



The Role of Education and Financial Literacy in Students' Saving and Investment Behaviour in Sweden

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Abstract:

As younger adults start to actively invest more, understanding what drives saving and investing behavior among students is important. This is especially interesting in a country like Sweden where education is publicly funded and students have access to student loans. This study investigates how financial literacy, educational background, and demographic factors relate to saving and investment behaviors and student loan uptake among Swedish students. To do so, we report evidence from a survey that is distributed to 16 000 students from eight different faculties at Gothenburg University (GU), resulting in 926 responses. We find that students with higher objective and/or self-assessed (quiz vs. self-rating) financial literacy tend to save and invest significantly more than their peers. Students studying at the School of Business, Economics and Law (Handelshögskolan/Handels) are also found to be strong predictors of higher levels of saving and investing activity. We also report gender gaps, with male students reporting higher risk preferences, confidence, and investment engagement.

Keywords: Financial knowledge, saving behavior, investment behavior, financial literacy, student loans (CSN), confidence.

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1. Introduction

1.1 Background

Students in Sweden face important financial decisions at the start of their independent and adult life. As adulthood begins, they must navigate choices related to housing, student loans, savings, investments, and daily expenses, all while trying to balance their personal life. Understanding how and why they make these choices is important for promoting more stable financial decision-making and encouraging economic growth. One key factor that may influence financial decision-making is education. Research suggests that students with a higher level of education tend to make more informed financial decisions and that the field of study may also have an impact (Lusardi & Mitchel, 2007). Students in economics or business-related fields might have a greater understanding of investment strategies and the importance of saving, compared to those in other disciplines.

Another factor is financial literacy, which refers to an individual's ability to understand and use basic financial concepts such as budgeting, interest rates, and investment risks (OECD, 2022). Studies show that individuals with high levels of financial literacy are more likely to save and invest responsibly and sustainably, for example, by using diversified portfolios or by avoiding excessive debt (Lusardi & Tufano, 2015). In contrast, those with low financial literacy may struggle with investing and saving, which can negatively affect personal finances. External economic conditions, such as housing costs, income levels, and loans, may also lead to less opportunities to invest and save. For example, young adults living in larger cities with higher rent and living expenses might have less resources to save and invest. At the same time, those with stronger financial knowledge might find alternative ways to build wealth, such as managing their expenses more efficiently.

By exploring the relationship between education, financial literacy, and students' saving and investing behavior in Sweden, this study aims to offer valuable insights that can benefit both researchers and policymakers. It contributes to a relatively underexplored area by focusing on students as a target group. Few studies focus on student financial behaviors in Sweden, especially combining financial literacy, The Swedish Board of Student Finance (Centrala studiestödsnämnden, CSN) usages, and investment and saving decisions.

For policymakers, this study could imply an important foundation to improve financial literacy among different groups of society. People not studying economics or anything related in school may not have as good financial knowledge, which can negatively affect their personal finances. These findings could support the idea of adding financial education to all schools. This study may also help policymakers consider how to regulate or inform of different investment products for young or inexperienced individuals. If many young adults invest without enough knowledge, take excessive risks, or invest irresponsibly, it may indicate a need for clearer information, warnings, or limits on access to high-risk products. This could help reduce poor financial decisions and contribute to both personal and societal improvements in financial stability.

1.2 Problem Statement

The relationship between education, financial literacy, and student financial behavior is not fully understood. In contrast to many other countries, Sweden has free education, meaning no tuition fees, and offers favorable student loans through CSN (Swedish Higher Education Authority, 2023). These factors, together with the possibility of part-time work alongside studies, enable better financial opportunities to save or invest. Countries where students have to pay an application and tuition fees and that do not have the same opportunities as in Sweden, often face higher students living costs, which might prevent students from investing and saving. A possibility is that young adults choosing to study will face economic challenges and negative impacts on savings and investments. These are activities that are important for achieving a financially secure future, such as being able to buy a home or having the freedom to live a fulfilling life. In Sweden, there are great opportunities to study, well established safety nets and financial aid to facilitate studies. However, with increasing food prices, expensive rents, and other costs associated with studying, it may not be easy to find the resources to save or invest in for the future. Increased study loan debt and expenses also influence students' willingness to save or invest, even if doing so could be beneficial.

Financial literacy could also affect decision-making. We hypothesize that students from non-financial-related fields are less likely to have sufficient knowledge to make well-informed and responsible decisions, which may put their capital and financial security at risk after graduation. On the other hand, students with economic understanding may overestimate their own ability and be overconfident, leading to higher risk investments which imply a risk of losing capital. Better financial knowledge could also lead to higher awareness of the possibilities and risks regarding saving and investing, and an increased understanding of the importance of it. Therefore, improvements in financial literacy may lead to better decision-making among students, higher returns, and more sustainable long-term saving.

Many prior studies focus on working professionals, with salaries and more possibilities to put money aside for savings and investments (OECD, 2017; Xiao, Chen, & Chen, 2014). Current students, however, are an understudied group and represent a significant part of our society. Many move to other cities, requiring payments for housing, food, transportation, and other costs to manage their everyday lives. Many will be experiencing these costs for the first time and lack experience in managing their finances to make ends meet. Additionally, for many students, the only source of income is a study loan, resulting in an increasing debt burden, along with interest rates and amortization waiting for the future. This may be stressful and restrain students' financial decision-making.

1.3 Purpose and Research Questions

The purpose of this study is to examine whether and how saving, investing, and student loan decisions among students in Sweden are associated with psychological, educational, and demographic factors. Specifically, we investigate the roles of financial literacy (both subjective and objective), risk preference, confidence, field of study, gender, and age. Through this approach, the study seeks to contribute with deeper understanding of the financial behavior and decision-making of students in Sweden. This study focuses on four main research questions:

- How does financial literacy affect saving and investment behaviors among students in Sweden?

- Are there differences in investment and saving behaviors across different fields of study?
- What other demographic factors influence financial decision-making?
- What factors influence students' use of student loans in Sweden?

It is interesting to see if financial literacy, educational field, and characteristics influence rational decision-making in savings and investing. For example, does higher education affect these decisions to be more sustainable in the long term? Including additional variables such as age, family situation, housing, risk aversion, and gender would also be interesting to include in the analysis to see whether and how these play a role in the decision making of students. This is important to understand students' economic behavior and what influences their financial decisions, to be able to create incentives to foster economic stability.

1.4 Main findings

This study examines how financial literacy, demographics and education influence investing, savings and student loan use among Swedish students. To answer the research questions, the findings are based on a survey of 926 student respondents at Gothenburg University.

The five main findings focus on how the five main explanatory predictors (Handels dummy), confidence, self-assessed financial knowledge, objective knowledge measured by correct answers and risk preference) relate to saving and investing behavior among students. According to the results and analysis of the study, students that study at Handelshögskolan invest and save a higher percentage of their monthly income, but these effects are weakened or even disappear when factors such as age or gender is taken into account in the longer models. Students who rate their financial knowledge at lower levels usually invest a significantly smaller share of their monthly income, even after considering other factors. This relationship is strong when it comes to investing, except for saving.

Objective financial knowledge measured by correct answers in the survey showed that more correct answers on the quiz are correlated with higher saving and investing percentages. These effects disappear when controls are added, except for the effect on the likelihood of investing. Higher self-assessed financial confidence is related to higher saving and investing percentages in basic models, but these impacts did not remain robust once the controls are added. Students with a greater willingness to take financial risks are associated with investing a larger share of their monthly income. This effect remains strong even once we have controlled for other factors. When it comes to savings, the effect is weak and disappears with controls. Finally, none of the predictors managed to explain the likelihood of saving among students.

1.5 Significance of the Study

This study presents valuable insights for students by highlighting how different levels of financial knowledge, confidence and risk preference influence savings and investments. For students who lack knowledge, resources, or confidence to invest or save, this study can help show the increased possibility and flexibility of good financial decisions. Just because someone is not studying an economic-related field does not mean they cannot get involved in such activities. Investing and saving doesn't have to be hard, you can do it to your own abilities, both resources and knowledge. This study can enlighten students from other fields than economics or business on what opportunities they might miss out on by not engaging in savings or investments.

For education, this study can show the importance of financial literacy, both for individuals and society's economic development. By offering accessible financial education courses to all students, institutions can help students make more responsible choices regarding their financial choices. Since not everyone in Sweden takes an economics course in high school, there are students in universities without any prior knowledge in the area. For young adults, taking the leap into their adult and independent lives, this could be useful for managing their daily lives. The findings in the study are important when it comes to this matter because students with higher willingness to take financial risks and with higher financial knowledge tend to invest more of their monthly income, even once controlling for other characteristics. These results are important for researchers and educators in order to understand which specific financial trait has the most impact on behavior among students.

As related to financial literacy, policymakers could implement mandatory private economics courses in high school or elementary school. Similar to home and consumer studies and crafts, financial literacy would be very reasonable and useful knowledge not only for a greater understanding but also for preparation of adult life. The study may also enlighten the struggles students face to restrict them from investing or saving. This can guide policymakers to make it easier for students to be able to increase economic development but also allow poorer people to study. For policymakers, the finding in the study regarding that none of the predictors explain saving behavior among students, and that the effects generally are weakened with controls like gender and age, implied that economic conditions need to be addressed together with knowledge-based approaches. These insights could help policymakers to reduce the barriers for students and to make financial inclusion more available. For instance, be to reduce the interest rate on the student loan, CSN, or increase the supply of student housing and reduce rents.

When it comes to future research, since this study is a bachelor's thesis, certain limitations, such as the inability to draw causal conclusions, are unavoidable. However, these findings could be used as a foundation for future research on student financial behavior. Future research could explore the causal relationship between financial literacy and saving or investing behavior using quasi-experimental designs. For instance, Finansinspektionen (FI) recently implemented several programs targeting different groups and aiming to improve national financial literacy. Programs such as "Pengalabbet", "Pensionskunskap", and "SFI-Ekonomi" are implemented, which could serve as natural experiments (Finansinspektionen, 2024). Researchers could then execute difference-in-difference or instrumental variable approaches to evaluate the impact of these interventions by comparing the groups that are exposed to the program to the groups that are not.

In addition, future research could consider using observational data beyond surveys with self-reported data. FI has conducted their own household surveys, as well as available administrative or financial institution data, offering broader, longitudinal insights that can better capture true effects and allow for stronger statistical conclusions. Such approaches can contribute to a better understanding of how financial literacy affects real-world financial decisions. This type of data could be used to help assess characteristics such as low financial confidence or overconfidence, which are shown to have an effect on behavior only in basic models.

2. Literature Review

A previous research (Henager & Cude, 2016) examined the relationship between financial literacy and financial behaviors across various age groups: 18–24, 25–34, 35–44, and older. The findings implied younger adults between ages 18–24 are associated with higher engagement in short term financial behaviors (saving) in contrast to older individuals. On the other hand, older individuals showed more long-term involvement in financial activities such as investing. This showed that as individuals age, financial priorities change, especially because of increased responsibilities such as family and housing expenses.

When it comes to financial literacy, Cappelli, Banks, & Gardner (2024) provides a review of the research on how university students handle their money and what psychological factors impact their money-management behaviors. It found that students' money management is categorized into five categories (saving, borrowing, budgeting, spending, settling debts) and is affected by personality traits, financial knowledge and self-confidence. Financial literacy, defined as knowledge and financial beliefs, highlights that financial literacy is generally associated with better money management among university students. The author finds that students with higher financial knowledge and greater self-assessed confidence tend to engage more effectively when it comes to saving, investing, and among other matters such as budgeting. Another study (Georgios & Ståhle, 2024) shows that economic literacy affects long-term saving and emphasizes the importance of addressing this factor at a young age to promote more responsible saving habits later in life. It is demonstrated that respondents with a high level of financial literacy show a higher tendency to engage in long term savings in comparison to respondents with lower levels of financial literacy. The study also indicates that the more understanding and knowledge young adults have regarding financial aspects, the more likely they are to save in the long term. In research on financial behavior, it was found that only self-consciousness and self-control had a significant impact on young adults' long-term savings. The results indicated that young people with higher levels of self-control and conscientiousness tend to possess higher long-term savings. Thus, it is clear that these factors can explain variation in savings decisions.

Xiao et al. (2014) does not focus on students, they found that favorable financial literacy and behaviors (borrowing and saving) increase financial satisfaction, meanwhile risk behaviors decrease satisfaction. The author uses financial satisfaction to assess financial well-being which can be achieved through objective factors (debt, income, savings) as well as subjective perceptions (confidence in managing assets). It was found that subjective financial literacy positively affects financial satisfaction, while objective literacy's effect became less evident. The study suggests that financial education should focus on reducing risky behavior and improving financial self-confidence.

Another study has illustrated that both internal (personal attributes, individual circumstances) and external (conditions from the outside that affect saving behavior) factors play a crucial role in understanding what influences savings decisions (Jumena, Siaila, & Widokarti, 2022). The study shows that saving behavior is shaped by a mixture of personal factors, psychological factors, and external factors. Factors such as personal wealth, financial literacy, needs, macroeconomics, demographics, self-obligation, job profile, and financial goals play a significant role in saving decisions. By applying strategies like providing financial education

and automating savings contributions can effectively improve individual savings. This approach encourages better saving habits and contributes to broader economic resilience. From an external and macroeconomic perspective, variables such as interest rates, inflation and income tax have an impact on the attractiveness of savings among individuals. Higher income tax and interest rates reduce disposable income, contributing to a decrease in savings. On the contrary, higher real interest rates boost savings, especially when it comes to long-term goals, as it increases the potential return.

A study found that women are generally more risk averse and less risk tolerant compared to men (Holden & Tilahun, 2022). Women were found to have higher Constant Relative Risk Aversion (CRRA) coefficients, pointing towards a greater aversion to risk, which influences their investment decisions. Because of risk aversion, women invest less frequently as well as they select more saver investment options in contrast to men. Another study examines why women tend to invest less compared to men when it comes to riskier investments (Cupák, Fessler, & Schonebaum, 2021). The authors claim that this difference is not entirely because of financial knowledge, but more due to lower self-confidence in financial decisions among women. Even when women possess as much knowledge about finance as men, there is still differences in financial behavior. Women are less likely to invest in risky investments if they lack confidence in their abilities. The study highlights the need to address psychological factors (confidence) beside education to minimize the gender gap. When it come to risky behavior, a literature found that financial risk attitude is a positive strong predictor of stock investment behavior across both women and men (Rösch & Menkhoff, 2006). The research did not find a similar effect of risk attitude when it comes to saving behavior.

It can be challenging for some individuals to maintain a constant saving habit, as it requires ongoing self-discipline. Encouraging this responsibility plays a crucial role in financial success, and this can be accomplished through two strategies, to set a mandatory amount to save and self-discipline (Ongena & Zalewska, 2018). On the other hand, for individuals with low income, increasing the mandatory savings amount may lead to an overall decrease in savings because they may not be able to afford it (Knapp et al., 2021).

A study from the U.S. examines data from 2018 and 2019 on how students loan debt affects decisions when it comes to emergency savings (Korankye et al., 2024). The study shows that having a student debt can influence stock ownership, household decisions, retirement and college savings as well as homeownership. It is also shown that students loans are associated with reduced stock investments and savings for financial emergencies in comparison with those without student loans. Another study found that financial confidence and risk preferences significantly influence debt-taking among university students, particularly when support structures are insufficient (Mudzingiri, Mwamba, & Keyser, 2018).

3. Method

3.1 Hypotheses

Based on previous research, data and theoretical framework, the following hypothesis are formulated:

1. Students that participate in business or economic related fields are more likely to engage with more long-term investment and savings behaviors compared to students from non-financial fields.
2. Higher levels of financial literacy are positively correlated with both increased investment activity and greater savings frequency.
3. Students that have more confidence are more likely to invest or save regularly.
4. Students that have a higher risk preference are more likely to invest or save regularly.
5. Students with higher risk preferences and higher levels of financial knowledge are more likely to take full student loans (CSN).
6. Older students are more likely to invest and save compared to younger students.
7. Male students are more likely to engage in riskier assets and in investments behaviors generally.

3.2 Empirical Strategy

To examine the formulated hypotheses above, the study uses quantitative regression analysis based on survey data. We test each hypothesis using specific models where the key explanatory predictors are first analyzed without any control variables, and then in an extended model where we add control factors such as gender, age, employment status, source of knowledge and housing situation. By comparing these models, we can identify potential confounding effects and determine whether the relationship between the independent and dependent variables remains when individual characteristics are taken into account. Furthermore, we use regression analysis and correlation measurements in order to determine the significance level and the strength of the relationship between the variables.

3.3 Research design

This study utilizes a quantitative survey-based design, gathering data on financial habits, education and demographic factors of students in Sweden. The survey is designed in English to be inclusive for both Swedish speaking and non-Swedish-speaking students. The survey is distributed to 2 000 students per faculty of the University of Gothenburg (GU). The faculties are the following: Faculty of Science; School of Business, Economics, and Law; Faculty of Humanities; IT Faculty; Faculty of Fine Arts Board; Faculty of Medicine; Faculty of Social Science; and Faculty of Education. A total of 926 responses were collected after one week of distribution.

To get as many respondents as possible, the survey has been designed to be kept short, well-structured, and easy to answer. It consists of 31 questions and is divided into four sections based on the topics “Demographics”, “Study, financing and income”, “Financial knowledge and risk tolerance” and “Saving and investing behavior”. The full survey with responses can be found in appendix B.

The first section covers questions on demographics, where the respondents are asked about their age, gender, where they live, current living situation, current level of education/highest completed level for the respondents and their parents, respectively.

The second section covers 9 questions, with a similar design to the previous section with multiple choice questions, where the respondents are asked about their studies, CSN, other grants, and potential work.

Section three consists of 5 questions about financial knowledge, risk tolerance, and confidence. The respondents are asked to estimate their level of knowledge and source of knowledge, and on a 5-point scale estimate their confidence level in their financial knowledge and confidence level towards investments.

The last section in the survey consists of 10 questions that cover students' savings and investing behavior. In this section, the students are asked about their regular savings and investments habits, the amount of income they save/invest monthly, and how and why they are saving/investing. Lastly, there are three control questions where the students' understanding of financial/economics knowledge is tested. These questions have only one correct answer, but to avoid excluding respondents we added an option where they can also choose "don't know". To ensure a good estimation of the real financial literacy the respondent is informed to not guess if they are unsure and instead answer, "Don't know". This is a measure to improve validity and reduce measurement errors. The questions are:

- "Money saved in a regular savings account is generally safer but grows slower than money invested in stocks or funds."
- "Suppose that the interest (ränta) on your savings account was 1% per year, and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in that account?"
- "What is the most likely effect on savings and investment when the Riksbank (Sweden's central bank) raises the interest rate (ränta)?"

Each question in the survey corresponds to a variable, and these variables are categorized based on the sections of the survey (e.g., Demographics, Financial Behavior, etc.). Below is a summary of the key variables for each section:

Financial literacy: In this study, financial literacy is measured in two ways. First, we measure subjective (self-assessed) financial knowledge, where respondents rate their own estimated financial knowledge on a 5-point scale. Second, we use an objective measure of financial literacy, measured by three quiz questions of economic concepts. We refer to this second measure as "correct answers", representing factual knowledge or number of correct answers on the quiz. Comparing these will show how perceived and actual knowledge independently relates to financial behavior.

Demographics: This section includes background variables of the respondents such as age, gender and living situation that shows the respondent's current living arrangement (e.g., renting, living with parents). Lastly, the variable for education indicates the respondent's current education level, and their parents' education levels.

Study, financing, and income: This section takes into consideration variables related to students' finances and education. Study status captures whether the respondent is studying full-

time, part-time, or not at all. Field of study indicates the academic field the respondent is pursuing (e.g., Business, Medicine, Engineering). CSN loan status variable shows whether the respondent takes student loan (CSN), and the amount that the respondent borrows from CSN. Additionally, grants and employment variables cover additional financial support received, and whether the respondent works while studying.

Financial Knowledge & Risk Tolerance: This section focusses on the respondent's financial knowledge, meaning the respondent's perceived level of financial knowledge (e.g., basic, strong, none), their confidence level in financial decisions and their risk tolerance regarding investment and saving (measured on a 1-5 scale).

Saving and Investing Behavior: In the last section, behavior variables are presented. Saving behavior variable includes whether the respondent saves money regularly, and how much they save. The investment behavior variables show whether the respondent invests, and how much they invest. Lastly, the control variable tests the respondent's financial knowledge.

3.4 Data Collection

The survey is developed using Microsoft's Forms, chosen for its accessibility and simplicity. The questions are designed based on both personal experiences and discussions with fellow students to ensure relevance.

Regarding the ethical and moral aspects of our study, careful consideration is made to ensure it is carried out in a morally and ethically correct manner. In both the introductory section at the beginning of the survey as well as in the email where the survey was sent, the participants are informed of the properties of the study. It is clearly explained that participation is voluntary, the answers cannot be linked to a person, and that they are completely anonymous. The introduction in the survey also explains the structure of the survey, and that depending on the answers given, pop-up questions will appear, since not all questions are shown in the beginning. The approximate timeframe, 5-10 minutes to complete the form, is also informed. The survey was then distributed to a focus group of seven students from various academic backgrounds, and feedback was collected and incorporated into the final survey.

The main purpose of the focus group is to refine questions, ensure clarity, test whether the answer alternatives are sufficient, and receive feedback on the general flow and structure of the survey. This is important to make sure that the respondents understand all the questions and to rule out any misunderstandings or inconveniences that could affect the quality and validity of the survey. The 7 students in the focus group are chosen carefully, close friends and family that are trusted to take their time and examine each question and the whole survey critically. The focus group is chosen to be diverse by including students from different education levels and fields, ages, gender, and ethnicity to further ensure reliability. By including students within different fields, a better picture of other students' understanding of economic terms and words is given. For example, a Swedish student from the medical program had problem understanding some English economic terms like "interest rate", which for most Economic student is given.

Feedback from the focus group was taken into consideration, which led to changes in the survey. A Swedish translation for more complex English terms related to investments and other economic terms was added. When in discussion with the participants of the focus group, it

became clear that several participants were guessing the answers to the last three control questions on financial knowledge. Such guessing could have a negative impact on the results. To address this issue, we added an alternative “I don’t know”, and a bolded instruction where “Don’t guess if you don’t know” was added after the question. Based on focus group feedback, we added an investment scenario question and simplified technical terms. The question about how much the respondent would dare to invest out of 5000 is also a suggestion from the focus group. It is a good addition to also ask the respondent to select their risk willingness on a scale. For the respondent to test its real risk preference of a real scenario could help create a better picture of the real risk preference.

Following the discussions, it is highlighted that socioeconomic factors would be important to somehow include in the survey. This because, the parents and family in general can be of significant influence on a persons’ financial decisions. Questions regarding parents' highest education are included and also a question if the respondent ever make financial decisions based only on advice from family or friends. Furthermore, other grants besides CSN are also important to consider when asking about investment and savings behavior. Therefore, this was also included in the survey after the focus group brought this to discussion. The answer alternatives were as well adjusted and improved to give the respondent more freedom in choosing a fitting answer. For the city variable it is changed to an open answer, where they themselves can write whatever city they live in. For other variables, some more alternatives are added, to decrease the risk of missing answers. It is important the respondent feel that there are answer alternatives matching their situation for them to give an answer.

The survey is then distributed to random selected students for the different faculties. To add incentives to responds in the survey, one random respondent would receive an ICA gift care of 300 SEK, as informed in the email. The survey is distributed via email to 2000 students per faculty, ensuring a random, fair distribution. After one week, the survey was closed, yielding 926 completed responses.

3.5 Data Analysis

To ensure consistency, the dataset was cleaned and prepared. Students living outside of Sweden (n=13) were deleted from the dataset as well as, respondents reporting no current studies (n=3). This since this study only focuses on active students in Sweden. The exclusion of students who lived outside of Sweden and students that are not currently studying is based on considerations of data quality and sample selection. These survey participants did not match the study's target population (active students residing in Sweden) and including them could lead to bias or differences in data that are not connected to the chosen variables or the core research questions. By only focusing on relevant respondents, the dataset better indicates the population, ensuring more accurate analysis.

Several variables are recoded or newly generated to enable categorical comparisons. For example, saving and investing groups for whether the respondent does it or does not are generated. For the different ages, age groups are generated to enable easier comparisons. For the education field questions, there are 179 responses in the “Other” option, allowing the respondent to write their own answer. Since there are a lot of different programs studied, we generated a variable for field groups, grouping similar programs together.

To examine the independence/relationships between categorical variables, Chi-Square Tests are used. These tests are used to test if the difference between the expected and observed data is due to an actual relation between variables or due to chance. Several T-tests and Anova test are also used to compare means across variables and find any statistically significant differences. To examine relationships between different factors, financial knowledge, and saving/investment behaviors regression models, such as logistic regressions and linear regressions, are computed. Multicollinearity is assessed using variance inflation factors (VIF), showing no concerning levels are found among key and control predictors.

The study uses multivariable analysis to better assess the independent effects. Linear and logistic regression models are used to analyze the independent effect of multiple explanatory predictors on one dependent predictor at a time. Linear regression is used for continuous outcomes, which are the percentage of income saved and invested (invest_pct_clean, save_pct_clean). Logistic regression is implemented to binary outcomes such as whether a person invests or saves (invest_yes_no, save_yes_no). This method enabled for adjustment of potential confounders as well as better isolation of each predictor's contribution to the outcome.

4. Results

The section begins by presenting the descriptive statistics of the main continuous variables and the main categorical variables. Table 1 provides information about the total number of observations, mean, standard deviation (sd), minimum values, and maximum values for the variables. Table 2 shows the frequency and percentage distribution for all categories of key variables. The second section of the results shows visualizations of key variables on financial behavior indicators. The following sections show the results of bivariate analysis and regression analysis.

4.1 Descriptive Statistics

This section presents the cleaned sample (N = 910), including key demographic, educational, and financial characteristics. Therefore, they differ from the original survey input. Only the variables used in the analyses are recorded. Table 1 summarizes the continuous variables, while Table 2 presents the frequency distributions for relevant categorical variables.

Table 1: Descriptive Statistics for Continuous Variables

	Mean	Sd	Min	Max	Count
Save %	13.56871	9.519324	0	31	684
Invest %	11.04315	9.093837	0	31	394
Risk preference	2.364939	.9878987	1	5	907
Confidence level	2.866593	1.019056	1	5	907
Correct answers	1.424719	1.036703	0	3	890

Note: Save % is the percentage of monthly income the respondents report that they save, similar to invest % but for investments. Risk preference is measured on a 5-point scale where the respondents themselves can choose their preferred risk, (1=Strongly prefer low risk, 5=Strongly prefer high risk). Confidence is also measured on a 5-point scale where the respondent estimates their own confidence in their financial knowledge and where 1=Not confident and 5=Very confident. Correct answers is the number of correct answers the respondent gets on three financial knowledge quiz questions.

The most common saving percentage range among respondents is 1-5% of their monthly income, with 28.90% of respondents saving this percent of monthly income. A similar proportion, 27.74% of respondents save 6-10% of their income, 16.55% save 11-20%, and 9.56% save over 30% of monthly income. A proportion of 13.67% participants are unsure about how much they save each month. The most common percentage range when it comes to invest of monthly income is 1.5%, which 28.90% of respondents answered. The percentage range 6-10%, got nearly as many respondents, 27.74%, and 16.55% save 11-20%. Additionally, 9.56% save more than 30%, while 11.42% answer that they are unsure of the amount they invest.

The majority of respondents (37.91%) report a moderate level of confidence in their financial knowledge. The overall mean confidence level is 2.88 (out of 5), indicating a general trend towards moderate confidence. Moving forward to risk preference, the majority of respondents prefer a moderate (2) risk level and slightly higher (3) risk level. Only a small proportion (1.98%) prefer the highest risk level (5). The mean is 2.37, with a standard deviation of 0.98, which indicates that most respondent lie in the middle of the scale, with moderate risk preference. Lastly, the majority of respondents (31.63%) answered 1 question correct out of the three control questions. 26.63% answered 2 questions correct, and 19.65% answered all 3 questions correct. 22.09% answered no questions correct or answered, “Don’t know”. The mean variable of 1.44 indicates basic level financial knowledge for most respondents.

Table 2: Descriptive statistics for categorical variables

Variable	Category	Frequency	Percent
CSN	No CSN	282	31.1
Save Yes/No	No	116	12.8
Invest Yes/No	No	459	50.6
Financial knowledge	Strong	103	11.3
Female	No	326	36.9
Handelsstudent	No	713	78.4
Age	≤20	56	6.2
Parents' degree	Highschool	254	29.8
Job	No job	442	48.7
Housing	Living with Parents	161	17.7

Most students take a full student loan (63.9%), while others have partial loans or no loans at all. 282 students reported taking no CSN, only 4 answered less than 25%, 20 reported 26-50% CSN and 22 taking more than 50%. When it comes to savings, the majority, 792 people (87.2%) of respondents save money, while 116 do not save any money currently. Regarding investing, most students do not invest regularly, however, the distribution of respondent who do not/do invest is very equal. 459 people do not invest and 448 people do.

Of the total respondents, 65.4% reported having basic financial knowledge, while 20.5% report no knowledge, and 11.3% reported strong financial knowledge. Only a small proportion (2.7%) is unsure of their financial literacy answering, “Don’t know”. Moving on to gender, a total of

860 people answered that they are either male or female, 326 males 558 females. A few people answered “non-binary” and “prefer not to say” and is therefore not included in the variable “Female”, which equals 1 for females and 0 for males.

Handels variable shows if the respondent studies at Handels or outside of Handels at any other facility at GU. Regarding age, this generated variable is grouped for different age spans. For 20 years old or younger there is 56 respondents, between 21-25 485 respondents, 26-30 214 respondents, and last 155 respondents reported an age over 30.

The variable parental education is grouped into four different levels of education (Highschool, bachelors, masters, and PhD). If the respondents’ parents had different levels of education, it is counted towards the group of the parents with the highest level. 254 respondents have parents with a highest level of high school, 296 bachelors’, 227 for masters’ and 75 with a PhD/medical degree. Moving further to variable job status, almost half of the students reported having no job (442 respondents, 48.7%) Of those with a job, most works part-time less than 30% of full-time hours (312 respondents). 90 people work part-time 31-50%, 21 more than 50%, and only 42 people work full-time.

The variable for housing is grouped into four main categories: Living with parents/family, Renting, Homeownership, and Student housing. Most students, 492, report renting their accommodation. 164 respondents own their home, 161 live with parents/family, and 89 lives in any type of student accommodation. Lastly, other grants show additional grants other than CSN. 607 respondents answered that they do not receive any other grants, 64 people “Yes, less than 3000kr/month”, only 15 answered that they do receive 3000-5000kr/month and 8 more than 5000kr/month.

4.2 Exploratory Analysis

To illustrate the relationships between key variables and financial behaviour outcomes, this section presents bar plots based on marginal predications from regression models. To explore how financial knowledge relates to investment and saving percentages, figure 1 and 2 presents the predicted percentages across self-reported financial knowledge levels. Figure 3 and 4 plot investment and saving percentages but for the objective financial knowledge, measured by the three financial quiz questions. To illustrate the differences in amount saved and invested the following two plots, figure 5 and 6, we plot saved % and invested % for Handels students (=1) and non-Handels students (=0). In the last two plots (figure 7 & 8), we plot CSN usage for full and no loan by the different levels of risk preferences measured by a self-reported answer on a 5-point scale where 1=Strongly prefer low risk & 5=Strongly prefer high risk. Only the plots for the key variables are presented in this section, additional plots may be found in Appendix A.

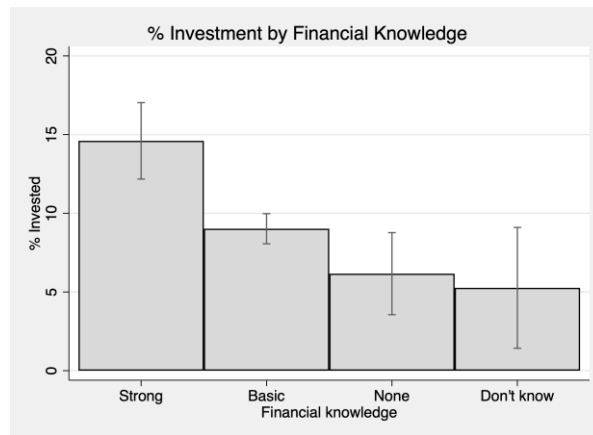


Figure 1: % Invested by Financial Knowledge

Note: Probabilities of % investments based on self-assessed financial knowledge categories. Vertical lines indicate a 95% confidence interval. The overall sample average investment is 9.7% of monthly income.

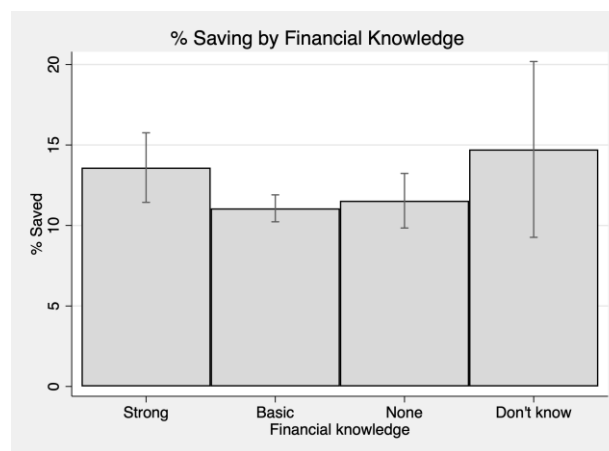


Figure 2: % Saved by Financial Knowledge

Note: Probability of saving % by financial knowledge. Vertical lines indicate a 95% confidence interval. The wide interval for “Don’t know” reflects the small Group sample of 25. The overall sample mean is 11.6% saved monthly income.

Figure 1 shows the percentage of investments for different levels of financial knowledge. Students with stronger self-reported financial knowledge tend to invest a higher proportion of their monthly income. The group of those answering “Don’t know” has the lowest investment percentage, indicating that students who are unsure of their own financial knowledge do not engage with investments as much. This can be further strengthened with figure 18 of investment % by Confidence in the Appendix, showing a big increase in percentage invested for the highest reported confidence level. This also shows a correlation between confidence and self-reported financial knowledge. Those with a lower confidence level and a lower reported knowledge level tend to invest less. Our ANOVA analysis shows that there are indeed statistically significant differences in mean investment between these groups ($F(3, 441) = 16.70, p < 0.001$).

Figure 2 illustrates the saving percentage of monthly income by self-reported financial knowledge. However, those reporting basic financial knowledge save less than those reporting no knowledge even if there is no tremendous difference. Those answering “Don’t know” are shown to have the highest predicted percentage of savings. While this may seem counterintuitive, it may indicate that these individuals are more cautious or uncertain about their financial ability, leading them to engage in less risky behaviors such as saving. Our

ANOVA analysis shows that there are indeed statistically significant differences in mean self-assessed financial knowledge between these groups ($F(3, 787) = 3.88, p=0.009$), indicating that this variable plays a significant role in saving differences.

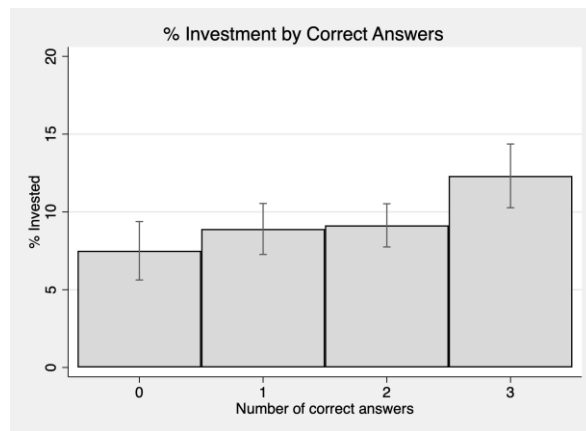


Figure 3: Investment % by Correct Answers

Note: The bars predict the invested percentage of monthly income for different levels of correct answers on the financial quiz testing financial literacy. Vertical lines represent a 95% confidence interval. The wider confidence interval for 1 and 3 correct answers most likely represents the smaller sample for these groups. Sample mean is 9.7% invested.

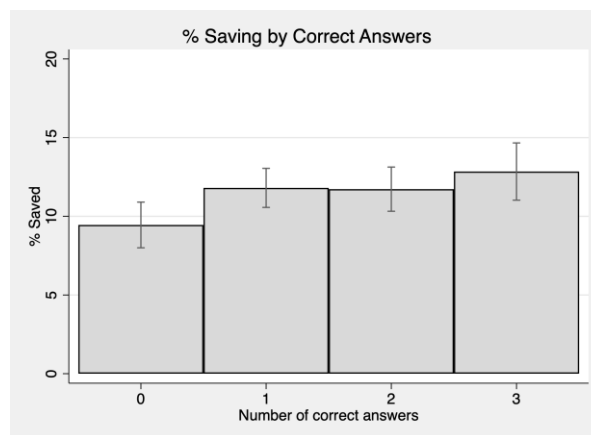


Figure 4: Saving % by Correct Answers

Note: The figure shows saving % by correct answers on the quiz. The error bars show a confidence level of 95%. A smaller sample for the groups of 1 and 3 correct answers, could explain the wider intervals for these groups. 11.6% of monthly income saved is the sample mean.

Figure 3 and Figure 4 show actual financial knowledge measured by the “correct answers” variable instead of self-reported estimated financial knowledge. The correct answers variable shows the number of correct answers the respondents gave for the three finance related questions evaluating financial knowledge. Both figures show similar proportions of savings/investments for 1 and 2 numbers of correct answers. For figure 3, there is a big gap between 2 and 3 correct answers indicating that students with a higher financial knowledge invest more. The smallest proportion of investments is shown for the group with 0 correct answers, as expected. Our ANOVA analysis shows that there is indeed a statistically significant difference in mean correct answers between these groups ($F(3, 770) = 6.93, p<0.001$), further confirming this visual trend. A similar distribution can be shown in figure 4, where the smallest savings percentage is for those with zero correct answers and the highest percentage for those with all three questions correctly. The biggest gap for this plot can be shown between 0 and 1 correct answer, indicating that people with a lower knowledge tend to choose safer behavior. This can be connected to the ANOVA test, where a strong effect for correct answers on saving

% between the groups is shown ($F(3, 433) = 11.95, p = 0.000$). Comparing the two figures one can also see that over all the groups for correct answers generally save more than investing. The smallest difference occurs for the group with all three questions correctly, strengthening the arguments that people with a higher financial knowledge tend to invest more rather than save compared to other groups.

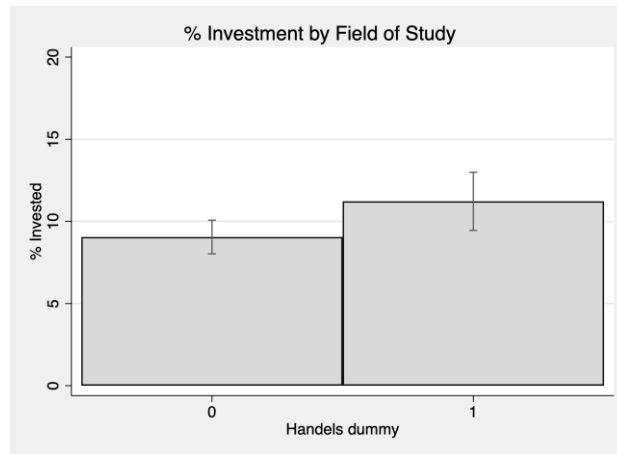


Figure 5: % investments by Field of Study

Note: The figure shows the invested percentage of monthly income for students studying at Handelshögskolan and for those outside the faculty (0 = non-Handelsstudent, 1 = Handelsstudent). The confidence interval of 95% is reflected by the vertical lines. The wider interval for Handelsstudents suggests greater variability. Sample mean is 9.7% of income spent on investments.

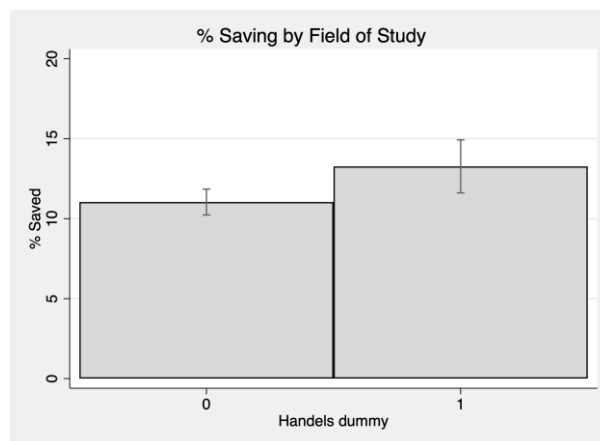


Figure 6: % savings by Field of Study

Note: Figure 6 presents the percentage of savings for Handels students vs. non-Handels students. The vertical lines show a 95% confidence interval, and the wider interval for Handels students reflect a greater variability of saving percentages. The sample mean of percentage savings is 11.6.

Figure 5 and 6 show investment percentages and saving percentages for students studying at Handels and students studying at other faculties. For both figures there is a distinct difference between the two groups and there are generally greater proportions of monthly income saved rather than invested. Figure 5 show that students outside of Handels invest 9% of their monthly income while students within Handels invest approximately 11.25% and for figure 6, 11% and 13.25% respectively for savings. This means that people in general save more than they invest and that the difference in savings and investments is as big, independent of where they study. The results in Figure 5 are also explained by the ANOVA results (Table 5), which support the assumption with a strong significance ($F(8,436) = 3.23, p = 0.001$), confirming field of study

as a predictor of investment behaviour. Similarly, for Figure 6, the ANOVA results in Table 6 also shows a significant effect of Handels dummy on savings ($F(8, 782) = 3.83, p = 0.000$).

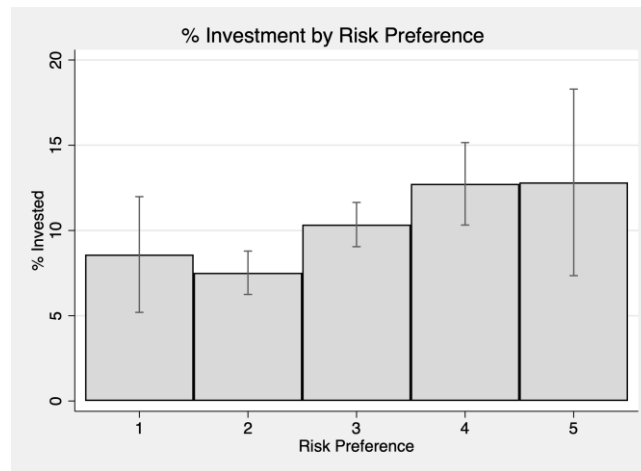


Figure 7: % Investment by Risk Preference

Note: The figure above shows the percentage of investments made for different levels of risk preference. The error bars reflect a 95% confidence interval. The wider intervals for group 1 and 5, may indicate smaller samples and greater variability for these groups. Overall, the mean for investment percentage is 9.7 for the sample.

Figure 7 shows the key variable risk preference for investment percentage ($F(4, 440) = 7.94, p = 0.000$). The risk preference variable is measured on a 5-point scale where 1=Strongly prefers low risk & 5 = Strongly prefers high risk). From the risk preference group 2 onwards there is an increase in percentage invested even if there is no substantial difference between group 4 and 5. Group 1, despite having a lower risk preference, shows a slightly greater predicted investment preference than group 2. However, the confidence interval for groups 2 and 5 is noticeably wider than for the other groups. As for group 5, this is most likely due to the small number of observations ($n=19$), while for group 1 it may reflect greater variability.

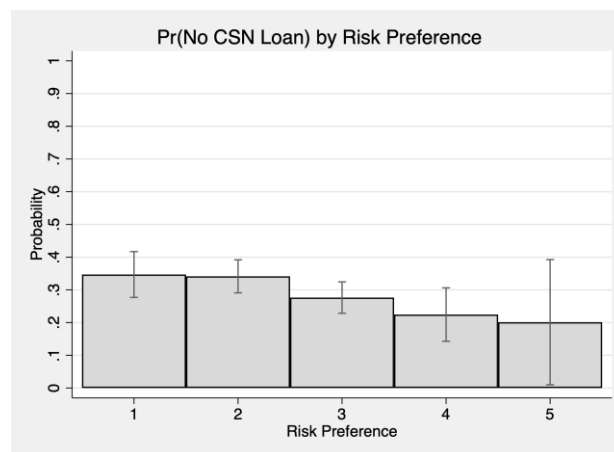


Figure 8: Pr(No CSN Loan) by Risk Preference

Note: The figure shows the probability of taking no CSN for the different levels of risk preference. The error bars reflect a 95% confidence interval, the wider interval for group 5, may be a result of the small sample size, $n=19$. The sample mean is 31, meaning that 31% of the sample does not take CSN.

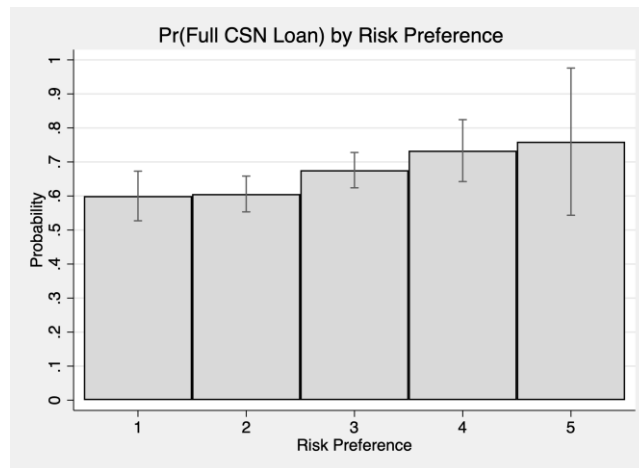


Figure 9: Pr(Full CSN Loan) by Risk Preference

Note: This figure presents probability of taking a full CSN for the levels of risk preference. The vertical lines show a 95% confidence interval and again, the 5th group shows a wider interval most likely due to the small number of observations. The overall sample mean for taking full CSN is 64%.

Tables 8 and 9 show CSN loan usages (No and full loan) based on risk preference. The predicted probability of taking full CSN increases as risk preferences increase, aligning with the predicted hypothesis of having a debt. Similarly, Figure 9 shows that the predicted probability of taking a full student loan increases with risk preferences. CSN implies a debt and therefore a risk, and as shown, risk preferences affect the willingness to take out a student loan and in turn could explain financial behaviors. The T-test results in Table 3 indicate that CSN-takers are slightly more risk-averse than those who do not take CSN ($t(903) = -2.71, p = 0.007$).

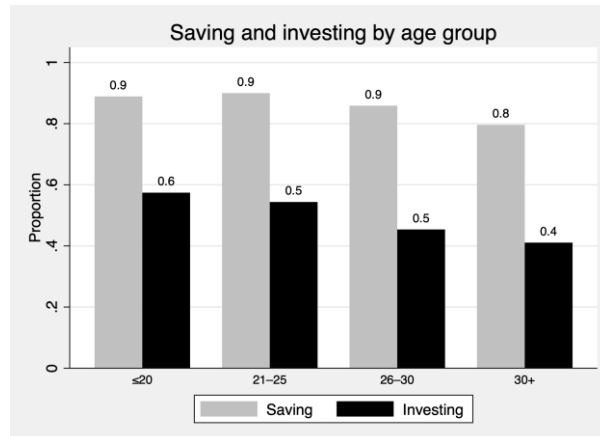


Figure 10: Bar plot of savings and investments by age group

Note: The figure shows the proportions of respondents for each age group that reported that they do save and invest. The grey bars represent savings and the black, investment. The sample means for the probability of saving and investing is 0.87 and 0.49, respectively.

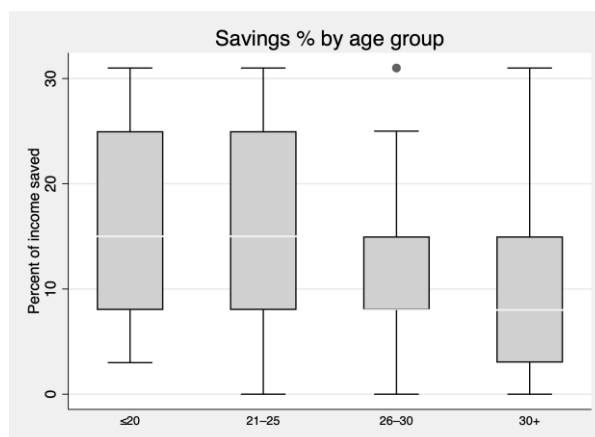


Figure 11: Box plot of saving % by age group

Note: The box plot above shows the percentage of savings for each age group; the overall sample mean is 11.6%. Each box shows the interquartile range (IQR), the whiskers indicate the range, and the line inside the boxes shows the median. Outliers are shown as dots.

Figures 10 and 11 show how savings and investments differ among the age groups. For Figure 1 we can see that overall, more students save compared to the number of students who invest. The plot also shows that the distribution of proportions of people who invest and save are similar across age groups. 90% of people save in the age groups ≤ 20 , 21-25, and 26-30. For the group of people over 30, 80% of people report that they do save regularly. Similarly for investments in the age group 20 years old or younger, 60% invest regularly, for age groups 21-25 and 26-30, 50% report that they invest, and for the ones older than 30, 40% invest. This concludes that both investments and savings decrease when students get older. However, this can be explained by other factors such as housing, children, or increased costs. Many older students might have started a family or bought a house, leading to increased costs and lowered opportunities to save and invest. The argument is that they may have already achieved the things that younger students still save money for, such as housing or other big purchases.

Figure 11 shows the spread of percentage savings over age groups. The box shows the interquartile range, 25th to 75th percentile, and the line in the box indicates the median, 50th percentile. The whiskers show the highest and lowest non-outlier values, and the dots and outlier values. The two younger age groups show a median of 15 and a wider spread in responses, while the two older age groups show more centered answers. The age group 26-30 does not display a median line; however, the median is confirmed to be equal to the lower percentile at a percentage of 8, the same as the students over 30. This suggests that younger students save more but with a higher spread over students compared to the older ones ($F(3,787) = 6.02, p = 0.001$).

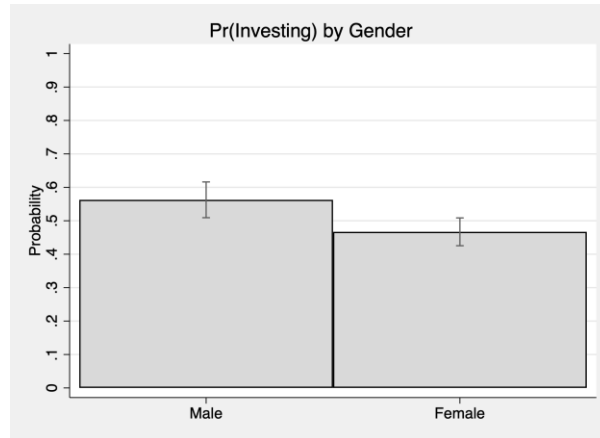


Figure 12: Bar plot of investments by gender

Note: Figure 12 shows the probability of engaging in investments by the genders; 0.49 is the overall sample mean. The vertical line reflects a 95% confidence interval. The interval is slightly wider for males, indicating a greater variation in probability of investing.

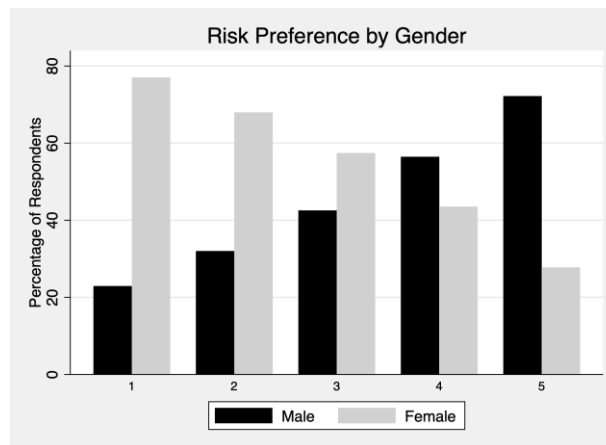


Figure 13: Bar plot of risk preference by gender

Note: The figure presents the distribution of male and female respondents for all levels of risk preference. (1=Strongly prefer low risk, 5=Strongly prefer high risk). The black bars show male respondents, and the grey reflect females, and overall sample mean is 2.4.

Figure 12 presents proportions of students by gender that reported that they invest regularly. Furthermore, 60% of all male students regularly invest and 50% of females, indicating a gender difference in investment behavior ($\chi^2(1) = 14.06$, $p = 0.000$, see Table 4). As for Figure 13, this shows that a greater proportion of those reporting a higher risk preference are males. For the highest level (5), slightly over 70% are male and for level 4 a little over 55% of respondents are male. In contrast, for the three lowest levels of risk preferences females are overrepresented, showing progressively more women in the lower levels. This pattern suggests that female students are generally more risk-averse than men, a difference that is statistically significant ($t(879) = 6.9024$, $p = 0.000$).

4.3 Bivariate Results (Chi-Square, T-Tests, ANOVA)

To explore the relationships between respondents' demographic characteristics and their saving and investment behaviour, the study conducted a series of independent samples t-tests, chi-square tests and one-way ANOVAs. Each statistical method was chosen based on the type of the variables analyzed, categorical, continuous and binary variables. Independent samples t-tests were used to compare means between two groups (male vs. female students), chi-square tests was applied to explore associations between two categorical variables and one-way ANOVAs was used when comparing means across more than two groups (study program categories or age).

Table 3: T-test for financial behaviour, gender and CSN status

Variable	Group Comparison	Mean Male	Mean Female	Diff	P-value
		Mean no CSN	Mean CSN		
Saving (%)	Male vs Female	13.32	10.58	2.74	0.000
Saving (%)	No CSN vs CSN	12.29	11.3	0.99	0.210
Investing (%)	Male vs Female	12.7	7.45	5.25	0.000
Investing (%)	No CSN vs CSN	8.85	9.92	-1.07	0.304
Confidence	Male vs Female	3.19	2.7	0.49	0.000
Confidence	No CSN vs CSN	2.8	2.9	-0.1	0.161
Risk Preference	Male vs Female	2.67	2.2	0.46	0.000
Risk Preference	No CSN vs CSN	2.23	2.42	-0.19	0.007
Financial Knowledge	Male vs Female	1.88	1.18	0.7	0.000

To examine differences in attitudes and financial behaviour, the study conducted independent t-tests samples to compare female and male students, as well as those who take CSN (student loans) and those who do not. The results showed significant gender differences across all variables in the table above. Men reported significantly higher investment rates with a mean value of 12.7 compared to women who have 7.45, as well as higher saving rates with a mean value of 13.32 compared to women with a mean value of 10.58. Men also exhibited higher risk preference (mean value = 2.67) compared to women (mean value = 2.20), stronger financial confidence (mean value of men = 3.19) compared to women (mean value = 2.70) and higher financial knowledge, which is measured by the number of correct answers I the quiz. These results imply gender gaps in financial behaviour, with men generally reporting more confident financial attitudes. When it comes to comparing students based on their CSN loan status, we get fewer significant differences. Investing and saving percentages did not differ significantly between those who take CSN and those who don't, nor did status of financial confidence with an insignificant value. A small but statistically significant difference is found in risk preference. Here the students who take CSN loans reported a slightly higher risk aversion with a mean value of 2.42 compared to students who do not take CSN loan with a mean value of 2.23. Overall, gender appears to play a more significant role than CSN status when it comes to shaping financial behaviour related to personal finance.

Table 4: Chi2-tests between CSN, Likelihood Save, Likelihood Invest and the categorical demographics

Output	CSN		Likelihood save		Likelihood invest	
	Chi2	P-value	Chi2	P-value	Chi2	P-value
Handels education	4.5757	0.334	0.9850	0.321	34.2743	0.000
Correct answers	11.5628	0.481	4.7415	0.192	79.9910	0.000
Age group	47.1333	0.000	13.0808	0.004	9.9946	0.019
Female	2.2854	0.683	7.2656	0.007	14.0598	0.000
Financial knowledge	12.5449	0.403	1.6675	0.644	116.6626	0.000
Risk preference	16.9765	0.387	2.3561	0.671	128.2873	0.000
Confidence	25.4404	0.062	6.4519	0.168	73.9146	0.000

To explore the relationship between the dependent variables CSN loan, Likelihood of saving and investing and the various independent variables categorical demographic, attitudinal variables and behavioural, a series of Chi-square tests of independence is conducted. CSN loan status is one of the dependent variables and the independent variables include financial behaviour, demographic background and knowledge related predictors.

Age groups are strongly associated with CSN status at a significant level of 1%, suggesting that CSN status varies significantly across different ages. This demonstrates that age is the main factor linked to loan taking behavior. Confidence in financial decision making is also statistically significant, but a lower significance level of 10%, indicating that confidence influences students' loan status. On the other hand, variables such as correct answers economic education, female, financial knowledge and risk preference did not show any significant associations to CSN status, implying that these factors are not a major differentiator between CSN-takers and non-takers.

Moving on to the output variable likelihood of saving, the findings show that 2 predictors are significant, age and gender. This indicates women and older students are more likely to engage in saving behavior (significance level 1%). The rest of the explanatory predictors, education, correct answer, objective financial knowledge, risk preference and confidence did not reach the conventional threshold for significance and therefore cannot illustrate any significant impact on saving behavior.

The strongest set of predictive relationships is found when examining the likelihood of investing. By far, except for the age predictor who was statically significant at a 5% significance level, the rest of the tested variables are statistically significant at the 1% level. These findings illustrate that students who are more confident, possess more financial knowledge, are related to Handels University and take more risks are far more likely to engage in investing. In addition, gender and age also play a significant role, but age has a less significant role compared to other factors.

The larger the Chi2 value is, the higher probability it is that there is a significant effect between the dependent variables and CSN, the likelihood of saving and investing with the explanatory variables.

Table 5: One way ANOVA results for Investment Percentage across categorical demographics

Variable	df (Model)	df (Residual)	MS (Model)	F	P-value
CSN type	4	440	45.99	0.52	0.721
Handels dummy	1	443	1604.71	18.98	0.000
Correct answers	3	433	978.08	11.95	0.000
Age group	3	441	366.07	4.25	0.006
Living group	3	441	1023.52	12.55	0.000
Financial knowledge	3	441	1327.99	16.70	0.000
Source main	7	386	213.55	2.37	0.029
Highest degree	3	419	147.27	1.66	0.176
Discuss freq	4	440	1032.70	13.01	0.000
Job category	4	439	88.28	1.01	0.403
Risk preference	4	440	82.77	7.94	0.000
Study field	8	436	273.05	3.23	0.001

A series of one-way ANOVA tests is conducted to test the independence of invest percentage on each categorical variable. To assess whether the mean value of investment percentage differs across the groups. The dependent variable in each analysis is how much percentage of the students' monthly income they allocated towards investments and the independent variables contain educational background, demographic factors and financial knowledge.

The results indicated several significant effects. Field of study has a strong and statistically significant association with investment percentage as we can see in the table, with students in business or economics related fields investing a higher proportion of their monthly income. The number of correct financial answers, living situation, frequency of financial discussion with friends/family and self-assessed financial knowledge has a strong and are all significantly associated with investment behaviour at a significance level of 1%, indicating that investment patterns vary across categories. These findings suggest that both objective and subjective measures of financial literacy are linked to how much students invest.

Source of main income and age group also showed statistically significant differences in investment behavior across different categories at a higher significant level being 5%, although the effect size is smaller especially for main source of financial knowledge. These results suggest that having financial discussions with other people and where the financial knowledge comes from might play an important role in shaping investment decisions. Additionally, the groups within the variables CSN loan type, highest degree obtained, and job category showed no significant effect. This suggests that neither the specific type of education level, student loan, nor job category had a significant influence on how much an individual invests.

To summarize, the ANOVA analyses revealed that students' investment behavior is significantly influenced by predictors such as financial knowledge, educational field, age, financial discussions, living conditions and main knowledge sources. Then we have structural predictors such as loan type, degree and job category that appear to have limited explanatory power on students' investment behavior.

Table 6: One way ANOVA results for Saving percentage across categorical demographics

Variable	df (Model)	df (Residual)	MS (Model)	F	P-value
CSN type	4	784	190.85	1.86	0.115
Handels dummy	1	789	1461.90	14.41	0.000
Correct answers	3	770	693.51	6.93	0.000
Age group	3	787	609.51	6.02	0.000
Living group	4	786	945.29	9.56	0.000
Financial knowledge	3	787	396.27	3.88	0.009
Source main	6	590	64.62	0.66	0.685
Highest degree	3	735	78.84	0.77	0.508
Discuss freq	4	784	436.03	4.31	0.002
Job category	4	783	315.74	3.12	0.015
Study field	8	782	384.09	3.83	0.000

Moving on to exploring whether saving behaviour, which is measured as the percentage of income saved on a monthly basis, differs across groups defined by the same various categorical variables as in the Anova table above.

The results presented several statistically significant relationships across the groups. Living group presents the strongest significant effect on saving behaviour. Participants from business or economics related fields showed a significantly higher saving percentages of income compared to others. In addition, demographic factors such as age group, living situation, financial knowledge, correct answers, frequency of financial discussions accord and job category, are significantly associated with saving behaviour at a significance level of 1%, indicating that saving patterns vary across the groups. These findings suggest that more financial knowledge along more correct answers regarding the control questions in the quiz, being older and being employed are linked to higher levels of saving.

On the other hand, the predictors CSN loan type, highest degree obtained and source of main knowledge, were not significantly associated with saving percentage. These results suggest that neither education field, student loan status nor primary financial knowledge source have any significantly difference between saving behaviour. To summarize, the findings indicate that financial literacy, educational background, age, financial discussion habits, living arrangements as well as job category are all important predictors likely linked to students saving habits. Formal education level, CSN status and income source appear to have limited explanatory value when it comes to saving behaviour.

4.4 Regression Results

For clarity and brevity, the main text presents regression results for each key explanatory variable in two versions. To be more precise, one model contains only the key variable, and the second includes a full set of control variables. In total, 5 tables are presented, covering ten models, whereas two are for each key variable. The full model results that include categorical variables that use non-linear and group specific comparisons, are available on request.

Each model focuses on a key variable of particular interest: Handels dummy, correct answers, Confidence, financial knowledge and risk preference. These variables are our main explanatory

predictors and are analysed separately in relation to a number of control variables. The aim is to examine how each key variable relates to different background factors and thereby provide a broader understanding of their impact. The control variables included in the models are age, gender (female), living situation, highest degree, job category, financial knowledge, main source of financial knowledge and frequency of financial discussion. By holding these variables constant, we can better isolate the relationship between the main explanatory predictors and the other predictors in the analysis.

To assess potential confounding, each explanatory variable is tested both isolated and along control variables. This allows for comparisons to interpret the effect on significance and strength of the main predictors. By comparing the coefficients and significance levels across models, it is possible to evaluate whether the observed effects of the main predictors are independent or can be explained by confounding effects. In several tables below, the inclusion of control variables decreases the significance level and power of the key predictor, indicating that the relationship can potentially be confounding.

When control variables are taken into consideration in controlled models, the coefficient estimates tend to shrink in most cases. This suggests that the initial estimates might have been inflated due to omitted variable bias. With that being said, some important factors were initially excluded from the model, and when they are included, the true effect of the key predictors becomes smaller. This indicates that the initial relationships were partly caused by those omitted variables. In addition, adjusted R-squared is favored instead of R-squared in this case because of the large difference in the number of independent predictors across the models, as it accounts for model complexity and offers a more reliable ground for comparison.

In the regression models, the categorical variables are included and one group of each is treated as a reference group. For the Handels variable, the group coded as 0 (non-Handels students) is the reference group. For the financial knowledge variable, strong knowledge is used as a reference group. For the correct answers, confidence level, and risk preferences, the lowest level of each is the reference group.

4.4.1 Output variable save percentage

The table below presents regression estimates for saving percentage across ten models where the main explanatory predictors are introduced, each explanatory variable is tested with and without control variables.

Table 7a: Regression Results for Saving Percentage (Key Predictors Only, Models 1–4)

Models	1	2	3	4
Handels dummy	3.275*** (0.863)	1.887* (1.129)		
Correct answers			1.543*** (0.350)	0.451 (0.456)
Controls	No	Yes	No	Yes
Adj R-squared	0.018	0.091	0.026	0.124
Residual DF	789	535	772	524
N	791	545	774	535
Standard errors in parentheses	* p<0.1	** p<0.05	*** p<0.01	

Table 7b: Regression Results for Saving Percentage (Key Predictors Only, Models 5–10)

Models	5	6	7	8	9	10
Financial knowledge			-0.695 (0.570)	-1.904 (1.370)		
Confidence	1.222*** (0.359)	1.012* (0.574)				
Risk preference					0.778** (0.368)	0.127 (0.470)
Controls	No	Yes	No	Yes	No	Yes
Adj R-squared	0.016	0.137	0.015	0.124	0.010	0.129
Residual DF	788	533	789	535	788	533
N	790	544	791	545	790	544
Standard errors in parentheses	* p<0.1	** p<0.05	*** p<0.01			

In Model 1, which is the uncontrolled model that includes no control predictors, the coefficient for the Handels dummy (Handels = 1) is positive and statistically significant at the 1% level (p-value of 0.000). This suggests that students studying at Handelshögskolan are associated with an increase in savings on average 3.28 percentage points if compared to the reference group (Handels = 0), which includes students related to other academic fields. The model explains about 1,8% of the variation in the saving percentage, which is a low and typical value in social science research with only one explanatory predictor. In the second model the study includes a range of control variables (age, female, living situation, financial knowledge, job category). When including the control variables, the Handels dummy dropped to 1,90. Thus, the value remains positive but becomes less statistically significant (p=0.095). The interpretation here is that once we control for individual characteristics, the effect of students in financial education fields on saving behaviour is reduced, compared to the reference group.

Correct answers have a positive and a highly statistically significant effect on saving percentage (p<0.01). Students in the reference group with no correct answers on financial literacy test, tend to save significantly less compared to those with one, two or three correct answers. Overall, the model is statistically significant and means that each additional correct answer on

the financial quiz is associated with a 1.543 percentage point increase in savings. Therefore, if students have a higher financial knowledge based on the correct answers, they will increase their monthly savings compared to the reference group with no correct answers. However, the effect drops to 0.451 and the coefficient estimate became statistically insignificant ($p=0.322$) once controls are included in Model 4.

Financial confidence increases the saving percentage with 1.222 percentage points on average. Model 5 evaluates the influence of financial confidence, as measured by confidence levels on a scale from 1-5. Students with higher confidence levels (levels 2-5) reveals positive significantly higher scores on saving percentage ($p=0.001$). This implies that for each point increase on the financial confidence scale, the percentage save will increase by 1.222 percentage points, indicating that people who have more confidence in financial decisions tend to save more compared to the students in the reference group with the lowest confidence at level 1. When adding the control variables in Model 6, the model decreases its significance level ($p=0.078$) and drops from 1.222 to 1.012. These findings indicate that students who possess higher confidence in making financial decisions still differ from the reference group with lowest confidence once controls are taken into account, but at a lower significance level. Indicating that by adding the control factors the model's explanatory power decreases even more due to the control predictor partially absorb the explanatory power of confidence. This is likely because of confounding effects, or the control variables may be correlated with confidence.

Model 7 examines the relationship between self-assessed financial knowledge and saving behaviour, using students who report having strong financial knowledge as the reference group. In Model 7, comparing students with lower knowledge to the students with strong knowledge, have a negative but statistically insignificant effect on saving behaviour ($p=0.223$). When adding the controls it lowered the insignificant effect financial knowledge on savings and the coefficient becomes more negative at -1.904 , going from -0.696 . Indicating that after taking into account for individual characteristics, the negative relation persists and becomes even stronger.

Model 9 illustrates the effect of risk preference on save percentage, using the most risk-averse individuals (level 1) as the reference group. The model has a positive and a low statistical significance effect at 5% significance level ($p=0.035$), which highlights the fact that the overall explanatory power is weaker. The results imply that students who are more willing to take financial risks (level 2-5) are associated with saving more compared to the most risk-averse students (level 1). Meaning for an additional increase in the level of risk preference, the save percentage will increase by 0.778 percentage points. After including the control variables in Model 10, the coefficient for risk preference drops to 0.127 and becomes insignificant ($p=0.788$). Model 10 suggests that students with a higher willingness to take financial risks do not significantly differ in saving behaviour compared to those with lower risk preferences, once control variables are included. This indicates that the initial effect of risk preference observed in earlier model is likely confounded by factors such as age, gender, and living situation. Therefore, risk preference does not have an independent effect on the likelihood of saving when these control variables are taken into account.

4.4.2 Output variable invest percentage

Table 8a: Regression Results for Investing Percentage (Key Predictors Only, Models 1–4)

Models	1	2	3	4
Handels dummy	4.148*** (0.952)	0.406 (1.104)		
Correct answers			2.409*** (0.435)	0.843 (0.528)
Controls	No	Yes	No	Yes
Adj R-squared	0.041	0.299	0.076	0.304
N	445	370	437	364
Standard errors in parentheses	* p<0.1	** p<0.05	*** p<0.01	

Table 8b: Regression Results for Investing Percentage (Key Predictors Only, Models 5-10)

Models	5	6	7	8	9	10
Financial knowledge			-4.823*** (0.747)	-4.424*** (1.259)		
Confidence	2.407*** (0.453)	0.468 (0.638)				
Risk preference					2.478*** (0.472)	1.721*** (0.519)
Controls	No	Yes	No	Yes	No	Yes
Adj R-squared	0.070	0.301	0.086	0.230	0.077	0.253
N	444	369	445	370	445	370
Standard errors in parentheses	* p<0.1	** p<0.05	*** p<0.01			

Model 1 shows that Handels dummy (dummy=1) has a positive and highly statistically significant effect on investment percentage at a 1% significance level (p -value < 0.001). Students who have an academic education at Handelshögskolan increase their investment percentage by 4.148 percentage points on average more than the students related to other fields (reference group). However, in Model 2, when control variables are added the coefficient dropped to 0.406 and becomes insignificant ($p=0.713$). Indicating that the effect of studying at Handelshögskolan is mainly explained by other predictors.

In model 3 the knowledge coming from measured the correct answers in the quiz is positively and highly significant ($p<0.001$). Meaning that each additional increase in correct answers is associated with an increase in investment by 2.409 percentage points, compared to the reference group of students with no correct answers in the survey. Once the control variables are added in Model 4, the true effect decreases and at the same time becomes insignificant ($p=0.111$), meaning that the knowledge captured in the quiz is affected by other underlying factors. In other words, the effect of the number of correct answers on saving is not robust to the inclusion of control predictors.

In model 5, the student's confidence measured on a self-assessed scale from levels 2-5, is positive and highly significant at a significance level of 1% ($p < 0.001$), whereas the level 1 is the reference group with the lowest confidence. Indicating that an increase in confidence by 2.407 percentage points leads to an increase in investing among students. Students with higher confidence levels (levels 2-5) reveals positive significantly higher investing among students, compared to those in the reference group with the lowest level of confidence (level 1). Once the control variables are added in Model 6, the coefficient for confidence decreases to 0.468 and becomes statistically insignificant ($p = 0.464$). Model 6 challenges the assumption that more confidence in financial knowledge always leads to better outcomes, highlighting the importance of context as well as the control variables in interpreting the effect on investment.

In Models 7 and 8, the main predictor of lower financial knowledge is negatively associated with the invested income percentage. The coefficient is -4.823 and highly significant ($p < 0.001$) at a significance level of 1% in both the uncontrolled and the uncontrolled model with a coefficient of -4.424 ($p < 0.001$). This suggests that lower financial knowledge is related to less investment among students compared to the reference group where students have a strong financial knowledge.

Models 9 and 10 examine the role of risk preferences in predicting the investment behaviour in how much percentage of the student's income they allocate towards investment, using the most risk-averse individuals (level 1) as the reference group. In both the uncontrolled and controlled model, the coefficient of risk preference is positive and has a strong statistically significant ($p < 0.001$) at a significant level of 1%, effect on investment. In Model 9, where no control variables are included, the model suggests that more willingness to take financial risks will lead to an increase in investments by a 2.478 percentage point average. This suggests a strong association between willingness to take risks and the investment behaviour, relative to the most risk-averse individuals. In Model 10, once introducing control variables, the investment decreased slightly by 1.721 percentage points. The effect is still positive and remains highly significant ($p = 0.000$), showing that more risk-tolerant individuals still invest significantly higher percentage of their monthly income than those in the most risk-averse group, even when accounting for other characteristics.

4.4.3 Output variable if students save or not save

Table 9a: Logistic Regression Results for Likelihood of Saving (Key Predictors Only, Models 1–4)

Models	1	2	3	4
Handels dummy	0.253 (0.256)	-0.155 (0.328)		
Correct answers			-0.085 (0.096)	-0.130 (0.148)
Controls	No	Yes	No	Yes
Pseudo R2	0.001	0.093	0.001	0.095
N	910	624	890	614
Standard errors in parentheses	* $p < 0.1$	** $p < 0.05$	*** $p < 0.01$	

Table 9b: Logistic Regression Results for Likelihood of Saving (Key Predictors Only, Models 5–10)

Models	5	6	7	8	9	10
Financial knowledge			-0.046 (0.155)	0.370 (0.368)		
Confidence	0.093 (0.098)	0.148 (0.164)				
Risk preference					0.114 (0.103)	0.179 (0.143)
Controls	No	Yes	No	Yes	No	Yes
Pseudo R2	0.001	0.094	0.000	0.093	0.001	0.096
N	907	623	910	624	907	623
Standard errors in parentheses	* p<0.1	** p<0.05	*** p<0.01			

The Handels dummy predictor shows a positive but not statistically significant impact on the likelihood of saving in Model 1 ($p=0.322$). Having an academic education from Handels does not have an effect on likelihood of savings, compared to the reference group of students with other academic education. When controls are added in Model 2, the effect becomes negative and decreases to 0.155 and is statistically insignificant ($p=0.707$). The instability implies that having an academic education related to finance or graduating from Handelshögskolan alone does not have a statistically meaningful effect and is not a reliable predictor of saving behaviours.

In both the controlled and uncontrolled model, the number of correct knowledge questions has a negative statistically insignificant effect on saving likelihood ($p=0.377$, $p=0.380$). Suggesting that the effect of students who answer more questions correctly is not associated with their likelihood of saving, meaning more correct answered questions do not differ from those who answered no questions correctly in the reference group. In the controlled model the effect of the main explanatory predictor remained insignificant but becomes more negative. For this reason, the results do not support a direct or a robust causal relationship between financial knowledge and the likelihood of saving behaviour among students.

Financial confidence shows a small, positive and statistically insignificant effect on the likelihood of saving in both the uncontrolled and controlled model ($p=0.344$, $p=0.367$), where students with lowest level of financial confidence (level 1) serve as the reference group. The findings indicate that self-reported financial confidence does not significantly predict students' likelihood of saving. However, Model 6 shows a slightly stronger positive coefficient for financial confidence, but the effect remains insignificant. Meaning that financial confidence does not significantly differ from the students in the reference group with lowest confidence. This implies self-reported financial confidence does not robustly or independently forecast the likelihood of savings among students.

Financial knowledge is positive in the uncontrolled model but turn negative in the controlled model. In both models, financial knowledge has a statistically insignificant effect on the

likelihood of saving among students ($p=0.765$, $p=0.316$). This provides further evidence regarding that lower financial knowledge is associated with a decrease in savings comparing to students with strong financial knowledge, when it comes predicting the likelihood in saving.

Model 9 shows a small positive effect of risk preference, which increases in Model 10, but both effects are statistically insignificant ($p=0.268$, $p=0.211$). This demonstrates that student's willingness to take risks does not play an important significant role on likelihood of saving behaviours, therefore we cannot distinguish students with lowest risk preference (reference group) from students with higher risk preferences when it comes to saving behaviour.

4.4.4 Output variable if students invest or not invest

Table 10a: Logistic Regression Results for Likelihood of Investing (Key Predictors Only, Models 1–4)

Models	1	2	3	4
Handels dummy	0.977*** (0.170)	0.202 (0.228)		
Correct answers			0.603*** (0.071)	0.276*** (0.097)
Controls	No	Yes	No	Yes
Pseudo R2	0.027	0.070	0.064	0.078
N	910	624	890	614
Standard errors in parentheses	* $p<0.1$	** $p<0.05$	*** $p<0.01$	

Table 10b: Logistic Regression Results for Likelihood of Investing (Key Predictors Only, Models 5–10)

Models	5	6	7	8	9	10
Financial knowledge			-1.188*** (0.130)	-0.407 (0.292)		
Confidence	0.582*** (0.072)	0.153 (0.115)				
Risk preference					0.823*** (0.080)	0.610*** (0.105)
Controls	No	Yes	No	Yes	No	Yes
Pseudo R2	0.057	0.073	0.082	0.070	0.099	0.113
N	907	623	910	624	907	623
Standard errors in parentheses		* $p<0.1$	** $p<0.05$	*** $p<0.01$		

In Model 1, the Handels dummy has a positive significant effect on the likelihood of investing among students ($p < 0.001$). This suggests that students associated with Handelshögskolan are significantly more likely to invest compared to the reference group, those students that are not associated with Handels. The likelihood of investing is increasing by 0.977 units. However, in Model 2, including control predictors, the coefficient becomes statistically insignificant ($p = 0.375$) and decreases sharply to 0.202.

The number of correct answers on the financial literacy test in both the controlled and uncontrolled model, are positively and highly significant at a significant level of 1%, demonstrating that each additional correct answer substantially increases the likelihood of investing among students with 0.603 units, respective 0.276 units on average. In Model 4, once controls are included, the effect remained positive and significant, but the coefficient dropped to 0.276. The drop can be explained by the control variables, yet financial literacy still independently contributes to investment behaviors at a significant level of 1%. Each additional correct answer is related to a higher likelihood of investing compared to the students with no correct answers in the survey.

Financial confidence has a highly positive statistically significant effect in Model 5 ($p < 0.001$), demonstrating that students who feel more confident (level 2-5) when making financial decisions are more likely to invest compared to those with lower confidences (level 1). The increase in the likelihood of investing increases with 0.582 units on average compared to the students with the lowest confidence. However, this effect is narrowed down once the control explanatory variables are added in Model 6. The effect becomes statistically insignificant ($p = 0.181$), revealing that we cannot significantly differ from students with higher financial confidence from students with lower financial confidence when it comes to likelihood of investing.

There is a strong and statistically significant negative relationship between lower financial knowledge and the likelihood of investing ($p < 0.001$) in Model 7. This suggests that students that possess lower financial knowledge are significantly less likely to invest compared to those who have strong knowledge. Therefore, the results imply that lower financial knowledge might causally decrease the likelihood of investing among students by 1.188 units.

Risk preference is strongly positively associated with investment likelihood in the uncontrolled and controlled model at a significance level of 1% ($p < 0.001$). In Model 9, the coefficient reveals that as students increase their risk preference (level 2-5) in their decision making, the likelihood of investment increases by 0.823 units compared to those in the most risk-averse group (level 1). Even after introducing control predictors, the effect of risk preference remained robust and highly significant, though the coefficient slightly dropped to 0.610. These findings suggest that risk tolerance is a significant and stable explanatory predictor of investing.

4.4.5 Output variable type of CSN (student loan)

Table 11a: Ordered Logistic Regression Results for Student Loan (Key Predictors Only, Models 1–4)

MODEL	1	2	3	4
Handels dummy	0.011 (0.167)	-0.266 (0.233)		
Correct answers			0.072 (0.067)	0.049 (0.100)
Controls	No	Yes	No	Yes
Pseudo R2	0.000	0.052	0.000	0.054
N	908	624	888	614
Standard errors in parentheses	* p<0.1	** p<0.05	*** p<0.01	

Table 11b: Ordered Logistic Regression Results for Student Loan (Key Predictors Only, Models 5–10)

MODEL	5	6	7	8	9	10
Financial knowledge			-0.267** (0.107)	-0.002 (0.280)		
Confidence	0.152** (0.067)	0.036 (0.119)				
Risk preference					0.200** * (0.071)	0.150 (0.101)
Controls	No	Yes	No	Yes	No	Yes
Pseudo R2	0.003	0.052	0.004	0.052	0.005	0.054
N	905	623	908	624	905	623
Standard errors in parentheses	* p<0.1	** p<0.05	*** p<0.01			

In Model 1, the Handels dummy is positive and indicates no statistically significant effect on the amount of CSN. When control variables are added in Model 2, the coefficient becomes negative at -0.233 and remains insignificant ($p=0.915$).

Similar result is shown in Model 3 and 4, where both coefficients for the number of correct answers on the quiz questions showed no significant association with student loan uptake.

In Model 5, confidence level among students shows a significant positive effect on student loan status, at a significance level of 5%. This indicates that having a higher confidence in financial decision-making as a student, correlates with higher likelihood of student loan uptake comparing to the reference group of students with lower levels of confidence. After including controls in Model 6, the effect decreases from 0.152 to 0.036 and loses the statistical significance.

In model 7, financial knowledge has a statistically significant negative effect on student loan status, implying lower financial knowledge is associated with a less amount of CSN loan

compared to students with strong financial knowledge. Although, once the controls are added in Model 8 it becomes insignificant. Overall, these results reveals that students possessing a higher financial knowledge may causally show a higher probability of taking a higher student loan.

In Model 9, risk preference has a positive statistically significant influence on student loan status ($p < 0.001$), suggesting that more risk preferring students are more likely to take higher student loan. However, in Model 10, after the control's predictors are introduced, the effect size of risk preference on loan status became statistically insignificant and decreased to 0.150.

5. Discussion

Hypothesis 1: Students that participate in business or economic related fields are more likely to engage with more long-term investment and savings behaviors compared to students from non-financial fields.

Our results support the hypothesis that students that study withing Handels do invest and save more frequently than students in other fields, with significant regression results. However, the effects diminished when controls are included, indicating that field of study may be confounding by other factors.

The results demonstrated that students in economics and business-related academic education programs have a higher probability to engage in savings and investments in contrast to student groups that are related to other academic fields such as medicine, technology, education, art and engineering. The results from the regression models provide mixed evidence, but that is mainly supportive for H1. It is clear that there is an association between studies related to economics and business and both increased investment and saving, but this association weakens when factors as individual characteristics are added. The reason for this might be that the outcome is partially explained by factors such as individual characteristics.

To begin with, the result demonstrates that students in economic fields allocate a higher share of their monthly income to investing and saving, in contrast to students participating in other disciplines, suggesting that field of study is an important predictor of financial behavior. This assumption indicates that students with a financial background tend to frequently contribute to financial activities as well as thinking more long-term, which is consistent with previous findings connecting financial education to a higher allocation of the monthly income directed towards investments and savings. On the other hand, the relationship weakens significantly when factors such as age, gender, housing situation, employment status, financial knowledge, and self-assessed financial knowledge are taken into account. In these controlled models, the effect of having an economic related education is significantly reduced and becomes insignificant. This implies that the original effect is likely interpreted by underlying factors rather than the education itself. For instance, it might be that students in economics fields tend to live more cheaply, have jobs alongside their studies and have a greater interest in financial topics, which influence investment and saving behavior.

Furthermore, the models for the likelihood of investing and savings (binary outcomes) showed that the field of education has no significant effect on whether students save at all. On the other

hand, the probability of investing is higher among economic students in the uncontrolled model, but this association weakens when control predictors are added into the model. This points out that the focus of education rather affects the level of saving and investment among those who are already active, rather than being determinative for whether or not students participating in such financial activities.

Overall, the analysis shows that there is a relationship between financial education and financial behavior, but that this cannot be interpreted as a direct causal relationship. The field of education acts rather as an indicator of other influencing factors, such as financial knowledge, risk appetite, income, and self-confidence in financial matters. The results point out the importance of not just emphasizing educational factors, but also taking into consideration broader individual, psychological and demographic factors in order to fully understand students' financial behavior.

The literature by Cappelli, Banks, & Gardner (2024) highlights that students' money-management behavior are driven by individual factors such as financial knowledge and attitudes, rather than field of study. Although their literature does not focus on field of study, it highlights the importance of financial literacy in supporting effective saving and investing. Our results support the findings in the literature, as students with a higher financial literacy saves a higher percentage and invests more frequently and higher amounts. Georgeos and Ståhle (2024) shows that financial literacy support saving, which matches our finding that students in economic fields initially allocate a higher share of their monthly income both to saving and investing, although the literature did not account for investments, only savings behavior.

Hypothesis 2: Higher levels of financial literacy are positively correlated with both increased investment activity and greater savings frequency.

Higher financial knowledge is associated with increased savings and investments but also increased likelihood of saving. For objective financial knowledge, it decreases the likelihood of investing but increases the percentage of savings and investments.

The results raise important considerations about how different aspects of financial literacy impact behavior. One important finding is that objective financial knowledge, which is measured by correctly answered questions in the quiz, appears to have a higher impact on investment behavior compared to saving. This implies that real financial competence, rather than how knowledgeable students believe they are, is what guides more complex financial decision making, such as investing. The insignificant effect of self-assessed financial knowledge might reflect a lack of alignment between competence and confidence, reflecting findings from past research on financial overconfidence among students.

The weaker association between saving behavior and financial literacy, especially once the demographic controls are introduced, also implies further reflection. It is possible that saving decisions are more limited by factors such as housing costs, income or employment status, than by knowledge alone. Even students who understand the value of saving may not have the possibility or resources to make use of that knowledge. From this perspective, saving behavior

may reflect capacity rather than an active choice, highlighting the constraints of financial education in isolation

Furthermore, the decrease in significance when controls are taken into consideration demonstrates that financial knowledge is closely linked with broader socioeconomic advantages. For instance, students that study at Handelshögskolan may score higher not just because of their field of study, but also due to greater access to financial resources, background support, or interest in the subject. This highlights the importance of viewing financial literacy as part of a larger system of opportunity and privilege, instead of as an independent predictor.

Overall, these trends showed that objective financial literacy plays an important role in investment behavior, meanwhile its role in saving is more conditional. They also underscore that self-assessed knowledge may not be a trustworthy guide to behavior. To summarize, the findings do not support our hypothesis regarding students that possess higher self-assessed financial knowledge, but support the other predictor addressed by the hypothesis, which suggests that students with higher levels of financial literacy, measured by the amount of correct answers in the quiz, are positively correlated with increased financial activity.

Our results are partly in line with prior research, indicating that financial literacy influences investment and savings behavior. While Georgeos and Stähle (2024) found a strong link between financial literacy and long-term saving, our findings show that this relation is weaker or conditional, particularly when demographic factors are taken into consideration. This might be due to the fact that students face structural constraints such as housing costs or low income, as also mentioned by Jumena et al. (2022). Xiao et al. (2014) found that subjective financial literacy had a stronger association with financial satisfaction compared to objective knowledge. Our results indicated the opposite, meaning objective financial knowledge, measured by correct quiz answers, had a more consistent impact on investment decisions, whereas subjective (self-assessed) knowledge showed no significant effects. This difference may illustrate that actual competence (objective knowledge) is more relevant than perceived ability among students when making decisions in financial matters.

Hypothesis 3: Students that have more confidence are more likely to invest or save regularly.

The findings partially support the hypothesis. A higher level of confidence level is strongly positively associated with an increased likelihood of investing and a small but insignificant effect on saving likelihood.

The analysis of the hypothesis stating that students with higher financial confidence are more likely to invest or save regularly shows mixed but informative findings. In uncontrolled models, confidence in financial decision-making reveals a strong significance and positive effects on both the percentage of income invested and saved, and the likelihood of investing but not the likelihood of saving. On the other hand, once demographic and socioeconomic controls are included, these correlations are reduced and become statistically insignificant in most models. This suggests that while confidence in financial decision making might seem influential, it is not a reliable or independent predictor of financial behavior once we control individual

background characteristics. The results suggest confidence alone may not be enough to impact students' financial decisions.

The results strongly emphasize the role of income, housing status, source of knowledge, frequency of financial discussion, and family background in influencing students' behavior. These factors repeatedly absorb explanatory power from financial confidence, which is one of the main explanatory predictors. This suggests that context matters more than confidence alone when it comes to understanding investment and saving trends among students, aligning closely with the study's main research questions. Our results partially align with previous research. Cappelli, Banks, and Gardner (2024) discovered that self-confidence positively has an impact on student money management, including saving and investing.

Hypothesis 4: Students that have a higher risk preference are more likely to invest or save regularly.

Figure 7 presents box plots, visualizing the distribution of investment % by risk preference. The findings for H4, which insinuates that students with higher risk preferences are more likely to save or invest regularly, provide a nuanced picture. Overall, in the models, risk preference appeared as a reliable and significant predictor of investment behavior, but not of saving behavior.

In terms of saving behavior, the uncontrolled model demonstrated a weak significant and positive correlation between risk tolerance and the percentage of income saved. This effect disappeared in the controlled model, where the coefficient became statistically insignificant. This suggests that any observed link between risk preference and saving is likely confounded by other factors such as gender, age and living situation. In addition, the habit of saving is typically seen as a low-risk activity which might describe why risk tolerance has a minor influence in determining saving decisions.

Investment behavior had the opposite effect and is significantly related to risk preference in both models. Students possessing higher risk preferences are more likely to report a higher likelihood of investing as well as allocate a greater portion of their income toward investments. After controlling a range of socioeconomic and demographic variables, the effect is still significant, despite a slight decrease in magnitude. Risk preference has a robust and independent effect when it comes to students' investment behavior, reinforcing the hypothesis that a higher willingness to accept financial risk is a significant factor in promoting more investments.

While financial literacy and economic education are often highlighted, this analysis implies that psychological attributes such as risk preference among students may be more powerful in driving investment decisions. Secondly, even though education related to economics may play a role in shaping students' financial attitudes, it is the personal characteristic as risk tolerance that demonstrated to be a stronger predictor of investment behavior and not academic background.

The results supports that demographic factors influence decision making, but when it comes to investment, risk tolerance stands out as stable and an independent explanatory predictor, in contrast to financial literacy or confidence, whose effects diminished in the controlled models.

To summarize, risk tolerance among students turns out to be a more important predictor than we thought when it comes to explaining investment behavior, supporting our hypothesis H4. On the other hand, risk tolerance's role in saving behavior is minimal, showing the importance of differentiating saving and investing habits.

The previous literature Rösch and Menkhoff (2006) indicated that risk attitude significantly affects stock investment behavior, but not when it comes to saving, a finding that corresponds closely with our results where risk preference remained a strong predictor of investment, meanwhile its effect on likelihood of saving was not significant.

Hypothesis 5: Students with higher risk preferences and higher levels of objective financial knowledge are more likely to take full student loans (CSN).

Both higher financial knowledge and risk preference increase the probability of the student taking a full CSN loan. However, both effects diminish and are insignificant when controls are included.

The results show only partial support for the hypothesis. While the uncontrolled models imply students with higher levels of risk preferences and stronger objective financial knowledge are more likely to take out larger CSN student loans, these associations became weaker when demographic factors are taken into consideration. This shift in the relationship implies that loan status among students may be less about individual traits such as risk tolerance and objective financial literacy and more about a student's financial situation as in employment status and living conditions.

Interestingly, objective financial literacy (measured by the number of correct answers) did not significantly influence students' loan uptake. This contradicts the hypothesis that greater objective financial knowledge causes students to take more student loans. In fact, even a lower level of objective financial knowledge appears to correlate with a decrease in loan uptake. The relationship became insignificant after controlling background and demographic factors, implying that objective knowledge alone might not be a main driver in this field. Risk preference demonstrated a clearer initial effect, where students with a higher risk-tolerant behavior are more likely to borrow larger amounts of CSN. Risk preference demonstrated a clearer initial effect, where students with a higher risk-tolerant behavior are more likely to borrow larger amounts of CSN. This is reasonable in theory, as student loans can be seen as a long-term investment with delayed returns. When the demographic variables are added, this relationship also diminishes. This trend implies that taking a higher risk is closely tied to other life circumstances.

These results are in line with previous research showing that students' risk preferences and financial confidence significantly influence their likelihood of taking on debt (Mudzingiri, Mwamba, & Keyser, 2018). However, while the literature emphasized debt-taking behavior mainly when students face a lack of strong support structures, our study focuses on student loans as an opportunity to invest and save for future benefits. Additionally, our findings support prior literature by showing that risk preferences and financial confidence affect loan decisions, suggesting that life circumstances may play a larger role in shaping students' borrowing behavior.

Hypothesis 6: Older students are more likely to invest and save compared to younger students.

Shown in the visualization section, there is a bigger effect for investments than savings over different ages. However, both investments and savings show decreased effect for the older student, not supporting the pre-defined hypothesis.

The visual data does not support the hypothesis regarding the higher probability that older students are more likely to invest and save compared to younger students. The data illustrate that older students do not necessarily increase their investments and savings more than younger students. In fact, both saving and investment behavior decline with age. This may illustrate increasing financial burdens with age, such as family, housing, and other expenses, which reduce their ability to allocate income toward investing or savings. While the initial hypothesis expected older students to increase their financial savings and investments, the findings demonstrated that higher expenses might actually decrease students' ability to save or invest as they get older.

Hypothesis 7: Male students are more likely to engage in riskier assets and in investments behaviors generally.

Shown in Figure 12 (visuals section), male students invest a bigger proportion regularly compared to females. This hypothesis can further be supported by figure 13, showing that males generally have a higher risk preference.

The findings show strong support for the hypothesis that male students are statistically significantly more likely engage in investment behavior and take greater risk compared to female students. On average, males indicate substantially higher investment and saving rates. These trends suggest that men are not only more active in financial decision making but also more dedicated toward long term financial planning and potentially perform riskier financial strategies. In addition to behavioral differences, these results are relevant to the research questions, especially those concerning the influence of demographic factors on savings and investment behavior. The results suggest that gender is an important demographic variable affecting financial decisions among students. The gender gap in financial confidence and risk preferences as well as financial knowledge reflects the importance of targeted financial education to minimize these gaps and support a more balanced financial involvement across genders. The findings in our study aligns well with the literature by Cupák et al. (2021) and Holden & Tilahun (2022), both in terms of gender differences in risk preference as well as investment behavior. Cupák et al. (2021) found that confidence illustrates a significant portion of the gender gap in risky investments, where women tend to have lower confidence and therefore participate less in riskier investments. Holden & Tilahun (2022) also shows that women invest on average significantly less and were more loss averse compared to men. To summarize, the analysis of the hypothesis provides evidence that male students have a higher tendency to invest and are associated with taking higher risk. These gender-based differences highlight the importance of taking demographics and psychological predictors into account.

6. Limitations

Endogeneity problems: Our estimates cannot directly be interpreted as causal effects as endogeneity remains a concern in our study. Unobservable factors such as education quality or parent's financial habits may influence dependent and independent variables, biasing our results. This suggests that the causal relationship between the outcome variables and explanatory variables may be distorted by the presence of measurement error, omitted variables or simultaneity, all of which are different forms of endogeneity that can bias the estimated relationships. For instance, variables such as financial literacy and field of study may be endogenous because of unobserved heterogeneity, because there is a possibility that students who are more engaged in saving and investing will automatically choose to study economics in university or seek more financial education. Students that also score higher on financial literacy questions in the survey may differ in unmeasured ways as in parental influence, socioeconomic background, or personality traits. Endogeneity weakens the credibility of causal interpretations because it violates the assumption that explanatory predictors are exogenous, meaning they are uncorrelated with the error term. When the assumption is violated, it becomes difficult to identify whether changes in the dependent variable are due to the independent variable or because of other hidden factors. If these omitted variables have an impact on both savings' behavior and financial literacy, failing to control them could create endogeneity. This makes it difficult to isolate the independent effect of field of study or financial literacy on financial outcomes.

Reverse causality: Reverse causality, which is a type of endogeneity problem, also indicates a threat to identifying causal relationships. Since this study uses cross-sectional data, correlations can only be identified but it doesn't prove any causality and doesn't tell us which direction the cause goes. While our assumptions that the independent variables affect the dependent variables may be true, a reversed effect may also exist. For instance, this study assumes that more financial knowledge increases savings and investments but what if people that save and invest more have greater knowledge since, they learn from experience. Without the possibility of tracking changes over time, the study cannot precisely determine whether financial knowledge leads to better financial behavior or the other way around. In addition, students who actively engage in financial activities may become more motivated to seek financial knowledge out of necessity, which makes it difficult to determine the causal direction. It's important to address the fact that the two factors might influence each other and not just one causing the other.

Sampling method and size: Even though the survey is sent to 2000 students within the different faculties, it may not be a sample that is representative of all students in Sweden. Although the students were randomly selected, the survey was randomly distributed to only 2000 students in the mailing list. Regional differences in education policies, local costs and prices, and access to financial resources may affect financial behaviours. For instance, financial literacy integration across schools may differ across regions and students in smaller cities may face other economic conditions than those in bigger cities. This study does not capture these factors since most respondents lives in Gothenburg or in the urban area around Gothenburg.

Additionally, response rates vary across faculties even if distributed equally. This may have introduced a self-selection bias, where those students with lack of interest or knowledge in finance related topics choose not to respond to the survey. Therefore, the survey may not capture the financial behaviors of all groups, such as for fields like art/design and engineering. A bigger sample size could improve the statistical power, making it easier to detect true effects.

Considered together, these factors suggest that the sample may be narrow and skewed, limiting generalizability of the findings. If some groups are underrepresented, it may affect the external validity of the study. If some students' populations are excluded or underrepresented, it may reduce the external validity of the study.

Survey design and self-reporting bias: Microsoft Forms allowed settings to show/not show certain questions depending on answers to prior questions. In some cases, this worked as intended, for example, for those reporting they do not save, were not shown the questions regarding saving behaviours. However, regarding the questions about CSN, those answering that they do not take CSN will see questions asking about the reason why no and the reason of why they take CSN. Microsoft Forms only allowed skipping questions that immediately followed, limiting the ability to tailor this follow-up question. This could imply that those respondents reporting no CSN might have answered the question of why they take the loan either because they think a response is required or they misunderstood it as a hypothetical question. Thus, it can arise confusion and misunderstanding that reduce reliability of certain responses.

There also exist some faults in some questions such as missing or limited answer alternatives. For example, the age question didn't include an answer alternative for the age of 18, only under 18, 19-29 and above 30. However, the "Other" option allows the respondent to write their age themselves, but it could still lead to some respondents skipping the question. Lastly, the question asking the respondent how much it would dare to invest if it received 5000 SEK does not include an answer alternative for each possible answer. The answer alternatives are following: Nothing, under 1000, 1001-2000, 2001-3000, 3001-4000, everything, and don't know. Unfortunately, it does not include an alternative for the amount span between 4001-4999. This forces the respondents to choose another alternative, answer don't know or just skip the question.

This study collects data through a survey meaning that the data will be self-reported by the respondents themselves, leaving room for risk of errors such as memory bias or social desirability bias. This means a risk of error if the respondents have a hard time remembering or they answer differently because they think it will affect the outcome to their advantage to present themselves more informed or experienced. This can affect the reliability of the results but is something inevitable when conducting these kinds of surveys.

Omitted variables: Important variables like personality traits, attitudes, or prior financial experience are not included in the study but could impact financial behaviors. However, some restrictions have to be made to suit the resources at hand and the time frame. The absence of these factors introduces the risk of omitted variable bias, where the estimated effects of

included variables may be distorted because of importance influential variables are missing. To minimize the risk of omitted variable bias, we added control variables such as age, gender, source of knowledge, and job category in our regression models. After including these controls, the coefficient estimates for our key predictors decreased in most cases. This decrease indicates that the uncontrolled models have overestimated the effects due to the omission of relevant predictors. While this does not entirely remove the risk of bias, it reinforces the credibility of our results by considering important confounding factors.

Measurement error: The measurement of financial literacy in our quiz may be too simplified, complicated, or incomplete, depending on the financial knowledge of each respondent. A few quiz questions may not capture the full spectrum of financial knowledge, and therefore not fully capture a student's true knowledge. The survey does not account for financial literacy's many topics such as budgeting, credit, and more difficult questions about investing and savings. These cannot be fully assessed with basic or limited questions, that's why it's important to take the limitations into consideration when interpreting the result. In addition, there is a slight chance that some respondents may have guessed or searched online after the right answer, skewing the results. This would likely result in a downward-biased estimate, which is a form of bias where the estimated effects are systematically minimized or even biased more toward zero in our regressions than they are in reality. Within our framework, this means that the relationship between financial behavior and financial literacy may seem to be weaker than it genuinely is. For instance, if students looked up the answers to the financial literacy quiz questions during the survey, their results would not represent their true financial knowledge. Therefore, students with low objective financial literacy could be incorrectly categorized as having high literacy. If students with higher financial literacy invest and save more in reality, but now even students with low financial literacy have a score that indicate high financial literacy, then this will lead to a decrease in the coefficient estimate as these "cheaters" will have lower participation in financial activities, but will still appear as students with high objective financial literacy. If the "cheaters" do not reflect a strong investing or saving behavior, regardless of their inflated scores, it will skew the true relationship. By including such "false positives" biases the regression coefficient downward because the model now contains students with low financial behavior but with high financial literacy. The overall relationship gets weaker and makes it more difficult to identify the true effect of financial literacy in the study.

Limited generalizability: Results may not be generalizable to students outside Sweden, non-university populations, or non-student young adults.

Like all empirical research, this study faces several limitations that may affect the interpretation of the results. While it provides valuable insights on student financial behavior, especially in relation to financial knowledge, CSN, and education, several factors such as sample representation, survey design, omitted variables, and the cross-sectional data itself, restrict the ability to generalize the finding to a broader population and to make strong causal claims. Despite these limitations, the study offers a steady foundation for future research.

Spurious correlation: Another important limitation that should be mentioned is the risk of spurious correlations. Since we conducted multiple regression analysis across numerous outcome variables and tested our main predictors, there is an increased likelihood of identifying

statistically significant effect by chance. For example, we found that objective financial knowledge initially appeared significant in relation to saving percentage, but this significance disappeared in the controlled models. Such fluctuations might partly represent an association by chance rather than true effects. When the study tests many hypotheses using different variables and models, there is a higher chance of finding some results that appear statistically significant just by luck, even if there is no real effect.

7. Conclusion

This study examined Swedish students' save and invest behaviors, as well as student loan usage with focus on financial knowledge, education and characteristics. For the savings percentage, we found that being a business student, having higher objective financial knowledge, risk preference and confidence all had a significant impact. On the other hand, for the likelihood of saving, none of the main predictors were significantly related to whether students saved at all. When analyzing the percentage of income invested, significant predictors being a business student, objective and self-assessed financial knowledge, risk preference and confidence all positively influenced percentage of income invested. When it comes to the likelihood of investing, all main predictors showed significant positive effects, revealing their influence concerning the decision to invest. For the amount of CSN student loans taken, only confidence, self-assessed financial knowledge, and risk preference showed an impact. However, most of these relationships weaken or become insignificant when introduced to control variables suggesting that background factors such as age, gender, housing, or work may play a confounding role.

This study focuses on quantitative survey methods that captures a proportion of motivational factors due to the survey data, although it may not fully capture the full effect of motivational and psychological factors behind students' savings and investment habits. In this case, future research could also include qualitative research methods as a complement. Interviews or focus groups could be used to gain deeper understanding into factors such as psychological and motivation factors behind students' saving and investing behaviours.

With a longitudinal or before-after research method we get the opportunity to track students over different time periods as they transit from relying on CSN to earning a regular income and if there is a statistically significant change in student's savings and investments behavior. This approach could additionally show whether early engagement in saving and investing as a student has lasting effects in adulthood and could be further investigated.

Further, expanding the geographical and demographic scope could help explain differences in behaviors among students. Including students from different regions, countries, and backgrounds could help explain cultural and institutional differences affecting their financial decisions.

Together, these extensions can provide deeper insights into understanding students' financial behaviors.

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APPENDIX A – Visuals

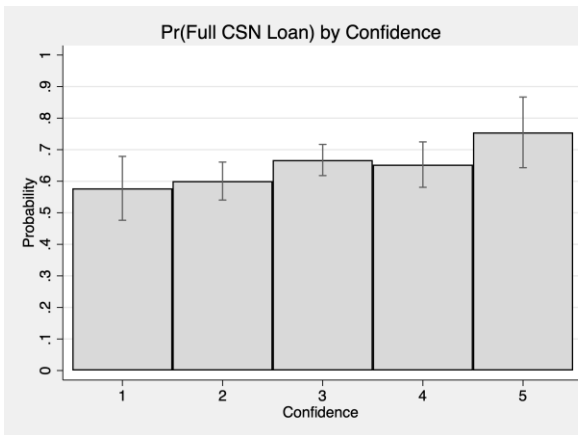


Figure 14: Probability full CSN loan by confidence

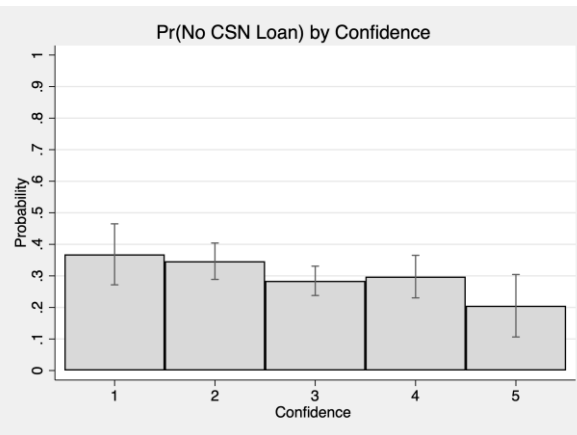


Figure 15: Probability no CSN loan by confidence

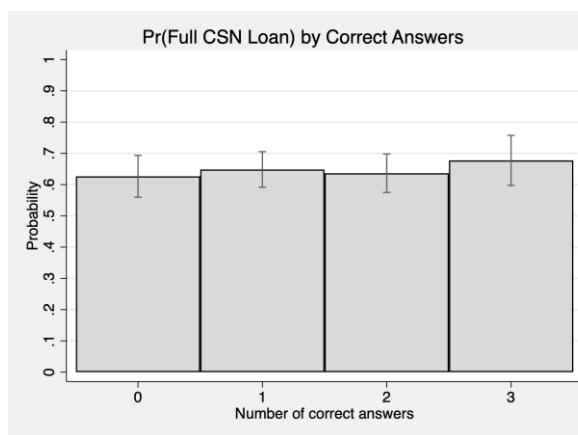


Figure 16: Probability full CSN loan by correct answers.

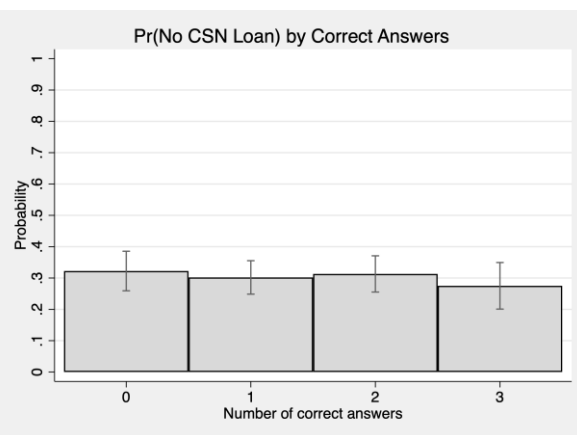


Figure 17: Probability no CSN loan by correct answers

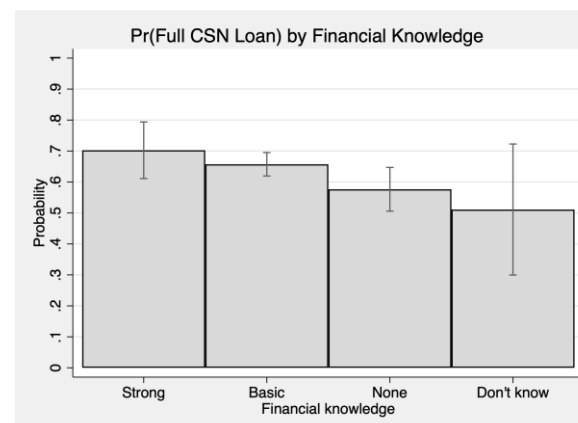


Figure 18: Predicted full CSN loan by financial knowledge

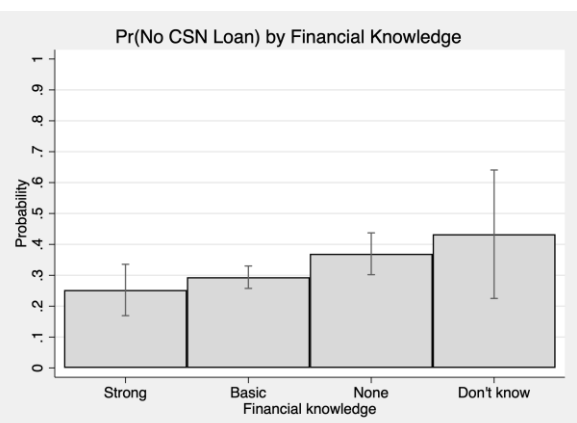


Figure 19: Predicted no CSN loan by financial knowledge

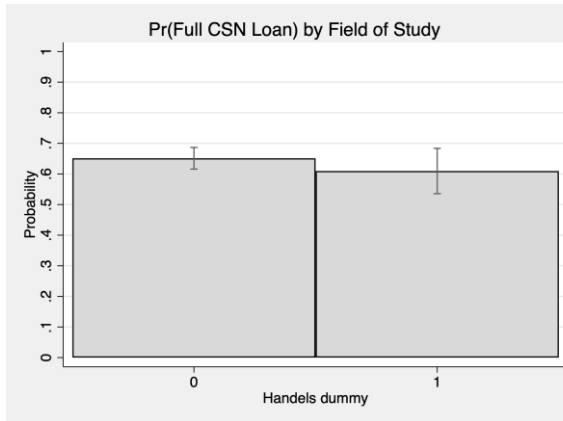


Figure 20: Probability full CSN loan by Handels dummy

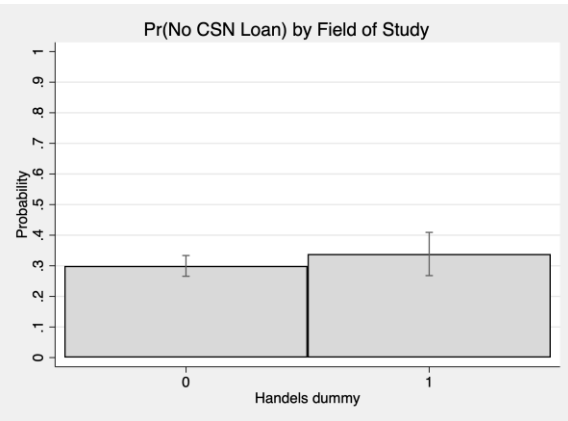


Figure 21: Probability no CSN loan by Handels dummy

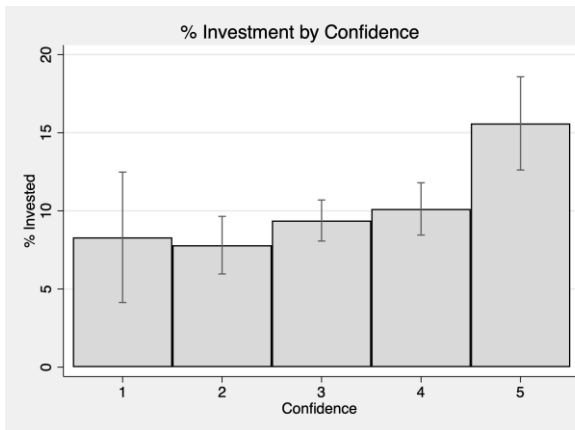


Figure 22: Predicted Investment percentage by confidence

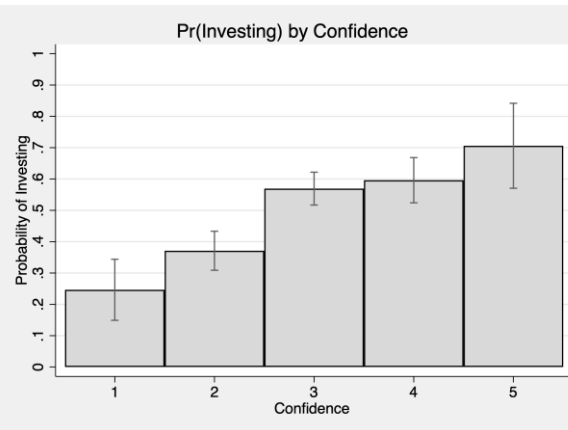


Figure 23: Probability of investment by confidence

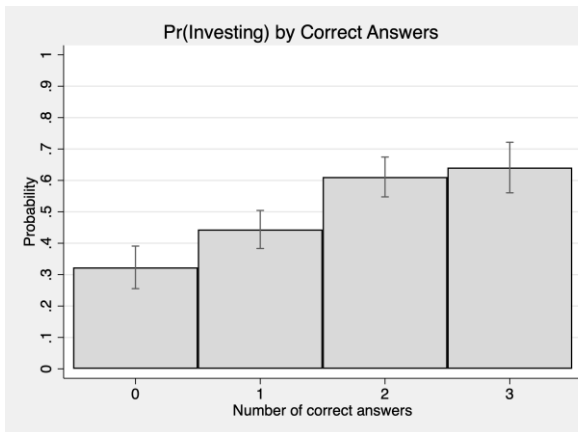


Figure 24: Probability of investment by correct answers

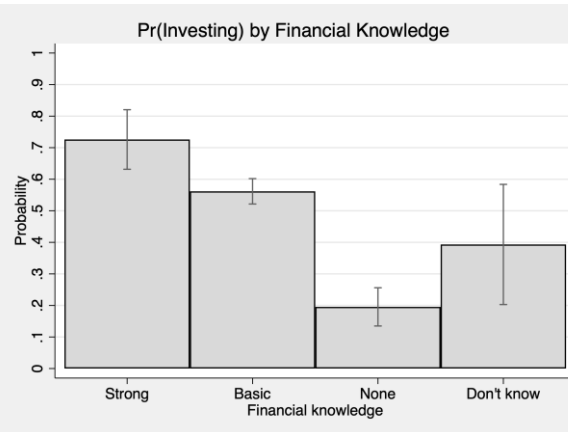


Figure 25: Probability of investment by financial knowledge

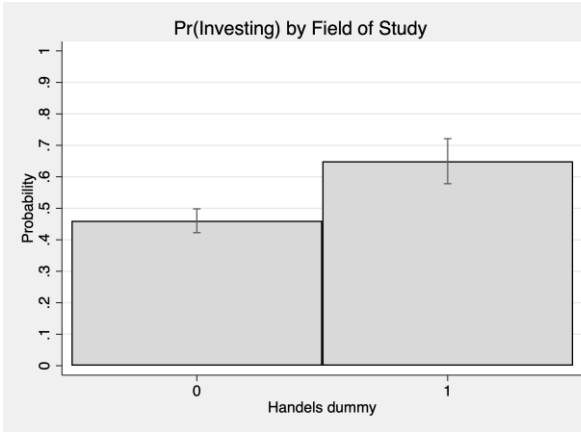


Figure 26: Probability of investment by Handels dummy

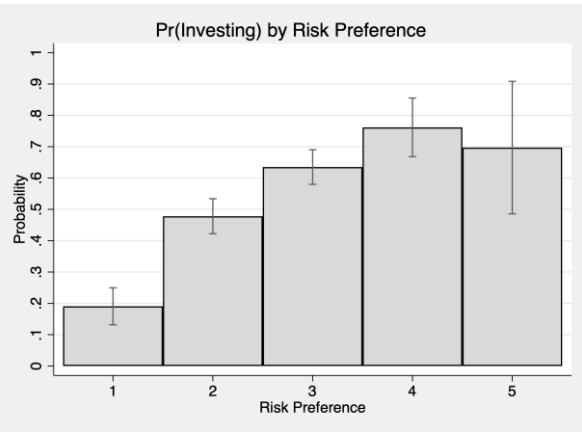


Figure 27: Probability of investment by risk preference

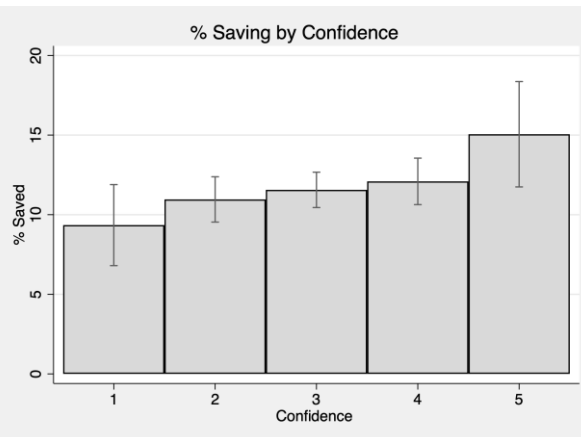


Figure 28: Predicted savings percentage by confidence

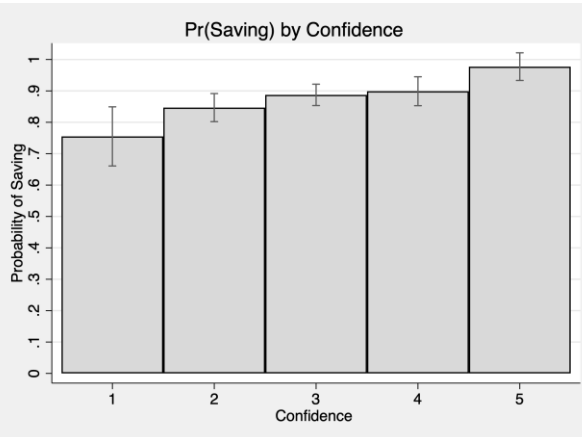


Figure 29: Probability of saving by confidence

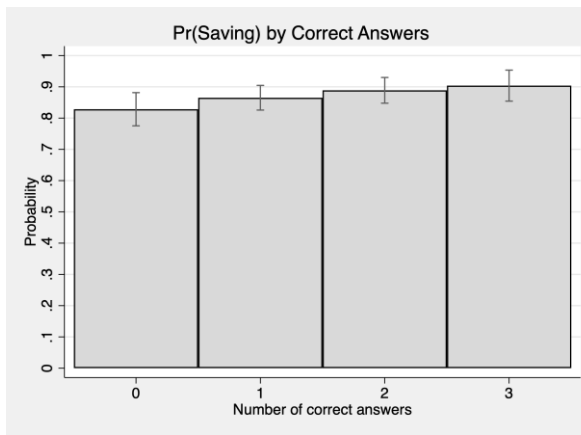


Figure 30: Probability of saving by correct answers

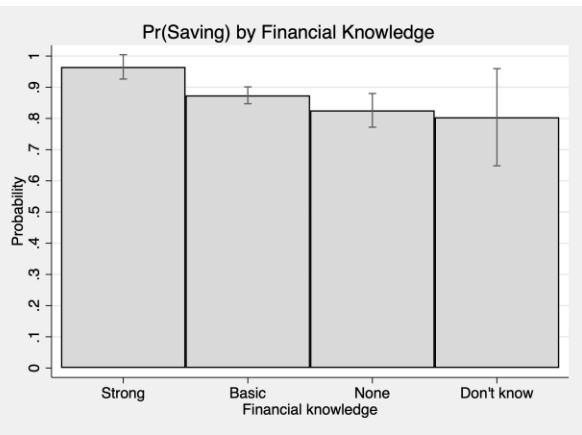


Figure 31: Probability of saving by financial knowledge

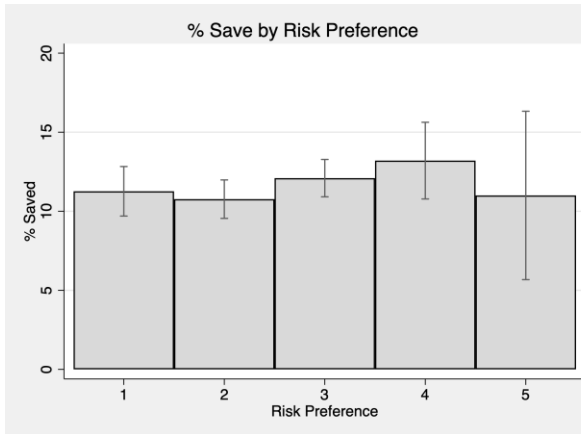


Figure 32: Saving percentage by risk preference

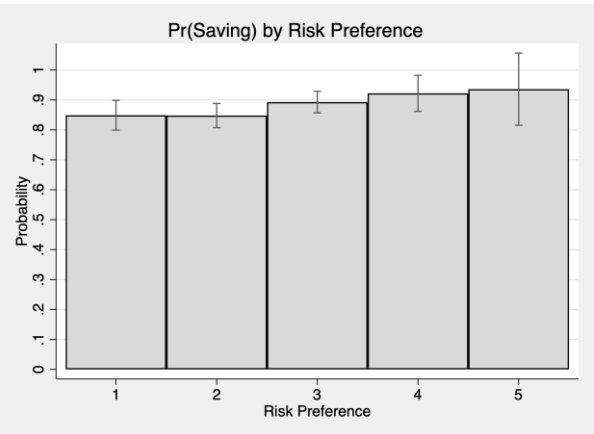


Figure 33: Probability of saving by risk preference

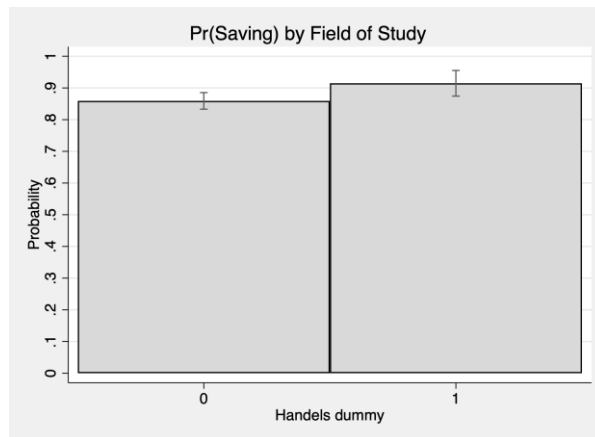


Figure 34: Probability of saving by Handels dummy

APPENDIX B – Survey Data

<https://forms.office.com/Pages/AnalysisPage>