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Do Education, Spending Habits and Planning Habits Affect Investing Habits?

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Do Education, Spending Habits and Planning Habits Affect

Investing Habits?

By

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A THESIS

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Robert W. Plaster School of Business and Entrepreneurship

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Abstract

The purpose of this thesis is to explore the influence of formal education, spending habit, and planning habit on investing habit, while controlling for age, gender, income, and self-perception of financial knowledge. The previous studies tested the influence of education on certain money management skills or investing habits, but none of them explored the influence of formal education, spending habit and planning habit on investing habits. This thesis explores this influence of those three independent variables with control variables on a sample that represents the entire population of the United States. The testing is performed on the data from 2012 National Financial Capability Study by using descriptive statistics and multiple regression analyses. This thesis found that formal education, spending habit and planning habit affect the investing habits of an individual.

ACKNOWLEDGEMENTS

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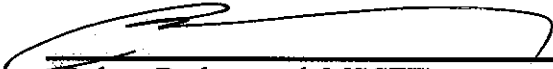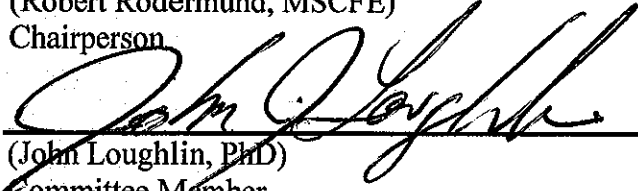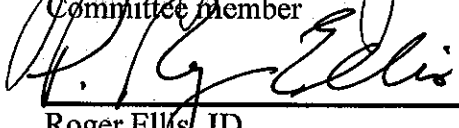
Investing Habits?

By

Miran Simunic

We hereby certify that this Master of Science Thesis submitted by Miran Simunic conforms to acceptable standards, and as such is fully adequate in scope and quality. It is therefore approved as the fulfillment of the Thesis requirements for the Degree of Master of Science in Finance.
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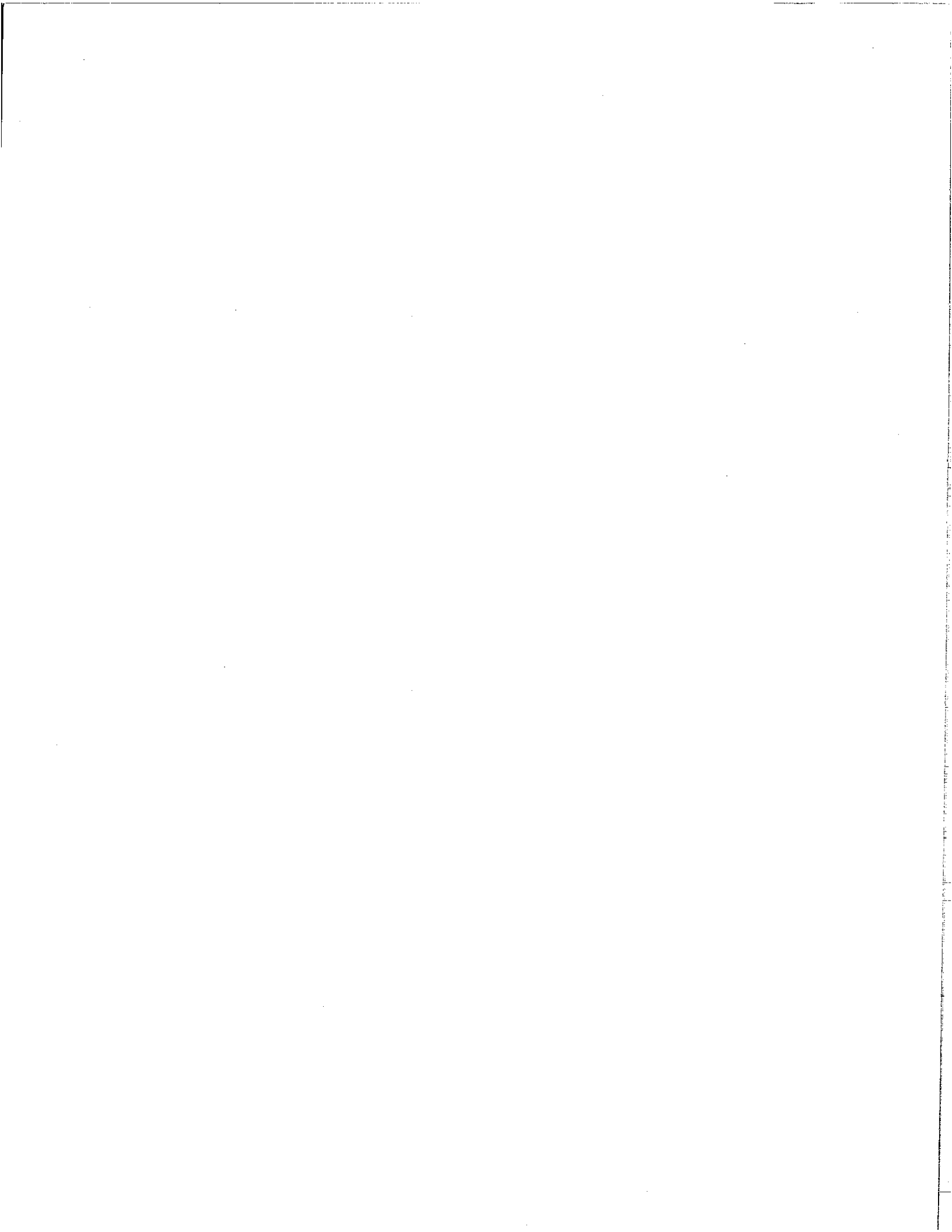
CHAPTER 1

Introduction

Overview of the Chapter

This introductory chapter provides a brief summary of previously conducted research, which helped me in developing the research interest for this thesis. It also contains the definition of habits and its relationship. The full review of literature is given in the Chapter 2 of this document, while the research data, methodology, and results are provided in the Chapter 3 and 4, respectively. A data analysis is performed in chapter 5, while recommendations and conclusion are given in the last chapter 6.

Development of Research Interest

In the special report for U.S. News and World Report, Palmer (2008) discovered that millions of Americans, due to their lack of knowledge, make terrible financial decisions that put them into debt, and do not save for rainy days or retirement. Alan Blinder, economics professor at Princeton University and former Federal Reserve vice chairman said, "There are probably millions... of households who have gotten themselves into mortgage [debt] they never should have gotten themselves into. Most of them didn't understand what they were agreeing to do" (as cited in Palmer, 2008). The complexity of the financial system and easy access to credit, along with the lack of knowledge, leads people to the trouble, as Palmer discusses. The research by Jump$tart Coalition for Personal Financial Literacy shows a low level of financial literacy among 12th graders, while other research shows that 3 in 4 workers are not aware of the appropriate amount that they need to save for a retirement, and half of the participants incorrectly answered two basic questions about interest rate and inflation. The solution is as Ken Clayton

suggests, "The real heart of the issue is financial literacy and the ability of consumers to make choice that work for them" (as cited in Palmer, 2008, p.2). In addition, the research shows that people who are financially literate have parents who are college graduates, who taught them how to manage their money. Moreover, setting goals seems the best way to prioritize one's spending.

Many studies have been done in the field of behavioral finance connecting education with other variables such as portfolios ROI, trading activity, money behavior, etc. (The detailed summary of important performed studies is given in the following chapter, Review of Literature.) The results of performed studies varied; some of them found the link between education and tested variables, while others did not.

Many studies in the past proved that a manager's portfolio return and his or her educational level can be highly correlated, as in Korniotis and Kumar (2013). On the other hand, Cummins, Haskell and Jenkins (2009) found that education has nothing to do with money management skills. The report written by Palmer (2008) showed that lack of financial knowledge could jeopardize people's financial situation, resulting in an accumulation of debt.

This thesis focuses on investigating the degree of relationship between investing habit as a dependent variable and formal education, spending and planning habits as independent variables, while age, gender, income level, and self-perception of financial knowledge are controlled.

Since this study is based on the National Financial Capability Study data provided by FINRA Investor Education Foundation, a good habit is defined as the best possible answer to the selected questions from the study. In other words, a good investing habit for this thesis is the one that forces people to have investments in other securities that are not part of their retirement account. A good spending habit would be the one that forces people to spend less than their income, while

a good planning habit would be defined as having rainy day funds that would cover expenses for 3 months, in case of sickness, job loss, economic downturn or other emergencies.

If it is taken as an assumption that financial well-being depends on one's spending, planning and investing habits, then a financially well-off person should have a highly developed financial skill set. But, some studies showed that basic money management skills such as spending habits and planning for purchases are learned at home, while investing for the future seems to depend on the IQ, formal education, gender, and self-perception of financial knowledge. I believe that with limited budget and without good spending and planning habits, it would be impossible to develop good investing habits. The person with the poor spending and planning habits would not have money left over for investing. Since the previous research showed that the investing habit is correlated with formal educational level, I believe that a high educational level along with good spending and planning habits are necessary for development of good investing habits, which is presented in the following graph.

1.1 Graph: The Relationship between Formal Education, Spending, Planning and Investing Habit

Good Investing Habit
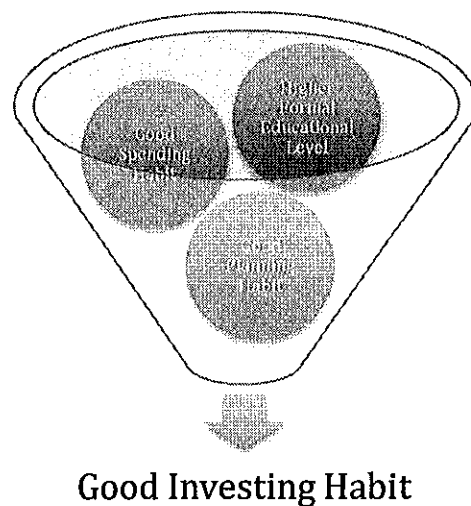
<u>Research Question</u>

The previous studies found a link between investing habits and IQ, education, gender, self-perception of financial knowledge, while other research found that spending and planning habits are taken from home. None of the studies previously performed tested the degree of relationship of each variable (formal education, spending and planning habits) on investing habits.

A study conducted by Graham et al (2009) shows that gender in combination with formal education influences the investing frequency. Males with more education perceive themselves as more competent and trade more frequently, while females with lower level of education perceive themselves as incompetent and do not trade as much. In addition, Leclerc (2012) found that debt accumulation depends on minority group status, age, academic performance, and gender.

This thesis will focus on exploring whether a person's formal educational level, spending habit, and planning habit affect the individual's investing habit. These variables will be analyzed while other potential influencers of investing habits; specifically age, gender, income, and self-perception of financial knowledge will be controlled. According to the previous research, the results should differ between genders, earning power, age, and self-perception of financial knowledge.

CHAPTER II

Review of Literature

Overview of the Chapter

This chapter provides the work of other researchers that is relevant to the topic of this thesis. The chapter begins by providing an introduction about behavioral finance, and then it provides previously conducted research that is related to the topic of this thesis.

Behavioral Finance

Behavioral finance, with its beginnings in the 1960s, is a relatively new and unexplored field. In the beginning, the field started evolving with the contribution of Kaheman and Tversky. In 1979, they developed a paper, "Prospect Theory: An Analysis of Decision under Risk," which is considered a fundamental paper in the field of behavioral finance and behavioral economics, and for which this duo received a Nobel Prize in 2002. In the paper, the authors suggested prospect theory as a better model for describing a decision-making process under uncertainty. Previously, the expected utility theory was used for describing the decision-making process under risk. Furthermore, they stated that people weigh their benefits received under uncertainty with the ones obtained with certainty. This is called a Certainty Effect. In addition, they developed the isolation effect, which states that people have different decisions for the same things if they are presented in different forms. All of them lead to a new theory in which the value function for gains is concave, while for losses is convex (Kaheman and Tversky, 1979). Moreover, throughout their careers they developed numerous papers in the field of behavioral finance.

Even though Kaheman and Tversky are considered the fathers of behavioral finance, the tremendous contribution to the field was given by Thaler, who connected economics and finance

with psychology. He developed concepts such as mental accounting, the endowment effect, and many others. In his paper, Mental Accounting Matters, he summarized the current activities on how people do mental accounting, which is a way to organize, evaluate, and keep track of financial activities. The first activity in mental accounting is the perception of outcome, and its evaluation. The second activity in mental accounting is assigning a specific expenditure to a specific account, such as a housing expenditure, food, traveling, etc. The third activity related to organization and updating of a budget, which can be organized narrowly or broadly and can be updated daily, weekly, monthly or annually. Most importantly, all three activities of mental accounting violate the economic principle of fungibility (Thaler, 1999).

Correlation of Important Variables for this Thesis

Graham et al (2009) found that investors who feel more knowledgeable about investing traded more frequently in comparison to investors who feel uneducated. Furthermore, investors with more education perceived themselves as competent and in turn traded more frequently. In addition, the confidence of an investor increases as the level of one's perceived knowledge of investing increases. The authors of the study concluded that a male with more education or large portfolio will most likely perceive himself as the most competent investor and will trade more frequently, while the female with lower levels of education will perceive herself as the most incompetent investor and will trade the least frequently.

A study conducted by Korniotis and Kumar (2013), showed that portfolios of "smart," or highly skilled investors, who have an informational advantage outperform portfolios of "dumb," or less-skilled investors by roughly 3% annually on a risk-adjusted basis. The difference between smart and dumb performance is 5% and smart investor outperform passive benchmark by 2%, which

led them to the conclusion, "behavioral and information-based explanations apply to distinct subset of investors."

Grinnblatt et al (2012) investigated the relationship between the scores on the IQ test and trading behavior, performance, and transaction costs. They concluded, "high IQ investors are less likely to supply disposition effect, more aggressive about tax-loss trading and more likely to supply liquidity when stocks experience a one-month high" (Grinnblatt et al, 2012). Moreover, the high IQ investors tend to be more informed about stock price movements, experience large losses, but have larger after-tax returns. Furthermore, they tend to outperform the low IQ investors.

Based on the empirical study of men's and women's cognitive abilities Frederick (2005) concluded, "being smart makes women patient and makes men take more risks" Frederick (2005).

Benjamin, Brown, and Shapiro (2006) based their study on a sample of Chilean high school juniors found that short-term discounting and small-stakes risk aversion are less likely to be observed on individuals with higher cognitive ability. The conclusion was reached after three laboratory studies in which it had been observed that short-term discounting and small-stakes risk are associated with individuals who have lower cognitive ability. Furthermore, they found that less cognitively-skilled individuals are more biased, and could be described as behavioral. But, also, they found out that the most cognitively-skilled are not fully bias-free: "For example, in our pilot study of Harvard undergraduates … only 36 percent of those scoring a perfect 800 on the Math SAT are risk-neutral …" (Benjamin, Brown, and Shapiro, 2006).

Ivković et al (2008) explored the information advantage in relation to the number of stock in portfolio. In other words, they tried to see whether information advantage affects certain

investors to invest only in few stocks and outperform the market. The more concentrated portfolios, which tend to have greater information asymmetries, have better performance in comparison to less concentrated portfolios. Better performing portfolios tend to invest primarily locally. Their performance is not due to inside information, specialization in specific industry, repeated trades, etc.; it is due to the ability to recognize the stocks that will produce higher returns.

A study conducted by Cummins, Haskell and Jenkins (2009) at Idaho State University showed that 94.9% of the students surveyed learned how to manage money from their parents, even though all of them completed an economics course in high school – a requirement by Idaho State. Furthermore, a study showed that only 15% of surveyed students used credit cards, while 72% had savings accounts. Moreover, students who were planning ahead were satisfied with their spending. In addition, 62.4% considered investing important, but only 20.5% had invested some money by themselves or their parents invested for them. The students of Idaho State University did not like using credit cards as a method of payment for everyday purchases nor having credit card balance. The authors of the study believe that such an attitude toward credit cards can be explained by the strong religious influence in the southeast area of Idaho.

In another study, Leclerc (2012) by investigating access to credit, familiarity with debt, financial education, socialization agents and social identities, academic performance, and financial aid and family income in relation to college students' behaviors found that students are very cautious when they can easily obtain credit. Furthermore, the study found that affiliation to minority group in combination with age, academic performance, and gender influence the debt accumulation. If an older person is affiliated with certain minority group that person has higher chances to accumulate debt. The chance to accumulate debt increases if that person is female and

has poor academic record. In addition, family income, school or another institution's financial aid package, students' financial education as well as the financial socialization from their parents affect their financial situation.

Grinstein-Weiss et al. (2012) by using a sample of low - and moderate - income homeowners to test if the parental money management techniques in childhood influence the accumulation of assets in the future, particularly the focus was on loan performance. The relationship between parental teaching of money management and asset accumulation is positive. The parents who spend a great amount of time teaching their children money management techniques have children who are less likely to file for foreclosure or to be associated with loan delinquency; "The findings demonstrate that higher levels of parental financial teaching in childhood are associated with better mortgage loan performance for LMI borrowers with prime loans later in life" Grinstein-Weiss et al. (2012).

Shockey and Seiling (2004) used Transtheoretical Model of Behavior Change to evaluate financial education without taking into consideration the college education, income level, or portfolio value. The researchers studied for four weeks the change in financial behavior of people participating in an Individual Development Account, which is financial educational program. The authors of the study concluded that all six-money management behavior improved (setting and using goals, using a spending plan, tracking spending, reducing debt, setting-aside money for unplanned expenses, and saving for home purchase, starting a business, or education), particularly "setting money for unplanned spending," while the lowest improvement was seen in reduction of debt.

Weaver (1992) reported that Diana Austin, dean of students at Bentley College, Waltham, Massachusetts found a positive relationship between having a part time job as a student and

higher GPA. It provides students an opportunity to be more organized. Furthermore, she encourages opening a checking account, so students can learn money management. A former financial director of East Carolina University found a negative relationship between credit cards and students' GPAs; students are spending money on entertaining activities, which allows them less time for studying. Also, she found that if the students have a car during their first year at college, their GPA tends to be lower in comparison to peers who do not have car on campus during their first year.

CHAPTER III

Data and Methodology

Overview of the Chapter

This chapter will give the information regarding analysis, which will explore the degree of

relationship between Investing habit (dependent variable) and three other independent variables

(Formal Education, Planning Habit and Spending Habit), while Age, Gender, Income, and Self-

Perception of Financial Knowledge are controlled. The chapter starts by providing information

regarding data that will be used for this thesis. After the description of data and its sources, the

chapter defines the methods of analysis.

Data

The data for this thesis was derived from the 2012 National Financial Capability Study (NFCS)

conducted by FINRA Investor Education Foundation. The purpose of NFCS was to assess the

financial literacy of American adults. The U.S. Department of Treasury, other federal agencies,

and the President's Advisory Council contributed to the development of the study. The first

study of this kind was conducted in 2009, and the 2012 study aimed to update the results from

2009. The 2012 study showed that many Americans still have troubles in meeting their ends,

have problems with planning ahead, and struggle to make solid financial decisions. But, in

comparison to the 2009 study, in 2012, more people have rainy day funds and struggle less with

meeting their ends (Finra Investor Education Foundation, 2013).

For the purpose of this research, only data that is relevant to the research topic is extracted from

the entire study. The answers to the following questions are analyzed in detailed, including the

answers of the control variables:

Formal Educational level was measured based on the response to the following question.

1. What was the last year of education that you completed?

Value assigned in NFCS	Possible answers
1	Did not complete high school
2	High school graduate-regular or high school diploma
3	High school graduate-GED or alternative credential
4	Some college
5	College graduate
6	Post graduation education
99	Prefer not to say

Spending habit was measured based on the response to the following question.

2. Over the past year, would you say your [household's] spending was less than, more than, or about to equal to your [household's] income?

Value assigned in NFCS	Possible answers
1	Spending less than income
2	Spending more than income
3	Spending equal to income
98	Don't know
99	Prefer not to say

Planning habit was measured based on the response to the following question.

3. Have you set aside emergency or rainy day funds that would cover your expenses for 3 months, in case of sickness, job loss, economic downturn, or other emergencies?

Value assigned in NFCS	Possible answers
1	Yes
2	No
98	Don't know
99	Prefer not to say

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Investing habit was measured based on the response to the following question.

4. Not including retirement accounts, do you [does your household] have any investment in

   stocks, bonds, mutual funds, or other securities?

Value assigned in NFCS	Possible Answers
1	Yes
2	No
98	Don't know
99	Prefer not to say

5. Gender was measured using the following question. What is your gender?

Value assigned in NFCS	Possible Answers
1	Male
2	Female

6. Age was measured based on the following age group measurement level:

Value assigned in NFCS	Possible Answers
1	18-24
2	25-34
3	35-44
4	45-54
5	55-64
6	65+

Income was measured based on the response to the following question.

7. What is your [household's] approximate annual income, including wages, tips, investment income, public assistance, income from retirement plans, etc.?

Value assigned in NFCS	Possible Answers
1	Less than $15,000
2	At least $15,000 but less than $25,000
3	At least $25,000 but less than $35,000
4	At least $35,000 but less than $50,000
5	At least $50,000 but less than $75,000
6	At least $75,000 but less than $100,000
7	Al least $100,000 but less than $150,000
8	$150,000 or more
98	Don't know
99	Prefer not to say

A Self-Perception of Financial Knowledge was measured based on the response to the following question.

8. On a scale from 1 to 7, where 1 means very low and 7 means very high, how would you assess your overall financial knowledge?

Value assigned in NFCS	Possible Answers
1	1 – Very Low
2	2
3	3
4	4
5	5
6	6
7	7 – Very High
98	Don't know
99	Prefer not to say

The answers from the first four questions will be used for further analysis, trying to find a degree of influence on the investing habits (data from question 4) by formal education (data from

question 1), spending (data from question 2) and planning habits (data from question 3). The answers form the last four questions will be used as control variables in the further analysis.

Operational Definition of Variables

Variable	Operational Definition
Investing habit (DV)	Other investments
Spending habit (IV)	Consumption in regard with income
Planning habit (IV)	Setting aside a rainy day fund
Education (IV)	The level of education received
Age (IV- control)	Age group (years)
Gender (IV- control)	Male or female
Income (IV – control)	The annual level of income
Perception of financial knowledge (IV –control)	Self-perception measured on a scale

Furthermore, this data is useful and relevant for this type of research. The NFCS is conducted across the nation in 2012, providing relevant and up-to-date information. The possible answer to the research question can be used across the nation since FINRA's already sampled the entire population. The analysis for this thesis should indicate that formal education, spending and planning habits affect the investing habit, since the formal education is key influencer of investing habits, while good spending and planning habits are necessary for having "an extra" income needed for investing.

Methodology

In the beginning, a pre-analysis data screening will be performed. The data will be tested for missing values as well as for outliers. If the data will have missing values or outliers, those cases will be treated as suggested in Cooper and Schindler (2013):

Percent of total data	Missing Values
Less than 6%	No action required
6% - 25%	Serial mean will be assigned
More than 25%	Elimination of variable

Outliers are found only if less than 10% of cases of the total data have extremely high or low values. Outliers that cannot be explained will be eliminated (Cooper and Schindler, 2013).

After the data is prepared for analysis, I plan to use descriptive statistics to analyze the general overview of respondents' answers to each question. In that way, it will be easier to analyze the habits that Americans have mastered, and the one(s) they struggle with the most.

Furthermore, in order to provide an answer to the research question, I plan to conduct a multiple regression analysis to determine the degree of relationship between Investing habit (DV), and Formal Education (IV), Planning habit (IV), and Spending (IV) habit, while Age, Gender, Income, and Self-Perception of Financial Knowledge are controlled. The multiple regression analysis is the appropriate way of testing the degree of influence on one dependent variable by multiple independent variables. This analysis will provide answer for the primary purpose of this study, which is establishing the degree of influence of three previously mentioned independent variables to investing habit.

Therefore, my hypotheses are as follows:

Null Hypothesis:

H_0: $\beta = 0$

The investing habit is not affected by formal education, spending habit and planning habit.

Alternative Hypothesis:

$H_1: \beta / = 0$

The investing habit is affected by formal education, spending habit and planning habit.

The Multiple Regression Equation will be in the form:

$$\hat{Y} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7$$

Where:

$\hat{Y}$ = Investing habits $B_4 X_4$ = Income

α = the Y-intercept $B_5 X_5$ = Self-Perception of Financial Knowledge

$\beta_1 X_1$ = Formal Education $B_6 X_6$ = Spending Habit

$\beta_2 X_2$ = Age $B_7 X_7$ = Planning Habit

$\beta_3 X_3$ = Gender

In addition, a T-test will be conducted in order to determine whether slope is significantly different than zero. Also, an F-test will be performed to test the statistically significant linear relationship between dependent variable and independent variables. To determine the level of significance, a P-value will be calculated. In the end, to establish the proportion of variance in the depended variable based on variation in the independent variable, a R^2 will be calculated. Moreover, the data will be checked for multi-collinearity.

CHAPTER IV

Data Collection and Preparation

Overview of the Chapter

This chapter provides information regarding the collection of data by giving the source and the methodology of data collection. Furthermore, it explains the data that will be used in the analysis for this thesis by providing reasons for analyzing this data. The chapter also contains the information on how the data was prepared for the analysis and by providing the adjusted data that will be used for the analysis in the Chapter V of this thesis.

Collection of Data

The answers to the specific questions of 2012 National Capability Study were used as a data for this thesis. The study was conducted by FINRA Investment Education Foundation in consultation with the U.S. Department of the Treasury and the President's Advisory council. This is the second study of this kind, and it aimed to provide a general overview of financial literacy of an average American. Furthermore, the study conducted in 2012 aimed to compare financial literacy situation in 2012 with the one from 2009 collected. The survey was performed and designed by multi-disciplinary team of researchers, policy makers and practitioners in the field of financial capability.

The study performed in 2009 had three linked surveys:

1) National survey, which was conducted by using a telephone survey of 1,488 American adults

2) State-by-State Survey, which was an online survey of 28,146 American adults (about 500 per state, including the District of Columbia)

3) Military survey, which was given to 800 military servicemembers and their spouses.

In order to compare the results with the ones in 2009, the 2012 survey included key measures from 2009 study and added additional topics. The two out of three study groups were included:

1) State-By-State Survey, which was an online survey of 25,509 American adults (about 500 per state, including the District of Columbia)

2) Military survey, which was given to 1000 military servicemembers

Given the research question of this thesis, the answers to the specific questions of 2012 National Capability Study are the most appropriate data for analysis due to its relevance, sample size, and nature of questions.

The survey contained multiple questions regarding money management skills and satisfaction with personal finances. The full survey data in SPSS file was downloaded from http://www.usfinancialcapability.org. After downloading, only the data of eight questions are used in the further analysis, which are described in the previous chapter.

In further analysis is used the data that is extracted from State-by State Survey, which was conducted between July and October 2012, and the data from this survey represents the national population as a whole in terms of age, gender, ethnicity and education (Finra Investor Education Foundation, 2013).

Preparation of Data

After downloading the already-prepared full data in an SPSS file, the data for these four questions have been extracted and transferred into the new SPSS file; every question had 25,509 answers or data points. Before the conduction of the analysis, the pre-analysis screening was performed, which included testing of data for outliers and missing values.

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During the pre-analysis screening, every variable was tested individually for missing values and outliers. The first three variables (Formal Education, Spending Habit, and Planning Habit) did not have any missing values, while the variable Investing had 6.1% missing values. The control variables did not have any missing values. On the other hand, a pre-analysis screening for outliers showed that 5 variables had outliers, while Formal Education, Age, Gender, and Income variables did not have outliers. Those outliers are the answers to the questions for which participants did not know or preferred not to answer the question. The missing values and outliers will be treated as suggested in Cooper and Schindler (2013), which was mentioned in the previous chapter. The results of the pre-analysis screening for each variable individually are described further in the text.

As previously mentioned, the variable Formal Education did not have any missing values or outliers (please see the following table and graph), and as such did not needed any treatment.

Table 4.1: Missing Values for Variable Formal Education

Case Processing Summary

	Cases					
	Valid		Missing		Total	
Formal Education	N	Percent	N	Percent	N	Percent
	25509	100.0%	0	0.0%	25509	100.0%

Graph 4.1: Outliers for Variable Formal Education

What was the last year of education that you completed? [2012 codes]
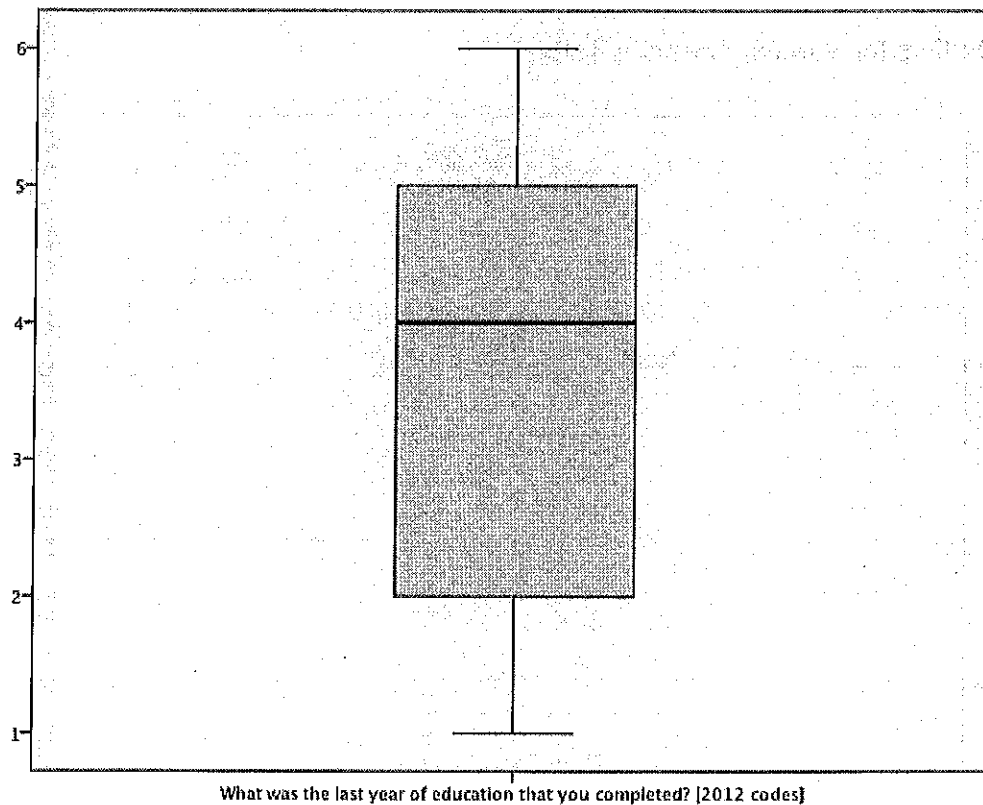
As it is visible from the previous table and graph, the data of variable Formal Education is already prepared for further analysis.

On the other hand, the variable Spending habits had certain number of outliers (visible in the following graph), but did not have any missing values as shown in the following table.

Table 4.2: Missing Values for Variable Spending Habit

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Spending Habit	25509	100.0%	0	0.0%	25509	100.0%

Graph 4.2: Outliers for Variable Spending Habit

Over the past year, would you say your [household's] spending was less than, more than, or about equal to your [household's] Income?
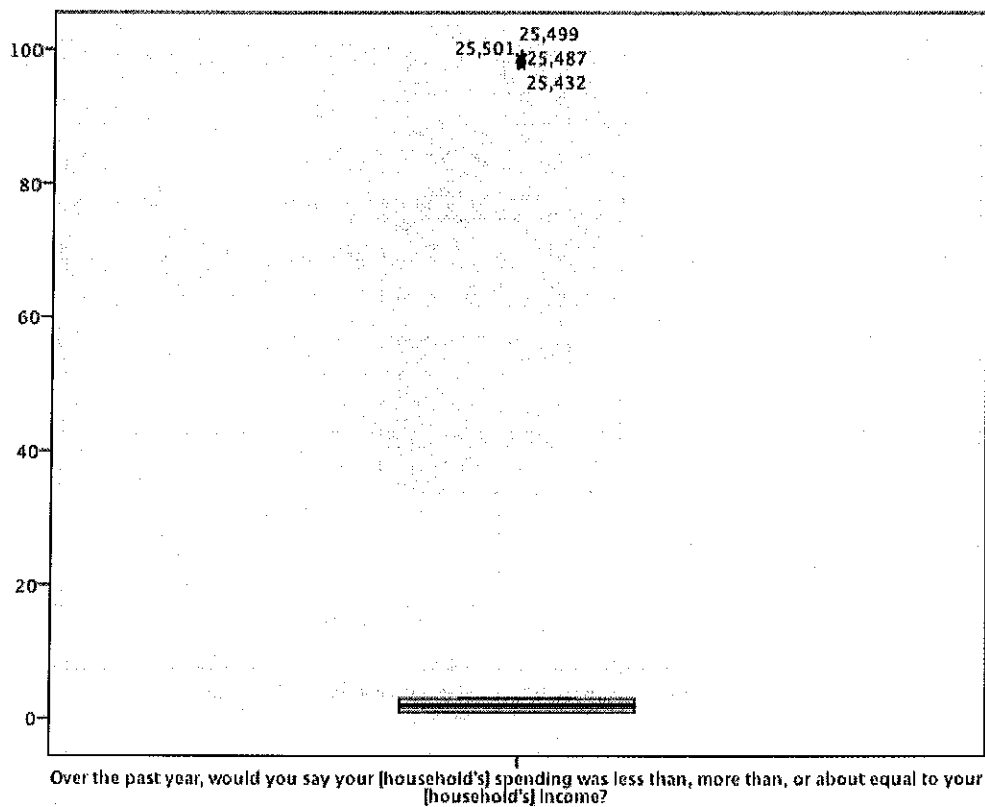
The pre-analysis screening showed that variable Planning habits did not have any missing values, but it had outliers that are visible in the graph.

Table 4.3: Missing Values for Variable Planning Habit

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Planning Habit	25509	100.0%	0	0.0%	25509	100.0%

Graph 4.3: Outliers for Variable Planning Habit

Have you set aside emergency or rainy day funds that would cover your expenses for 3 months, in case of sickness, job loss, economic downturn, or other emergencies?
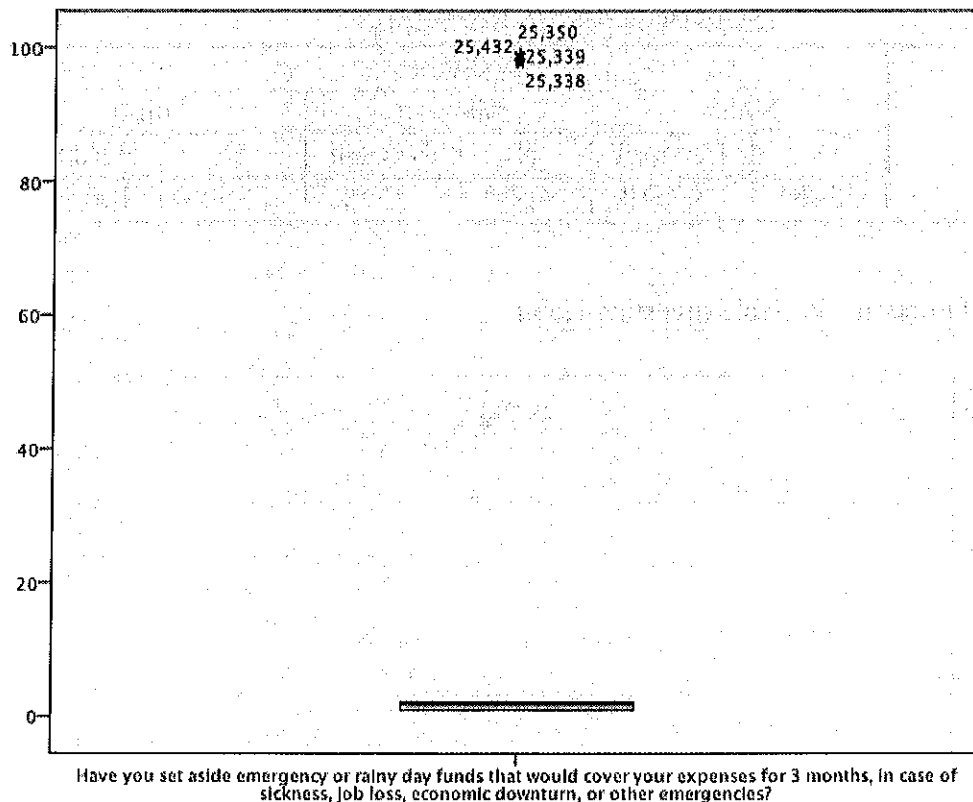
Contrary to the previously mentioned variable, the pre-analysis screening showed that variable Investing has missing values. Out of 25,509 answers, 1,558 are missing, which is 6.1% of the total data for this variable. Those missing values will be treated as suggested in Cooper and Schindler (2013) by applying serial mean. In addition, the variable Investing habits showed a certain number of outliers. The missing values and outliers are presented in the following table and graph.

Table 4.4: Missing Values for Variable Investing Habit

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Investing Habit	23951	93.9%	1558	6.1%	25509	100.0%

Graph 4.4: Outliers for Variable Investing Habit

Not including retirement accounts, do you [does your household] have any investments in stocks, bonds, mutual funds, or other securities?
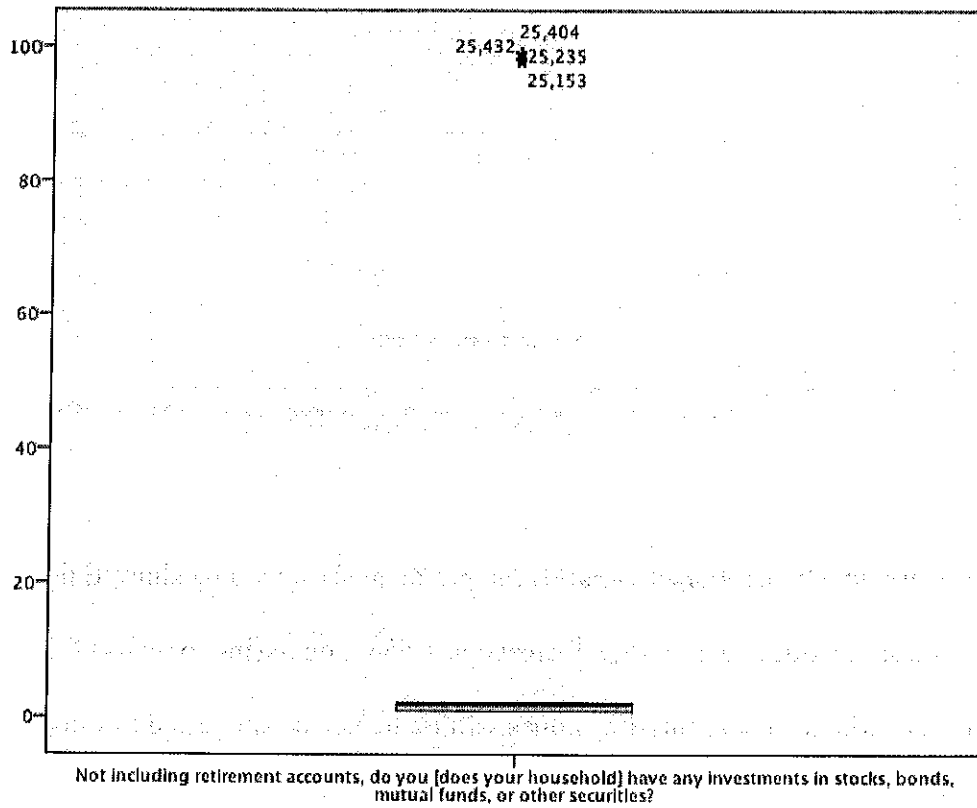
The control variables did not have any missing values. Only the variable Perception of financial knowledge had outliers, while other control variables did not have any outliers. Please look at the following tables and graphs.

Table 4.5: Missing Values for Variable Age

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age	25509	100.0%	0	0.0%	25509	100.0%

Graph 4.5: Outliers for Variable Age

Age group
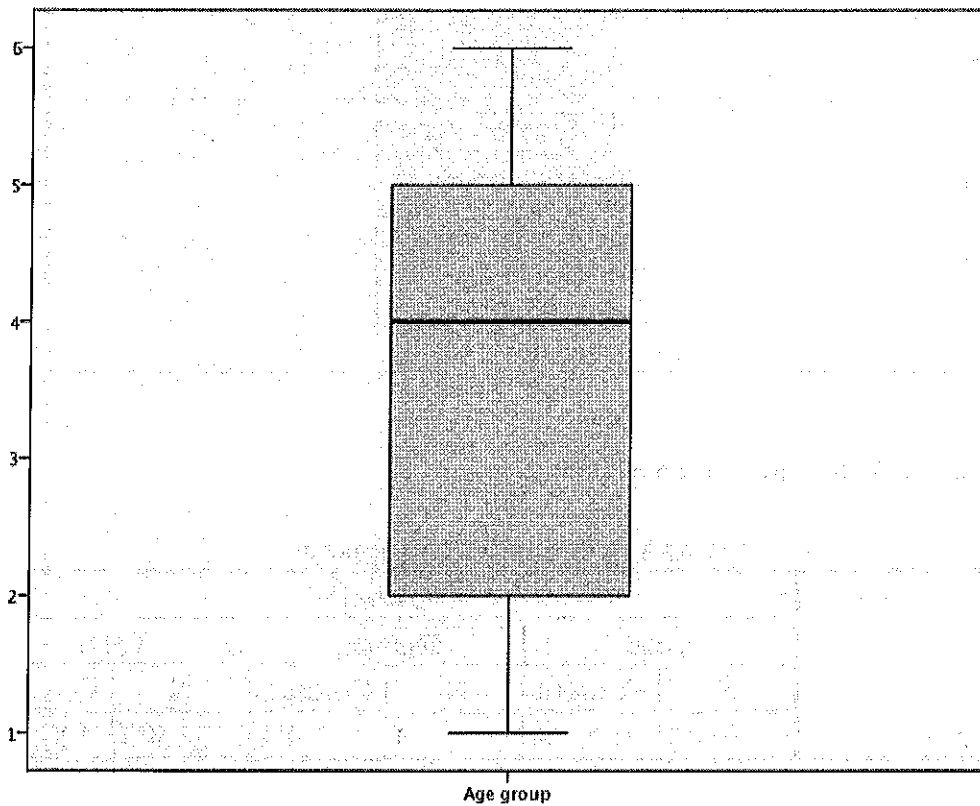
Table 4.6: Missing Values for Variable Gender

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Gender	25509	100.0%	0	0.0%	25509	100.0%

Graph 4.6: Outliers for Variable Gender

What is your gender?
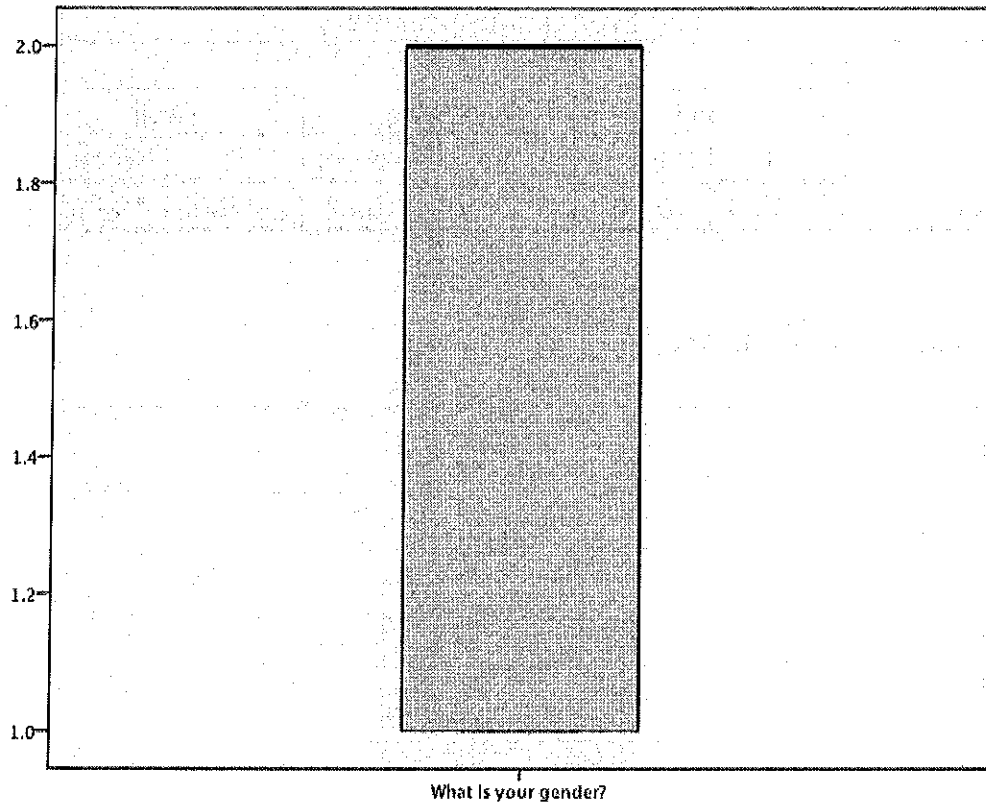
Table 4.7: Missing Values for Variable Income

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Income	25509	100.0%	0	0.0%	25509	100.0%

Graph 4.7: Outliers for Variable Income

What is your [household's] approximate annual income, including wages, tips, investment income, public
assistance, income from retirement plans, etc.?
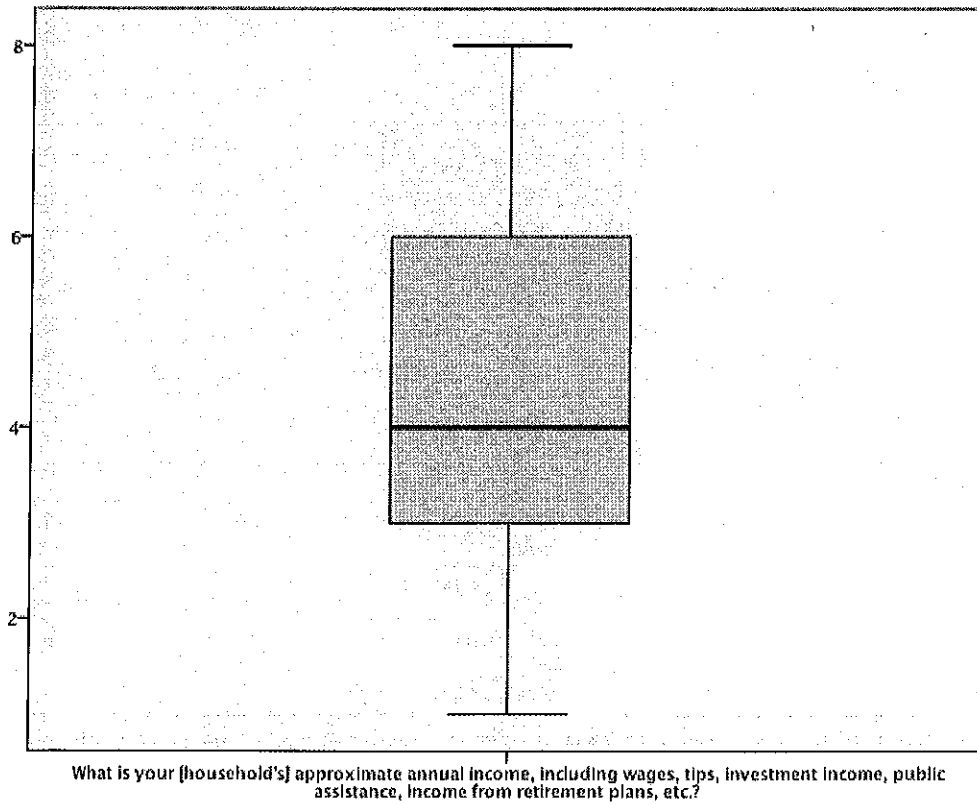
Table 4.8: Missing Values for Variable Self-Perception of Financial Knowledge

Case Processing Summary

	Cases					
Perception of Financial Knowledge	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
	25509	100.0%	0	0.0%	25509	100.0%

Graph 4.8: Outliers for Variable Self-Perception of Financial Knowledge

On a scale from 1 to 7, where 1 means very low and 7 means very high, how would you assess your overall financial knowledge?
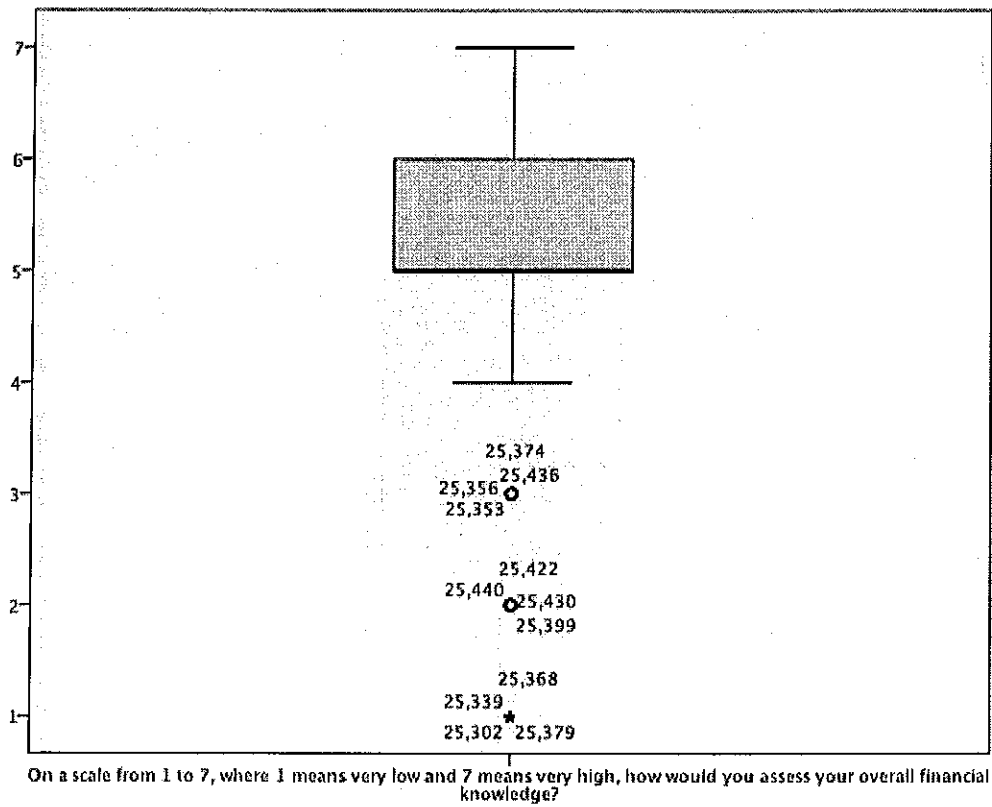
The last graph shows the outliers in the variable Self-Perception of Financial Knowledge. Cooper and Schindler (2013) suggest that missing values (6% to 25% missing) should have assigned serial mean as their value. Therefore, the descriptive statistics was performed in order to calculate mean, and prepare data for further analysis and to the missing values is assigned serial mean. Also, the reason for outliers is known, and they will be excluded from the analysis and to them will also be assigned a serial mean. They are insignificant for this analysis since the nature of those extreme values is neutral in nature. The outliers in this data refer to the answers in a study that participants did not know or preferred not to say the answer. The descriptive statistics are given in the following table.

Table 4.9: Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Formal Education (IV)[1]	25509	1	6	3.79	1.481
Age (IV – control)[1]	25509	1	6	3.72	1.592
Gender (IV- control)[1]	25509	1	2	1.55	.497
Income (IV – control)[1]	25509	1	8	4.29	2.106
Self-Perception of Financial Knowledge (IV – control)[1]	25051	1	7	5.25	1.135
Spending habit (IV)[1]	24512	1	3	1.96	.899
Planning habit (IV)[1]	24497	1	2	1.57	.495
Investing habit (DV)[1]	23030	1	2	1.62	.486
Valid N (listwise)	21556				

After the calculation of the serial mean, the preparation of data for further analysis was performed. The serial mean was assigned to missing values and to the outliers. After adjustments have been performed, the following table and graph show that the data is prepared for analysis.

Table 4.10: Missing Values for Eight Variables after Replacing Missing Values with Serial Mean

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Formal Education (IV)[1]	25509	100.0%	0	0.0%	25509	100.0%
Age (IV – control)[1]	25509	100.0%	0	0.0%	25509	100.0%
Gender (IV – control)[1]	25509	100.0%	0	0.0%	25509	100.0%
Income (IV – control)[1]	25509	100.0%	0	0.0%	25509	100.0%
Self-Perception of Financial Knowledge (IV – control)[1]	25509	100.0%	0	0.0%	25509	100.0%
Spending habit (IV)[1]	25509	100.0%	0	0.0%	25509	100.0%
Planning habit (IV)[1]	25509	100.0%	0	0.0%	25509	100.0%
Investing habit (IV)[1]	25509	100.0%	0	0.0%	25509	100.0%

[1] The variable is tested based on the specific question provided in the Chapter III of this thesis.

Graph 4.9: Outliers for Eight Variables after Treatment
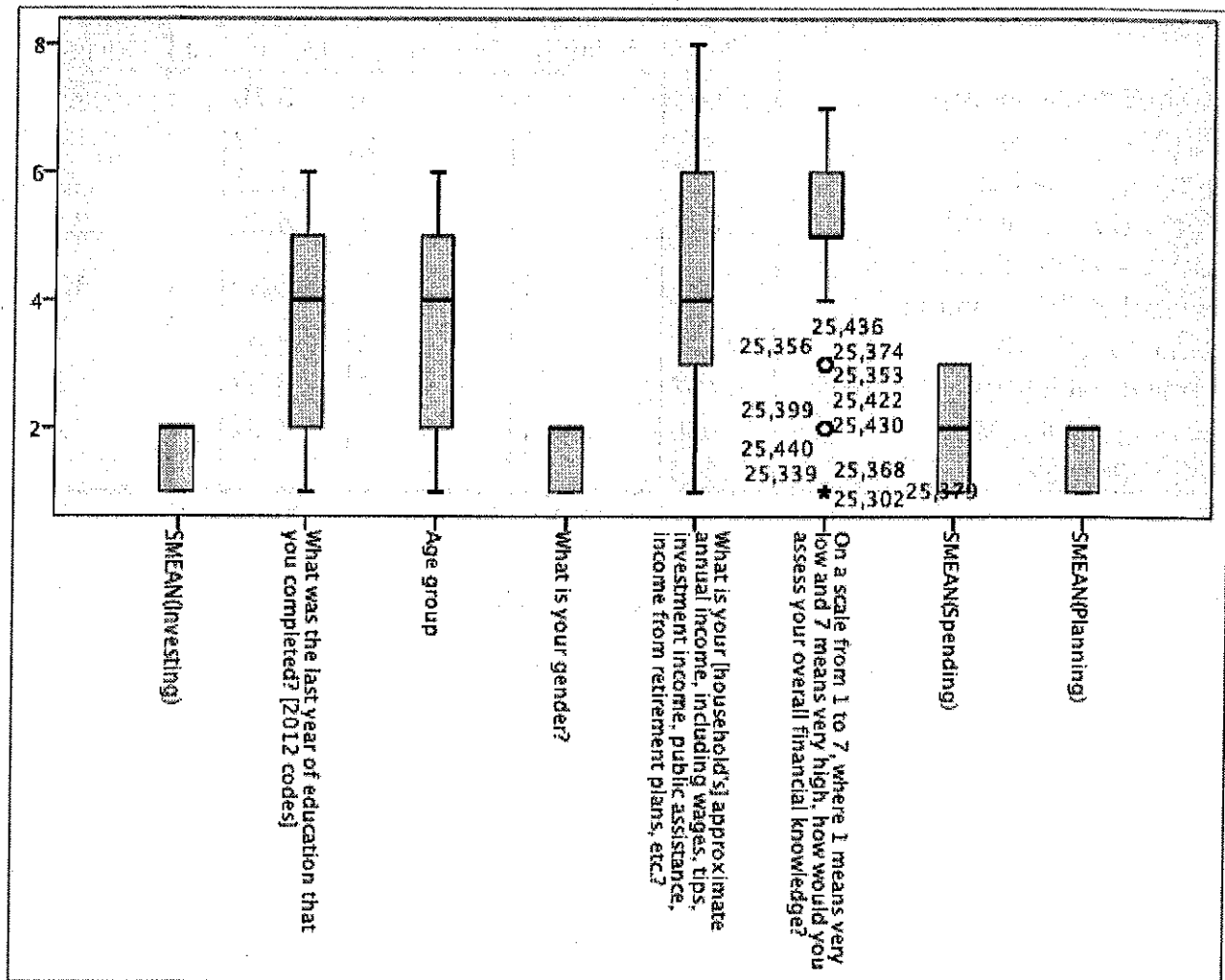
Even though the graph shows outliers in the Variable Self-Perception of Financial Knowledge, which is expressed as the original question. As suggested in Cooper and Schindler (2013), those values cannot be considered outliers since they are values of the questionnaire, and represent population that does not have high perception of financial knowledge. Such data is now prepared for analysis. In the following chapter, the analysis for this thesis is performed.

CHAPTER V

Data Analysis

Overview of the Chapter

This chapter provides descriptive statistics analysis followed by the inferential statistics analysis. In the first analysis, the level of formal education and habits of survey participants were analyzed as well as control variables, while the second analysis developed a model that included all three independent and control variables in order to explore their degree of influence on depended variable.

Descriptive Statistics Analysis

A descriptive statistics analysis is performed in order to provide the general overview of participants' responses to 8 questions, which are subject of the multiple regression analysis for this thesis.

The descriptive statistics analysis showed that the range for variable Formal Education is 5, from 1 (Did not complete high school) to 6 (Post graduate education). The mean for variable Formal Education tells us the average level of education for the participants in the survey. Since the mean of 3.79 is between the response that is valued 3 (value for a participants who are high school graduate - GED or alternative credential) and the ones that are valued 4 (value for some college); it can be concluded that that in average survey's respondents had completed some college (3.79 is closer to 4 than to 3). Furthermore, the mode for variable Formal Education is 4, which means that the majority of respondents had the level of education that is valued 4 in the survey, which is value of answer that corresponds to some college. The frequency table for variable Formal Education (please look at the table "Frequency Table for Formal Education")

showed that the heights number of survey participants, 33% of them, had completed some

college, which is valued 4 in the survey. The second highest number of participants is a group of

people that are college graduates (value 5), and the third one is high school graduate – regular

high school diploma (value 2), which is the reason for the mean to be between value 3 and 4

even though the second highest number of participants are college graduates (value 5).

Table 5.1: Frequency Table for Variable Formal Education

Formal Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Did not complete high school	1903	7.5	7.5	7.5
	High school graduate - regular high school diploma	4966	19.5	19.5	26.9
	High school graduate - GED or alternative credential	1595	6.3	6.3	33.2
	Some college	8419	33.0	33.0	66.2
	College graduate	5343	20.9	20.9	87.1
	Post graduate education	3283	12.9	12.9	100.0
	Total	25509	100.0	100.0	

The standard deviation of variable Formal Education states that the respondents of the survey

have completed at least high school at the low end (value 2 in the survey) and have graduated

college at the high end (value 5 in the survey). A variance of 2.19 for variable Formal Education tell us that the data is not close to the mean, but it is not too far from the mean. The negative skew tells us that the left side of a tail is fatter, which would imply that a bit more respondents in a survey had formal educational level lower than the mean. The full statistical analysis is given in the table "Descriptive Statistics for All Eight Variables" in the end of this text.

The descriptive analysis also showed that the range for variable Spending is 2, from 1 (Spending less than income) to 3 (Spending about equal to income). The original data contained an answer with a value of 98 (Don't know) and 99 (Prefer not to say), but those answers had been treated as described in the previous chapter of this thesis. The mean of 1.96 for variable Spending tells us the average person spends more than income since the 1.96 is the closest to the value 2, which is a value for an answer "Spending more than income" for the participants in the survey. But, since the mode is 1 (Spending less than income) and the frequency table (please see the table "Frequency Table for Spending Habit") shows that 41% of participants answered that they spend less than income (value 1).

Table 5.2: Frequency Table for Variable Spending Habit

Spending Habit

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.0	10470	41.0	41.0	41.0
2.0	997	3.9	3.9	45.0
2.0	4647	18.2	18.2	63.2
3.0	9395	36.8	36.8	100.0
Total	25509	100.0	100.0	

After adding up, it can be concluded that in total people spend less than their income. The second highest group of people, roughly 36% of them spend about equal to income (value 3), and the rest spends more than income (value 2). Even though, after the mean was calculated, the analysis showed that the average survey participant spends more than income, while the frequency table shows the opposite. Over 77% of participants spend equal to or less than their income. The standard deviation of variable Spending Habit tell us that the respondents of the survey spend less than income at the low end (value 1 in the survey) and spend about equal to income at the high end (value 3 in the survey). The positive skew tell us that the right side of a tail is fatter, which would imply that more respondents in a survey, when they are added together, spend more than income (value 2) and spend about equal to income (value 3). But, individually, the highest number of participants in the survey spends less than income (value 1) (please look at the table "Frequency Table for Spending Habit"). The full statistical analysis is given in the table "Descriptive Statistics for All Eight Variables" at the end of this text.

In addition, the analysis showed that the range for variable Planning Habit is 1. After treatment of data is performed as described in the previous chapter of this document, the answer to the question "Have you set aside emergency or rainy day funds that would cover your expenses for 3 months, in case of sickness, job loss, economic downturn, or other emergencies?" could be valued 1 (Yes) or 2 (No). The original data contained outliers 98 (Don't know) and 99 (Prefer not to say), but those answers had been treated. The mean of 1.57 for variable Spending Habit does not tell us a lot, but that a bit more people does not have set aside emergency funds than the ones they had (value 1.57 is closer to 2 than to 1). The frequency table confirms that by showing that 55% of participants does not have set aside emergency or rainy days fund.

Table 5.3: Frequency Table for Variable Planning Habit

Planning Habit

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.0	10441	40.9	40.9	40.9
	1.6	1012	4.0	4.0	44.9
	2.0	14056	55.1	55.1	100.0
	Total	25509	100.0	100.0	

The mode of 2, which is value for negative answer in the survey, confirms that the majority of survey's participants did not set aside emergency or rainy days fund. The standard deviation of variable Planning Habit tells us that the answer can be either positive or negative. The negative skew tells us that the left side of a tail is fatter, which would imply that more respondents in a survey have not set aside emergency or rainy days funds. The full statistical analysis is given in the table "Descriptive Statistics for All Eight Variables" at the end of this text.

The analysis also showed that the range for variable Investing Habit is 1. After treatment of data is performed as described in the previous chapter of this document, the answer to the question "Not including retirement accounts, do you [does your household] have any investment in stocks, bonds, mutual funds, or other securities?" could be valued 1 (Yes) or 2 (No). The original data contained outliers 98 (Don't know) and 99 (Prefer not to say), but those answers had been treated. The mean of 1.62 for variable Investing Habit tell us that people in average do not have invested money in stocks, bonds, mutual funds, or other securities (value 1.62 is closer to 2 than to 1). The frequency table is in accordance with the mean; almost 56% of participants did not invest money in any type of securities (please look at the table "Frequency Table for Investing Habit").

Table 5.4: Frequency Table for Variable Investing Habit

Investing Habit

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.0	8830	34.6	34.6	34.6
	1.6	2479	9.7	9.7	44.3
	2.0	14200	55.7	55.7	100.0
	Total	25509	100.0	100.0	

The mode of 2, which is value for negative answer in the survey, confirms that the majority of the survey's participants did not invest money in any type of securities. The standard deviation of variable Investing Habit tells us that the answer can be either positive or negative. The negative skew tell us that the left side of a tail is fatter, which would imply that more respondents in a survey did not have invested money in stocks, bonds, mutual funds, or other securities. The full statistical analysis is given in the table "Descriptive Statistics for All Eight Variables" in the end of this text.

Lastly, the descriptive analysis was performed for control variables as well. The range for variable Age was 5, with the mean of 3.72, implying that the average survey participant was between age of 45 and 54, which is confirmed in the Frequency Table for Variable Age.

The mode of 4 is in accordance with frequency table, which states that the majority of survey participants were between age of 45 and 54. The positive skew tell us that survey participants were older than the person in the average age group.

Table 5.5: Frequency Table for Variable Age

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-24	2581	10.1	10.1	10.1
	25-34	4284	16.8	16.8	26.9
	35-44	4288	16.8	16.8	43.7
	45-54	5217	20.5	20.5	64.2
	55-64	4848	19.0	19.0	83.2
	65+	4291	16.8	16.8	100.0
	Total	25509	100.0	100.0	

The descriptive statistics analysis for another control variable, Gender, shows that females participated more in a survey. In particular, out of the entire survey sample, 55% were females and 45% were males.

Table 5.6: Frequency Table for Variable Gender

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	11382	44.6	44.6	44.6
	Female	14127	55.4	55.4	100.0
	Total	25509	100.0	100.0	

The descriptive statistics for variable Income implies that the majority of survey participants earn at least $50,000 but not more than $75,000. The second highest group includes people, who earn at least $35,000 but less than $50,000.

Table 5.7: Frequency Table for Variable Income

Income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than $15,000	3383	13.3	13.3	13.3
	At least $15,000 but less than $25,000	2982	11.7	11.7	25.0
	At least $25,000 but less than $35,000	2885	11.3	11.3	36.3
	At least $35,000 but less than $50,000	3749	14.7	14.7	51.0
	At least $50,000 but less than $75,000	4867	19.1	19.1	70.0
	At least $75,000 but less than $100,000	3089	12.1	12.1	82.1
	At least $100,000 but less than $150,000	2865	11.2	11.2	93.4
	$150,000 or more	1689	6.6	6.6	100.0
	Total	25509	100.0	100.0	

The descriptive statistics for the last control variable, Self-Perception of Financial Knowledge, based on its mode and frequency table, implies that the majority of survey participants would grade themselves with 5 on a scale between 1 and 7, with 7 being the highest. In other words, the majority of people perceived themselves as having solid financial knowledge. The statistical values for control variables could be also observed in the table "Descriptive Statistics for All Eight Variables".

Table 5.8: Frequency Table for Variable Self-Perception of Financial Knowledge

Perception of Financial Knowledge

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - Very Low	458	1.8	1.8	1.8
	2	488	1.9	1.9	3.7
	3	1273	5.0	5.0	8.7
	4	3705	14.5	14.5	23.2
	5	8532	33.4	33.4	56.7
	5	695	2.7	2.7	59.4
	6	6950	27.2	27.2	86.6
	7 - Very High	3408	13.4	13.4	100.0
	Total	25509	100.0	100.0	

Table 5.9: Descriptive Statistics for All Eight Variables

<div align="center">Statistics</div>

		Education	Age	Gender	Income	Self-Perception of Financial Knowledge	Spending Habit	Planning Habit	Investing Habit
N	Valid	25509	25509	25509	25509	25509	25509	25509	25509
	Missing	0	0	0	0	0	0	0	0
Mean		3.79	3.72	1.55	4.29	5.17	1.956	1.574	1.617
Std. Error of Mean		.009	.010	.003	.013	.008	.0055	.0030	.0029
Median		4.00	4.00	2.00	4.00	5.00	2.000	2.000	2.000
Mode		4	4	2	5	5	1.0	2.0	2.0
Std. Deviation		1.481	1.592	.497	2.106	1.258	.8814	.4846	.4620
Variance		2.193	2.535	.247	4.436	1.583	.777	.235	.213
Skewness		-.312	-.136	-.216	-.009	-.844	.088	-.305	-.505
Std. Error of Skewness		.015	.015	.015	.015	.015	.015	.015	.015
Kurtosis		-.907	-1.115	-1.953	-1.030	1.138	-1.707	-1.866	-1.638
Std. Error of Kurtosis		.031	.031	.031	.031	.031	.031	.031	.031
Range		5	5	1	7	6	2.0	1.0	1.0
Minimum		1	1	1	1	1	1.0	1.0	1.0
Maximum		6	6	2	8	7	3.0	2.0	2.0
Sum		96709	94867	39636	109434	131882	49899.3	40145.7	41237.5

Inferential Statistics: Multiple Regression Analysis

The multiple regression analysis is performed in order to determine the degree of influence between Investing habit (DV[2]) and Formal Education (IV[3]), Spending Habit (IV[3]) and Planning Habit (IV[3]), while the variables Age (CV[4]), Income (CV[4]), Gender (CV[4]), and Self-Perception of Financial Knowledge (CV[4]) are controlled. In order to analyze the extent of influence on investing habit by independent variables, it is important to establish the degree of influence in this study. Such analysis could not be performed only with descriptive statistics analysis.

Previous research shows that planning and spending habits are correlated, which implies that good money management skills are necessary in order to have extra money for investing. Also, educated people in general earn more money and tend to invest more. Therefore, without performing any kind of analysis, these facts can lead to the expectation of positive degree of influence between depended variable and independent variables.

Since the multiple regression analysis is used to determine the degree of influence on dependent variable by independent variables, the result that is equal to zero or close to zero would mean that there is no relationship or that relationship between variables is weak. In that case, it would mean that investing habit is not affected by formal education, spending and/or planning habits. On the other hand, the negative result will indicate the negative correlation between dependent variable and independent variable(s).

The multiple regression model for this thesis (please look at the table "Multiple Regression Model" at the end of this section) represents model of this analysis. The model provides an R^2

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[2] DV = Dependent Variable
[3] IV = Independent Variable
[4] CV = Control Variable

value, which establishes the proportion of variance in the dependent variable that is based on variation in the independent variables. The R^2 of .260 implies that only 26% of Investing habit can be affected by Formal Educational level, Spending Habit and Planning Habit, while Age, Income, Gender, and Self-Perception of Financial Knowledge are controlled. That is relatively low value of R^2. Furthermore, the adjusted R^2 has the similar value, and it equals 25.9%, implying that the three independent variables along with the control variables are not very useful when predicting the investing habit. The Standard Error of the Estimate is 0.3976, implying that the average distance of the data points from the fitted line is relatively small. Also, it can be concluded that there is significant linear relationship between dependent variable and independent variables. The table "Multiple Regression Model" is at the end of this section.

In addition, the F-test was conducted. The further the F-ratio is from one, the more statistically significant model becomes. In this case scenario, the F-ratio equals 1277.422, which implies statistical significance. In addition, the level of significance is also determined by calculating a P-value. A P-value is .000, which means that the model significantly predicts the influence of Formal Education, Spending Habit and Planning Habit on the Investing habits. Also, the P-value is smaller than α value, which suggests the rejection of null hypothesis, and acceptance of alternative hypothesis (please look at the table "Multiple Regression Model" at the end of this chapter).

The second table (Coefficients of the Analysis) provides Beta values, which are used for development of the full equation.

$$\hat{Y} = 1.670 - 0.021X_1 - 0.026X_2 + 0.021X_3 - 0.050X_4 - 0.025X_5 + 0.018X_6 + .255X_7$$

Where:

$\hat{Y}$ = Investing habits X_4 = Income

α = 1.670 the Y-intercept X_5 = Self-Perception of Financial Knowledge

X_1 = Formal Education X_6 = Spending Habit

X_2 = Age X_7 = Planning Habit

X_3 = Gender

The standardized Beta coefficients suggest that independent variable Planning Habit has the highest positive influence on Investing habit, which implies that the best way to improve investing habit is by improving Planning Habit. In other words, setting aside emergency of rainy day funds that would cover expenses of an individual, in case of sickness, job loss, economic downturn, or other emergencies has the highest positive influence on investing habits. Furthermore, the standardized Beta coefficients show that variable Spending habit has smaller positive influence on Investing habit in comparison to Planning habits. On the other hand, the variable Formal Education has the negative influence to Investing habit, which can be explained by large Y-intercept.

In addition, the standardized Beta coefficients of control variables are in accordance with previous research. The previous research suggests that males with more education or large portfolio perceive themselves as the most competent and trade more frequently, while females with lower level of education perceive themselves as the most incompetent and will trade the least frequently (Graham et al, 2009). This study shows a standardized Beta coefficient for control variable Gender of 0.22, implying a positive influence, which is in accordance with the previous research. Male participants will be closer to the value for positive answer regarding

investing provided in the National Financial Capability Study.

On the other hand, the control variable Age has the negative influence to investing habits as well as the variables Income and Self-Perception of Financial Knowledge, but that is also in accordance with the previous research due to the structure of survey's answers in which the positive answer regarding investing has the lowest value.

In addition, a T-test is conducted in order to test the hypotheses of this thesis and to determine whether slope is significantly different than zero. In all cases the absolute value of T-stat is larger than critical value, implying the rejection of null hypothesis, and acceptance of alternative hypothesis.

Independent Variables	T-crit (df=n-k-1=25509-7-1=25501)	T-stat
Education	1.96	-11.329
Age	1.96	-16.003
Gender	1.96	4.125
Income	1.96	-35.851
Perception of financial knowledge	1.96	-12.131
Spending habits	1.96	6.143
Planning habits	1.96	43.595

It is important to mention that all three variables are statistically significant at the 95% confidence level, implying that it is allowed only 5% of chance to observe the extreme values (please look at the table Coefficients of the Analysis in the end of this chapter).

Also, the data is checked for multi-collinearity (please look at the table "Correlations of the Variables" in the end of this chapter). The multi-collinearity is found if the correlation values are below -0.5 or above 0.5. All variables have correlation values that are in the permitted range as shown in the table Correlations of the Variables at the end of this chapter.

After multiple regression analysis and T-test, it can be concluded that null hypothesis is rejected based on the results of T-test. The absolute T-stat values are larger in every case, implying the acceptance of alternative hypothesis. Furthermore, α value is larger than P-value, suggesting rejection of null hypothesis and acceptance of alternative hypothesis. The alternative hypothesis states that the investing habit is affected by formal education, spending and planning habits. Furthermore, the standardized beta coefficients show how much each single independent variable affects the investing habit. According to the multiple regression model, the variable Planning Habit has the highest degree of influence on the dependent variable Investing habit, while the second highest (but negative) has the independent variable Education. Lastly, the variable Spending Habit has the lowest degree of influence.

Table 5.10: Multiple Regression Model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.510[a]	.260	.259	.3976	.260	1277.422	7	25501	.000

Table 5.11: Coefficients of the Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1 (Constant)	1.670	.021		79.754	.000	1.629	1.711		
Formal Education (IV)	-.021	.002	-.067	-11.329	.000	-.025	-.017	.822	1.216
Age (CV)	-.026	.002	-.089	-16.003	.000	-.029	-.023	.928	1.077
Gender (CV)	.021	.005	.022	4.125	.000	.011	.031	.981	1.020
Income (CV)	-.050	.001	-.227	-35.851	.000	-.053	-.047	.724	1.381
Self-Perception of Financial Knowledge (CV)	-.025	.002	-.069	-12.131	.000	-.030	-.021	.887	1.127
Spending habit (IV)	.018	.003	.034	6.143	.000	.012	.024	.942	1.062
Planning habit (IV)	.255	.006	.267	43.595	.000	.243	.266	.773	1.293

Table 5.12: Correlations of the Variables

Correlations

Pearson Correlation	Investing habit	Education	Age	Gender	Income	Perception of financial knowledge	Spending habit	Planning habit
Investing Habit (DV)	1.000	-.247	-.211	.084	-.398	-.228	.138	.416
Formal Education (IV)	-.247	1.000	.094	-.086	.405	.181	-.077	-.234
Age (CV)	-.211	.094	1.000	-.057	.207	.154	-.014	-.209
Gender (CV)	.084	-.086	-.057	1.000	-.093	-.103	.009	.083
Income (CV)	-.398	.405	.207	-.093	1.000	.246	-.137	-.380
Self-Perception of Financial Knowledge (CV)	-.228	.181	.154	-.103	.246	1.000	-.075	-.271
Spending Habit (IV)	.138	-.077	-.014	.009	-.137	-.075	1.000	.230
Planning Habit (IV)	.416	-.234	-.209	.083	-.380	-.271	.230	1.000

CHAPTER VI

Discussion, Conclusions and Recommendation

Overview of the Chapter

This is the last chapter of this thesis. The chapter opens by giving the discussion of results

provided by descriptive and multiple regression analysis, after which follows the conclusion,

while the recommendation for the further studies is provided at the end of the chapter.

Discussion

The previously conducted studies focused on the exploration of the relationship between

investing habits and IQ, formal education, gender, and self-perception of financial knowledge,

primarily in the investing (trading) industry. On the other hand, the previous research showed

that spending and planning habits are learned from home. None of the previous research

explored the influence of formal education, spending and planning habits on investing habits,

while controlling age, gender, income, and self-perception of financial knowledge.

Due to the nature of the research question, the data from the last Financial Capability Study

seemed as the most appropriate choice. Moreover, the data was recent and the sample represents

the entire population of the United States. Two hypotheses were developed in order to test the

degree of influence on Investing habit as a dependent variable by Formal Education, Spending

Habit and Planning Habit as three independent variables, while controlling variables Age,

Gender, Income, and Self-Perception of Financial Knowledge. The null hypothesis states that the

Investing Habit is not affected by Formal Education, Spending Habit and Planning Habits, while

the alternative hypothesis states that that the Investing Habit is affected by Formal Education,

Spending Habit and Planning Habit.

In order to have a general overview of survey respondents, a descriptive statistics analysis is performed. The descriptive analysis showed that the majority of survey respondents completed some college, while the second largest group of survey respondents are college graduates. The majority of survey participants, 41% of them, spend less than income, but 36% of survey participants spend about equal to income. The descriptive statistics analysis also show that the majority of survey participants, 55% of them, did not set aside emergency or rainy days fund, which can lead them to debt in the future if something unplanned happens. Lastly, the analysis showed that almost 56% of survey participants did not invested money in any type of securities. In addition, the descriptive analysis showed that that majority of survey participants were in the age group 45-54, earn at least $50,000 but not more than $75,000, and have relatively high self-perception of financial knowledge. Also, the analysis showed that females participated a bit more in a survey than males.

To summarize, in the United States, when age, gender, income, and self-perception of financial knowledge are controlled, the most common person would be the one with some college or has a college diploma, who spends less than or equal to his or her income, does not have set aside emergency or rainy days fund, and does not have invested money in any type of securities.

In order to explore the degree of influence of three variables on the investing habit, while controlling age, gender, income and self-perception of financial knowledge 8 variables were entered in the multiple regression model.

The final equation is the following:

$$\hat{Y} = 1.670 - 0.021X_1 - 0.026X_2 + 0.021X_3 - 0.050X_4 - 0.025X_5 + 0.018X_6 + .255X_7$$

Where:

$\hat{Y}$ = Investing habits B_4X_4 = Income

α = 1.670 the Y-intercept B_5X_5 = Self-Perception of Financial Knowledge

β_1X_1 = Formal Education B_6X_6 = Spending Habit

β_2X_2 = Age B_7X_7 = Planning Habit

β_3X_3 = Gender

The model showed the positive degree of influence for Spending Habit and Planning Habit, while negative for Formal Education. According to the model, the Investing Habit is the least affected by Spending Habit. On the other hand, Planning Habit influences Investing Habits the most. The findings are not surprising; the previous research showed that planning influences our finances the most as in Shockey and Seiling (2004).

The multiple regression model showed that variable Formal Education negatively influences variable Investing Habit. The negative influence could be result of a relatively large Y- intercept value.

On the other hand, variables Age, Gender, Income, and Self-Perception of Financial Knowledge as the control variables have negative influence to Investing habit, but the control variables are in accordance with previous research due to structure of survey's answer regarding investing. Only the control variable Gender has the positive influence. The previous research states, as described in the Chapter II - Literature Review, that investors (men) who feel more knowledgeable about

investing trade more, and that educated men perceived themselves as the most competent (Graham, 2009). In this mulitiple regression analysis, the Beta coefficient for variable Gender, implies that men who feels more knowledgeable about investing will have better investing habit. In the end of the multiple regression analysis, α value is larger than P-value, suggesting rejection of null hypothesis. Moreover, a T-test is conducted, and in all cases the absolute value (T-stat) is larger, and therefore, the null hypothesis is rejected, while the alternative hypothesis is accepted. The F-ratio showed that the model is statistically significant, but the low R^2 and adjusted R^2, which are known for testing the model's "goodness of fit", were 26%, implying that the model has relatively low usefulness in predicting the investing habits based on those three independent variables, while variables Age, Gender, Income, and Self-Perception of Financial Knowledge are controlled.

Conclusion

Previously, many studies such as Grinstein-Weiss et al. (2012) and Cummins, Haskell and Jenkins (2009) proved that money management skills are learned at home, while investing seems to be depended on the IQ, formal education, gender, and self-perception of financial knowledge. This study is performed in order to analyze the influence of formal educational level, spending and planning habits on the investing habits of an average person, while age, gender, income, and self-perception of financial knowledge are controlled.

The descriptive statistics analysis showed that the most common person in the United States is the one with some college or college graduate, spend less than or equal to his or her income, does not have set emergency fund, and does not invest money in any type of securities.

The multiple regression analysis provided the equation and Beta coefficients, which states that variable Formal Education negatively affects variable Investing Habit, while variables Spending Habit and Planning Habit have positive influence.

The negative influence of variable Formal Education and control variables can be explained by a large Y-intercept value, the structure of survey's answers, and their values to the question regarding investing.

The control variables are in accordance with the previous research; therefore, it can be concluded that model is well developed to predict the influence of Formal Education, Spending Habit and Planning Habits on Investing Habit. Furthermore, the influence of each variable is given by individual Beta coefficient.

After multiple regression analysis and conduction of T-test, the null hypothesis was rejected, and the alternative hypothesis was accepted. The acceptance of alternative hypothesis implies that the investing habits are correlated with formal education, spending and planning habits. The largest influence on investing habit has planning habit, while spending has the lowest influence. The model has relatively low predicting power of 26%, but it is statistically significant.

Recommendations for Further Studies

Further studies with similar topic as this thesis should focused on developing model that will provide higher predicting power. Currently, the model in this thesis has the predicting power of 26%. Ideally, a good model should have predicting power of at least 80%.

In addition, the descriptive statistics analysis showed that the majority has already mastered the spending habits, but struggle with planning and investing habits. The most common survey participant spends less than income, but does not have set an emergency or rainy day fund, and

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has not invested money in any type of securities. The studies with similar topic as this thesis should focus on finding reasons for not having set emergency and rainy day fund and for not having invested money in any type of securities. Once the reasons are found, it will be easier to educate people on the importance of having emergency or rainy days fund as well as on the importance of investing money in the securities.

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