

UNIVERSITY OF TARTU

Faculty of Social Sciences

School of Economics and Business Administration

Daryna Savchuk

DETERMINANTS OF FINANCIAL LITERACY AMONG UNIVERSITY OF
TARTU INTERNATIONAL STUDENTS

Bachelor Thesis

Supervisors: Lecturer in Accounting and Finance Mariia Chebotareva, Lecturer in
Econometrics Luca Alfieri

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I have written this Bachelor's Thesis independently. Any ideas or data taken from other authors or other sources have been fully referenced.

Table of contents

Introduction.....	4
1. Theoretical background of financial literacy	7
1.1. The concept of financial literacy.....	7
1.2. Determinants of financial literacy among students: literature review	11
2. Measuring financial literacy: evidence from international students at the University of Tartu.....	20
2.1. Survey design and data collection.....	20
2.2. Analysis and discussion of financial literacy determinants, levels and patterns	24
Conclusion	37
List of references.....	41
Appendices.....	47
Appendix A. Definitions of financial literacy.....	47
Appendix B. Financial literacy questionnaire.....	49
Appendix C. Descriptive statistics of study variables and financial literacy outcomes	54
Appendix D. Correlations among independent variables	56
Resümee.....	57

Introduction

Financial literacy covers the ability to understand and apply concepts such as interest, inflation, saving, and risk, and it strongly influences both financial behavior and financial well-being (Nogueira et al., 2025; OECD, 2020). It is considered a vital skill for youth, especially for students challenged with “increasing financial responsibilities” (Rodríguez-Correa et al., 2025). Students already take on practical financial tasks, including holding bank accounts, using debit or credit cards, shopping online, and paying rent (Förster et al., 2019; OECD, 2024). For many students, it is not only the question of managing personal money but a matter of long-term well-being in financial, social, and psychological terms. Still, international evidence shows that nearly one-fifth of students in OECD countries lack even basic financial literacy skills (OECD, 2024).

Additionally, Boyland and Warren (2013) show that international students may be at particular risk. The study compares domestic and international students of a southern New England university and finds clear differences: domestic students answered 58.5% of financial literacy questions correctly, while international students scored 45.9%. It also shows that international students perform noticeably worse in money management and spending habits. Their lower financial literacy is problematic precisely because their circumstances often require stronger, not weaker, financial decision-making skills. (Boyland & Warren, 2013)

Statistics reveal the importance of financial literacy by considering students' financial background. Ergün (2018) shows that across eight countries in Europe and Euroasia around two-thirds of the interviewed students come from households with low or moderate parental income (under 4000 euros/month). Heriyati et al. (2024) reported that only around 11% of Indonesian prospective international students expected that funding their studies abroad would not be an issue, suggesting that the majority anticipate financial constraints. As for many studying abroad results in limited financial resources they must learn to manage them, which makes informed financial choices and cost-saving skills vital (Ergün, 2018; Kinsella et al., 2008; as cited in Heriyati et al., 2024). As a result, the ability to act independently, including relying on student's own financial knowledge, and even more important - attitudes and behaviors, becomes central to coping with everyday financial tasks in a new environment.

Moving abroad to study often coincides with students' first experience of independent living. International students must adapt to a new academic system and cultural environment while managing the separation from familiar surroundings and support networks (Filippou &

Jokila, 2024). This separation increases students' self-reliance: many international students budget, pay rent, navigate new banking systems, and cover everyday expenses on their own for the first time. For a large share, this transition also includes entering the labour market: Filippou and Jokila (2024) found that 41.1% of international students in their sample worked during the semester. Employment exposes students to real-world financial processes like earning income, paying taxes, observing prices and inflation. Such experiences may contribute to developing practical financial skills, but may also reveal weaknesses in planning or saving that can be harmful in the absence of sufficient financial literacy.

More students than ever are studying abroad, making this group increasingly relevant for higher education systems. About 6.9 million tertiary students worldwide were internationally mobile in 2022, more than triple the figure from 2000 (ICEF Monitor, 2025; Migration Data Portal, n.d.). Recent projections suggest that these numbers may grow to over 10 million by 2030 (Goodman & Martel, 2024).

While internationally mobile students represent around 2.7% of all tertiary students globally, they constitute a substantially higher proportion at the University of Tartu (Buila, 2025; University of Tartu, 2024). In 2022, international students made up 12.8% of all tertiary learners and 15% of all graduates, and among doctoral students 39% came from outside Estonia. The university's 2024 action plan prioritizes strengthening student mobility and international cooperation, particularly through networks such as ENLIGHT, and University of Tartu welcomed 565 visiting exchange students from over 150 countries in 2023/2024, most through Erasmus+. (University of Tartu, 2024)

The scale of internationalisation at UT increases the relevance of focusing on this student segment when analysing financial literacy. This thesis uses a quantitative approach based on an online survey conducted among international students at the University of Tartu. The collected data are analysed statistically to identify patterns in financial literacy levels and to determine the key factors influencing them.

The findings of this thesis may be of interest to university administrators and student support services seeking to better understand the financial challenges faced by international students, as well as to policymakers and educators involved in financial education and student well-being. The results may also help universities design more effective financial guidance and support for international students.

Previous research offers extensive evidence on determinants of financial literacy, covering mostly demographic, educational and background factors (Atkinson & Messy, 2012; Chen & Volpe, 1998; Sarigul, 2014; Lusardi, 2012). Studies have examined school-level

(Cordero et al., 2022; Mathew & Boelman, 2024), college-level (Brau et al., 2019; Chen & Volpe, 1998) and university-level samples (Ergün, 2018; Heriyati et al., 2024; Mändmaa, 2019; Sarigul, 2014) and include numerous national or cross-country comparisons (Ergün, 2018; Erner et al., 2016; Nicolini et al., 2013; Potrich et al., 2016). While experiential determinants such as working or living independently are occasionally mentioned (Cordero et al., 2022; Ergün, 2018; Mändmaa, 2019; Nicolini et al., 2013), they are rarely explored in a systematic way, and existing studies typically treat students as a homogeneous group without distinguishing international students. Although one study investigated financial literacy among Estonian students (Mändmaa, 2019), no similar investigations have been conducted specifically at the University of Tartu, while research focusing on a single institution has been a famous research practice (Boyland & Warren, 2013; Mathew & Boelman, 2024; Oseifuah et al., 2018).

To address this gap, this thesis aims to determine the level of financial literacy and factors that influence it among international students at the University of Tartu. The research tasks include:

- introducing the concept of financial literacy and defining it;
- summarizing previous research on general and experiential learning factors affecting financial literacy;
- conducting a survey and collecting data on the financial literacy of UT international students, and
- analyzing the collected data and comparing results with previous studies to determine students' financial literacy levels and the key determinants influencing them.

The thesis consists of two chapters. The theoretical chapter defines financial literacy (subchapter 1.1) and provides a broad discussion of its determinants among students (subchapter 1.2), focusing on the significance of general and experiential learning factors. In the empirical part, subchapter 2.1 describes the research methodology and data used, whereupon conducts a survey to define financial literacy determinants and their significance on the international student's sample. Followingly, the subchapter 2.2 presents the outcomes of the survey and discusses the results. In the end, a conclusion is provided.

Keywords: financial literacy, international students, financial knowledge, experiential learning, University of Tartu.

1. Theoretical background of financial literacy

1.1. The concept of financial literacy

The concept of financial literacy comes from the early 1900s when the United States launched its first consumer education initiatives (Remund, 2010). The term entered mainstream usage during the 1990s as financial markets and products became more complicated. Financial literacy has developed into a multidimensional concept that reflects the growing complexity of financial decision-making in modern economies (OECD, 2015; Remund, 2010). Early definitions primarily had a cognitive focus - understanding of financial concepts and practical application skills (Emmons, 2005; Hira & Loibl, 2005). Later definitions, especially from the 2010s onward, adopted behavioral, attitudinal and contextual elements emphasizing that modern financial literacy requires more than knowledge alone (Atkinson & Messy, 2012; Muñoz-Céspedes et al., 2021; Titin et al., 2024).

Table 1 was compiled based on twelve definitions fully presented in Appendix A and contains six recurring elements from the reviewed interpretations: knowledge and understanding, skills and ability, attitude, and behavior, decision-making and planning, financial well-being and economic changes. The core structure comes from Hung et al. (2009), who viewed financial knowledge, skills and behavior as interconnected parts of financial literacy. OECD/INFE (2012; 2015) added decision-making, while the remaining elements were derived through conceptual comparison. These dimensions capture both the cognitive and behavioral capabilities necessary to think and act effectively in financial contexts.

All authors agree that financial literacy begins with knowledge of fundamental concepts such as compound interest, inflation, risk and diversification, which form the basis for sound personal decisions (Lusardi & Mitchell, 2007, as cited in Hung et al., 2009).

Yet knowledge alone does not ensure effective application in real life. Emmons (2005) highlights this aspect by presenting a practical definition with concrete skills named such as keeping track of cash, opening a bank account and applying for a loan. However, mastering such practical tasks also depends on the ability to interpret financial information. Understanding basic financial concepts requires considerable analytical ability, as individuals must process large amounts of financial information and assess potential risks. To prevent errors, people require both deep knowledge and a broad analytical toolkit (Ferguson, 2002). Therefore, as illustrated in Table 1, subsequent studies emphasized the role of skills and the ability to apply knowledge in relevant situations. For instance, Hung et al. (2009) define financial literacy as knowledge of concepts, “as well as the ability to use that knowledge and

other financial skills,” as a necessary aspect for effective financial resource management (p. 6). Another example is a definition of Remund (2010), where the author assumes an individual should, in addition to strong concept understanding, be able to confidently manage its finances. Thus, the financial literacy definition was naturally transformed from theoretical understanding, which is basically a concept of financial knowledge, into actual financial skill backed up by strong financial competency.

Table 1

Analysis of financial literacy definitions by conceptual components

Author(s)	Knowledge & Understanding	Skills & Ability	Attitude & Behavior	Decision- making& Planning	Financial well- being	Context ual factors
Vitt et al. (2000)	+	+	+	+	+	+
Mason & Wilson (2000)	+	+	-	+	-	-
Moore (2003)	+	+	-	-	-	-
Emmons (2005)	+	+	-	-	-	-
Hira & Loibl (2005)	+	-	-	+	-	-
Jump\$Start Coalition (2008)	+	+	-	+	+	-
Hung et al. (2009)	+	+	-	+	+	-
Remund (2010)	+	+	+	+	-	+
Atkinson & Messy (2012)	+	+	+	+	+	-
OECD (2015)	+	+	+	-	-	+
Munoz- Cespedes et al. (2021)	+	+	+	+	+	-
Titin et al. (2024)	+	+	+	+	-	-

Note: “+” - aspect is explicitly or implicitly mentioned in the definition; “-” - aspect is absent or not emphasized

Source: compiled by the author based on Vitt et al. (2000), Mason and Wilson (2000), Moore (2003) as cited in Hung et al. (2009), Emmons (2005), Hira and Loibl (2005), Jump\$Start Coalition (2008) as cited in Remund (2010), Hung et al. (2009), Remund (2010), Atkinson and Messy (2012), OECD (2015), Muñoz-Cespedes et al. (2021), and Titin et al. (2024)

The next conceptual layer involves attitudes and behavior. OECD (2015) and Titin et al. (2024) emphasize that financial literacy includes a broad set of attitudes and behaviors that are formed by beliefs as well as national and socio-economic conditions. Remund (2010) presents confidence as a behavioral element needed to manage financial matters. All these authors mark a shift from static understanding to dynamic behavior, which is evident from Table 1. Muñoz-Céspedes et al. (2021) discuss in their study that earlier financial literacy definitions focused on knowledge and money management, which, alone, do not guarantee favorable financial behavior. They further describe recent approaches adopting behavioral and subjective aspects, such as emotions, and reflect the discussion in their definition. Together, these definitions show that attitudes determine whether individuals are able to translate knowledge into action. This shift towards behavioral components in definitions implicitly presents experiential learning as students' beliefs, habits and attitudes are developed through getting practical financial experience (Ergün, 2018; Heriyati et al., 2024).

At the same time, Table 1 shows that most of the authors link financial literacy with the capacity for decision-making and planning by directly mentioning the elements in the terms (Atkinson & Messy, 2012; Muñoz-Céspedes et al., 2021; Titin et al., 2024). Vitt et al. (2000) include these factors by defining financial literacy as “the ability to discern financial choices ... and respond competently to life events” (p. 12), matching the last idea with Remund (2010). This author also views a financially literate individual as one able to plan both short-term and long-term financial goals, emphasizing evaluation of consequences and planning across time (Remund, 2010). Decision-making becomes the operational bridge connecting knowledge with behavior. Evidence from international student research adds another layer: as Heriyati et al. (2024) show, students abroad must make independent financial decisions without parental guidance, relying on their financial knowledge, attitudes and habits. This aligns with Muñoz-Céspedes et al. (2021), who note that effective decisions depend on a combination of awareness, understanding, skills and behavioral readiness, as well as with Mason and Wilson (2000) view that decision-making is influenced by the range of factors forming an individual's financial understanding. Therefore, decision-making is a point where different components of financial literacy are used in practice. It also intensifies the relevance of experience. Planning for retirement, managing credit or choosing investment tools are not one-time tasks but learning processes that improve with experience, which in turn influences financial literacy (Brau et al., 2019).

Later definitions also increasingly link financial literacy to financial well-being. Jump\$tart Coalition (2008) and Atkinson and Messy (2012) define well-being as the desired

outcome of financial decisions. Individuals refine their financial decisions through repeated real-life experiences in which attitudes, behavior and knowledge change to meet new financial demands (Heriyati et al., 2024). Over time, while facing financial failures and successes, individuals develop an experiential component that reflects on decision-making and financial confidence, and further contributes to long-term financial well-being. Taking into consideration other formulations, Vitt et al. (2000) specify material well-being, which is affected by an individual's financial abilities. Titin et al. (2024), however, use the term prosperity, which extends beyond financial well-being and implies a broader impact on personal and social well-being. Another recent definition by Muñoz-Céspedes et al. (2021) positions well-being as the ultimate purpose of literacy: individuals use knowledge, skills and behave in a way that influences current and future financial welfare. This contrast shows how later definitions change the focus and become outcome-oriented: instead of prioritizing purely efficient decision-making or financial security, the authors integrate continuous stability and high quality of life.

Finally, as represented in Table 1, several definitions included contextual elements, especially economic ones, meaning financial competence is refined by adapting to inflation, employment changes or financial crises. OECD (2015) highlights socio-economic background and access to services, while Vitt et al. (2000) assume a financially literate individual should provide an efficient response to personal and economic events. Remund (2010) states that knowledge, aptitude and confidence are the elements enabling individuals to manage personal finances under varying life and market conditions. Therefore, these additions include adaptability in the definitions, and recognise that literacy is shaped within real environments rather than isolated cognitive processes.

Overall, most of the authors agree that financial literacy only becomes meaningful when strong financial knowledge is combined with skills, attitudes and behavior, further being activated in practice through navigating financial choices, adapting to changing conditions and working toward financial well-being. Financial literacy must be understood as an evolving concept shaped by various dimensions. Based on the previous discussion and analysis, this thesis defines financial literacy as a dynamic, experience- and knowledge-based capability that integrates understanding of financial concepts combined with the skills, attitudes, behaviors and decision-making abilities required to manage financial resources effectively, adapt to changing economic conditions and achieve long-term financial well-being.

1.2. Determinants of financial literacy among students: literature review

Building on the conceptual discussion of financial literacy in Section 1.1, this subsection shifts focus from definitions to an empirical overview of its determinants among students. All studies reviewed in this section explicitly analyze university students, which ensures comparability and acknowledges their rich experiential background. As summarised in Table 2, all the core studies were published between 2018 and 2024, with four conducted in European contexts, while the study from Ghana (Mireku, 2024) and the United States (Brau et al., 2019) remain highly relevant due to their large sample size and closely aligned survey design and methodology.

All the studies conducted financial literacy quizzes and finalized individuals' knowledge by providing a score (Table 2). Each quiz covered important financial topics such as interest and time value of money, inflation, risk and diversification, borrowing and credit, and personal finance. All the authors also collected data on students' background through surveys covering demographic, family, educational and experiential factors. Despite some methodological variation, a common feature is the use of binary literacy measures with logistic regressions (Ergün, 2018; Mändmaa, 2019; Mireku, 2024; Philippas & Avdoulas, 2020), while Böhm et al. (2023) and Brau et al. (2019) model literacy as a continuous score using OLS/Tobit regression. Overall, the methods and measures are closely aligned and provide a solid basis for comparing findings in this thesis. The research findings demonstrate several common factors that influence student financial literacy, offering a coherent yet still incomplete picture of how students build financial competence. Table 3 summarises the “traditional” determinants such as demographic, educational and family background factors across the studies.

Gender stands out as a persistent predictor: all investigated studies confirm a significant gender gap in financial literacy, with male students, on average, answering more questions correctly than female students (Table 3). At first sight, this suggests men are simply “better” with money. However, other research complicates this interpretation. Danes and Haberman (2007) show that female students score higher in specific domains like insurance and investment strategy, even if their overall test scores are lower. Women also tend to be less overconfident and trade less aggressively than men, which can translate into better long-term portfolio performance (Barber & Odean, 2001). Despite these nuances, the studies consistently find a notable gender gap, making gender one of the most influential determinants of financial literacy among students (Mändmaa, 2019; Mireku, 2024; Philippas & Avdoulas, 2020).

Table 2

Comparative overview of empirical studies on financial literacy among university students

Study	Sample size & study group	Country / region	Data collection & measures	Main method for determinants
Brau et al. (2019)	1493 undergraduate students	United States	40-question financial literacy quiz; 18 questions on (i) family/background, (ii) formal and, (iii) experiential learning activities	OLS regressions by groups and on the full model
Mändmaa (2019)	522 university students	Estonia	A multiple-choice survey including 10 demographic, 14 financial literacy, and 8 opinion and choice questions	Logistic regression with binary financial literacy outcome, ANOVA
Ergün (2018)	409 university students	8 European countries	Online self-selected survey with 8 demographic and 20 financial literacy questions	Logistic regression with binary financial literacy outcome
Philippas & Avdoulas (2020)	456 generation Z university students	Greece	A 27-question survey across 4 pillars: demographics and behavior, financial knowledge, financial fragility, and financial well-being	Logistic regression with binary financial literacy outcome, OLS regression, chi-square tests
Böhm et al. (2023)	363 first-year undergraduate students	Slovakia	13-question financial literacy test and 19-item questionnaire on demographic, educational, and socioeconomic variables	Tobit regression on continuous financial literacy success rate
Mireku (2024)	3932 university students	Ghana	Cross-sectional survey with 26-questions on financial knowledge and others on background characteristics	Logistic regression with binary financial outcome, one-way ANOVA, chi-square tests, robustness check

Source: Compiled by the author based on Brau et al. (2019), Mändmaa (2019), Ergün (2018), Philippas and Avdoulas (2020), Böhm et al. (2023), and Mireku (2024)

Agnew and Cameron-Agnew (2015) suggest that these gender differences partly reflect socialization: in their sample, boys had their first money discussions at home at a younger age than girls, and that early start was associated with higher quiz scores for male students later on.

Table 3

Statistical significance of general determinants for financial literacy across the core empirical studies

Determinant	Brau et al. (2019)	Mändmaa (2019)	Ergün (2018)	Philippas & Avdoulas (2020)	Böhm et al. (2023)	Mireku (2024)
Demographic factors						
Gender	Significant *	Significant ***	Significant ***	Significant ***	Significant ***	Significant ***
Age	Significant ***	Not significant	-	Not significant	-	Not significant
Nationality / country	-	Significant **	Significant **	Not significant	-	-
Town / population size	-	-	-	-	Significant ***	Significant ***
Educational factors						
Study cycle	-	Not significant	Significant *	-	-	Significant ***
Field of study	Significant *	Significant ***	Significant **	-	-	Significant ***
Grades	-	-	-	-	Significant **	-
Finance courses	Significant ***	-	Significant **	-	-	-
Family background						
Household income	Not significant	-	Significant **	-	Significant **	-
Parental education	Not significant	Not significant	-	Significant *	Significant **	Not significant

Note: The table summarizes statistical significance of determinants based on coefficients and *p*-values reported in multivariate regression models of the studies. The *denotes a *p*-value < 0.1; **denotes a *p*-value < 0.05; ***denotes a *p*-value < 0.01; “Not significant” = $p \geq 0.1$ or not reported as significant

Source: Compiled by the author based on Brau et al. (2019), Mändmaa (2019), Ergün (2018), Philippas and Avdoulas (2020), Böhm et al. (2023), and Mireku (2024)

Compared to gender, age effects generally tend to be weaker and less consistent (Table 3). Many student samples are relatively narrow in age, limiting variation. Chen and Volpe (1998) found age to be significant at 0.01, which opposes most other findings (Mändmaa, 2019; Mireku, 2024; Philippas & Avdoulas, 2020). Still, age-related patterns emerge when age is interpreted as a proxy for accumulated responsibility. Brau et al. (2019)

treat age and marital status as experiential learning variables and find significant relationships with literacy scores. This suggests that maturity and responsibility, rather than biological age itself, are linked to literacy. A similar logic appears in the study cycle: advanced students tend to score higher (Ergün, 2018; Mireku, 2024). Chen and Volpe (1998) find the class ranking to be significant, with seniors outperforming freshmen. Similarly, a survey in Turkey found that senior university students overperform juniors and underclassmen (Sarigul, 2014).

A consistent interpretation is cumulative learning: additional years in higher education increase financial literacy via formal financial learning or exposure to analytical skills and problem-solving. Importantly, part of the effect may come from students having more time for figuring out financial matters independently.

The more context-sensitive demographic factors are students' origin and local environment. The nationality factor was mostly found as significant, yet not decisive (Ergün, 2018; Mändmaa, 2019). It reflects cultural and economic differences within the countries. The place of living also matters: Böhm et al. (2023) show a non-linear city-size pattern in Slovakia where students from very small towns and from larger cities score higher than those from medium-sized towns. Mireku (2024) similarly, reports that students who come from or grow up in capital cities are more likely to have high financial knowledge. Together, these findings support the idea that geography matters for financial literacy due to crucial differences in the environment. Importantly, city size may be interpreted as a surrounding effect rather than a purely demographic label: capital cities offer greater access to financial institutions, information and opportunities to practice financial skills (Mireku, 2024).

Educational determinants are consistently important across the reviewed studies (Table 3). Field of study is one of the clearest and most reproducible predictors: fields like business, economics and finance are associated with higher literacy (Brau et al., 2019; Ergün, 2018; Mireku, 2024). This pattern is reinforced by foundational evidence: Mändmaa (2019) reports that the knowledge of non-business major students about personal finance is relatively worse. In addition, Mändmaa (2019) shows that students in science or mathematics-oriented programmes are more knowledgeable, especially men. Earlier work commonly finds that numeracy and problem-solving skills support understanding of financial concepts such as interest rates and risk, which clarifies why these study fields repeatedly stand out (Lusardi & Mitchell, 2014; OECD, 2020; van Rooij et al., 2011). Mändmaa (2019) also argues that students trained to research and solve analytical problems naturally transfer these skills to financial tasks; therefore, financial education should be skill-oriented and integrated with broader analytical training rather than taught as isolated content. This view is also expressed

by Böhm et al. (2023), who emphasize that financial literacy should be seen as an essential component of the general education process rather than as a stand-alone topic. In fact, overall academic performance appears linked to financial knowledge. Böhm et al. (2023) found that students with excellent grades performed significantly better on financial tests than those with merely good or average grades, which supports the idea of the importance of broader education. Additionally, Brau et al. (2019) divides formal financial education into two blocks, proving that timing and depth matter: university financial courses are significant, while high-school level finance did not appear to be influential.

Family background variables, which are parental income and education, show more mixed results than education. According to Böhm et al. (2023) and Ergün (2018), higher parental income categories are associated with better literacy. In Brau et al. (2019), family/background factors have limited to no explanatory power once formal learning and experiences are included. Two other studies come to the same conclusion - there is no effect (Mändmaa, 2019; Mireku, 2024). In contrast, Philippas and Avdoulas (2020) find father's education to be a highly significant determinant of students' financial literacy in Greece, while mother's education had no significance, and Böhm et al. (2023) conclude the same results in Slovakia. Mireku (2024) presented a new view on the family background by finding out that father's employment status, unlike mother's, is a crucial predictor of financial knowledge. A useful way to reconcile mixed findings is to focus on family processes rather than family status. Research by Agnew and Cameron-Agnew (2015) show that financial discussions at home and a father's education of the child predict later literacy. Their study indeed states that fathers are more frequently perceived as the "money expert" and that the timing of early conversations influences financial knowledge (Agnew & Cameron-Agnew, 2015). In other words, parental education matters through family financial socialisation, and it matters less when households do not transfer knowledge in practice. Family background, therefore, should be interpreted as a context that can either facilitate or limit early exposure to financial learning.

The reviewed literature increasingly supports the argument that students build financial literacy through experience. Kolb (1984), as one of the first authors introducing the experiential learning term, contextually defines learning as a "process whereby knowledge is created through the transformation of experience" (p. 38). In this context, experiential learning means gaining financial knowledge and skills through direct engagement with financial products and decisions, or through other behavioral aspects and life circumstances that lead to acquiring better applicable financial skills (Brau et al., 2019; Heriyati et al.,

2024). These experiences expose students to real consequences, which can transform abstract concepts from courses into practical understanding. The importance of such “learning by doing” is widely discussed by Brau et al. (2019), who provide the clearest test of experiential learning in a student setting by distinguishing it from family background and formal education. Their findings show that experiential factors such as holding a checking account, participating in the stock market, owning credit cards or marital status are largely significant predictors of financial literacy, whereas receiving an allowance is the only one not, showing the inefficiency of passive exposure (Brau et al., 2019). Other studies strengthen this conclusion by using broader “experience” constructs. Frijns et al. (2014) and Raza et al. (2024) in their studies create a financial experience index capturing multiple product interactions and argue that experience increases financial literacy. The overall significance of ‘learning-by-doing’ leads to the discussion of identified experiential learning determinants in Table 4.

Financial behavior is primarily expressed through engagement with financial services and products. For example, owning a bank account is often cited as a positive influence (Mireku, 2024; Moreno-Herrero et al., 2018). It fits the logic: account use forces a student to engage in banking activities and thus become familiar with interests, fees and account management. Conversely, the other authors could not prove the relationship (Brau et al., 2019; Mändmaa, 2019; Philippas & Avdoulas, 2020). Payment instruments include debit cards and internet banking, the positive strong significance of which was proved by Mändmaa (2019) and Böhm et al. (2023), respectively.

However, not all product exposures are educationally “positive.” Böhm et al. (2023), Frijns et al. (2014) and Moon et al. (2014) state that credit card use is associated with lower literacy. Financially knowledgeable students may avoid credit cards as credit products are associated with excessive consumption (Moon et al., 2014). Less knowledgeable students possibly adopt credit products due to a lack of understanding of interest costs and repayment conditions. Therefore, credit variables need cautious interpretation: they can reflect experience, but also risk-taking or vulnerability.

Engagement with investing has a crucial role in recent studies. Brau et al. (2019) find stock market participation to be one of the decisive determinants (Table 4). Similarly, Frijns et al. (2014), Mireku (2024), and van Rooij et al. (2011) prove there is a general trend of higher financial literacy of those who have tried investing. Having an investment account is very helpful in encouraging interest and better knowledge in personal finance (Mireku, 2024).

Table 4

Statistical significance of experiential learning determinants for financial literacy across the core empirical studies

Experiential Learning Determinant	Brau et al. (2019)	Mändmaa (2019)	Ergün (2018)	Philippas & Avdoulas (2020)	Böhm et al. (2023)	Mireku (2024)
Financial behavior						
Managing a bank account	Not significant	Not significant	-	Not significant	-	Significant ***
Payment instruments use	Not significant	Significant ***	-	-	Significant **	-
Investment participation	Significant ***	Not significant	-	Not significant	-	Significant **
Saving/budgeting/planning habits	-	Significant **	-	Significant **	-	-
Credit & borrowing experience	-	Significant ***	-	-	Not significant	-
Income experience						
Job experience	Not significant	Not significant	-	Not significant	Significant **	Significant ***
Receiving allowance	Not significant	-	-	-	Not significant	-
Earning own income	-	Not significant	-	Not significant	-	Significant ***
Life circumstances						
Living arrangement	-	Not significant	Significant **	-	Not significant	Significant **
Marriage	Significant ***	-	-	-	-	-
Information sources						
Following financial advice	-	-	Significant **	-	Significant **	-
Financial information sources	Significant *	-	Significant *	-	-	-

Note: The table summarizes statistical significance of determinants based on coefficients and p -values reported in multivariate regression models of the studies. The *denotes a p -value < 0.1 ; **denotes a p -value < 0.05 ; ***denotes a p -value < 0.01 ; “Not significant” = $p \geq 0.1$ or not reported as significant

Source: Compiled by the author based on Brau et al. (2019), Mändmaa (2019), Ergün (2018), Philippas and Avdoulas (2020), Böhm et al. (2023), and Mireku (2024)

Usually, active involvement in investing requires an understanding of risk, return and diversification, and provides a financial incentive to learn with every successful decision. Frijns et al. (2014) translate this into an educational implication by suggesting that experiential components, such as stock market games, can be useful tools for building literacy because they allow students to practice financial decisions in a structured environment without risks. In its turn, investment account holders show better saving behavior (Sabri, 2011). Saving, same as budgeting and planning, is a habit from everyday money management that, according to Mändmaa (2019) and Philippas and Avdoulas (2020) appear to have higher significance than sophisticated market activities like investing. Mändmaa (2019) reports that planning finance in advance, specifically on a daily basis, is highly significant, while Moreno-Herrero et al. (2018) states that even the understanding of saving necessity accumulates into higher literacy. The findings can be explained by students who already think ahead financially, making far-reaching, “wiser” choices. Finally, Frijns et al. (2014) and Mändmaa (2019) discuss personal loans experience as significant, but the determinant remains understudied.

Research also shows that early income and professional activities may play a role. The regressions in Chen and Volpe (1998) and Mireku (2024) confirm that income level and working experience are significant at the 0.01 level. At the same time, most other studies do not show any correlation (see Table 4), so further analysis is required. Böhm et al. (2023) highlight part-time work experience among the top-five most important literacy predictors. They explain that to be successful in the job market, students need to be good at time management and acquire knowledge about health insurance, taxes and employment contracts, which provides broader economic understanding and financial awareness (Böhm et al., 2023). This evidence also helps interpret Böhm et al. (2023) and Brau et al.’s (2019) findings that allowance is not significant: money earned typically comes with responsibility and active management, while money given does not necessarily require learning, as students might not engage with money as thoughtfully. Overall, while having a job during studies may improve financial knowledge and skills, merely receiving an allowance will not bring additional value.

Beyond individual behaviors, certain life events can generate experiential learning opportunities. Marriage is noted as one such event in the Brau et al.’s (2019) study - married students are more financially literate. Marriage often forces young adults to confront household financial decisions, which can sharpen financial skills. Women, being initially less literate, improve thanks to encouragement by partners (Fletschner & Mesbah, 2011). Another

life event is moving out of the parental home and living independently. Ergün (2018) and Mireku (2024) suggest that individuals living on their own are more literate than those living with parents or in dormitories. Living away from parents, paying rent and managing household expenses compels young people to learn money management out of necessity (Ergün, 2018). Heriyati et al. (2024) observed that studying abroad, which usually entails living independently in a new environment, significantly improved students' financial literacy, as it creates repeated decision contexts with a limited budget. These studies prove financial literacy is exposed by responsibility-building transitions, meaning students who have taken on more adult financial roles are generally more knowledgeable.

Social learning theory, originally developed by Bandura (1971), posits that much learning occurs in a social context through observation, imitation and interaction. In a financial context, this means that students' financial behavior can be shaped by their family, peers and other role models. Ergün (2018) found that students perform better when their primary source of financial information is friends, while Azlan et al. (2015), Böhm et al. (2023), and Moreno-Herrero et al. (2018) state that family is a more significant source. Therefore, parents should discuss financial matters, show healthy financial behavior and encourage children to save from a young age (Böhm et al., 2023). Additionally, Sabri (2011) puts high importance on childhood consumer experience, which explicitly states discussions with parents as a significant factor for literacy. Students may also get financial knowledge from information sources. After defining university education as the most influential factor, Ergün (2018) compares watching TV, reading newspapers and using social media, and concludes the last determinant to have less positive effect compared to the other two. Brau et al. (2019) emphasize reading news over watching it as a reliable and positive factor influencing personal financial understanding. Also, experiential learning is shaped by whether students actively seek knowledge. Mändmaa (2019) reports that students' interest in getting more information about financial affairs is significant, indicating that motivation to learn can translate into higher literacy. Being led by interest or other factors, individuals become more knowledgeable, which makes them subconsciously seek out more complex financial experiences, and those experiences again enhance knowledge (Frijns et al., 2014). Frijns et al. (2014) also conclude that both dynamics likely occur, creating a cycle of continuous self-improvement reinforced by the bidirectionality of knowledge and experience. This has an important implication: while demographic and background factors are mostly unchangeable, experiential factors offer a path to improvement. In other words, regardless of one's background, engaging in financial activities can boost literacy. It is worth mentioning

that students themselves recognize the value of experiential learning, which is evidenced by giving six out of eight first positions to, specifically, experiential learning sources of financial improvement (Mireku, 2024). Still, 38% of students in the survey of Mireku (2024) expected to increase their financial knowledge through school. Experts, therefore, suggest that education programs incorporate experiential elements: Frijns et al. (2014) recommend practical games, and Suleiman (n.d.) advocates for “learning by doing” course designs. All of this aligns with the principle that experience is a great opportunity for building in finance, which students successfully combine with formal education to build financial skills.

In summary, the literature on financial literacy determinants among students reveals a spectrum of influences. Traditional factors like gender and academic discipline consistently show up as decisive, while family background factors tend to be less important unless accompanied by active financial socialization. Importantly, students develop financial competence through experiences: by handling money, facing financial challenges and making decisions in real settings (Heriyati et al., 2024). These insights underscore a key theme: financial literacy is not only determined solely by who one is (demographics or background), but significantly by what one does. Therefore, to improve financial literacy, students should combine strong foundational education with opportunities for new financial experience, both inside and outside the classroom, and stay open to the natural process of learning throughout life (Frijns et al., 2014; Mändmaa, 2019; Suleiman, n.d.). This combined approach is likely to produce students who are knowledgeable, skilled and capable of making sound financial decisions in practice. Such an empirically grounded understanding of determinants forms the basis of the analytical framework used to examine the financial literacy of the student sample in the following chapter.

2. Measuring financial literacy: evidence from international students at the University of Tartu

2.1. Survey design and data collection

The empirical part of this thesis follows a quantitative research approach to examine the determinants of financial literacy among international students at the University of Tartu. The methodology of the study is divided into the following main stages: literature review, questionnaire design, pilot testing, data collection and preparation, variable pre-screening, main and further analysis and results discussion. The overall overview of the methodological steps is presented in Figure 1.

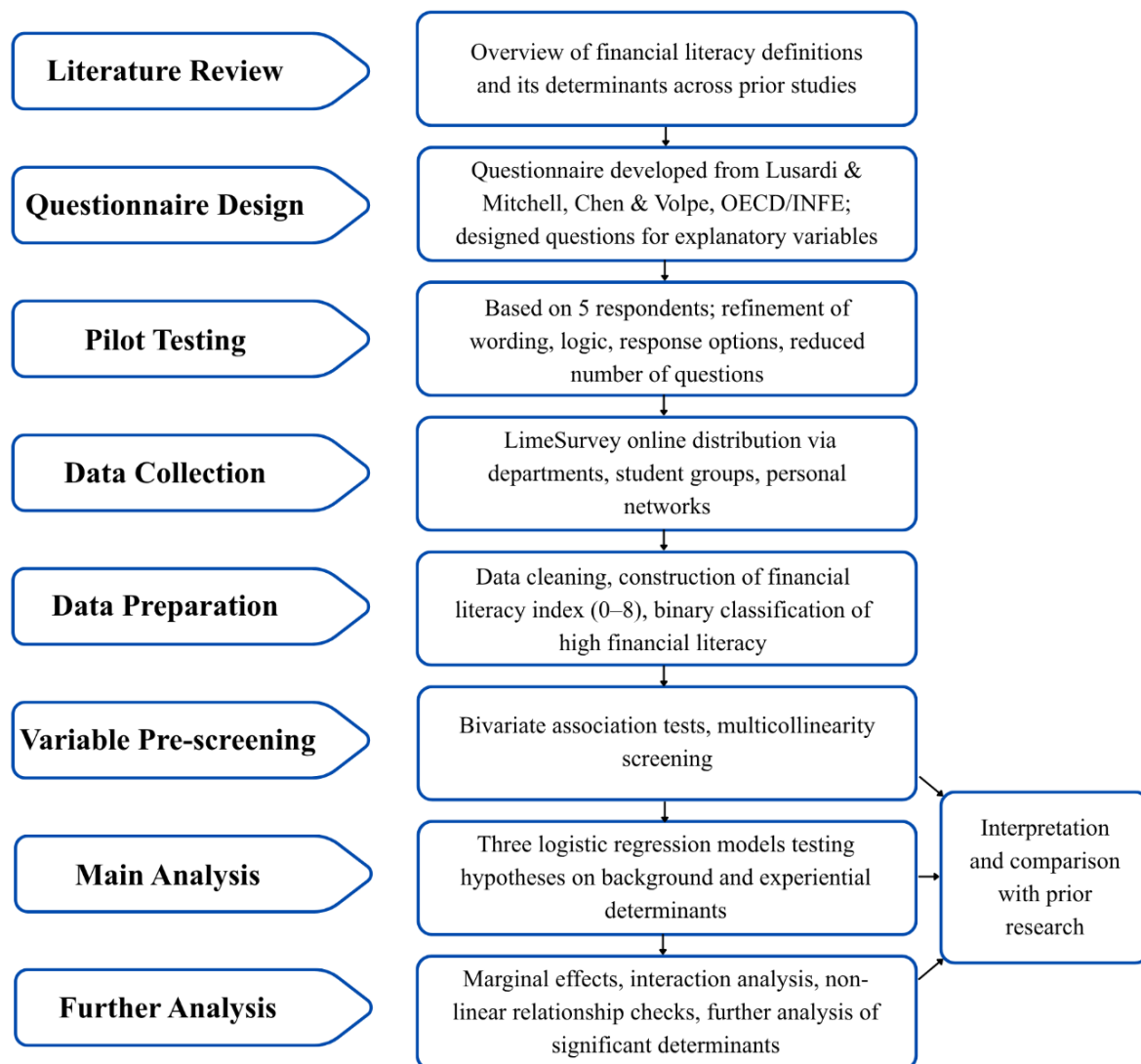


Figure 1. Methodology of the thesis

Source: Compiled by the author in Canva

The empirical analysis is based on primary data collected through a structured questionnaire created via the LimeSurvey. Anonymity was ensured as no personal data was collected, including name, email and IP address. Before launching the survey, a pilot test with five participants was conducted to evaluate question clarity and logic, response options, completion time and potential sensitivity of topics. Based on the feedback, minor improvements were made, including reducing financial literacy questions to eight to avoid respondent fatigue, refining response options to capture a wider range of responses and changes in question wording. The finalized survey was distributed online. Participants were reached through personal contacts, contacts with university departments and international student groups. The sample is considered broadly representative of the international student population at the University of Tartu, as the distribution of respondents reflects the general

composition of the community in terms of faculty affiliation and the gender composition remains relatively balanced across the sample.

The questionnaire consists of two main parts. The first part is a multiple-choice financial literacy quiz designed to assess respondents' understanding of core financial concepts, practical financial skills and applied financial decision-making. In line with the definition adopted in this thesis, financial literacy is approached not only as knowledge of financial concepts, but also as the ability to apply such knowledge in realistic financial situations and make financially responsible decisions.

The structure of the quiz reflects these different dimensions of financial literacy. Questions Q1–Q3 on simple interest, compound interest and inflation primarily assess understanding of core financial concepts and the ability to recognize how economic conditions influence purchasing power and financial outcomes over time. Questions Q4 and Q5 related to investment strategy and investment risk require respondents to compare alternatives and evaluate appropriate financial choices under different personal circumstances, thereby reflecting practical financial skills and decision-making ability. Similarly, Q7 on creditworthiness and Q6 on insurance coverage assess understanding of financially responsible behavior and the ability to manage financial resources in realistic situations. Finally, Q8 on retirement planning incorporates the long-term financial well-being dimension by testing respondents' understanding of future-oriented saving and wealth accumulation.

Core questions on interest rates, inflation and risk diversification are based on the framework developed by Lusardi and Mitchell (2014), whose measures are well-known and frequently cited in financial literacy research (Agnew et al., 2013; Beckmann, 2013; Fornero & Monticone, 2011). In addition, the questionnaire draws on the student-oriented survey proposed by Chen and Volpe (1998), who investigated college students. Their study was used by Ergün (2018) and Sarigul (2014) for survey composition and literacy classification, and serves as a theoretical reference in studies by Brau et al. (2019) and Mändmaa (2019). The questions were further developed based on the OECD/INFE Toolkit (2022), which is a recently revised version of the OECD/INFE institutionally standardized questionnaire. It was specifically designed for global use and provides expert-developed, internationally comparable financial literacy questions, particularly suitable for the international student sample of this study. The second part of the questionnaire collects information on independent variables expected to influence financial literacy. These include demographic characteristics, educational and family background, and indicators of financial experience and

exposure. Particular attention is given to experiential learning factors, such as employment during studies, financial information sources and prior engagement with financial products, which are central to the theoretical framework of this thesis. Many questions of the survey are inspired by the investigations of Brau et al. (2019), Mändmaa (2019), Böhm et al. (2023) and Mireku (2024) that highlight the importance of practical financial exposure in shaping financial literacy.

For the empirical analysis, financial literacy is measured as a composite score based on eight objective knowledge questions. Each correct answer receives one point, while incorrect or “do not know” responses receive zero, resulting in an index ranging from 0 to 8, where higher scores indicate greater financial knowledge.

Before the main multivariate analysis, a pre-screening stage was conducted to identify the most relevant explanatory variables and preserve model suitability for the sample size. Chi-square tests were applied to nominal variables, while Spearman’s rank correlation was used for ordinal variables. In addition, Spearman correlation analysis was used among the independent variables themselves in order to detect potential multicollinearity.

To facilitate interpretation and align with common practice in student-focused financial literacy research, the financial literacy score was subsequently transformed into a binary variable using the sample median as a cut-off point. Respondents scoring above the median were classified as financially more literate and coded as 1, while those scoring at or below the median were classified as less financially literate and coded as 0. This median-based dichotomization is widely used in the literature, including Ergün (2018), Mändmaa (2019), and Mireku (2024), as it avoids arbitrary cut-off points and ensures relatively balanced group sizes in student samples.

The regression analysis follows a structured approach consistent with the theoretical distinction between general and experiential learning determinants. The hypotheses developed from the reviewed literature are presented in Table 5. First, a baseline model A includes general background variables (demographic, educational and family background factors) to test H1, which assumes that background characteristics are significantly associated with financial literacy. Second, experiential learning variables (financial behavior, income experience, life circumstances and information sources) are selectively added in Model B to test H2, which posits that experiential learning factors are significantly associated with financial literacy. Finally, a combined model C incorporates the most relevant predictors from both groups to assess H3, which suggests that experiential determinants remain statistically significant predictors of financial literacy when controlling for general

background characteristics. The formulation of hypotheses follows the structured approach used by Böhm et al. (2023), who formulated hypotheses around broader groups of financial literacy determinants. The grouping of variables is also inspired by Brau et al. (2019), who distinguished experiential learning factors from family/background and formal learning, and by Mireku (2024), who separated determinants into two broader groups: background characteristics and exposure characteristics. Therefore, the hypotheses are formulated at the determinant-group level, allowing the analysis to evaluate the contribution of each group of variables while remaining consistent with previous literature and the theoretical framework of the thesis.

Table 5

Summary of research hypotheses

N	Hypothesis	Source
H1	General background factors are significantly associated with students' financial literacy	Chen & Volpe (1998) ; Sarigul (2014) ; Lusardi & Mitchell (2014) ; Ergün (2018) ; Mändmaa (2019) ; Philippas & Avdoulas (2020) ; Böhm et al. (2023) ; Mireku (2024) ; Brau et al. (2019)
H2	Experiential learning factors are significantly associated with students' financial literacy	Brau et al. (2019) ; Mändmaa (2019) ; Böhm et al. (2023) ; Mireku (2024) ; Philippas & Avdoulas (2020) ; Ergün (2018) ; van Rooij et al. (2011) ; Frijns et al. (2014) ; Moon et al. (2014) ; Raza et al. (2024)
H3	Experiential learning factors remain statistically significant predictors of financial literacy after controlling for general background factors	Brau et al. (2019) ; Böhm et al. (2023) ; Mändmaa (2019) ; Philippas & Avdoulas (2020) ; Mireku (2024) ; Ergün (2018) ; Moon et al. (2014) ; Raza et al. (2024)

Source: Compiled by the author based on the literature reviewed in this study

Together, these methodological choices are the most relevant for both comparability with existing research and alignment with the theoretical structure of this thesis.

2.2. Analysis and discussion of financial literacy determinants, levels and patterns

In the following subchapter, the analysis of the questionnaire results performed using Python in a Google Colab environment is presented and selectively compared to previous empirical findings. The descriptive statistics of study variables and financial literacy outcomes are reported in Appendix C, including the number and share of respondents in each subgroup, their mean financial literacy score and the percentage classified as highly financially literate. The sample median financial literacy score is 6 out of 8, with 34.5% of respondents scoring above this threshold and thus classified as highly financially literate. The overall sample consists of 177 international students, with a mean financial literacy score of

5.82 out of 8. On average, 72.8% of questions were answered correctly, which is very close to the 72.2% reported by Ergün (2018) across eight European countries, suggesting that the financial literacy level of international students at the University of Tartu is broadly comparable to that of European university students. It is notably higher than the levels reported in Ghana (48.6%) and the United States (43.1%), indicating a comparatively higher financial literacy level in the present sample (Mireku, 2024; Brau et al., 2019).

The sample is nearly gender-balanced (48.9% female, 51.1% male), and the gender difference in financial literacy is slight: females record a mean score of 5.86 compared to 5.82 for males, with 36.5% and 33.7% respectively classified as highly literate (Appendix C). This slight reversal stands in contrast to all previously reviewed studies, where male students consistently outperformed females: by 6.6 percentage points in Chen and Volpe (1998) and 5.2 percentage points in Mireku (2024). Geographic origin shows more visible variation: Non-EU European students achieve the highest mean of 5.96 and high literacy share of 42.5%, while EU students score the lowest (5.63, 26.2%). This pattern may reflect differences in financial education systems and economic environments that students bring with them from their home countries. The most pronounced differences appear across fields of study. Business and Economics students record a mean of 6.44 and 56.5% high literacy, compared to 24.6% for Science and Technology and 20.0% for other fields. This pattern is consistent with previous findings that students in business-related disciplines tend to demonstrate higher financial literacy (Ergün, 2018; Mireku, 2024). By contrast, study level shows a relatively flat pattern, with Bachelor's, Master's and doctoral students scoring 5.84, 5.80 and 5.90 respectively, suggesting that progression in academic level does not necessarily translate into higher financial literacy.

Among experiential variables, several patterns are noteworthy prior to regression analysis. Internet banking usage shows a visible difference, although unequal group sizes limit meaningful comparison. Investment experience displays the clearest gradient: mean scores increase from 5.27 among students with no experience to 6.37 among those with complex investment experience, with high literacy shares rising from 21.4% to 47.9% (Appendix C). This pattern suggests that active engagement with financial markets may be associated with higher financial knowledge. Planning and saving habits factor follows a similar trend, with mean scores increasing from 5.36 among non-planners to 6.06 among regular savers, indicating that financial discipline may be linked to better financial literacy.

Parental education and family financial conversations show a modest positive association with financial literacy, as students with more educated parents or those being

taught money management as kids tend to perform slightly better. Information-seeking behavior reveals one of the strongest contrasts: students who rarely seek financial information record a mean of 4.75 and 10.0% high literacy, compared to 6.15 and 51.1% among active seekers, making proactive information search a potentially strong predictor of financial literacy. Regarding information sources, students relying on family or friends score lowest (5.35, 25.0%), those relying on social media perform relatively better (6.19, 40.7%), while those using university or other sources achieve the highest results (6.38, 50.0%), indicating a potential positive role of formal education. Credit card ownership shows an inverse pattern, with non-holders recording higher scores (6.05, 37.9%) than holders (5.51, 29.7%), suggesting that product usage does not necessarily reflect higher financial literacy. Job experience and personal income do not display a clear directional pattern. In contrast, independent living duration shows a gradual increase in financial literacy, from 5.27 among those who have never lived independently to 5.99 among those with more than three years of experience, indicating that prolonged financial independence may contribute to improved financial competence.

These patterns serve as a starting point for the variable pre-screening stage, where bivariate associations with financial literacy determine which predictors enter the regression model. Prior to this, inter-variable correlations were inspected for multicollinearity, as reported in Appendix D. The strongest association observed is between job experience and income ($\rho = 0.437$), followed by investment experience and information source ($\rho = 0.363$) and investment experience and information seeking ($\rho = 0.359$). Since all values remain well below commonly accepted threshold for strong correlation of 0.7 (Dormann et al., 2013), multicollinearity is not considered a threat to model stability, and all variables are retained for bivariate association testing with financial literacy.

To further examine these relationships, bivariate association tests are conducted using Spearman's rank correlation for ordinal variables (Table 6) and chi-square tests for nominal variables (Table 7).

Table 6 shows that four ordinal variables are significantly associated with financial literacy. Investment experience is the strongest, with a low-to-moderate positive correlation of 0.290, highly significant at the 0.01 level, indicating that students with greater investment engagement consistently score higher. Information-seeking behavior follows with a correlation of 0.230, also highly significant, confirming a meaningful positive relationship between active financial knowledge pursuit and literacy outcomes. Independent living experience reaches 0.180, significant at the 0.05 level - a weak but reliable association

suggesting that longer financial independence is linked to better performance. Credit card ownership shows a weak negative correlation of -0.136 , meaning card holders tend to score marginally lower, although the effect is small and only significant at the 10% level.

Table 6

Correlation between financial literacy and ordinal variables

Variable	Spearman's ρ	p-value
Investment experience	0.290***	0.000
Information-seeking behavior	0.230***	0.002
Independent living experience	0.180**	0.017
Credit card ownership	-0.136*	0.072
Planning and saving habits	0.110	0.146
Internet banking use	0.081	0.283
Job experience	0.077	0.305
Personal income	0.075	0.324
Parental education	0.057	0.453
Financial conversations	-0.040	0.609
Study level	-0.009	0.910

Note: ρ = Spearman rank correlation coefficient; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Compiled by the author based on Spearman test results

Table 7

Association between financial literacy and nominal variables

Variable	χ^2	df	p-value
Field of study	23.609***	5	0.000
Region	4.421	2	0.110
Information source	7.317	4	0.120
Gender	1.752	3	0.626

Note: χ^2 = chi-square statistic; df = degrees of freedom; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Compiled by the author based on Chi-square test results

The remaining ordinal variables including planning and saving habits, income, job experience, parental education, financial conversations, internet banking usage and study level, are not statistically significant (Table 6) despite observable differences in descriptive

statistics. This suggests that group mean differences do not translate into consistent monotonic relationships, and may also reflect limited statistical power or uneven category distributions. In particular, the insignificant effects of job experience and income are consistent with descriptive statistics, same as the findings of Mändmaa (2019) and Philippas and Avdoulas (2020), but contradict Mireku (2024), who reports both variables as highly significant predictors at the 0.01 level. Similarly, neither parental education nor early financial conversations demonstrate significant associations in the present sample, opposing previous evidence that family financial socialization and parental influence contribute to later financial literacy (Agnew & Cameron-Agnew, 2015). Overall, these findings suggest that income experience and family factors have limited explanatory power within the current sample of international students.

Among nominal variables (Table 7), only field of study reaches significance, with a chi-square of 23.609 ($p < 0.01$), confirming the differences in mean scores across disciplines observed previously. In contrast, region ($p = 0.110$) and information source ($p = 0.120$) are not statistically significant, while gender ($p = 0.626$) shows no association at all, which is fully consistent with the negligible descriptive gap. The insignificant effect of information source contrasts with several previous studies emphasizing the importance of social and educational learning channels for financial literacy development (Ergün, 2018; Böhm et al., 2023; Brau et al., 2019). This may suggest that the source itself is less important than the active engagement with financial information, which is supported by the significant positive relationship observed for information-seeking behavior in Table 6.

To further examine the determinants of financial literacy while controlling for the simultaneous effect of multiple variables, logistic regression analysis was conducted. Following the methodological outline, three regression models were estimated. Model A examines general background determinants, Model B focuses on experiential learning factors, while Model C combines the most relevant predictors from both groups. Results are presented in Table 8.

Model A includes demographic, educational and family background variables in order to test whether general characteristics are associated with the probability of belonging to the highly financially literate group. Among all included variables, only field of study reaches statistical significance. Compared to Business and Economics students, students from Science and Technology and Other fields show a statistically significant negative relationship with financial literacy ($\beta = -1.505$; $\beta = -1.899$), both at the 0.01 level.

Table 8

Logistic regression results predicting high financial literacy

Variable	Model A	Model B	Model C
<i>Intercept</i>	-0.810 (0.358)	-2.582*** (0.000)	-1.127** (0.019)
Gender (ref: Female)			
Male	-0.012 (0.974)		—
Region (ref: EU country)			
Non-EU European country	0.125 (0.764)		—
Outside Europe	-0.147 (0.789)		—
Field of study (ref: Business and Economics)			
Science and Technology	-1.505*** (0.001)		-1.429*** (0.000)
Other fields	-1.899*** (0.000)		-1.515*** (0.001)
Study level	0.297 (0.343)		—
Parental education	0.369 (0.290)		—
Credit card ownership		-0.516 (0.138)	—
Investment experience		0.430* (0.052)	0.420* (0.064)
Independent living		0.331 (0.235)	—
Information seeking		0.689** (0.029)	0.736** (0.023)
Planning and saving habits		0.229 (0.445)	—
Pseudo-R ²	0.109	0.09	0.151
Model p-value	0.001	0.001	<0.001

Note: Values are logit coefficients (β) with standard errors indicated in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Compiled by the author based on logistic regressions results

The negative coefficients indicate that students outside business-related disciplines are less likely to belong to the highly financially literate group. In contrast, gender, region,

study level and parental education do not show statistically significant effects in the model. This is consistent with the earlier bivariate results, where these variables also demonstrated only insignificant associations with financial literacy. This finding differs from several previous studies, which report gender and study cycle as important determinants of financial literacy among students (Ergün, 2018; Mireku, 2024). At the same time, the insignificant coefficient for parental education is more in line with many studies suggesting that family background alone has limited explanatory power in student samples (Brau et al., 2019; Mändmaa, 2019; Mireku, 2024). The insignificant regional effect indicates that geographic background loses explanatory power once educational and experiential factors are considered simultaneously, despite particular previous studies pointing to the importance of origin (Mändmaa, 2019; Ergün, 2018).

Overall, Model A provides only partial support for H1, which proposed that general background characteristics are significantly associated with financial literacy. While field of study remains a highly significant predictor of financial literacy, the effects of other background factors disappear in the multivariate setting. This suggests that educational specialization plays a stronger role than demographic or family background characteristics within the present sample.

Model B examines experiential learning determinants in order to test whether financial exposure and behavior-related factors are associated with financial literacy. To preserve model suitability for the sample size and avoid overparameterization, only experiential variables that demonstrated the strongest potential during the pre-screening stage were included in the model.

Among the included variables, information-seeking behavior is the only factor significant at the 0.05 level ($\beta = 0.689$; $p = 0.029$), indicating that students who actively search for financial information are more likely to belong to the highly financially literate group. Investment experience remains positively associated with financial literacy and is marginally significant at the 0.10 level ($\beta = 0.430$; $p = 0.052$). However, the weaker significance compared to the bivariate analysis suggests overlap with other experiential factors included in the model.

In contrast, independent living experience, planning and saving habits and credit card ownership are not statistically significant once the variables are analysed simultaneously (Table 8). For independent living experience, this contrasts the earlier pre-screening results and the findings of Ergün (2018) and Mireku (2024), but aligns more closely with Böhm et al. (2023) and Mändmaa (2019), who also report no significant relationship. Planning and

saving habits determinant also fails to reach significance despite previous literature frequently emphasising budgeting and saving habits as important predictors of literacy (Mändmaa, 2019; Philippas & Avdoulas, 2020). Similarly, although the negative coefficient for credit card ownership follows previous literature linking credit products with lower literacy (Böhm et al., 2023; Moon et al., 2014), the relationship remains insignificant in the present sample.

Overall, Model B provides partial support for H2, which proposed that experiential learning determinants are positively associated with financial literacy. The findings suggest that not all forms of financial exposure contribute equally to financial literacy, and that active engagement with financial information or investment tools may play a more central role than other life experience or financial practices.

Model C represents the final regression model and combines the most relevant predictors from both determinant groups in order to test H3, which proposed that experiential learning determinants remain significant predictors of financial literacy even after controlling for general background characteristics. Based on the previous models A and B, the final model includes one general determinant - field of study, and two experiential determinants - information-seeking behavior and investment experience.

The results confirm that both educational specialization and experiential learning contribute to explaining financial literacy differences among international students (Table 8). Field of study remains the strongest and most stable determinant. Compared to Business and Economics students, students from Science and Technology ($\beta = -1.429$; $p < 0.01$) and Other fields ($\beta = -1.515$; $p < 0.01$) are significantly less likely to belong to the highly financially literate group. This is fully consistent with the results of Model A and previous literature, where business-related disciplines repeatedly demonstrate higher financial literacy levels (Mändmaa, 2019; Ergün, 2018; Mireku, 2024).

To improve interpretation of the logistic regression coefficients, Table 9 additionally reports average marginal effects and discrete changes for the nominal field-of-study variable, showing how each predictor changes the probability of belonging to the highly financially literate group. The results indicate that students from Science and Technology are approximately 30 percentage points less likely to belong to the highly financially literate group compared to Business and Economics students, while students from Other fields are around 31 percentage points less likely. The stronger performance of business-related students in the present study aligns with much of the previous literature. Many studies suggest that students exposed to finance-related subjects and analytical problem-solving tend

to develop better financial understanding (Lusardi & Mitchell, 2014; Böhm et al., 2023). Similarly, Brau et al. (2019) found university-level finance courses to be significant predictors of financial literacy, which is especially relevant since such courses are usually a mandatory part of business-oriented study programmes.

Table 9

Marginal effects of final logistic regression model predicting high financial literacy

Variable	Marginal Effect (dy/dx)	p-value
Field of study (ref: Business and Economics)		
Science and Technology	-0.299***	0.000
Other Fields	-0.314***	0.000
Information seeking	0.135**	0.017
Investment experience	0.077*	0.057

Note: Marginal effects are reported for Model C as average marginal effects; for the nominal field of study variable, effects represent average discrete changes relative to Business and Economics; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Compiled by the author based on marginal effects from the logistic regression model

Among experiential determinants, information-seeking behavior remains statistically significant in the final model ($\beta = 0.736$; $p < 0.05$). This finding is consistent with Mändmaa (2019) and supports the idea proposed by Frijns et al. (2014) that financial interest and knowledge reinforce each other, creating a cycle in which more knowledgeable individuals seek further financial experiences that again contribute to higher literacy. Additional nonlinear effect tests did not reveal significant quadratic patterns, suggesting a relatively linear relationship across engagement levels. Accordingly, each increase in information-seeking engagement is associated with an approximately 14% higher probability of belonging to the highly financially literate group. This means that moving from rarely looking for financial information to searching only when needed predicts a similar increase as moving further to actively following financial topics, as illustrated in Figure 2.

Investment experience stands out as one of the few experiential factors that consistently predicts high financial literacy across pre-screening and models, remaining marginally significant in the final model ($\beta = 0.420$; $p = 0.064$). The finding supports the experiential learning argument of Brau et al. (2019), Frijns et al. (2014) and van Rooij et al. (2011) that investing actively builds literacy. Nonlinear effect tests were again statistically insignificant, indicating a relatively steady increase in financial literacy probabilities across investment categories. Moving from no investment experience to simple financial products

increases the probability of belonging to the highly financially literate group by approximately 8 percentage points, with a similar increase observed when moving further to complex investments such as stocks or ETFs. This gradual pattern is presented in Figure 3.

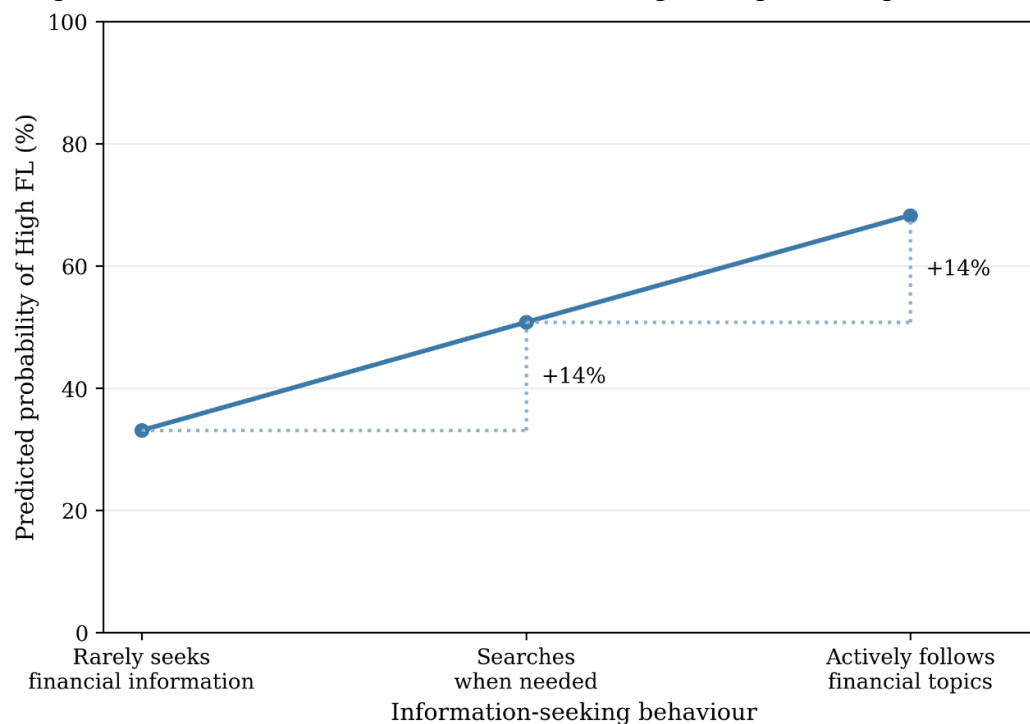


Figure 2. Predicted probability of high financial literacy by financial information seeking

Source: Compiled by the author based on marginal effects estimates

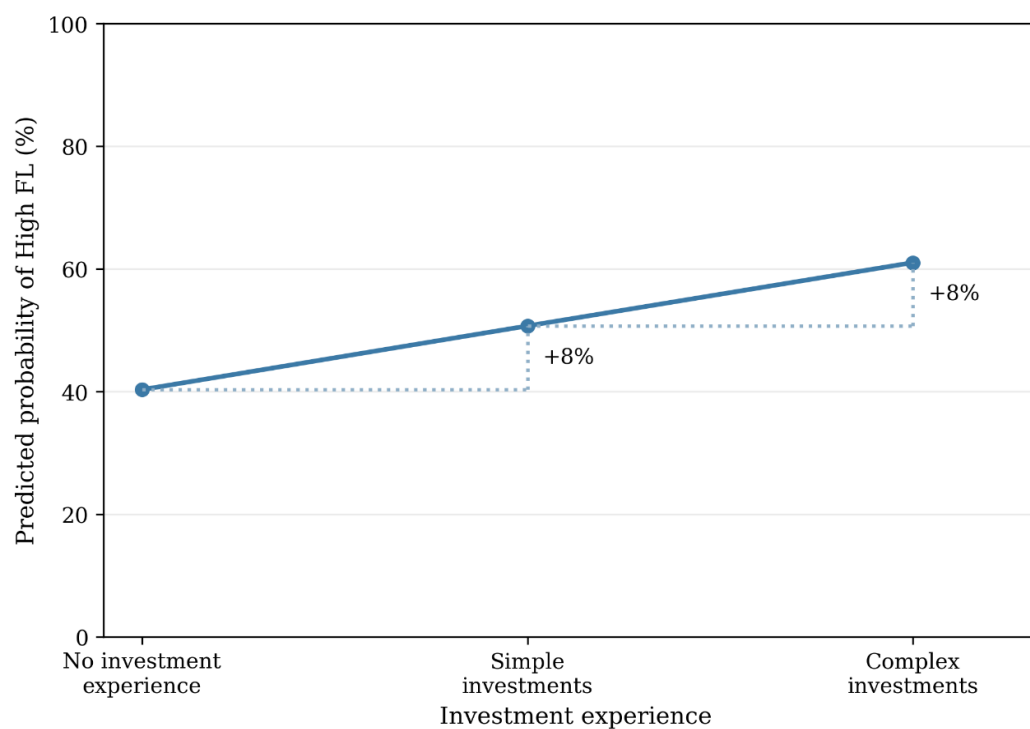


Figure 3. Predicted probability of high financial literacy by investment experience

Source: Compiled by the author based on marginal effects estimates

Overall, the results of Model C support H3. Even after controlling for educational background, the analyzed experiential learning determinants remain significant predictors of financial literacy. While all regression models are statistically significant overall ($p \leq 0.001$), the highest pseudo- R^2 value in Model C indicates that experiential learning variables improve the explanatory power of the analysis. The consistency of significant predictors across different model specifications additionally supports the robustness of the findings. At the same time, the consistently strong effect of field of study suggests that educational specialization remains the central determinant within the present sample. Given its dominant role across all analyses, the following section investigates field of study in greater detail through mean comparisons across disciplines, score distributions, field-specific question analysis and interaction effects between educational specialization and experiential learning factors.

Table 10 presents the differences in financial literacy scores across fields of study. The results confirm statistically significant variation between disciplines overall ($F = 7.49$, $p < 0.01$).

Table 10

Differences in financial literacy scores across fields of study

Subgroups	Mean Difference	p-value
Business & Economics vs Science & Technology	0.73**	0.019
Business & Economics vs Other Fields	1.22***	0.001
Science & Technology vs Other Fields	0.49	0.272
Welch ANOVA	F	p-value
Field of study	7.49***	0.001

Note: Mean difference - the difference in average financial literacy scores between groups; $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Compiled by the author based on Welch ANOVA and Games-Howell post-hoc test results

Business and Economics students significantly outperform both Science and Technology students and students from Other fields. The latter category includes mainly Arts and Humanities, Medicine and non-business Social Sciences such as education, psychology, political science and law. The mean difference between Business and Economics and Other fields reaches 1.22 points ($p = 0.001$), while the difference between Business and Economics and Science and Technology equals 0.73 points ($p = 0.019$). In contrast, Science and Technology and Other fields do not differ significantly from each other ($p = 0.272$).

Figure 4 additionally illustrates the distribution of scores within each discipline. Business and Economics students demonstrate the highest median financial literacy score - 6 out of 8 - and the strongest concentration of results near the upper end of the scale. Science and Technology students occupy an intermediate position, and while Other fields display the same median, they also represent the widest dispersion of results, including several very low scores. The figure visually confirms the earlier findings that students from business-related disciplines tend to achieve stronger financial literacy outcomes than students from other academic backgrounds.

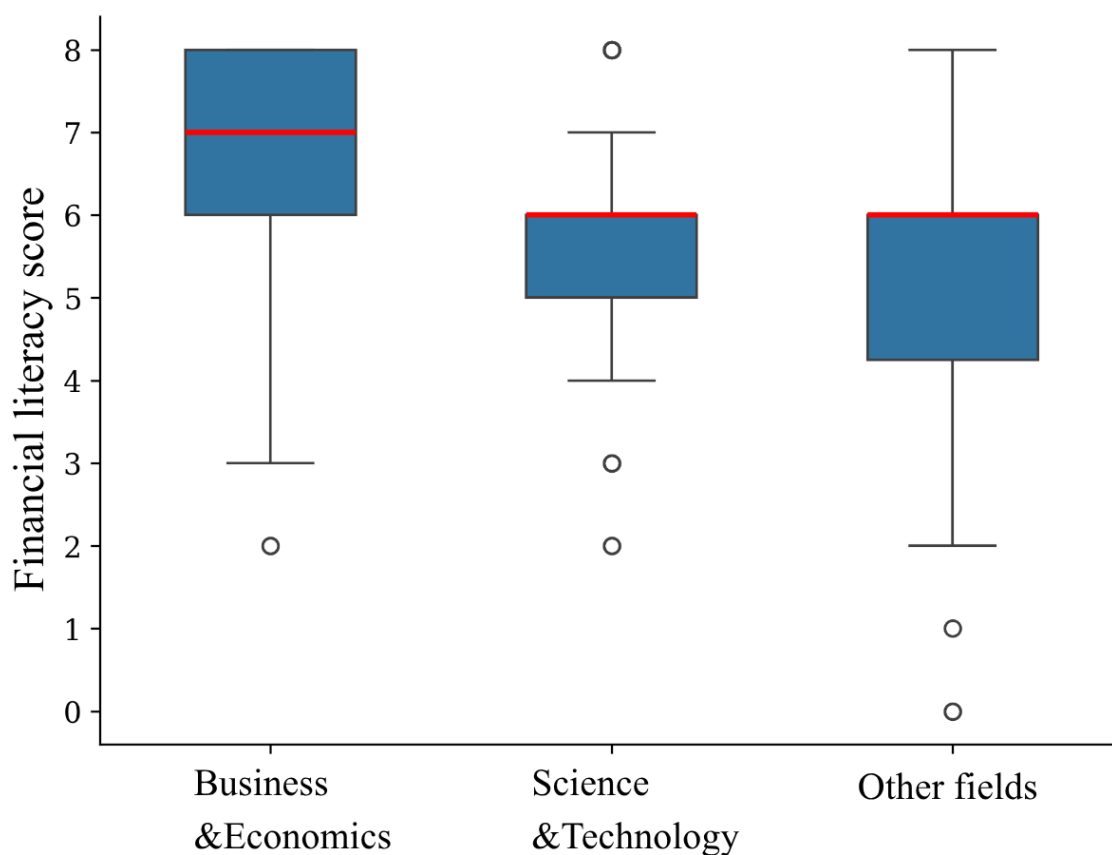


Figure 4. Distribution of financial literacy scores across fields of study

Source: Compiled by the author based on financial literacy score distributions by field of study

Figure 5 further illustrates this by showing the proportion of highly financially literate students within each field. The results reveal substantial differences across disciplines. More than half of Business and Economics students (56.5%) belong to the highly financially literate group, compared to only 24.6% of Science and Technology students and 20.0% of students from Other fields.

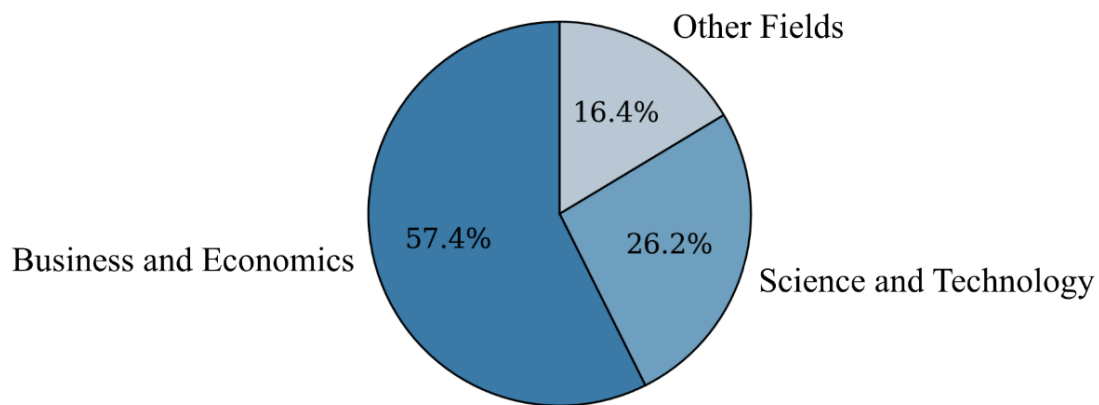


Figure 5. Share of highly financially literate students by field

Source: Compiled by the author based on survey data

Table 11 breaks this down further by presenting the percentage of correct answers per question across disciplines. Business and Economics students outperform other groups across most question categories, with an average of 80.5% correct answers, while students from Other fields consistently achieve the lowest results throughout the questionnaire, averaging 65.3%.

Table 11

Financial literacy performance across fields of study

Category	Business & Economics	Science & Technology	Other Fields
Q1 Interest	93.50	84.60	74.00
Q2 Compound interest	88.70	78.50	76.00
Q3 Inflation	96.80	89.20	88.00
Q4 Investment strategy	79.00	66.20	62.00
Q5 Investment risk	79.00	70.80	60.00
Q6 Insurance	67.70	72.30	66.00
Q7 Credit	72.60	53.80	50.00
Q8 Retirement	66.10	55.40	46.00
Mean correct answers (%)	80.5	71.4	65.3
Mean FL Score	6.44	5.71	5.22
High FL (%)	56.50	24.60	20.00

Note: Values for Q1–Q8 represent the percentage of correct answers within each field of study; Mean correct answers - the mean financial literacy score in %; Mean FL Score - the mean financial literacy score out of 8; High FL (%) - the proportion of students classified as highly financially literate within each field

Source: Compiled by the author based on survey data

The largest differences emerge in questions related to interest, creditworthiness, investment and retirement planning. These questions require either calculation-based reasoning, understanding of long-term financial mechanisms or familiarity with practical financial decision-making concepts. In contrast, the gaps are considerably smaller for inflation and insurance questions, where Science and Technology students perform relatively similarly to Business and Economics students and even slightly outperform them in the insurance question. The possible explanation is that these items rely less on specialised financial knowledge and more on general logic or practical reasoning. These patterns suggest that field-related differences are most pronounced where more than simple economic awareness is required.

Finally, additional interaction tests were conducted to examine whether experiential learning factors operate differently across academic disciplines. Specifically, the analysis tested whether information seeking and investment experience provide stronger benefits for non-business students who lack formal financial training. However, none of the interaction effects reached statistical significance. It suggests that higher involvement with financial information or investment tools supports financial literacy development in a relatively similar way across disciplines.

Overall, the findings largely align with previous research, while some differences highlight the specific financial literacy patterns of international students in a diverse environment of University of Tartu.

Conclusion

The aim of this thesis was to determine the level of financial literacy and the factors that influence it among international students at the University of Tartu. To achieve this aim, the thesis reviewed the concept and determinants of financial literacy, collected primary survey data from 177 international students and conducted statistical analysis to identify the main patterns and predictors of financial literacy.

The theoretical part explained that financial literacy should not be understood only as knowledge of financial terms. Earlier definitions focused mainly on understanding concepts such as interest, inflation, risk and diversification, but more recent approaches view financial literacy as a broader and more dynamic capability. In this thesis, financial literacy was conceptualised as a dynamic, experience- and knowledge-based capability that integrates understanding of financial concepts combined with the skills, attitudes, behaviors and decision-making abilities required to manage financial resources effectively, adapt to changing economic conditions and achieve long-term financial well-being. This

understanding is especially relevant for international students, who often manage money, rent, banking, work and everyday expenses in a new country without the same level of family or institutional support as domestic students.

The literature review also showed that financial literacy is shaped by both general background factors and experiential learning factors. Traditional determinants such as gender, field of study, study level and parental education have been widely studied in previous research. However, the review also suggested that financial literacy develops through practical experience: using financial products, searching for financial information, investing, working and making independent financial decisions. Therefore, the empirical part of this thesis tested not only who students are, but also what financial experiences and behaviors they have.

The empirical analysis used logistic regression as a main method of analysis and showed that international students at the University of Tartu have a moderate to relatively high level of financial literacy. The mean score was 5.82 out of 8, meaning that students answered 72.8% of the questions correctly on average. Additionally, 34.5% of respondents were classified as highly financially literate based on the sample median threshold.

The most important finding is that field of study is the strongest and most stable determinant of financial literacy. Business and Economics students performed clearly better than students from Science and Technology and Other fields. This confirms that educational specialization matters. Students who are more exposed to business, economics, finance or related analytical content appear to have a stronger foundation for understanding financial concepts.

The second important finding concerns experiential learning. Information-seeking behavior remained a significant predictor of high financial literacy, while investment experience was also positively related to financial literacy and remained marginally significant. These findings suggest that financial literacy develops not only through formal education, but also through active engagement with financial information and financial tools. However, other experiential factors, such as independent living, job experience, income, planning and saving habits and credit card ownership, did not remain stable predictors. It suggests that the type of engagement matters more than experience alone.

The hypotheses were therefore only partly confirmed. H1, which proposed that general background characteristics are associated with financial literacy, received partial support because field of study was significant, while gender, region, study level and parental education were not. H2, which proposed that experiential learning factors are associated with

financial literacy, was also partially supported, as information seeking and investment experience were relevant, while other experiential variables were not. H3 was supported as experiential learning factors remained relevant even after controlling for field of study.

These findings help fill the research gap. Previous studies have examined financial literacy among university students, but international students are often treated as part of a broader student population rather than as a specific group. This thesis contributes by focusing on international students at the University of Tartu and by combining traditional background variables with experiential learning factors. The results show that financial literacy among international students is shaped by both educational specialization and active financial engagement. The thesis also adds nuance to the literature by showing that passive exposure, such as simply living independently or having work experience, does not automatically translate into higher financial literacy.

The theoretical contribution of the thesis lies in connecting the multidimensional concept of financial literacy with the experiential learning perspective. Unlike many previous studies that examine only a limited number of experiential factors separately, this thesis provided a broader theoretical overview by collecting and systematizing multiple experiential learning factors together within one framework. This is important because it shifts the interpretation of financial literacy from a static personal characteristic to a capability that can be improved.

The practical implications are relevant for universities, student support services and financial education providers. Since non-business students were less likely to have high financial literacy, financial guidance should not be limited to business-related programmes. The University of Tartu could offer practical financial literacy support for international students, especially during orientation or the first semester. Such support could cover banking in Estonia, budgeting, saving, taxes, credit products, inflation, investing basics and reliable sources of financial information. The results also suggest that universities should not only provide information, but encourage students to actively search, compare and apply financial knowledge in real situations. The thesis may also be relevant for students who aim to improve their financial literacy, as the findings suggest that regular engagement with finance-related content or investment tools may contribute to its improvement.

This thesis has several limitations. First, the sample includes 177 respondents from one university, which limits generalizability to all international students in Estonia or Europe. Second, the survey was distributed online and participation was voluntary, so students interested in financial topics may have been more likely to respond. Third, financial literacy

was measured through an objective quiz consisting of only eight questions, which limited the possibility of covering a broader range of financial literacy dimensions in greater depth. A more comprehensive evaluation of financial literacy, including attitudes, confidence, adaptability, economic understanding, financial stress, behavioral scenarios and well-being, would require a substantially more extensive measurement instrument. Fourth, the cross-sectional design does not allow causal conclusions. For example, investment experience may improve financial literacy, but financially literate students may also be more likely to start investing.

Future research could address these limitations by using larger and more diverse samples across several universities. A comparison between domestic and international students would also be valuable, as it could show whether international status creates specific financial literacy challenges. Future studies could include qualitative interviews to better understand how international students learn to manage money after moving abroad. It would also be useful to examine financial behavior, attitudes and skills in greater detail together with objective financial knowledge. Finally, longitudinal research could show how students' financial literacy changes during their studies and which university-level interventions are most effective.

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Appendices

Appendix A

Definitions of financial literacy

Author / Year	Definition	Key terms
Vitt et al. (2000)	“The ability to read, analyze, manage, and communicate about the personal financial conditions that affect material well-being. It includes the ability to discern financial choices, discuss money and financial issues without (or despite) discomfort, plan for the future, and respond competently to life events that affect everyday financial decisions, including events in the general economy.”	Ability, personal financial conditions, material well-being, financial choices, financial issues discussion, planning, financial decisions
Mason & Wilson (2000)	“An individual’s ability to obtain, understand and evaluate the relevant information necessary to make decisions with an awareness of the likely financial consequences.”	Ability, information analysis, decision-making, financial consequences awareness
Moore (2003)	“Individuals are considered financially literate if they are competent and can demonstrate they have used knowledge they have learned.”	Competence, knowledge usage
Emmons (2005)	“Be able to keep track of their [consumers’] cash resources and all payment obligations, know how to open an account for saving and how to apply for a loan, and have a basic understanding of health and life insurance.”	Keeping track of cash and payments, opening an account, applying for a loan, insurance understanding
Hira & Loibl (2005)	“A multiple measure representing four areas of financial knowledge, including knowledge about retirement needs, investing money, providing for the future, and managing credit use.”	Financial knowledge, retirement needs, investing, credit management, providing for future
Jump\$tart Coalition (2008)	“The ability to use knowledge and skills to manage financial resources effectively for a lifetime of financial well-being.”	Ability, knowledge, skills, effective management, financial resources, financial well-being
Hung et al. (2009)	“Knowledge of basic economic and financial concepts, as well as the ability to use that knowledge and other financial skills to manage financial resources effectively for a lifetime of financial well-being.”	Knowledge, ability, economic and financial concepts, financial skills, financial well-being
Remund (2010)	“A measure of the degree to which one understands key financial concepts and possesses the ability and confidence to manage personal finances through appropriate, short-term decision-making and sound, long-range financial planning, while mindful of life events and changing economic conditions.”	Understanding, ability, financial concepts, personal finances, decision-making, financial planning

Atkinson & Messy (2012)	“A combination of awareness, knowledge, skill, attitude and behavior necessary to make sound financial decisions and ultimately achieve individual financial wellbeing.”	Awareness, knowledge, skill, attitude, behavior, financial decisions, financial well-being
OECD/IFE (2015)	“A fundamental skill of relevance to young people. It is a complex construct, including knowledge and skills as well as a wide range of attitudes and behaviors that are clearly influenced by factors such as the socio-economic status, national context and access to a range of financial services.”	Skills, knowledge, attitudes, behavior
Munoz-Cespedes et al. (2021)	“The combination of awareness, knowledge, skills, attitudes, and behaviors that help people make informed financial decisions that ensure their present and future financial well-being”	Awareness, knowledge, skills, attitudes, behaviors, financial decisions, financial well-being
Titin et al. (2024)	“Knowledge, skills, and beliefs influencing attitudes and behaviors to improve financial management and decision-making to achieve prosperity.”	Knowledge, skills, beliefs, attitudes, behaviors, financial management, decision-making, prosperity

Source: Compiled by the author based on Vitt et al. (2000), Mason and Wilson (2000), Moore (2003) as cited in Hung et al. (2009), Emmons (2005), Hira and Loibl (2005), Jump\$tart Coalition (2008) as cited in Remund (2010), Hung et al. (2009), Remund (2010), Atkinson and Messy (2012), OECD (2015), Muñoz-Cespedes et al. (2021), and Titin et al. (2024)

Appendix B

Financial literacy questionnaire

Part 1. Financial literacy quiz

Q1. Suppose you put €100 into a savings account with an interest rate of 2% per year. You leave the money in the account for one year. How much will you have after one year?

- **Exactly €102**
- Less than €102
- More than €102
- Do not know

Q2. Suppose you put €100 into a savings account with an interest rate of 2% per year. You leave the money in the account for 5 years. How much will you have at the end of the 5 years?

- Exactly €110
- Less than €110
- **More than €110**
- Do not know

Q3. Imagine that the interest rate on your savings account is 1% per year and inflation is 2% per year. After 1 year, how much would you be able to buy with the money in this account?

- More than today
- Exactly the same
- **Less than today**
- Do not know

Q4. A high-risk and high-return investment strategy is most appropriate for:

- A retired couple with a stable, average income
- A couple urgently needing funds for their children's education
- A 40-year old entrepreneur with variable income and 2 children
- **A young couple without children and fixed income**
- Do not know

Q5. Which of the following investments is generally safer?

- Investing in a large technology company
- **Investing in a stock mutual fund**

- Investing in small start-ups
- Borrowing to invest
- Do not know

Q6. In which of the situations would you NOT receive insurance coverage?

- You had a medical emergency and decided to buy health insurance
- You bought car insurance and damaged your car on purpose
- **In both situations**
- Insurance would cover both situations
- Do not know

Q7. You will improve your creditworthiness if...

- You never take long-term credits
- You increase your income significantly
- **You show no bankruptcies in recent years**
- You donate money to charity and your local community development
- Do not know

Q8. Which retirement strategy will result in higher savings at retirement, assuming the same rate of return (no calculations needed)?

- **Saving €100 per month from age 25 to 65**
- Saving €200 per month from age 40 to 65
- Saving €65.000 from a sold property just before retirement
- All the strategies would result in similar savings
- Do not know

Part 2. Background survey

1. What is your gender?

- Male
- Female
- Other
- Prefer not to answer

2. What region best describes your origin?

- EU country
- Non-EU European country

- Outside Europe
- Prefer not to say

3. What is your field of study?

- Social Sciences: business, economics, finance
- Social Sciences: other disciplines (education, political sciences, psychology, law, etc.)
- Science and Technology (computer sciences, physics, chemistry, biology, mathematics and statistics, etc.)
- Arts and Humanities (history and archeology, philosophy, foreign languages, linguistics, semiotics, etc.)
- Medicine (biomedicine, pharmacy, dentistry, clinical medicine, public health, sport sciences, etc.)
- Other

4. What is your level of study?

- PhD (or equivalent)
- Master's (or equivalent, including long-cycle degree)
- Bachelor's (or equivalent)
- Vocational / Professional education (post-secondary, non-university)
- Upper secondary (high school)
- Lower secondary (or primary education)
- Don't know

5. What is the highest level of education completed by at least one of your parents?

- Doctoral (PhD)
- Master's
- Bachelor's
- Lower levels of education
- Don't know

6. Did you have financial conversations with parents as a kid?

- My parents taught me how to manage money
- My parents occasionally had money conversations with me
- Money matters were almost never discussed with me
- I don't remember

7. Are you an active user of internet banking?

****Internet banking usage includes making payments, checking balances, downloading bank statements, approving transactions, managing cards, etc., via mobile applications and web portals.**

- Yes
- No

8. Do you use a credit card?

****Please note that a credit card is not the same as a debit card. While a debit card uses your own money, a credit card allows you to borrow money from the card issuer up to a certain limit to purchase items or withdraw cash.**

- Yes
- No

9. Do you have any investment experience?

- Yes, I invest(ed) in complex investments (stocks, ETFs, mutual funds, crypto etc)
- Yes, but I only invest(ed) in simple products (saving accounts, deposits etc)
- No, I don't have any investment experience

10. Which statement best describes your financial behavior?

- I plan my expenses in advance and save money regularly
- I plan or save occasionally, depending on my situation
- I usually spend without planning and do not save

11. How many years of paid working experience do you have? Include full- or part-time experience, internship, summer jobs, etc.

- Less than 1 year
- 1-3 years
- More than 3 years
- I have never worked on a paid job

12. What is your average monthly personal income (after tax)?

- Less than €300
- €300–€600
- €600–€1000
- More than €1000

- I don't earn money

13. For how long have you lived independently from your parents, meaning you moved out?

- Less than 1 year
- 1-3 years
- More than 3 years
- Not applicable

14. When you need information to make a financial decision or better understand a financial topic, where do you usually look first?

- I talk with my parents or family members
- I talk with my friends or partner
- I consult university materials or professors
- I use the internet or social media
- It is not listed here

15. How often do you seek financial information?

- I am interested in the topic, and I actively read business news/discuss finance/seek explanations
- I search for answers only when I face specific financial questions
- Finance is not in my interests, so I rarely look for financial information on my own

Appendix C

Descriptive statistics of study variables and financial literacy outcomes

Category	n	%	Mean FL Score	High FL %
Gender				
Female	85	48.9	5.86	36.5
Male	89	51.1	5.82	33.7
Region				
EU country	65	36.7	5.63	26.2
Non-EU European country	80	45.2	5.96	42.5
Outside Europe	32	18.1	5.88	31.2
Field of Study				
Business and Economics	62	35.0	6.44	56.5
Science and Technology	65	36.7	5.71	24.6
Other Fields	50	28.2	5.22	20.0
Study Level				
Bachelor's	75	43.1	5.84	37.3
Master's	89	51.1	5.80	31.5
Doctoral	10	5.7	5.90	40.0
Parental Education				
Upper secondary / vocational	34	19.7	5.74	32.4
Bachelor's / Master's	123	71.1	5.85	35.8
PhD	16	9.2	6.12	37.5
Financial Conversations				
Rarely discussed	47	28.0	6.00	31.9
Occasionally discussed	85	50.6	5.85	35.3
Parents taught money management	36	21.4	5.69	41.7
Internet Banking				
No Internet banking	7	4.0	5.14	14.3
Uses Internet banking	170	96.0	5.85	35.3
Credit Card Ownership				
No credit card	103	58.2	6.05	37.9
Has a credit card	74	41.8	5.51	29.7
Investment Experience				
None	56	31.6	5.27	21.4
Simple products	48	27.1	5.65	29.2
Complex products	73	41.2	6.37	47.9
Planning and Saving Habits				
No planning / saving	14	7.9	5.36	14.3
Plans / saves occasionally	92	52.0	5.72	32.6

Category	n	%	Mean FL Score	High FL %
Plans / saves regularly	71	40.1	6.06	40.8
Job Experience				
No paid job	12	6.8	5.83	41.7
Less than 1 year	36	20.3	5.53	22.2
1–3 years	55	31.1	5.98	41.8
More than 3 years	74	41.8	5.85	33.8
Personal Income				
No income	40	22.6	6.05	40.0
Less than €300	12	6.8	6.58	33.3
€300–€600	41	23.2	5.00	19.5
€600–€1000	26	14.7	5.38	23.1
More than €1000	58	32.8	6.29	46.6
Independent Living				
Not applicable	11	6.2	5.27	18.2
Up to 3 years	69	39.0	5.68	30.4
More than 3 years	97	54.8	5.99	39.2
Information Source				
Family / friends	80	45.2	5.35	25.0
Internet / social media	81	45.8	6.19	40.7
University / other	16	9.0	6.38	50.0
Information Seeking				
Rarely seeks information	20	11.3	4.75	10.0
Seeks when needed	110	62.1	5.88	31.8
Actively seeks information	47	26.6	6.15	51.1
Overall	177	100	5.82	34.5

Note: n – number of participants; % - percentage of participants; FL – financial literacy; mean FL - mean score based on the objective financial literacy index; high FL % - percentage of respondents classified as having high financial literacy

Source: Compiled by the author based on survey data

Appendix D

Correlations among independent variables

Variable 1	Variable 2	ρ (Spearman)
Job experience	Income	0.437
Investment experience	Information source	0.363
Investment experience	Information seeking	0.359
Job experience	Independent living	0.299
Study level	Independent living	0.298
Study level	Job experience	0.296
Planning and saving habits	Information seeking	0.292
Financial conversations	Information source	-0.285
Income	Independent living	0.285
Gender	Investment experience	-0.273
Investment experience	Planning and saving habits	0.260
Income	Information source	0.247
Field	Job experience	0.240
Region	Field	-0.231
Information source	Information seeking	0.225
Gender	Information seeking	-0.201
Investment experience	Independent living	0.200
Gender	Credit card	0.190
Investment experience	Job experience	0.190
Gender	Study level	-0.187

Note: ρ = Spearman correlation coefficient; only the strongest correlations (by absolute value) are reported

Source: compiled by the author based on Spearman test results

Resümee

Käesoleva bakalaureusetöö eesmärk oli määrata finantskirjaoskuse tase ja seda mõjutavad tegurid Tartu Ülikooli välistudengite seas. Töö käsitleb finantskirjaoskuse alases kirjanduses esinevat uurimislünka, kuna varasemad uuringud on enamasti vaadelnud üliõpilasi üldise rühmana ning keskendunud finantskirjaoskusega seotud üldistele taustateguritele, samas kui välistudengeid ja kogemusliku õppimisega seotud tegureid on käsitletud vähem süsteemselt.

Töö teoreetiline panus seisneb finantskirjaoskuse mitmemõõtmelise käsitlemise ühendamises kogemusliku õppimise perspektiiviga. Kontseptuaalne arutelu näitas, et finantskirjaoskust tuleks määratleda võimekusena, mis kujuneb teadmiste, oskuste, hoiakute, käitumise, otsustusvõime ning muutuvate finantstingimustega kohanemise koosmõjus. Kirjanduse ülevaate põhjal eristati analüütilises raamistikus üldisi taustategureid ja kogemusliku õppimise tegureid. Üldised taustategurid hõlmasid demograafilisi tunnuseid, hariduslikke tunnuseid ja perekondlikku tausta, samas kui kogemusliku õppimise tegurid hõlmasid finantskäitumist, sissetulekuga seotud kogemust, elulisi asjaolusid ja teabeallikaid. Töö pakkus laiemat teoreetilist ülevaadet, koondades ja süstematiseerides nii taustategureid kui ka kogemusliku õppimise tegureid, pöörates erilist tähelepanu kogemuslikele teguritele, mida varasemates uuringutes on sageli käsitletud eraldi. Üks töö peamisi teoreetilisi järeldusi on see, et finantskirjaoskus ei ole seotud üksnes üliõpilaste taustaga, vaid ka nende finantskogemuste, käitumisviiside, harjumuste ja eluliste olukordadega. See nihutab finantskirjaoskuse tõlgendust staatiliselt isikuomaduselt võimekusele, mida on võimalik arendada praktilise finantsalase kaasatuse kaudu.

Empiiriline analüüs põhines esmastel küsitlusandmetel, mis koguti 177 Tartu Ülikooli välistudengilt, kes vastasid finantskirjaoskuse küsimustele keskmiselt 72,8% ulatuses õigesti. Peamine empiiriline tulemus näitas, et õppevaldkond oli finantskirjaoskuse kõige tugevam ja stabiilsem mõjutegur. Äri- ja majanduseriala tudengid saavutasid oluliselt paremaid tulemusi kui loodus- ja tehnoloogiateaduste ning teiste valdkondade tudengid, kinnitades haridusliku spetsialiseerumise tähtsust. Kogemusliku õppimise teguritest oli finantsteabe otsimise käitumine oluline kõrge finantskirjaoskuse ennustaja, samas kui investeerimiskogemus oli finantskirjaoskusega positiivselt seotud ja jäi piiripealselt statistiliselt oluliseks. Teised tegurid, nagu sugu, piirkond, õppetase, vanemate haridus, töökogemus, sissetulek, iseseisev elamine, teabeallikas ja krediitkaardi omamine, ei jäänud regressioonimudelites stabiilseteks ennustajateks.

Tulemused viitavad sellele, et välistudengite finantskirjaoskust kujundavad nii formaalne hariduslik kokkupuude kui ka aktiivne finantsalane kaasatus. Praktilisest vaatenurgast rõhutab töö sihipärase finantskirjaoskuse toe olulisust välistudengitele, eriti mitteäriliste erialade tudengitele, näiteks sisseelamisprogrammide, praktiliste töötubade ning pangandust, eelarvestamist, säästmist, makse, investeerimise aluseid ja usaldusväärseid finantsteabe allikaid käsitleva juhendamise kaudu.

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14/05/2026