationship between to variables, which is not objectively and sometimes will create wrong conclusions. (Bryman & Bell, 2014, p. 116).

3.6 Literature Search

In this thesis, the researchers have used both Swedish and English sources. Since this thesis is written in English, it would also have been favourable if the sources had been written in the same language. The risk of language bias, however, has been decreased by the fact that the researchers are used to the English language from studies, as well as their previous working places and through their social life.

In quantitative research, a common approach is to build on already existing theory through reviewing literature which will act as building blocks, or even a core for the research. The literature is considered to be very important throughout the research process, as it provides a source of material where the researchers can revise problems, topics and hypotheses. It can in some cases also provide informed insights on how to approach the methodology of the study (Bryman & Bell, 2011, p. 23).

The aim of the literature search is to identify the existing body of knowledge on the topic that the researchers intend to examine. This process will be continuous throughout the research, and develop with the thesis. During the process, the researchers will learn about the subject of matter and look into the methodology of previous studies. This is necessary in order for the researchers to be able to write a critical review of the literature and also to facilitate the process of singling out how this research can contribute to the existing knowledge of rational economic behavior (Collis & Hussey, 2014, p. 76).

Bryman and Bell (2011, p. 76) refers to the term literature as consisting of all secondary data that is of relevance to a study. Secondary data is retrieved through already existing sources and among other things, it includes e-sources, such as databases for academic journals. Furthermore, it includes books about methodology or the chosen topic, and also peer reviewed research articles and statistics (Bryman and Bell, 2011, p. 76). In order to build a scientific base for this study, these previously mentioned forms of secondary sources have been used.

In this thesis, the researchers will use both first hand data and secondary data. The first hand data will be collected through a survey. This makes it especially important to understand the value of making the questions in the survey as easy to understand as possible and decrease the room for misinterpretations. Otherwise, it is a risk of low reliability in the answers. Other first-hand sources used is the interviews with Therese Wiklund, Helene Hedman, and Johan Krantz.

Further, secondary sources will be used to create the framework for assessment of rationality in the financial decision making. Secondary sources have been found by searching in different databases provided by Umeå University, for example EBSCO Academic Search Premier and EBSCO Business Search Premier. Further, for the background and problematization it has been used several fact sources, that are not peer reviewed, for building the reasoning behind the choice of subject.

3.7 Source Criticism

The usage of secondary sources has both positive and negative aspects. Because of the limited time frame, our Conceptual Framework could not have been made in any other way than with help of secondary sources.

Hung et. al (2009) gives a shorter summary of different measurements of financial literacy, and is not a peer reviewed article, although it is made from RAND Corporation. The corporation is according to their website, are a worldwide, objective organization that helps to make and develop research. They have over 1900 employees across over 50 countries in the world. The corporation has been active for over 70 years, which makes the researchers think that this source is reliable even though it is not peer reviewed. (RAND Corporation, 2020)

When conceptualizing our definition of a Rational Economic Decision, literature from Jevons (1911) was used in order to define one of the key parts in the term; Utility. *The Theory of Political Economy*, written by Jevons (1911) is a book that's over a 100 years old, and sources of this age sometimes become irrelevant due to societal development, such as for example cultural and technological development. Although, the definition of *Utility* that is used in this study is of a very general character and the researcehers therefore perceive it as applicable also in today's society.

Furthermore, the online source Cambridge Dictionary (2020) has been used in order to provide definitions of rationality and personal finance. Although it is an online source, the Cambridge Dictionary is an internationally acknowledged dictionary with a long track record of professional translating and making of dictionaries.

Although, the researchers have also used a first hand source for our data collection, our conducted survey. The advantage with first hand sources is that you are in full control of the data that is collected, which is preferable, since you can rely on the fact that no external factors will contribute to the information being wrong. The potential risk with first hand data would be that it is processed by the researchers themselves and can lack other valuable perspectives in order to explain the data. Therefore, it is of utmost importance that the researchers remain meticulous in the gathering of data.

3.8 Social and ethical considerations

Research ethics is certainly a core issue in conducting any form of scientific study. It concerns the moral values and principles that form the basis of a code of conduct and how results are reported in research (Collis & Hussey, 2015, p. 30). According to Bryman & Bell (2015) there are ethical guidelines that the research should follow during the course of the study. Below is the listed principles that depict the guidelines and how the researchers intend to follow them.

Harm to participants – The risk that the study, through its research process causes harm to the participants. Harm includes both physical elements and also psychological elements, such as stress or damage to participants self-esteem. Research should also avoid the risk of causing harm to the researchers, or to other actors such as companies. Making sure that confidentiality is handled cautiously, so that sensitive information does not reach the public, is therefore of utmost importance (Bryman and Bell, 2015 p. 135-136).

- Personal finance is a subject that can be sensitive to a lot of people and should therefore be handled with respect. The researchers of this study are well aware of this and aim to use a respectful and non judgmental tonality. This apply both to the survey and also to the way that findings will be presented in this study.

Informed consent – In accordance with the principle of informed consent, people that are prospected to participate in a study, should receive enough information about the study, in order for them to take a well informed decision concerning whether they would like to participate or not (Bryman and Bell, 2015, p. 139)

- The empirical material for this study will be collected through a questionnaire. Thus, it is of utmost importance that it contains information that is clear and precise enough for the respondents to have a solid base on which to decide whether or not to participate. The researchers are well aware of this and will strive towards making sure that the entire questionnaire is presented and formulated in such a way.

Privacy – This area of ethical concerns relates to the level of intrusion of privacy that can be tolerated. It is highly important that the right to privacy is considered and protected while conducting research (Bryman and Bell, 2015, p. 143).

- As previously mentioned, the subject of the survey is personal finance. In order to make sure that no personal information will be published without the consent of participants, the survey will be anonymous. This will also be clearly communicated to the participants with the purpose of making them feel secure when providing answers for the survey.

Deception – The act to present the research as something different than what it actually is. This is common in cases where the researchers want the participants to answer as natural as possible and for this reason try to limit the participants understanding of what is being studied

- In order to be transparent towards the participants, the researchers will make sure to clearly present what they wish to achieve by conducting this survey. The research question will be stated in the questionnaire, to further increase transparency.

Affiliation – Research can be affected by conflicts of interest. Some affiliations can have an impact on what approach researchers take to the subject being studied and how the end result is to be presented. This is particularly relevant when it comes to sponsored research projects. Researchers should always be open concerning how their research has been funded (Bryman and Bell, 2015, p. 149)

- This study is conducted by two students at Umea University. There is no external financing or sponsor deals that is enabling the researchers to conduct the study. Companies have been interviewed and precautions have been taken in order to neither favor, nor harm any of these companies.
-

Reciprocity and trust – The act of conducting an honest and transparent research process in the sense that information is communicated to all parties that are interested in the research. Research should aim to gain the interest of both researchers and participants (Bryman and Bell, 2015, p. 148)

- This study also aims to serve the participants, by benefiting present as well as future students through knowledge concerning rationality within personal finance. The researchers will make sure to withhold a transparent approach. Thus, anyone who demands insight to the study will be able to access any content that does not compromise the area of privacy. Results will be analyzed carefully and be presented in an honest and transparent way.
-

During the span of this study, the researchers will follow these principles in order to establish that the societal and ethical guidelines are being followed. The data collection is depending on the participants of the study, which involves a risk of causing harm in a number of different aspects, mentioned above.

The researchers are very well aware of these risks and will take the necessary precautions in order to be as professional as possible and to limit the risks. The method of collecting data and the way of conducting statistical tests will be as transparent as possible in order for this study to provide reliable findings and results. By conducting a study that follows high societal and ethical standards the researchers hope to contribute with research that is beneficial both to Umea University and to its students.

4. Research Method

In this section the researchers will develop the research method and the decisions taken in account when choosing our statistical hypotheses, the population and sample. It will further go be described how the process of analyzing the data is executed, with help of statistical programs.

4.1 Population and Sample

The chosen population to look at is students at Umeå University. The population has been divided into the four different faculties; the Faculty of Arts, the Faculty of Social Sciences, the Faculty of Medicine and the Faculty of Technology and Innovation. The dividing of the population is natural because of the comparative nature of the study that the researchers are going to execute. No research has been made in this subject and geographical area, which is another reason that the researchers have chosen to look at this particular population. The reference population will be students studying at Umeå School of Business, Economics and Statistics, which also will be excluded as a component in the population "Faculty of Social Sciences".

The sample is the respondents of the survey, of which the results will be inferred on. The global pandemic of Covid-19, has impacted how courses are conducted at Umeå University in such a way that all physical teaching is prohibited . Thus, the means of creating a sample had to be modified from physically handing out questionnaires, to digitally distributing them. In order to reach students of the different faculties, the researchers listed the programmes that each faculty contained and then set out to find Facebook groups and pages for these programmes. The questionnaire was then distributed to these groups either through the researchers themselves or through contact with individual members or administrators of these groups, were a majority of them also helped with distributing the questionnaire. The survey was conducted during a period of two weeks in April 2020.

Within the Faculty of Social Science, the questionnaire was distributed to groups that reached 1016 unique individuals. Within the Faculty of Medicine, the questionnaire was distributed in Facebook groups, reaching a total of 365 individuals. The Facebook groups reached within the Faculty of Technology and Innovation contained 791 students. Lastly, the Faculty of Arts & Humanities was reached through Facebook groups, containing a total of 295 individuals, along with Facebook pages that had a total of 1330 followers. The reference sample will be students studying Business Administration that provides response to the survey.

4.2 Reference Population

Within their programme, the Business Administration students encounter several courses that are closely related to personal finance. Courses that everybody attends are for example Finance A, Economics A, Management Accounting and Marketing A. Furthermore, the choice of study programme is in its nature also voluntary, which makes it likely that students have chosen to study within programmes that reflects their personal interests. Thus, due to the nature of this study, the researchers intuitively expect that the Business Administration students would perform better than the other test groups within the area of Financial Literacy. However, the researchers intuitive expectations of the

Business Administration students are to some extent contradicted by Cull & Whitton (2011), who studied financial literacy among students of University of Western Sydney. In their study, several different demographic factors were included, but similar to this thesis study, Cull & Whitton (2011, p. 104) had grouped the students in accordance with their field of study. Through their findings, they highlighted that the Business students did not perform according to expectations in three different areas, namely "Bank Fees", "Compounding Interest" and "Tax Offset vs Tax Deduction". Concerning "Bank Fees", the authors stated that only 53% of the students surveyed and 54 % of the Business students had adequate knowledge within the area. Concerning "Compounding Interest", the Business students were outshone by Science students. Concerning "Tax Offset vs Tax Deduction", they performed the best out of the different groups, however with a small margin and a score that the authors of the article considered to be low (Cull & Whitton, 2011, p. 106-108). It is however noteworthy that this study is conducted in Australia, which could have an impact on the questions prioritized, the results and also the researchers interpretations of the results.

4.3 Statistical Hypotheses

H_{01} : There is no difference in financial literacy between Business Administration students and other students.

H_{A1} : There is a difference in financial literacy between Business Administration students and other students.

H_{02} : There is no difference in financial rationality between Business Administration students and other students.

H_{A2} : There is a difference in financial rationality between Business Administration students and other students.

4.4 Variables

Variables are characteristics or special attributes of the phenomenon researched that can be measured or observed. This study will be based on two variables, "RFD" and "Financial Literacy". The variables are defined as separate entities. "RFD" is a measurement of the level of rationality in the financial decision making, whilst "Financial Literacy" is a measurement of the level of knowledge in finance. The variables will be summarized and measured, to make inferences about the population in these two perspectives, separately.

4.5 Building the Survey

The means of creating the knowledge needed for this study will be through conducting a survey. The survey has primarily been created through a process of brainstorming, where different approaches and questions have been narrowed down through discussions between the researchers. Input has also been taken through a group seminar and through a questionnaire that the OECD has created as guidance in order to facilitate the making of internationally comparable surveys.

It is of utmost importance that the assumptions that lie as a foundation for assessing the participants knowledge as well as their ability to make *RFD*'s are scientifically correct. Thus, certain research has been made in order to assure that the assessment of the survey will be conducted in a scientific manner.

The survey (Appendix 4) has been divided into different categories. First there is a category consisting of *General Information*. In this segment information will be gathered concerning whether or not the respondent study at Umeå University. If so, the respondent go on to answer questions concerning whether they study at the Business Administration programme or if they can be put to the categories of any of the different faculties.

Financial Literacy is a category which will make it possible to judge the participants financial literacy. The questions within the *Financial Literacy* will contain one correct answering option and 1-3 wrong options. The researchers have decided to value some knowledge questions more than others. The three exceptions are question 8, 12 and 13 (Appendix 4). These three questions cover larger concepts and in order to correctly answer them, the possession of a deeper knowledge is needed. Therefore, a correct answer on one of these questions are balanced so that the respondent get 2 points instead of the standard, which is 1 point.

The *RFD* part of the survey contains two categories, *Finance and Savings* and *Consumption*, contain questions that are supposed to gather information of the participant's own experiences and behaviors. The answers will be assessed as rational, neutral or irrational. 1 point is assigned for a rational answer, 0 points is given to a neutral answer, and -1 is given for irrational answers.

Some questions cover wider financial concepts, while others cover smaller and more specific areas of personal finance. For the assessment of financial literacy, the researchers have chosen to assign one (1) point to the more specific questions and two (2) points to the questions covering wider financial concepts. The questions assigned two points are question number 8, covering the issue of reference rate, question number 12, covering the issue of inflation and question number 13, covering the issue of expected return.

The survey will be created through Google Forms and sent out to the participants, using Facebook groups that students have arranged for their respective programmes.

4.6 Handling the Survey

Answers will be collected and interpreted, using Microsoft Excel. For the questions concerning *Financial literacy*, the answers are assessed as right or wrong and respondents will get scores depending on the number of right answers. In the Excel sheet a correct answer will correspond to "1" and an incorrect answer will correspond to "0". For the *RFD* categories, irrational answer will correspond to "-1", a neutral answer will correspond to "0" and a rational answer will correspond to "1". Thus, respondents will get separate scores for the F*inancial Literacy* part and the *RFD* part. When the scores for *Financial Literacy* and *RFD* are calculated, comparisons will be made between the reference group of Business Administration students and the other groups of students. This comparison will increase the understanding of if there is a significant difference in *Financial Literacy* or *RFD* between Business Administration students and the other groups of students.

4.7 Statistical tests

The use of significance tests is common among researchers. In cases where the researcher wants to assess the truth of a hypothesis, data can be collected and statistically compared to see whether it matches the hypothesis of choice. When testing for statistical significance, the researchers choose a significance level on which the null hypothesis can be rejected. Significance levels are measured in a term called *P-value.* If the level for the P-value is set to 5% (also written as $\alpha = 0,05$), it means that the researchers demand statistical evidence proving that the null hypothesis would only be true in 5% of the cases (Moore et al. 2011, p. 358). By testing for significance, the researcher can assess the truth of a hypothesis. This is done through comparing how well the data collected matches with the hypothesis. This relation is reported in terms of probability (Moore et al. 2011 p. 351).

The independent t-Test falls under the category of inferential statistics, meaning that inferences are made concerning a population, based on data collected from random samples. As a standard within inferential statistics, the data needs to have a normal distribution and also possess stable variances over different groups of test subjects. In order to conduct an independent t-Test, a parametric data for an independent variable needs to be in place. The data of the independent variable needs to be on a scale based on either a ratio or an interval. Alongside this, two independent samples of a dependent variable is also needed. The independent t-Test enables the researchers to establish whether or not there is a difference of statistical significance between two independent groups. In order for the null hypothesis to not be rejected, there has to be a statistically significant difference between the two independent groups (Collis & Hussey, 2014, p. 261-264).

This study will use independent samples in order to conduct a number of two sample t-Tests, assuming unequal variances. Thus, the assumption concerning normal distribution is still relevant, however, the variances of the samples can differ substantially. These t-Tests will be used to in order to find out whether or not to accept or reject the null hypothesis, suggesting that there is no difference between the different samples. The significance level of the tests will be 95%. Thus, the level of the P-value will be set to $\alpha = 0,05$, meaning that the null hypothesis will be rejected if the P-value is equal to 0,05 or lower.

5. Data & Results

In this section the data gathered will be presented. Further, developments concerning the statistical testing that has been made will be described.

5.1 Data Collection & Processing

In order to retrieve data for this study, a survey has been conducted through an online questionnaire. Due to the previously mentioned limitations, the original plan of collecting data, through visiting lectures in order to hand out physical copies of the questionnaire, has not been possible to carry out. Thus, the researchers have instead set out to reach the relevant respondents through Facebook groups that students have created for different programmes of Umeå University. The researchers have turned to groups that they are a

part of themselves and they have used their personal contacts in order to gain access to other groups. The questionnaire was posted in the groups either by the researchers themselves or by their personal contacts. By using this methodology, a possibility to to reach the population intended was created, despite not being able to physically hand out the questionnaire to the respondents.

The survey was sent out to Facebook groups of people of different programs, in which friends of the researchers were members of. These groups were used as communication platforms for different university programmes. Thus, the Facebook groups consisted of students of the different programmes. In order to gain access to these groups, the researchers both applied for access to the groups, by sending out requests to join them and when possible, the researchers also reached out to personal friends that were part of the groups of interest. This makes our sample of convenience nature. A convenience sample was made because of the time limitation. Although, as the sample is large, and the respondents are from different faculties, it can be seen as sufficient. The faculties are the four different faculties at Umeå University, The Faculty of Technology & Innovation, Faculty of Medicine, Faculty of Arts & Humanities and Faculty of Social Sciences. The choice to group the programmes in their respective faculties have been made because of logistical reasons.

The answers retrieved through this questionnaire has been be grouped, using Windows Excel. Respondents that answered that they were not studying was singled out from the sample. This was done already within the questionnaire, through linking the question concerning whether or not they study, directly to the end of the questionnaire. The reason behind this is that these respondents do not provide any information of use in measuring the financial literacy or economic rationality among students at Umeå University.

Response rates have been calculated, organized and analyzed. This is shown in the next section, together with the summarizing numerical data from the survey. This has been shown by descriptive tables and graphs made with help of Microsoft Excel.

5.2 Descriptive Statistics

In this study, data was collected from a total of 335 respondents from the four different faculties of Umeå University. The researchers will begin this segment by present the response rates of the questionnaire. Next, the results related to financial literacy will be accounted for and lastly the results related to RFD. As can be seen in the table, the Business Administration students, who actually belong to the Faculty of Social Science, are separated from their group in order to act as a reference group. These statistics form the baseline for the statistical testing.

5.2.1 Response rates

A total of 5556 people have had the opportunity to answer the questionnaire. The survey was closed on April 20, 2020. A total of 335 respondents answered the questionnaire, from which received were 335 complete answers. According to Bryman & Bell (2011), in order to calculate the response rate, the number of complete answers should be divided by the total sample minus unreachable respondents (Bryman & Bell, 2011, p. 189). The sample in this study was 5556 and there were no unreachable respondents. 335 people answered the survey. This leads to a total response rate of $335 \div (5556\text{-}0) \times 100 \approx 6{,}03\%$.

Response Rates	No of Asked Students	Frequency %	Amount of Responses	Rate of Response
Business Administration	416	7%	63	15,14%
Faculty of Arts & Humanities	1806	33%	34	1,88%
Faculty of Technology & Innovation	791	14%	67	8,47%
Faculty of Medicine	1943	35%	78	4,01%
Faculty of Social Sciences	600	11%	93	15,50%
TOTAL	**5556**	**100%**	**335**	**6,03%**

Table A. A visualization of the response rates in the different faculties, and the sample as a whole.

5.2.2 Numeric Data Table of Financial Literacy

This table sums up the fundamental statistics of the data collection received in the financial literacy part of the survey. In order to give a good overview of the number of respondents within the different test groups and their answers, the findings are grouped by the different faculties.

Financial Literacy	Observations	Mean	STD DEV	Min	Max
Business Administration	63	11,74600	1,38	7	13
Faculty of Arts & Humanities	34	10,41	2,20	4	13
Faculty of Technology & Innovation	67	11,57	1,76	5	13
Faculty of Medicine	78	10,92	2,17	3	13
Faculty of Social Sciences	93	10,96	1,87	4	13
TOTAL	**335**	**11,164**	**1,9158**	**3**	**13**

Table B. The scores of the questions assessing the respondents financial literacy.

The mean of financial literacy among the Business Administration students were 11,75 which, according to expectations, also was the highest among the different groups. The standard deviation among the Business Administration students were 1,38. The Faculty of Arts & Humanities, on the other hand produced the lowest average score with a mean of 10.41 and a standard deviation of 2,20. It can be inferred that the lowest score of one single individual in the financial literacy part of the survey is 3, and the highest is also equivalent to the highest possible score, which is 13. The latter score was achieved within every faculty and the reference group, the Business Administration students.

5.2.3 Graph of Means & Variances - Financial Literacy

Mean & Variance- Financial literacy

	BUSINESS ADMINISTRATION	FACULTY OF TECHNOLOGY & INNOVATION	FACULTY OF SOCIAL SCIENCES	FACULTY OF MEDICINE	FACULTY OF ARTS & HUMANITES
Mean	11,75	11,57	10,96	10,92	10,41
Variance	1,90	3,10	3,50	4,70	4,86
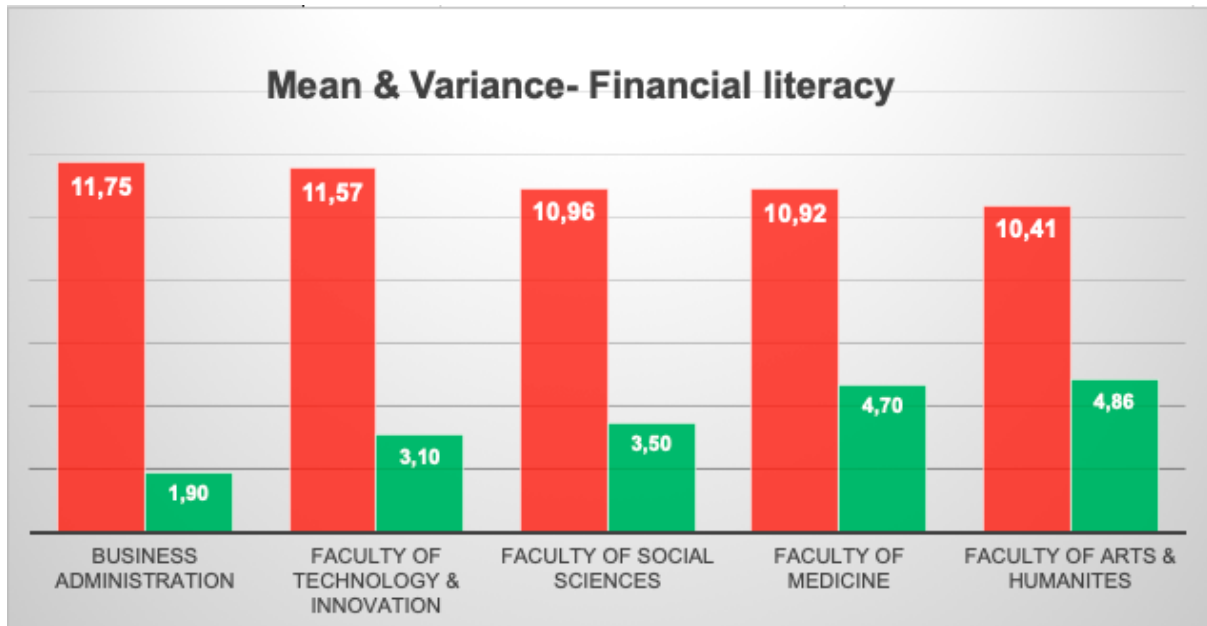
Graph A. Visualization of means & variances of the five sample groups, arranged from highest to lowest financial literacy score. Red is mean, and green is variance.

As previously stated, the table above also shows that the population that according to expectations also had the highest score concerning financial literacy was the control group, consisting of the Business Administration students. The average score of this group was 11,75. The same group also was distinguished by the lowest average variance, 1,90. Although, the Faculty of Technology & Innovation, with a score of 11,57 points on average, is very close to the Business Administration students. The students of the Faculty of Technology & Innovation, however, showed for a noticeably higher variance than the Business Administration students.

The lowest level of financial literacy was found from the population of Faculty of Arts & Humanities students, with the average score of 10,41 points. The highest average variance was also found in the population Faculty of Arts & Humanities, 4,86.

5.2.4 Numeric Data Table of RFD

This table sums up the fundamental statistics of the data collection received in the *RFD* part of the survey. Also here, the test group is grouped after the different faculties, except for the Business Administration students, which serves as a reference group. These statistics form the baseline for the later statistical testing.

RFD	Observations	Mean	STD DEV	Min	Max
Business Administration	63	1,59	1,16	-1	4
Faculty of Arts & Humanities	34	1,50	1,54	-4	4
Faculty of Technology & Innovation	67	1,84	1,36	-5	5
Faculty of Medicine	78	1,67	1,23	-2	5
Faculty of Social Sciences	93	1,72	1,32	-4	4
TOTAL	**335**	**1,6836**	**1,3023**	**-5**	**5**

Table C. The scores of the questions assessing the respondents RFD.

The mean of *RFD* among the Business Administration students were 1,59 which, as opposed to expectations, was not the highest among the different groups. The standard deviation among the Business Administration students were 1,16. The highest mean considering *RFD* was instead produced by The Faculty of Technology and Innovation, which achieved a mean of 1,84. Their standard deviation, however, was higher, with a value of 1,36. The Faculty of Arts & Humanities, produced the lowest average score with a mean of 1,50 and also the highest standard deviation, with 1,54. It can be inferred that highest score of one single individual in the *RFD* part of the survey is the minimum that the respondents are able to score, -5, and the highest is also equal to the highest possible score, 5.

5.2.5 Graph of Mean & Variance – RFD
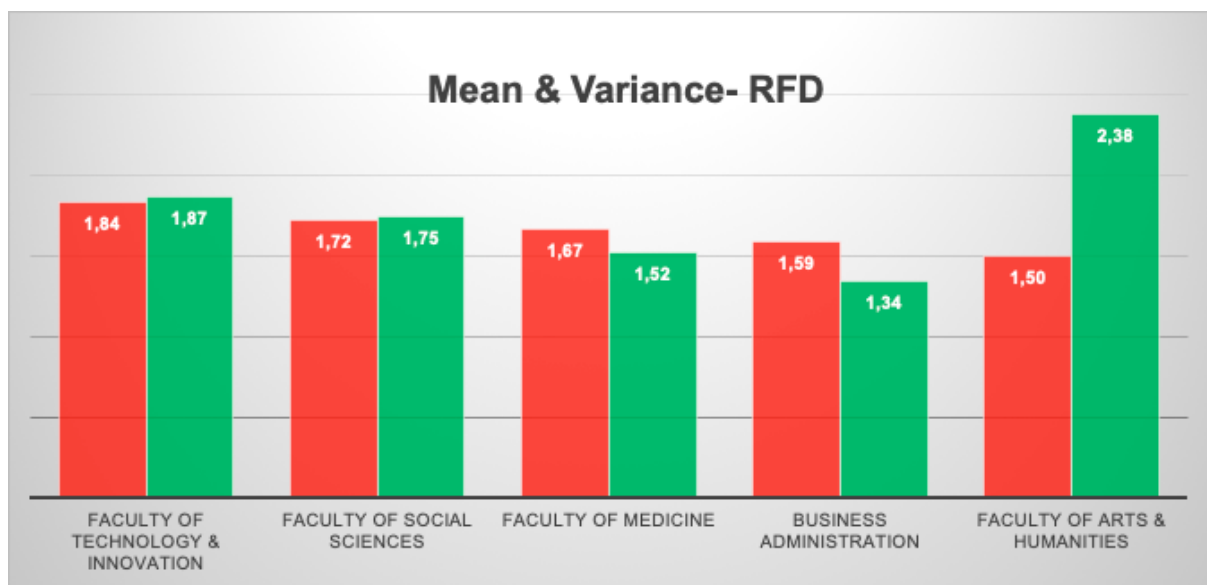
Graph B Visualization of means & variances of the five sample groups, arranged from highest to lowest RFD- score. Red is mean, and green is variance.

As the table above shows, the population that produced the highest mean concerning *RFD´*s was the Faculty of Technology & Innovation, with a score of 1,84 in average. Although, it can be seen that the variance is high, 1,87. The researchers can also see that the reference group Business Administration did not perform as well as expected, with a score of 1,59 on average. The reference group, however, had the lowest variance of the five populations, with 1,34. The lowest score was found from the Faculty of Arts & Humanities, which had an average score of 1,50. They also had the most pre-eminent found variance with 2,38.

The next step of the statistical analysis is to investigate whether or not the differences found are of a significant value, in order for the researchers to make significant conclusions about the data gathered.

5.3 Correlation means of Financial Literacy vs *RFD*

	FINANCIAL LITERACY(MEAN)	RFD(MEAN)
FINANCIAL LITERACY(MEAN)	1,000	0,021
RFD(MEAN)	0,021	1,000

Table D. Test of correlation between Financial Literacy and RFD.

When attempting a test of correlation between the means of *RFD* and the means of Financial Literacy, no relationship could be found. The type of correlation was a Pearson's R square-test , made in Microsoft Excel. The test statistic was found to be 0,021, which is very close to zero. The two variables can therefore be considered independent from each other. The difference makes it interesting to test both variables in coming tests.

5.4 t-Test: Two Sample: Assuming Unequal Variances

To be able to draw conclusions about the data gathered, the statistical significance of the means and variance have been tested. When conducting research, it is crucial to make it so that the risk of statistical errors is as low as possible, and try to increase the security in the findings. The level of significance $\alpha = 0,05$ that has been chosen means that when achieving an acceptance of the alternative hypothesis and rejecting of the null hypothesis, the researchers can be 95% sure that the findings are significant and not achieved randomly. Varying results have been received. Although, it is important to have in mind that errors can always be made and that it is not certain that our inferred conclusions are correct.

In order to be able to draw inferences from a sample of data material, the data needs to have a normal distribution. The smallest sample within this study is the one of the Faculty of Arts & Humanities, which consists of 34 respondents. A normal distribution can be assumed at a population of n=30. Thus, the assumption of normal distribution can be considered as fulfilled.

This study will use independent samples in order to conduct a number of two sample t-Tests, assuming unequal variances. Thus, the assumption concerning normal distribution is still relevant, however, the variances of the samples can differ substantially. These t-Tests will be used to in order to find out whether or not to accept or reject the null hypothesis, suggesting that there is no difference between the different samples. The significance level of the tests will be 95%. Thus, the level of the P-value will be set to $\alpha = 0,05$, meaning that the null hypothesis will be rejected if the P-value is equal to 0,05 or lower.

Inferences will be made on the population, based on data collected from the group samples. As a standard within inferential statistics, the data needs to have a normal distribution and also possess stable variances over different groups of test subjects. In order to conduct an independent t-Test, a parametric data for an independent variable needs to be in place. The data of the independent variable needs to be on a scale based on either a ratio or an interval. Alongside this, two independent samples of a dependent variable is also needed. The independent t-Test enables the researchers to establish whether or not there is a difference of statistical significance between two independent groups. In order for the null hypothesis to not be rejected, there has to be a statistically

significant difference between the two independent groups (Collis & Hussey, 2014, p. 261-264).

5.4.1 t-Test of financial literacy (Means)

Business Administration vs. Faculty of Technology & Innovation

t-Test: Two-Sample Assuming Unequal Variances		
	Business Administration	**Faculty of Technology & Innovation**
Mean	11,746	11,567
Variance	1,902	3,098
Observations	63	67
df	124	
t Stat	0,647	
P(T<=t) one-tail	0,259	
t Critical one-tail	1,657	
P(T<=t) two-tail	0,519	
t Critical two-tail	1,979	

The students at the Faculty of Technology & Innovation (N=67) were associated with a mean score in financial literacy of M=11,567 (SD=1,76). By comparison, the reference group, Business Administration students (N=63), was associated with a numerically higher mean score in financial literacy M=11,746, (SD=1,38) To test the hypothesis that the reference group and the students at the Faculty of Technology & Innovation were associated with statistically different mean scores, an independent *t*-Test was performed. The independent samples were not associated with a statistically significant difference on the chosen confidence level of 95%, t(124)=1,979, p=,519. Thus, the students at the Faculty of Technology & Innovation were not associated with a statistically lower mean score in financial literacy than the reference group. The alternative hypothesis is rejected and the null hypothesis is accepted.

Business Administration vs. Faculty of Arts & Humanities

t-Test: Two-Sample Assuming Unequal Variances		
	Business Administration	**Faculty of Arts & Humanites**
Mean	11,746	10,412
Variance	1,902	4,856
Observations	63	34
Hypothesized Mean Difference	0	
df	47	
t Stat	3	
P(T<=t) one-tail	0,001	
t Critical one-tail	1,678	
P(T<=t) two-tail	0,002	
t Critical two-tail	2,012	

The students at the Faculty of Arts & Humanities (N=34) were associated with a mean score in financial literacy of M=10,412 (SD=2,2). By comparison, the reference group, Business Administration students (N=63), was associated with a numerically higher mean score in financial literacy M=11,746, (SD=1,38) To test the hypothesis that the reference group and the students at the Faculty of Arts & Humanities were associated with statistically different mean score, an independent *t*-Test was performed. The independent samples were associated with a statistically significant difference on the chosen confidence level of 95%, t(47)=3,2, p=,002. Thus, the students at the Faculty of Arts & Humanities were associated with a statistically lower mean score in financial literacy than the reference group. The alternative hypothesis is accepted and the null hypothesis is rejected.

Business Administration vs. Faculty of Social Sciences

t-Test: Two-Sample Assuming Unequal Variances		
	Business Administration	Faculty of Social Sciences
Mean	11,746	10,957
Variance	1,902	3,498
Observations	63	93
Hypothesized Mean Difference	0	
df	153	
t Stat	3,030	
P(T<=t) one-tail	0,001	
t Critical one-tail	1,655	
P(T<=t) two-tail	0,003	
t Critical two-tail	1,976	

The students at the Faculty of Social Sciences (N=93) were associated with a mean score in financial literacy of M=10,957 (SD=1,87). By comparison, the reference group, Business Administration students (N=63), was associated with a numerically higher mean score in financial literacy M=11,746, (SD=1,38) To test the hypothesis that the reference group and the students at the Faculty of Social Sciences were associated with a statistically different mean score, an independent t-Test was performed. The independent samples were associated with a statistically significant difference on the chosen confidence level of 95%, t(153)=1,976, p=,003. Thus, the students at the Faculty of Social Sciences were associated with a statistically lower mean score in financial literacy than the reference group. The alternative hypothesis is accepted and the null hypothesis is rejected.

Business Administration vs. Faculty of Medicine

t-Test: Two-Sample Assuming Unequal Variances		
	Business Administration	Faculty of Medicine
Mean	11,746	10,923
Variance	1,902	4,695
Observations	63	78
Hypothesized Mean Difference	0	
df	132	
t Stat	2,737	
P(T<=t) one-tail	0,004	
t Critical one-tail	1,656	
P(T<=t) two-tail	0,007	
t Critical two-tail	1,978	

The students at the Faculty of Medicine (N=78) were associated with a mean score in financial literacy of M=10,923 (SD=2,17). By comparison, the reference group, Business Administration students (N=63), was associated with a numerically higher mean score in financial literacy M=11,746, (SD=1,38) To test the hypothesis that the reference group and the students at the Faculty of Medicine were associated with statistically different mean score, an independent t-Test was performed. The independent samples were associated with a statistically significant difference on the chosen confidence level of 95%, t(132)=1,978, p=,002. Thus, the students at the Faculty of Medicine were associated with a statistically different mean score in financial literacy than the reference group. The alternative hypothesis is accepted and the null hypothesis is rejected.

5.4.2 t-Test of RFD (Means)

Business Administration vs. Faculty of Technology & Innovation

t-Test: Two-Sample Assuming Unequal Variances		
	Business Administration	Faculty of Technology & Innovation
Mean	1,587	1,836
Variance	1,343	1,867
Observations	63	67
Hypothesized Mean Difference	0	
df	127	
t Stat	-1,121	
P(T<=t) one-tail	0,132	
t Critical one-tail	1,657	
P(T<=t) two-tail	0,265	
t Critical two-tail	1,979	

The students at the Faculty of Technology & Innovation (N=67) were associated with a mean score in *RFD* of M=1,836 (SD=1,36). By comparison, the reference group, Business Administration students (N=63), was associated with a numerically lower mean score in rationality M=1,587, (SD=1,16) To test the hypothesis that the reference group and the students at the Faculty of Technology & Innovation were associated with statistically different mean score, an independent *t*-Test was performed. The independent samples were not associated with a statistically significant difference on the chosen confidence level of 95%, t(127)=1,979, p=,265. Thus, the students at the Faculty of Technology & Innovation were not associated with a statistically different mean score in rational financial decision making than the reference group. The alternative hypothesis is rejected and the null hypothesis is accepted.

Business Administration vs. Faculty of Arts & Humanities

t-Test: Two-Sample Assuming Unequal Variances		
	Business Administration	Faculty of Arts & Humanities
Mean	1,587	1,500
Variance	1,343	2,379
Observations	63	34
Hypothesized Mean Difference	0	
df	54	
t Stat	0,289	
P(T<=t) one-tail	0,387	
t Critical one-tail	1,674	
P(T<=t) two-tail	0,774	
t Critical two-tail	2,005	

The students at the Faculty of Arts & Humanities (N=34) were associated with a mean score in *RFD* of M=1,500 (SD=1,54). By comparison, the reference group, Business Administration students (N=63), was associated with a slightly higher mean score in rationality M=1,587, (SD=1,16) To test the hypothesis that the reference group and the students at the Faculty of Arts & Humanities were associated with statistically different mean score, an independent *t*-Test was performed. The independent samples were not associated with a statistically significant difference on the chosen confidence level of 95%, t(54)=2,005, p=,775. Thus, the students at the Faculty of Arts & Humanities were not associated with a statistically different mean score in rational financial decision making than the control group. The alternative hypothesis is rejected and the null hypothesis is accepted.

Business Administration vs. Faculty of Social Sciences

t-Test: Two-Sample Assuming Unequal Variances		
	Business Administration	**Faculty of Social Sciences**
Mean	1,587	1,720
Variance	1,343	1,747
Observations	63	93
Hypothesized Mean Difference	0	
df	144	
t Stat	-0,665	
P(T<=t) one-tail	0,254	
t Critical one-tail	1,656	
P(T<=t) two-tail	0,507	
t Critical two-tail	1,977	

The students at the Faculty of Social Sciences (N=93) were associated with a mean score in *RFD* of M=1,720 (SD=1,32). By comparison, the reference group, Business Administration students (N=63), was associated with a numerically lower mean score in rationality M=1,587, (SD=1,16) To test the hypothesis that the reference group and the students at the Faculty of Social Sciences were associated with statistically different mean score, an independent *t*-Test was performed. The independent samples were not associated with a statistically significant difference on the chosen confidence level of 95%, t(144)=1,977, p=,507. Thus, the students at the Faculty of Social Sciences were not associated with a statistically different mean score in rational financial decision making than the reference group. The alternative hypothesis is rejected and the null hypothesis is accepted.

Business Administration vs. Faculty of Medicine

t-Test: Two-Sample Assuming Unequal Variances		
	Business Administration	**Faculty of Medicine**
Mean	1,587	1,667
Variance	1,343	1,524
Observations	63	78
Hypothesized Mean Difference	0	
df	136	
t Stat	-0,393	
P(T<=t) one-tail	0,348	
t Critical one-tail	1,656	
P(T<=t) two-tail	0,695	
t Critical two-tail	1,978	

The students at the Faculty of Medicine(N=78) were associated with a mean score in RFD of M=1,667 (SD=1,23). By comparison, the reference group, Business Administration students (N=63), was associated with a numerically lower mean score in rationality M=1,587, (SD=1,16) To test the hypothesis that the reference group and the students at the Faculty of Medicine were associated with statistically different mean score, an independent *t*-Test was performed. The independent samples were not associated with a statistically significant difference on the chosen confidence level of 95%, t(136)=1,978, p=,695. Thus, the students at the Faculty of Medicine were not associated with a statistically different mean score in rational financial decision making than the reference group. The alternative hypothesis is rejected and the null hypothesis is accepted.

5.4.3 t-Test of financial literacy (Variances)

Business Administration vs. Faculty of Technology & Innovation

t-Test: Two-Sample Assuming Unequal Variances		
	Business Administration	**Faculty of Technology & Innovation**
Mean	1,872	3,052
Variance	15,655	46,755
Observations	63	67
df	107	
t Stat	-1,212	
P(T<=t) one-tail	0,114	
t Critical one-tail	1,659	
P(T<=t) two-tail	0,228	
t Critical two-tail	1,982	

The students at the Faculty of Technology & Innovation (N=67) were associated with a mean score in variance of financial literacy of M=3,052 (SD=6,83). By comparison, the reference group, Business Administration students (N=63), was associated with a numerically lower score in variance of financial literacy of M=1,872, (SD=3,956) To test the hypothesis that the reference group and the students at the Faculty of Technology & Innovation were associated with statistically different score in variance of financial literacy, an independent t-Test was performed. The independent samples were not associated with a statistically significant difference on the chosen confidence level of 95%, t(86)=1,982, p=,228. Thus, the students at the Faculty of Technology & Innovation were not associated with a statistically lower score in variance of financial literacy than the reference group. The alternative hypothesis is rejected and the null hypothesis is accepted.

Business Administration vs. Faculty of Arts & Humanities

t-Test: Two-Sample Assuming Unequal Variances		
	Business Administration	**Faculty of Arts & Humanities**
Mean	1,872	4,713
Variance	15,655	57,698
Observations	63	34
df	43	
t Stat	-2,037	
P(T<=t) one-tail	0,024	
t Critical one-tail	1,681	
P(T<=t) two-tail	0,048	
t Critical two-tail	2,017	

The students at the Faculty of Arts & Humanities (N=34) were associated with a mean score in variance of financial literacy of M=4,713 (SD=7,59). By comparison, the reference group, Business Administration students (N=63), was associated with a numerically lower score in variance of financial literacy of M=1,872, (SD=3,956) To test the hypothesis that the reference group and the students at the Faculty of Arts & Humanities were associated with a statistically different score in variance of financial literacy, an independent t-Test was performed. The independent samples were not associated with a statistically significant difference on the chosen confidence level of 95%, t(43)=1,988, p=,048. Thus, the students at the Faculty of Arts & Humanities were associated with a statistically lower score in variance of financial literacy than the reference group. The alternative hypothesis is accepted and the null hypothesis is rejected.

Business Administration vs. Faculty of Social Sciences

t-Test: Two-Sample Assuming Unequal Variances		
	Business Administration	**Faculty of Social Sciences**
Mean	1,872	3,461
Variance	15,655	37,428
Observations	63	93
df	154	
t Stat	-1,969	
P(T<=t) one-tail	0,025	
t Critical one-tail	1,655	
P(T<=t) two-tail	0,051	
t Critical two-tail	1,975	

The students at the Faculty of Social Sciences (N=93) were associated with a mean score in variance of financial literacy of M=3,461 (SD=6,117). By comparison, the reference group, Business Administration students (N=63), was associated with a numerically lower score in variance of financial literacy of M=1,872, (SD=3,956) To test the hypothesis that the reference group and the students at the Faculty of Social Sciences were associated with a statistically different score in variance of financial literacy, an independent *t*-Test was performed. The independent samples were associated with a statistically significant difference on the chosen confidence level of 95%, t(154)=1,975, p=,051. The p-value of 0,051 can be estimated as equal to 0,05. The students at the Faculty of Social Sciences were associated with a statistically different score in variance of financial literacy than the reference group. The alternative hypothesis is accepted and the null hypothesis is rejected.

Business Administration vs. Faculty of Medicine

t-Test: Two-Sample Assuming Unequal Variances		
	Business Administration	**Faculty of Medicine**
Mean	1,872	4,635
Variance	15,655	95,351
Observations	63	78
df	106	
t Stat	-2,278	
P(T<=t) one-tail	0,012	
t Critical one-tail	1,659	
P(T<=t) two-tail	0,025	
t Critical two-tail	1,983	

The students at the Faculty of Medicine (N=78) were associated with a mean score in variance of financial literacy of M=4,635 (SD=9,76). By comparison, the reference group, Business Administration students (N=63), was associated with a numerically lower score in variance of financial literacy of M=1,872, (SD=3,956) To test the hypothesis that the reference group and the students at the Faculty of Medicine were associated with a statistically different score in variance of financial literacy, an independent *t*-Test was performed. The independent samples were not associated with a statistically significant difference on the chosen confidence level of 95%, t(106)=1,983, p=,025. Thus, the students at the Faculty of Medicine were associated with a statistically different score in variance of financial literacy than the reference group. The alternative hypothesis is accepted and the null hypothesis is rejected.

5.4.4 t-Test of RFD (Variances)

Business Administration vs. Faculty of Technology & Innovation

t-Test: Two-Sample Assuming Unequal Variances		
	Business Administration	**Faculty of Technology & Innovation**
Mean	1,322	1,839
Variance	4,805	33,143
Observations	63	67
df	86	
t Stat	-0,684	
P(T<=t) one-tail	0,248	
t Critical one-tail	1,663	
P(T<=t) two-tail	0,496	
t Critical two-tail	1,988	

The students at the Faculty of Technology & Innovation (N=67) were associated with a mean score in variance of *RFD* of M=1,839 (SD=5,76). By comparison, the reference group, Business Administration students (N=63), were associated with a numerically lower score in variance of *RFD* of M=1,322, (SD=2,192) To test the hypothesis that the reference group and the students at the Faculty of Technology & Innovation were associated with a statistically different score in variance of *RFD*, an independent *t*-Test was performed. The independent samples were not associated with a statistically significant difference on the chosen confidence level of 95%, t(86)=1,988, p=,496. Thus, the students at the Faculty of Technology & Innovation were not associated with a statistically different score in variance of *RFD* than the reference group. The alternative hypothesis is rejected and the null hypothesis is accepted.

Business Administration vs. Faculty of Arts & Humanities

t-Test: Two-Sample Assuming Unequal Variances		
	Business Administration	**Faculty of Arts & Humanities**
Mean	1,322	2,309
Variance	4,805	28,966
Observations	63	34
df	39	
t Stat	-1,024	
P(T<=t) one-tail	0,156	
t Critical one-tail	1,685	
P(T<=t) two-tail	0,312	
t Critical two-tail	2,023	

The students at the Faculty of Arts & Humanities (N=34) were associated with a mean score in variance of *RFD* of M=2,309 (SD=5,38). By comparison, the reference group, Business Administration students (N=63), were associated with a numerically lower score in variance of financial literacy of M=1,322, (SD=2,192) To test the hypothesis that the reference group and the students at the Faculty of Arts & Humanities were associated with a statistically different score in variance of *RFD*, an independent *t*-Test was performed. The independent samples were not associated with a statistically significant difference on the chosen confidence level of 95%, t(39)=2,023, p=,312. Thus, the students at the Faculty of Arts & Humanities were not associated with a statistically different score in variance of *RFD* than the reference group. The alternative hypothesis is rejected and the null hypothesis is accepted.

Business Administration vs. Faculty of Social Sciences

t-Test: Two-Sample Assuming Unequal Variances		
	Business Administration	**Faculty of Social Sciences**
Mean	1,322	1,728
Variance	4,805	8,524
Observations	63	93
df	152	
t Stat	-0,992	
P(T<=t) one-tail	0,161	
t Critical one-tail	1,655	
P(T<=t) two-tail	0,323	
t Critical two-tail	1,976	

The students at the Faculty of Social Sciences (N=93) were associated with a mean score in variance of *RFD* of M=1,728 (SD=2,919). This is numerically the highest number of variance in RFD that have been seen in the survey. By comparison, the reference group, Business Administration students (N=63), was associated with a numerically lower score in variance of *RFD* of M=1,322, (SD=2,192) To test the hypothesis that the reference group and the students at the Faculty of Social Sciences were associated with a statistically different score in variance of *RFD*, an independent *t*-Test was performed. The independent samples were not associated with a statistically significant difference on the chosen confidence level of 95%, t(152)=1,976, p=,323. Thus, the students at the Faculty of Social Sciences were not associated with a statistically different score in variance of *RFD* than the reference group. The alternative hypothesis is rejected and the null hypothesis is accepted.

Business Administration vs. Faculty of Medicine

t-Test: Two-Sample Assuming Unequal Variances		
	Business Administration	**Faculty of Medicine**
Mean	1,872	4,635
Variance	15,655	95,351
Observations	63	78
df	106	
t Stat	-2,278	
P(T<=t) one-tail	0,012	
t Critical one-tail	1,659	
P(T<=t) two-tail	0,025	
t Critical two-tail	1,983	

The students at the Faculty of Medicine (N=78) were associated with a mean score in variance of *RFD* of M=1,504 (SD=2,827). By comparison, the reference group, Business Administration students (N=63), was associated with a numerically higher score in variance of *RFD* of M=1,322, (SD=2,192) To test the hypothesis that the reference group and the students at the Faculty of Medicine were associated with a statistically different score in variance of *RFD*, an independent *t*-Test was performed. The independent samples were not associated with a statistically significant difference on the chosen confidence level of 95%, t(139)=1,977, p=,667. Thus, the students at the Faculty of Medicine were not associated with a statistically different score in variance of RFD than the reference group. The alternative hypothesis is rejected and the null hypothesis is accepted.

5.5 Assessment of Response Rate

As seen in Table A, the response rate of the whole survey was 6,03% which could be considered as low, but acceptable. The faculties of Arts & Humanities and Medicine had the lowest response rates, with 1,88% for the Faculty of Arts & Humanities and 4,01%

for the Faculty of Medicine. The values are low. One factor that can explain the low values is that the survey was published in very big Facebook pages when reaching out to these faculties, which means that not everybody will get a notification that something new has been published on the page. This depends on private settings and is not something that can be controlled. In contrary, in the other population groups, the survey was sent out in class groups, in which there were people that the researchers know personally, which the researchers assume make it more likely that people take the time to answer the survey in those groups.

What also can be seen in Table A is that all the samples is acceptable in size, but the high frequency of response makes the Faculty of Medicine and Faculty of Arts & Humanities not fully representable. The reason for this is that the amount of asked people are a large part of the total asked population, but with a low response rate.

6. Analysis

In this chapter, the results from the data gathered and the statistical testing described in the previous chapter will be analyzed. This will be done through the lens of conceptual framework, in order to establish an answer to the research question stated in the first chapter of the thesis. Further, linkages back to the studies acting as a base for our reasons will be made, to see differences and similarities in the findings.

The main purpose has been to determine if there is a difference between the students at faculties at Umeå University concerning their financial literacy and financial rationality. In order to gain this knowledge, a survey has been conducted, through a questionnaire that has been handed out digitally to students of the four different faculties of the university. The responding students have answered questions concerning their own financial decision making. Further, statistical tests have been made in order to assess if there is a significant difference between the students of the different faculties, concerning these subjects. To conclude, this study has looked at the level of financial literacy among students of the different faculties of Umeå University, choosing a reference group of Business Administration students. Further, this study has been investigating whether students of Umeå University make rational decisions concerning their personal finance. This has been done by answering the following research question:

> *"Do students' financial literacy and economic rationality differ between different faculties at Umeå university?"*

In order to find a relevant way to assess financial literacy, the researchers have found inspiration in surveys used by OECD (2017) and the American Council of Education (Walstad & Rebeck, 2016). The study last mentioned also worked as an inspiration towards structuring the survey for this study. Furthermore, the researchers have also looked at a Swedish study concerning financial literacy, made by Intrum (2019).

The concept of rationality is a key component to this research and in order to define what decisions that can be considered as rational, the researchers have turned to the RCT, described in Eriksson (2011). A substantial part of the RCT consists in which values are put into the term "utility". Thus, the researchers have had to find a definition of utility that can build a base for a study within the subject of finance. In order to do this, the

researchers have relied on the established *Theory of Utility* (Jevons, 1911) and also *The Axioms of The Theory of Expected Utility* (Gelengül, 2019).

The previous studies have led to an increased understanding of the subject of choice. The researchers decided to further develop this by building a framework, to assess financial rationality. By defining rationality and utility, a rational financial decision have been conceptualized, stating that for a decision to qualify as a *RFD*, it must both have a reasoning behind it and have the end objective to maximize economical gain. Based on *RFD* the researchers have formed a theoretical point of reference when determining if one decision is rational, neutral or irrational. This helped in understanding the data, and in the process of making the following analyses.

The survey has not considered or analyzed any demographic factors. In this thesis, the programs from the different faculties of Umeå University have been grouped in accordance with their respective faculties. By doing this, the sample is kept at a sufficient size in order to conduct analyzes. Although, the fact that this grouping is likely to affect the outcome of the analysis needs to be acknowledged. The researchers has considered this when making the following analyzes.

6.1 Analysis of Financial Literacy

In Intrum's study (2019) young people were asked whether or not they had learned about how to take care of their personal finance in school. 42% of the respondents in the ages 19-21 answered that they had not learned about that in school and 4% answered that they did not know. In the age span 22-24 56% answered that they did not learn about personal finance in school and 2% answered that they did not know whether or not they did. Thus, even though personal finance is mandatory in high school and in secondary high school, it seems like many young people do not even recall that they have encountered this subject through school. When asked about whether the respondents thought that they had learned enough of personal finance for them to manage as adults and move away from home, 20% of the respondents in the age span 19-21 answered that they had. In the 22-24 age span, 21% of the respondents answered that they had. Furthermore, it seems like there is a need for improving the education concerning personal finance in school.

ANZ Bank (Hung et.al, 2009, p.6) defines Financial Literacy as; *"The ability to make informed judgements and to take effective decisions regarding the use and management of money"*. Downwards, the researchers will make analyses about the level of Financial Literacy among the students in the sample groups, and develop possible reasons behind the level of financial literacy and its variance. To assess this, the hypotheses stated in chapter 1 will be used;

> H_{01} : There is no difference in financial literacy between Business Administration students and other students.

> H_{A1} : There is a difference in financial literacy between Business Administration students and other students.

The expectation prior to the research was that Business Administration students would be different concerning their financial literacy, because of the fact that they study courses in finance and economy. As expected, the students at three of the four other sample

populations had significant differences in mean scores of Financial Literacy. With this said, it can be concluded that the researchers reject the null hypothesis, and accept the alternative hypothesis;

> H_{A1} : There is a difference in financial literacy between Business Administration students and other students.

The Faculty of Technology & Innovation however, stood out from the other faculties in the sense that their mean score of financial literacy was 0,61 points higher than the faculty with the second highest score and only 0,18 lower than the Business Administration students. The difference between the Faculty of Technology and the Business Administration students was not statistically significant. Although, approximately half of the test group of the Faculty of Technology & Innovation consisted of Master of Science in Industrial Economy students. The students at the Master of Science in Industrial Economy also study courses in finance and economics. Thus, it is likely that the level of education in personal finance and economy could be a driving factor behind the results of this study.

Furthermore, the Faculty of Arts & Humanities also had the highest variance of the 5 sample populations. It is likely that this could be a product of high levels of varying financial literacy within this sample group. Although, the high amount of variance can be linked to the lower amount of respondents (34) in the sample group of the students at Faculty of Arts & Humanities. Another reason for this could be that the Faculty of Arts & Humanities have people from very heterogeneous backgrounds in their classes.

In their study, Cull & Whitton (2011, p. 106-108) highlighted a number of areas where they believed that the Business students had under performed concerning their financial literacy. Furthermore, they concluded with stating that not even Business students are immune against financial illiteracy (Cull & Whitton, 2011, p. 111). Different tests may be assessed in different ways concerning what scores that is to be considered as sufficient for students categorized as "Business students" or "Business Administration students". However, the findings made in this thesis study concerning statistically significant differences in financial literacy between the Business Administration students and students of the other faculties -except for the Faculty of Technology & Innovation- can be interpreted as contradictive to those of Cull & Whitton (2011, p. 106-108). It is still important to acknowledge that these studies has been conducted on different geographical locations, which could have an impact on how financial literacy is assessed and which knowledge that is considered to be of importance. Furthermore, these two studies were based on two different surveys, containing different questions, making it likely that the complexity of the questions have varied.

As Intrum (2019) suggests, the financial tutoring that young people get from school may not be sufficient, which can mean that groups of people that do not get sufficient financial education from their home environment are at a risk of falling behind concerning financial literacy. While asking Therese Wiklund whether there is a need for improving the financial literacy among young people, T. Wiklund (personal communication, 28 February, 2020) referred to a press release from Arques (2019). He stated that financial literacy is becoming more and more important in today's society and that sufficient literacy in many cases is not provided in the home environment. For this reason the role of the school is becoming increasingly important (Arques, 2019). This suggests that

financial education within the school environment has the possibility make a positive difference concerning financial literacy among young people.

Comparing the variance in the sample population of Business Administration students to the other sample populations, it can be inferred from our t-tests that the Faculty of Arts & Humanities and the Faculty of Medicine have statistically significant differences in variance of the financial literacy score. The narrower span of the Business Administration student's scores could possibly be explained by the knowledge they have gained through financially related courses within their programme.

Another inference is that it can not be confirmed that the students from the Faculty of Social Sciences and the Faculty of Technology & Innovation did not show any statistically significant difference in variance compared to the Business Administration students. Instead, this difference could have been achieved by chance. The -previously mentioned- Faculty of Arts & Humanities and the Faculty of Medicine however, showed a statistically significant variance compared to the Business Administration students. Thus, suggesting that the knowledge on average differed more within the Faculty of Arts & Humanities and the Faculty of Medicine, than it did within the reference group.

According to Intrum (2019), only 12% of the respondents in their sample group aged 19-21 and 11% in their sample group aged 22-24 prioritize investing their saved money in stocks or funds, when choosing between spending and investing for future value growth. Instead 80% of the respondents in both these sample groups chose to prioritize to save for travelling, or for consumption (Intrum, 2019). One could interpret the findings of the Intrum (2019) study in such a way that the numbers would imply that young people nowadays have a hard time understanding the value of savings and making rational financial decisions.

In the survey conducted for this thesis study, respondents were asked the question; "Which of the following investment opportunities has the highest expected return over the long term?". They were given the answering options "Stocks and Funds", "Bonds" and "Savings Account" (Appendix 4, Question 13). On this question, it turned out that only 8,955% of the total sample answered incorrectly. Instead of pointing towards a lack of financial literacy, the data found in this study, rather suggests that the students of Umeå University -which to a wide extent represent a similar age group as the one referred to in the Intrum (2019) study- have a good insight in what options that are expected to lead to a good value growth. Further this may suggest that there can be another reason that such a small number of the respondents of the Intrum (2019) study answered that they choose to invest in stocks or funds. Instead the findings can be interpreted in such a way that the respondents valued other options such as travels and consumption even higher than value growth at the time of participating in the Intrum (2019) study. It is likely however, that people change their priorities over time.

6.2 Analysis of RFD

In order to assess the participants answers concerning *RFD*'s, this research turned to *Rational Choice Theory*, by Eriksson (2011), which states that a key component of how to approach rational decision making lies in how the term utility is approached (Eriksson, 2011, p.18). Within this thesis, the chosen approach to the term utility is retrieved from Jevons (1911), separating the term utility from any deeper meaning tied to moral

considerations, stating that; "Each labourer, in the absence of other motives, is supposed to devote his energy to the accumulation of wealth". The researchers have also turned to *The Axioms of the Theory of Expected Utility*, where Gelengül (2019) explains how this theory assumes that people decide between risky prospects, by calculating the expected utility of the outcomes. Translating this, to the *RFD* part of the questionnaire, the options that the respondents chose, have to be the most beneficial for their personal wealth in order for it to qualify as a *RFD*. Some of the answers can be assessed as such, just by the logic of the question. Other questions are linked together in order to find out about the basis on which a decision is made.

> H_{02} : There is no difference in financial rationality between Business Administration students and other students.

> H_{A2} : There is a difference in financial rationality between Business Administration students and other students.

The expectation that Business Administration students would score higher than the other test groups on the *RFD* part is based on the reasoning of Lusardi (2008, p. 19-20), stating that knowledge and understanding of the subject of finance can increase the possibility of making good and rational economic decisions.

Furthermore, it is based on an expectation that a higher level of financial literacy would lead to a higher underlying certainty in decision making. The expectation was that this also would lead to a higher level of consistency when the respondents answered the questions related to *RFD*. According to the theory of expected utility, described by Gelengül (2019), the perceived value of an outcome alongside with the perceived probability of that outcome occurring is the factors used by decision makers in order to compare the expected utility values of risky prospects. In the context of this study, the expectation was that Business Administration students would be likely to master this way of reasoning better than the other test groups.

While analyzing according to the *RFD* framework, the researchers found that the highest score was held by the Faculty of Technology and Innovation, with a score of 1,84. As opposed to expectations, the Business Administration students were not able to produce any of the higher *RFD* scores. Instead, their score was the second to lowest. Noteworthy is that their score did not differ significantly from any of the other sample groups. Thus, the null hypothesis can not be dismissed, and it can be seen that there is no difference in financial rationality between Business Administration students and other students.

> H_{02} : There is no difference in financial rationality between Business Administration students and other students.

Looking further into the relation between *RFD* and financial literacy, the researchers tested for the correlation between the means of *RFD* and the means of financial literacy. According to the test, no strong relationship could be found between scores of means in *RFD* and scores of means in financial literacy. This finding was also surprising, since the expectations were that a high level of financial literacy would contribute to facilitating *RFD's*. Thus, it can also be stated that the results went against the previous expectations that a higher level of financial literacy -which the Business Administration students had- also would contribute towards a higher ability to make *RFD*s.

Overall, the variance on the *RFD* questions was very high. Although, looking at the difference between Business Administration students and the different faculties studied, there is no significant difference on the chosen confidence level of 95%. The results could therefore not be considered as statistically significant.

As previously discussed, the expectations of the researchers was that possessing a higher level of financial literacy would contribute towards making more *RFD's*. This was based on Lusardi's (2008, p. 19-20) suggestion concerning how economic understanding and knowledge would increase the possibility of making rational economic decisions. However, the findings in this study showed that respondents' financial literacy did not seem to affect whether or not they reasoned rationally in a financial context.

These findings can neither confirm, nor reject that the mathematics of the *Theory of Expected Utility* is applicable on the findings of this study *(EU(Q) = x p_x + y p_y,*, where *EU* = Expected Utility, *Q* = a specific event, *x* & *y* = the expected outcomes, p_x = the probability of *x* occurring and finally, p_y = the probability of *y* occurring). On the one hand, the perceived value of each option of the *RFD* questions is likely to have played a part in the decision making of the respondents. On the other hand it is hard to assess whether or not probability has played a role in the way that the respondents answered the *RFD* part of the survey. This uncertainty occurs mainly because the questions of the survey did not link together financial literacy with probable outcomes of financial decision making. It also partly occurs since no higher consistency was shown by the Business Administration students, which were expected to be more financially literate and thus, also were expected to have a higher level of certainty behind their answers concerning both financial literacy and *RFD's*. If this would have been the case, their assessment of probability could theoretically have been a factor behind a higher level of *RFD's*.

In this study, the researchers have discussed the issue of debts and loans with representatives of two Swedish banks. H. Hedman (personal communication, February 14, 2020) meant that more and more young people got into trouble because of instant loans. When asked about her experience related to young people and instant loans, T. Wiklund (personal communication, 28 February, 2020) however stated that her impression was that most young people knew that instant loans should be avoided. Furthermore Krantz, an analyst on the Enforcement Agency stated that the Swedish student loan (CSN) is a quite common form of debt towards the Enforcement Agency. However he also stated that the sums originating from CSN were relatively small and that there is a strong correlation between a high amount of debt and a low level of education. (J. Krantz, personal communication, 5 March, 2020)

A clear majority (78,2%) of the respondents of the survey conducted in this study answered that they have not taken any other loans besides from the CSN loan. However, a high amount (42,5%) of the students that have taken other loans did not look at different companies in order to find alternative loan options. In total 9,3% of the respondents have taken other loans besides from the CSN loan, without looking at options from different companies before taking the loan. In the context of the conceptual framework created in this study, these answers do not qualify as *RFD's*. The reason behind this is that *RFD* builds on the previously mentioned definition of utility in an economic context, given by both Jevons (1911, p. 29) and also explained by Eriksson (2011, p. 18-19), stating that to

maximize utility is to maximize ones wealth. In the vast majority of cases, this is not likely to be achieved, without exploring different options.

Another aspect of these findings is the potential risk in not assessing options connected to more than one company. In order to make any statements concerning the level of risk behind the specific loan situations related to the respondents of the survey, more information concerning the circumstances would be needed. However, it is likely that this approach to loans in some cases can be related to a behavior that might increase the risk of a person ending up in debt towards the Enforcements Agency.

As previously stated, the chosen definition of utility by Jevons (1911), that lies as a foundation for the *RFD* framework. Jevons (1911) definition is based on an economic context, and assumes that each individual strives towards maximizing his/her own wealth. This definition of utility, focusing on wealth and excluding moral as a decisive factor, is also described in *Rational Choice Theory*, by Eriksson (2011). In this study, respondents may have different views concerning what they perceive as utility. While some may possess values that are more in line with the *RFD* framework, others may not value their own financial gain as the highest purpose to strive for. This research has not investigated for any differences in values between students of different faculties and the researchers would not exclude that there is a possibility of this factor playing a role in the findings of this study. In the end, one must be aware that decisions that do not qualify as a *RFD*, does not per definition have to be irrational in its nature.

Comparing the variance on rationality with the variance on financial literacy, a higher variance in scores of rationality have been found. One explanation to this and the fact that most of the questions were answered correctly by a large part of the total respondents, could be that some of the questions on the financial literacy part have been formulated in an easier way. The *RFD* questions may have been written in a more complicated way, which could possibly have made them hard to answer in a way that is in line with *RFD* framework. It is also of relevance that the *RFD* questions not only concerned literacy, but actual behavior. This could suggest that although the findings are pointing towards a generally high level of financial literacy, the act of living up to what can be considered a *RFD* may be harder. However, the subject of *RFD* as well as the subject of financial literacy can be made both more and less advanced depending on what aspect of it that is investigated.

7.Conclusion

The final chapter of this thesis contains the conclusion. The answers to the research question and purpose fulfillment will be central topics, as well as describing and analysing the truth criteria in the thesis. The contributions made by the researchers and the ethical and social effects the thesis will be discussed. Lastly, suggestions for further research will be mentioned to further widen the area of use for the findings within this study.

7.1 Concluding Remarks

The main purpose of the thesis has been; *To determine if there is a difference between the faculties at Umeå University concerning their financial literacy and their level of*

financial rationality. The researchers have been able to answer to the main purpose of the thesis. Downwards is a summary of the conclusions that has been made.
In this study, the researchers have set out to answer the research question;

> *"Does student financial literacy and economic rationality differ between different faculties at Umeå university?"*

A survey has been conducted in order to collect data concerning the level of *Financial Literacy* and *RFD's* among students of Umeå University. Through the Use of independent samples, two sample t-Tests, assuming unequal variances, has been conducted.

Concerning *Financial Literacy*, the researchers have found that there is a statistically significant difference between the reference group, consisting of Business Administration students and three of the four faculties examined. The Faculty of Technology and Innovation was the only faculty towards which no statistically significant difference was found. Thus, the findings of this study suggests that there is a difference between students of the different faculties. However, as previously mentioned, what the test groups that produced the best results had in common was that they were both containing respondents which due to the nature of their chosen programmes, studied some form of finance.

Concerning *RFD's*, no statistically significant difference were found between the Business Administration students and any of the other faculties. Thus, the findings of this study suggests that students financial rationality does not differ between the different faculties at Umeå University.

The secondary purpose of this thesis was to investigate if students at Umeå University are rational in their decision making, concerning their personal finance. In the survey, the average *RFD* scores of the different faculties and the reference group were closely centered and they were all above the middle mark. Though the scores were predominantly high, the researchers would like to acknowledge there is still plenty of room for improvements within the area of *RFD* making.

The third purpose was to create knowledge that can be useful in order to further improve the study environment within Swedish universities. Through the findings mentioned above, this study has provided further understanding about students financial literacy, and ability to make *RFD's*. Furthermore, no connection between financial literacy and the ability to make *RFD's* were found. This information may not in itself be sufficient to determine whether or not great value can be found in initiating efforts to improve financial literacy or the ability to make *RFD's* among students. However, they provide proof that financial literacy and thus also the underlying tools required to make solid financial decisions, vary significantly between different groups of students. This is knowledge that can be considered and further developed if efforts are made in order to improve the study environment. These findings also suggests that the area of financial literacy and *RFD's* is relevant to look closer into in order to assess the drivers behind the increasing default of debt payments.

7.2 Truth Criteria

For the researchers to manage the evaluation of the trustworthiness concerning the results, assessments have been made on three criterias related to the research. These are validity, reliability and generalizability of results. Each of these criterias will be described and the ways in which they have been followed will be highlighted.

7.2.1 Reliability

The term *reliability* can be explained as the precision of the measurements being made. If a research where to be conducted multiple times, a high reliability would mean that results of these separate researches would lack differences (Collis and Hussey, 2014, p. 217).

According to Bryman and Bell (2014, p. 109-110), the term *reliability* can have at least three different usages or meanings. The first one is *stability* which can be tested for by using a test-retest method, meaning that the same test is carried out towards the same sample on two different occasions. In order for the measure to be considered as stable, the two different observation should have a high correlation. The second meaning is *internal reliability*, which is applicable when respondents are assessed from their answers in order to give them an overall score. In order for these types of tests to be reliable, these answers need to be a correct indicator towards the overall score. In order to control this, a split-half test can be conducted, where the questions are divided into half to see whether respondents scoring high on one part of the test, also scored high on the other (Bryman and Bell, 2014, p. 109-110). The third of these meanings, *inter-observer consistency*, which is accomplished when the observers can agree on the meaning of the observations.

The data for this study is collected through an online survey and the same survey can be used in order to replicate this test on other occasions. The researchers have carefully formulated the questions in order to minimize the risk of misinterpretations that could lead to respondents answering based on different interpretations of the questions. However, since this research is conducted during an ongoing pandemic, the researchers want to acknowledge the possibility that the current situation could very well impact the way that the respondents handle their personal finance or possibly how they perceive themselves to handle their personal finance. This could very well lead to other results if this research were to be conducted during another point of time.

The questions in the questionnaire comes with a number of different answering options and no questions are of an open character. This means that there is no need to interpret answers that has been given in the respondent's own words. Furthermore, the researchers have created a framework in order to assess the respondents ability to make *RFD's*. In the case of this study being replicated, this framework can be used to once again make these assessments. Thus, the researchers have eliminated the risk of making other assessments of the respondents abilities to make *RFD's*, due to the lack of defaulted approaches towards the data.

7.2.2 Validity

Validity refers to a tests capability to measure what the researchers has set out to measure. Factors that can impact *validity* negatively are research errors such as measurements that

are misleading or lacking in preciseness, samples that does not live up to standards or test procedures that are not being carried out correctly. *Validity* can be assessed in several different ways, one way of doing so is to make sure that the research actually is measuring or representing what it is setting out to do. This is referred to as *face validity* (Collis and Hussey, 2014, p. 53). In this study, the researchers set out to measure the financial literacy and ability to make *RFD's* among students of defined faculties at Umeå University. Thus, the sample is clearly distinguished and it is therefore easy to control whether or not the sample size is large enough and if enough answers are received through the questionnaire. Furthermore, the researchers have had several consulting meetings together with the supervisor in order to ensure that the questionnaire lives up to the expected standards for this study.

In business research an important type of *validity* is *construct validity*, which relates to the fact that some occurrences are not observable in themselves, such as anxiety, which can be manifested through for example sweating, although sweating in itself is not automatically equal to anxiety. To put this into an interpretational context, the research that are affected by these types of constructs, needs to be able to show that they also are the driving factors behind the findings (Collis and Hussey, 2014, p. 53).

Since this study is not conducted through interviews, there is no risk in missing out on information due to misreadings of social signals. The concept of *RFD* is based on the respondent using the knowledge that they possess, whether it is right or wrong, in their decision making concerning personal finance. Through the formulation of the questions it will become clear whether or not the respondents act according to their knowledge. Thus, this research should measure what it sets out to measure and possess a high amount of validity.

7.2.3 Generalizability

Generalizability is the opportunity to apply the research findings to other circumstances, settings or research cases. To be able to generalize about other populations or data sets, it is of importance to have a deep understanding about the subject that is studied (Collis & Hussey, 2014, p. 54). According to Collis & Hussey (2014, p. 54) you can achieve generalizability in two ways, a large sample, or in case of applied interpretivism, if the analysis has captured the interactions and characteristics of the subject studied well. To be able to effectively generalize about a larger population when using positivism, the data should be statistically tested.

As the paradigm used is of positivistic nature, generalizability could be achieved by having a large sample. The sample sizes used have differentiated between the different faculties, but it has never been lower than 34 respondents in any single sample group. This can be considered as an sufficient size to draw conclusions about the larger population. As researchers, it could be said that the definition of students is narrow enough to draw conclusions from the findings and apply them to students in the whole of Sweden. Further, the fact that students come from the whole of Sweden to study at Umeå University, strengthen this statement by the geographically spreading of the respondents. Conclusions about university students from other countries than Sweden can not be drawn, as it can be assumed that economy and cultural differences will affect the data gathered.

7.3 Societal & Ethical Implications

Through this study, the researchers have contributed with insights concerning students financial literacy and also their rationality within the field of personal finance. According to the results of this study, the researchers have found that Business Administration students achieved the highest mean of financial literacy among the test groups. After making the statistical testing, it has become clear that the only case where this difference is not significant, is while testing the Business Administration students against the students of the Faculty of Technology and Innovation. While testing for *RFD*, the Faculty of Technology and Innovation accomplished the highest mean. The Business Administration mean on the other hand, was second to lowest, only higher then the Faculty of Arts & Humanities. Here however, there was no significant difference between the Business Administration students and students of the other faculties.

The results found in this study should not be used in order to substantiate any prejudices. Instead the researchers hope that this study can contribute to a willingness to deepen the knowledge concerning how financial literacy and the ability to make *RFD*s impact students during their study period. Relevant angles to this can come both from how these factors can impact students ability to produce study results and also other more complex psychological aspects.

The results concerning financial literacy may be perceived as good and the level of *RFD* may not be considered as directly alarming. However, the information produced in this study is not enough to draw any conclusions on whether students are financially literate or rational enough for it to be seen as sufficient. To know this, there is first and foremost a need to know what level of financial literacy and rationality that can be seen as sufficient.

In this study, the Business Administration students showed for the highest result when measuring for financial literacy. Most people would likely agree that financial literacy is important to possess in society today. Although, what a certain level of financial literacy leads to, could for the larger society be even more interesting to assess.

7.4 Theoretical & Practical Contributions

This study has been examining the level of financial literacy and the ability to take *RFD*'s among students of the reference group, studying Business Administration alongside with students of the four different faculties of Umeå University. By doing so, this research has contributed to further knowledge about students. The researchers view the results delivered in this study as being of both expected and unexpected outcomes, which will be further explained below.

The results of examining financial literacy had an expected outcome, where the Business Administration students showed for the highest scores among the test group. The Business Administration students had scores that were significantly higher than every other test group, except for the Faculty of Technology & Innovation. This also followed expectations, since approximately half of the sample population from this faculty consisted of Master of Science in Industrial Economy students. These students also have finance and economy as a mandatory part of their programme.

However, this study has also shown that the group of students possessing the highest level of financial literacy does not necessarily have to possess the highest ability to make *RFD*'s. This is shown by the fact that no statistically significant difference arises between the Business Administration students and any other test group, while testing for *RFD*. In fact the Business Administration students produced the second to lowest mean score among all groups. Thus, the results of this study suggests that being financially literate should not be mistaken for being a rational financial decision maker.

7.5 Suggestions for Future Research

The aim of this thesis has been to evaluate the students at Umeå University´s knowledge in financial literacy and the amount of rationality in their decisions. The study was conducted on students of Umeå University, since this was the university with the closest geographical location and also the home campus of the researchers. A suggestion for future research is to conduct this research in other universities in Sweden as well as in other countries. This could provide a wider understanding of the knowledge in this subject.

Furthermore, the researchers acknowledge that it would be interesting to make a qualitative study within the frames of this subject. As researchers working with a quantitative method, the goals is to find out whether or not rational decisions are made among students at Umeå University, and to which extent rational decisions have been made. What is still left for further research to answer, is the question of why the financial literacy and level of rationality is where it is at. This could improve the understanding of reasons behind this phenomena by and in the Swedish society.

Furthermore, research can also be made to in order find effective strategies for improving financial literacy and economic rationality. Since this study has not been able to show for any correlation between a high level of financial literacy and rational financial decision making, the researchers would encourage working towards facilitating the decision making itself. A question to answer here concerns how people in the positions of educators should conduct their teaching in order to offer young people the best possible foundation towards turning knowledge into action.

Lastly, the researchers would like to acknowledge the fact that this thesis has been written during very special circumstances. As also being stressed earlier, the global pandemic of Covid-19 can have affected the answers collected through the survey. Therefore, the researchers would like to propose the opportunity to also make this study in the future, where the pandemic is not apparent anymore. By doing so, the equivalent knowledge can be gained during more stable times. Replicating this study will also provide an opportunity to compare the findings made during the presence of the Covid-19 pandemic, with the ones being made without its presence.

Further studies can be carried out in order to learn whether there is a value in investigating students relationship to personal finance even further. Future studies could investigate the financial situation of students and which impact their financial situation has on their well-being as well as their study results. By finding potential problems or opportunities, contributions can be made to guide even more research in the future.

As being stated in "6.3 Societal and Ethical Implications", the level that students should possess concerning financial literacy and ability to make *RFD*s in order for it to be considered as sufficient, is something that is not yet established. Thus, standards still remain to be set in order for further research to be able to provide deeper knowledge within this field of science. In order to do this, researchers would need to be able to prioritize what products of the student's financial behavior and rationality that can be seen as important and to whom it is important. For example if the importance should lie on an individual level or if it should be considered on a societal level.

This study shows that a significantly higher level of financial literacy does not necessarily mean a significantly higher ability when it comes to making *RFD*s. These findings open for further research on the subject of rational decision making within personal finance in relation to financial literacy. Behaviors can be studied in order to gain deeper knowledge on why students -and possibly also other populations- knowledge is not followed up by actions and what would make it more likely for that to happen.

Appendixes

Appendix 1

Helene Hedman, Handelsbanken

Hur god koll på ekonomi upplever ni/du att de studenter som du möter i ditt arbete har?

-Det går generellt inte att säga att det finns några tydliga mönster. Det mesta brukar komma från familjen. Om ekonomi är något som man pratar om under uppväxten så upplever jag att de har en bättre förståelse. När bankkunder fyller 18 så får de brev från banken och blir inbjudna till att boka in ett möte gällande deras ekonomi. Ofta tar de dock inte tag i sin ekonomi då, utan senare när de flyttar ut och blir mer självständiga.

Det finns troligen både unga och äldre som inte kommer till banken eftersom de tror att de behöver en stor kunskap för att besöka banken, vilket inte är fallet.

Har du märkt någon skillnad över tid?

-Jag upplever att fler och fler får ekonomiska bekymmer. Detta är mycket på grund av tillgängligheten av lån, sk. snabblån. Det var inte lika lätt att ta lån förr och inom företagen som erbjuder snabblån är ribban låg för vad som räknas som bra kreditvärdighet, vilket leder till att fler hamnar i stor skuld.

-Fler unga hamnar också i spelberoende, och kan i vissa fall spela bort stora delar och ibland hela det sparande som de fått av föräldrarna. Detta trots att de troligen fått en bra bas av sina föräldrar gällande kunskap om sparande. Det har försämrats lavinartat. Jag ser ett tydligt riskbeteende och låneförfrågningar kommer numera från folk som är spelberoende. Över tid kan ungdomar fara illa som en följd av "den digitala eran".

Upplever du att det finns ett behov av att förbättra kunskapen?

-Ja, det finns det alltid. På gymnasiet är det troligen en stor skillnad på vad eleverna får med sig, beroende på vilken linje de väljer att gå.

-Det skulle dock vara nyttigt att försvåra lånedelen. Finansinspektionen reglerar mycket gällande hur banker dokumenterar och underbygger sina beslut. De sätter ganska ofta nya regler om vad som ska dokumenteras och inte. Finansinspektionen låter inte SMS-lånebolagen arbeta ostört.

Ser ni att det ligger mycket icke investerade pengar på privata konton?

-Inte generellt sett. Om de har ett kapital så förstår de att de ska investera kapitalet. De som har pengar investerar dem.

Upplever ni att unga ofta framstår som stressade gällande ekonomiska frågor?

-Jag skulle inte säga att jag uppfattar unga som direkt stressade, men när de inser kontantinsatsen till en bostad, så kan vissa bli lite mer stressade. En del blir alltså stressade för vad som idag krävs för att exempelvis kunna skaffa den bostad de önskar.
-Både unga och gamla kan vara nervösa när de kommer hit. Därför måste dessa kunder bemötas på ett så bra sätt som möjligt.

· Hur arbetar ni med att hjälpa unga att förstå ekonomiska frågor bättre?

-Vi försöker prata med barn som följer med föräldrar till banken och på så vis få barnen att känna sig bekväma för att i förlängningen avdramatisera bankbesök.
-Vi skickar brev till de som fyllt 18 för att erbjuda dem samtal om privatekonomi.

Hur ser ni på skolans (grundskolans) ansvar när det gäller att utbilda inom privatekonomi?

-Även om det finns generella riktlinjer för grundskolan, så varierar kvaliteten på den ekonomiska utbildningen säkerligen beroende på lärares egna kunskaper och engagemang i ämnet.

-E-sports utbildningen lägger in en god del ekonomi i sin utbildning, då det kan bli aktuellt för elever att i framtiden driva företag knutet till E-sporten. Detta innebär följjaktligen också att eleverna behöver vara förberedda för att kunna hantera ekonomi. Gymnasieskolor skulle sannolikt behöva mer av detta, då privatekonomi är ständigt närvarande i vardagen.

Appendix 2

Therese Wiklund, Swedbank

Therese Wiklund, har arbetat ca 14 år på Swedbank. Sedan några år tillbaka så har jag arbetat med två av våra samhällsengagemang för en bättre ekonomisk kunskap hos unga och äldre, Ung ekonomi och Digital ekonomi.

Hur god kunskap gällande privatekonomi upplever ni/du att de unga som du möter i ditt arbete har?

-Vissa är intresserade, och har god kunskap. Andra har lite mindre kunskap.
Jag har föreläst i ca två år och kan inte säga att jag har märkt något specifikt över tid.

Upplever du att det finns ett behov av att förbättra kunskapen?

-Ja det gör det, det är otroligt viktigt och det ska inte spela någon roll vilken bakgrund man kommer ifrån. Alla bör få lära sig om ekonomi i skolan.
Se pressmeddelande:

> *"-Koll på ekonomi blir allt viktigare i dagens samhälle med konsumtionshets, höga bostadspriser och ett allt större ansvar för pensionen. Det är kunskaper som*

långt ifrån alla får med sig hemifrån och därför blir skolans roll viktigt." Citat från Arturo Arques, Privatekonom Swedbank.

Upplever ni att unga ofta framstår som stressade gällande ekonomiska frågor?

-Bra fråga, jag tror att det är både och. Sen kan jag inte direkt svara säkert. Det finns nog information från Kronofogden. Exempelvis så kan man få frågor från unga som exempelvis; "Ärver man skulder?" Vad är det som gör att man får sådana frågor? Man kan ju känna när man hör sånt, oj! Jag tror absolut att det kan finnas en oro.

Vad har ni för upplevelse när det gäller unga och snabblån?
Upplever ni det som vanligt förekommande?

-Vi pratar ju om det. Känslan är att de flesta har sett Lyxfällan och de vet att man inte ska ta snabblån. Vi lyfter upp frågan och är tydliga med att allt du lånar ska du betala tillbaka, snabblån-sms-lån och avbetalningar. Vi går däremot aldrig in på specifika bolag.

-I min yrkesroll är det väldigt sällan som jag stöter på människor med en stor skuldsättning av den här typen. Det kan nog vara olika beroende på vad man jobbar med.

Har unga förståelse för villkoren på dessa lån?

De allra flesta har inte hunnit reflektera över det. Lite vanligare att viss kunskap finns hos de som går på gymnasiet, men även där är det många som inte kommit i kontakt med eller funderat på dessa typer av lån.

Hur ser ni på skolans (grundskolans) ansvar när det gäller att utbilda inom privatekonomi?

I grundskolan finns det i läroplanen för hem och konsumentkunskap. På gymnasiet finns det med i ämnet samhällskunskap. Vi erbjuder vår föreläsning till skolorna för att vi vill inspirera ungdomar till att ta kontroll över sin ekonomi och påverka sin framtid.
Se pressmeddelande:

> *"Sju av tio unga tycker att skolan ska ta ett större ansvar och lära ut mer om privatekonomi. Privatekonomi finns med i läroplanen men inte som ett eget ämne."*

> *" Det är bra att privatekonomi ingår i skolans läroplan, men skolorna behöver se till att undervisningen verkligen blir av." Citat Arturo Arques.*

Berätta om era satsningar på att utbilda unga inom privatekonomi?

-Lyckoslanten: En tidning som går ut till 4-6 årskurs. 340000 exemplar. Tidningen kommer i 4 ggr per år. Första gången 1926.

-Ung ekonomi: Föreläsning för elever i skolor om privatekonomi. Vi föreläste för 63600 personer under 2019. Året innan 60000. Detta år är målsättningen att nå ännu fler. Vi

har projektledare i varje rörelseområde som har övergripande ansvar och ambassadörer på kontoren som också är ute i skolorna och håller i föreläsningar.

Appendix 3

Johan Krantz - Kronofogden

Vi har hittat statistik på hemsidan om snabblån. Har ni mer och nyare statistik?

-Ingen ny statistik, därför att vi har insett att det är omöjligt att följa upp den statistiken på ett vettigt sätt. Detta är med anledning av att bolagen förändras och byts ut och skickar in olika data. Med bolagen menar jag de bolagen som köper upp kundfordringar. Det blir därför inte särskilt tillförlitligt och datat kan således inte användas. Det vore därför dumt att publicera de felaktiga slutsatserna.

Ser ni en korrelation mellan en hög skuldsättning hos er och en låg utbildningsgrad?

Ja det stämmer, generellt sätt så finns det stora korrelationer mellan hög skuldsättning och en låg utbildningsgrad. En stor överviktigt av de utan högskole- eller universitetsutbildning har skulder hos Kronofogden. Det är alltså de som är allra mest benägna att åta sig skulder hos Kronofogden.

Hur mycket av skulderna hos er kan relateras till CSN-lån?

Vi kan inte se en övervikt av skulderna till CSN mängdmässigt, 1.3 miljarder utav en total på 80 miljarder. Men det som vi dock kan se är att det är en väldigt vanligt förekommande typ av skuld. 80 000 personer har skulder hos Kronofogden som baseras på CSN-lån i grunden . Det är alltså många personer, men generellt sett inte en så stor summa. Denna mängd kan relateras till antalet skuldsatta totalt i Sverige idag, vilket är 410 000 personer. Alltså ca 19,5% är baserade på CSN-lån.

Vad har ni sett för utveckling gällande snabblån hos unga?

Det man kan se lite är att det finns ett stort betalningsproblem, där unga vuxna mellan 18 till 25 tar mer och mer snabblån. Avbetalningsköp ökar också, exempelvis Klarna, men också konsumtionslån från nischbanker har en snabb negativ utveckling.

Det känns också som att marknadsföringen av snabb och konsumtionslån idag är väldigt glorifierad. Långivarna ger skenet av att lånen är enkla att pausa, vilket är missvisande.

Appendix 4

The survey
Section 1: General information
1. **Do you study at Umeå University?**
   - Yes
   - No
2. **Do you study Business Administration?**
   - Yes
   - No
3. **Which faculty do you study at?**
   - The Faculty of Social Sciences
   - The Faculty of Medicine
   - The Faculty of Technology & Innovation
   - The Faculty of Arts & Humanities

Section 2: Financial Literacy
4. **What is a stock?**
   - An ownage certificate of parts of several companies
   - A part of a publicly traded company
   - An interest-bearing debt- certificate, usually to a larger company
5. **You borrow 250 kr to a friend, and the day after he/she pays 275 kr back. How much interest has he/she payed?**
   - 10%
   - 5%
   - Nothing in real terms, because the inflation is higher
6. **How much(at the least) do you need to pay upfront in Sweden, when taking a loan for buying a house?**
   - 85%
   - 30%
   - 15%
7. **What is a comparison price?**
   - The average price of the product over the last year.
   - The price per weight unit of the product.
   - A price that has been controlled by The Swedish Consumer Agency, so that it is reasonable.
8. **What is expected to happen if the central bank lowers the base rate?**
   - The cost that private banks pay to loan from the central bank is lowered
   - The rate of inflation decreases
   - The cost that the central bank pays to loan from the private banks is raised
9. **What is the disposable account balance?**
   - The credit you have on you bank account
   - The money on your account that as of right now is available for making purchases with
   - Money that you can´t use to make purchase with as of right now
10. **What is the highest, your net or gross salary?**
    - Gross salary
    - Net salary
    - That depends on the circumstances
11. What is the purpose of an financial buffer?

- A way to plan your finances to get a good overview of coming costs and earnings
- To have money for unexpected costs
- A very long term investment

12. **Suppose that you have money on a savings account year one. The interest rate for the year is 1%. The rate of inflation for the same year is 3%. Can you buy more, less or the same with your money year 2?**
   - More
   - Less
   - The same amount

13. **Which of the following investment opportunities has the highest expected return over the long term?**
   - Savings account
   - Bonds
   - Stocks and funds

Section 3: Questions about finance and savings

14. **Have you taken a loan(except CSN)?**
   - Yes
   - No

15. **Did you look at alternatives before you applied for the loan?**
   - Yes
   - No

16. **In the last year, have you several times experienced that you spend more than you receive each month?**
   - Yes
   - No

17. **Do you actively try to avoid to spend more than you receive?**
   - Yes
   - No

18. **Do you look for discounts when shopping?**
   - Yes
   - No
   - Have not reflected on the issue

19. **How often would you say that you make spontaneous purchases?**
   - Never
   - Less than two times a week
   - More often than two times a week

20. **Do you usually use price comparison sites?(for example Price Spy or Pricerunner)**
   - Yes, often
   - Yes, once in a while
   - No, never

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