ARCADA

Gender Differences In Saving and Investing Behaviours

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Abstract:
The current study aims at exploring whether there is gender difference in financial behavior among college students, and how the four factors of gender socialization theory, gender risk tolerance theory, gender information process and gender financial decision making affect their financial behavior. The sample collected from college students of university of Helsinki. By employing SPSS, the study tested four hypothesizes: H1: Male students have a high risk tolerance than female students H2: Primary financial social learning agents differ by gender in college students H3: Primary financial decision making differ by gender in college students
H4: Male and female college students have different relationships between financial risk tolerance and primary financial social learning agents. The former three hypotheses were examined using cross tab Chi-square test and t independent test to figure out the difference of statistic significant. The last hypothesis was tested using multinomial logistical regression to seek relationships among multiple nominal variables. The study found that there was no significant difference of financial behaviors between male and female college students. By understanding the gender different behaviors, the paper is built on helping financial counselors to specify their groups of clients in order to assist them achieve financial wellbeing.

Keywords:	
	Gender, Finance, Saving, Investment, Education, Financial behavior, socialization
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1   INTRODUCTION

1.1 The background of contemporary gender saving and investment behavior

(2010, June) Nataliya Barasinska in his 'An empirical analysis of gender differences in investment behavior' said that there is a prevailing that men and women behavior differently on financial risk taking, as men are more prefer to take risks when invest than women. He also emphasized that male dominated financial market took excessive risks resulting in recent financial crisis. He retold that Neelie Kroes, as the EU competition commissioner, had put it: ' the collapse of Lehman Brothers would never have happened if there had been Lehman Sisters with them.' As increasing quantities of women enjoy independent financial decision making, gender gap of economic well being become distinct spreading over the whole society.

(2007) Fawcett, which is a UK 's advanced campaign for gender parity, took a project to uncover the inborn of gender savings gap. Consequently, they reached some key findings:

"*The gender savings gap is even bigger than the gender pay gap, leaving women vulnerable to economic shocks. The causes are complex, but likely not to be income alone. Women's saving is much more likely than men's to be disrupted by life transitions such as childbirth and divorce. More attention needs to be paid to women's ability to make savings in their own right.*"

—Facett sociaty

The report illustrated that during past 10 years, the average amount in savings account held by men is £3000, by women £1500, and that gender savings disparity were distinct. Compared with the gender pay gap, the size of savings gap historically reached the twice those of payment gap. It was obvious that the disparity of payment was descending，albeit improved gender policies were compulsively enforced onto employers. Whereas, the saving differences is still ascending. According to statistic Facett society stated that in UK women saved merely £75 per month, compared with men $100 per month, the research concluded that the major reason was that there existed increasingly gender income gap, and in addition, three factors played significant roles on gender dis-

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parity. First, women contribute more time and more earning into their families than do men. A survey investigated that women generally spent their 60% of income on family level, rather than men did 30% of their earning on family expenditure. Second, women prefer to save in short term account, while men tend to save in long term or fix term account. Long term saving makes the saving less likely spent, whereas short term account makes the saving spent faster. Third, there is a common sense that most of women depend on their male partners to save for their domestic needs. (Facett, 2007)

Saving rates in developed countries have decreased substantially since the 1970s. To date average household in US save merely 0.5-1.0% of earnings, which is only 10% of saving amount in 1984 (Ferguson, 2004). It is obvious that in Europe most developed countries are undergoing the similar tendency as US did. For instance, household saving rates in UK have declined to 5.9% in 2000, compared with 9.0% saving rates in 1900. The saving proportion in average Italian family has downed to half since the 1980s, and even worse in Finland in 2002 saving rates represented negative historically (Dirschmid & Glatzer, 2004).

"This area of enquiry is sometimes referred to as "behavioral finance," but we call it "behavioral economics." Behavioral economics combines the twin disciplines of psychology and economics to explain why and how people make seemingly irrational or illogical decisions when they spend, invest, save, and borrow money," defined by Belsky and Gilovich (1999). Despite protected under equal-pay legislation, women still get paid less than men for the similar work. Saving cannot compensate their longer life span, lower income inflow, which leads women poverty during their retirement. Recently, a report that was conducted by the department of Health and Human Services, illustrated that the average life span in the US was 74.5 years for men and 80.4 years for women in 2007(Xu, Kochanek, M urphy, & Tejada-Vea,2010). Additionally, a survey was done by U.S. Census Bureau(2008) said 13% women over age of 75 lived in poverty in 2007, compared with only 6% men . Thus as a result, women not only have longer life expectancy than male, but as well are likelier to live under poverty than men during retirement. Increasing numbers of governments of developed countries propagate privatizing their pensions, and combined private pension Investment instruments and public social security will be extra compensation so as to help women get rid of post

working poverty. Bajtelsmit and VanDerhei (1997) used 1993 data from a large pension fund sponsor to recognize gender gaps in pension allocation. In that report, the sample of 20,000 management-tenure employees voluntarily selected five investment alternatives of pension contributions which are employer stock, a diversified equity portfolio, a government bond portfolio, a social choice equity fund, and a guaranteed interest fund. Bajtelsmit and VanDerhei found that women were likelier to choose the funds that have guaranteed interest rate, and on the contrary, men likely to invest in employer stocks. Therefore, they concluded that female investors tended to be more risk averse than men when invest in pension fund. .

Investment logically associates with risk and return. Numerous theories expressed gender differences in risk taking, including health and financial risk taking (Hallahan, Faff, &McKenzie,2004; Watson & McNaughton,2007). They stated that female have propensity to lower risk tolerance than male when dealing with financial matters, and invest lesser their disposable income into lower risk instruments, which yield poor return on investment, because high risk equals to high return while low risk brings poor return(Watson & McNaughton,2007). In early 2004 studies, Hallahan et al discovered that gender contributes significantly to the prediction of risk tolerance, which female did lower risk tolerance score of average 6.2 points on risk tolerance test, but male got a surprisingly high score compared to female.

Most of literatures mentioned that gender was defined as the third significant factor, except income, age and education, which directed distinctly individual financial behavior. Gender and pay gap have double effects on individual's behavior. From psychological point of view, gender pay gap reflects the social perception of gender role in economic activities, such as divide of labor, work discrimination. In the last century, women were socially defined as at home mothers who took care of children, and worked on household trifle. As human societies entered into new century, the term "at home mother", was replaced by a new feminist definition "at work mother". Increasing number of mothers work outside, and they looked for economic and financial independent, whereas, women were sacrificed by making lesser money than men for similar jobs (economist, 2011). (Fiestone, Harris, & Lambert 1999) got a negative result when built relationship between female's salaries and feminine works. Blau and Lawrence (2000) stud-

ied that the female to male earnings ratio, from the late 1950s to early 1980s, was about 60%, and earning gaps would continue, although it had a smoothly ascending tendency, by 1999, the ratio had already climbed to76.5%.

By studying numerous literatures about gender issue, author finds that most of them critiqued that it was not easy to perfectly isolate immeasurable impacts of household financial decision making, and because there were always involved in other family members when making financial decision. The result probably reflected that the family as a group decision making obscured some reliable information of gender differences of financial behavior. For instance, a wife in a duo working household might take an aggressive risk investing of certain financial instrument (option) that responds absolutely from her husband's idea. Therefore, it is difficult to identify single household' decision making process on financial matters (Lori L. Embrey & Jonathan J. Fox, 1997). In order to minimize the uncertainty, unmarried household or college students should be reasonable object of gender studies.

Large bodies of literatures identified that age, gender, income, education have played importantly functional roles on human financial decision making, (Chaulk et al., 2003; Grable & Lytton, 2003; O'Neill, Xiao, Bristoe, Brennan, & Kerbel, 2000; Sung & Hhanna, 1996; Wang & Hhanna, 2007; Xiao, 1996; Zhong &Xiao, 1995). Previous studies also mentioned that education attainment was ranked to be one of significant effects on personal saving and investment behavior (Springstead & Wilson, 2000; Yuh & DeVaney, 1996). This study is different from previous literature, by controlling variables of income, education, aiming at comparing exclusive gender nuances of financial behavior based on highly educated and full time students (tertiary education or above), splitting into binary groups "female students and male students", and assuming students from university generally have no income because their most time are spent on absorbing knowledge. The purpose of the study is to address the issue that whether there exist gender differences in saving and investing behaviors pertaining to their knowledge of finance and financial socialization among highly educated students, in what way the differences are performed by gender, what the differences are and why gender behave differences in saving and investing decision making.

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1.2 The object of current study

Gender related issues brought lots of sense recently, especially, considering the wellbeing of both aggregate economy and separate individual. Thus, financial behavior is being a prominent research area. There is a tendency that future focus will turn to be more details of certain cohort of demography where people are considered to be either financial illiteracy or financial misbehaving. (CBF, 2004a; Morton, 2005; RMR, 2003)

The definition of financial literacy was 'the ability to make informed judgments and to take effective decisions regarding the use and management of money' (Noctor et al, 1992). Some literatures depicted that "the ability to balance a bank account, prepare budgets, save for the future and learn strategies to manage or avoid debt" (CBF, 2004a, p. 1) and "enabling people to make informed and confident decisions regarding all aspects of their budgeting, spending and saving and their use of financial products and services, from everyday banking through to borrowing, investing and planning for the future" (RMR, 2003, p. 1).

Financial literacy presents such a significant role in day to day life of modern household; in addition, unregulated financial and prosperous credit markets educate people spent their money really without planning (Beal & Delpachita, 2003, p, 65). Women involved financial atmosphere is deteriorating to date. It is not only that those women decide on the 70%-80% of household purchase (economists.com), but as well that increasingly number of highly educated women work outside and pursue the same economic tenures as men. Women tend to be more economic independent. However, the truth is crucial that the mixture of lower income, longer life horizon, lower risk tolerance, insufficient financial knowledge leads to the poverty lives of women ,who are under the exposure to financial "standard deviations" in economic shrink(since 2008).

Young people are also groups who are vulnerable under sophisticated financial market, because they are eager not only to try mystery things and but as well to learn tricks like high risk financial leverage instruments. Thereafter, the cohort of both single women and youngsters must learn and get easily accessible of the information of finance including saving and investing in order to obtain then maintain their future economic well be-

ings. Here below is a picture from Nordea bank. It explicitly depicts that individual who starts to save from age of 35 year old, after 20 years, leaves the saving accumulate interest and, till 65,will yield more money than a person starts saving from 45 year old. Therefore, start saving as earlier as possible.

Figure 1. See how your saving accrue (Nordea bank)

(*http //:www.Nordea.fi/ see how your saving accrue*)

1.3 The study procedures

Generally, the literature will look into causal relations between psychology, sociology, biology, such as biological social role, gender socialization behavior, gender financial socialization, self-perception of financial knowledge, emotion, financial information processing, imitation or observation of peers or parents, financial self-efficacy and so forth, and gender financial behaviors. But research questionnaire was created mainly on fundamentally sociological and psychological factors, including financial socialization, self-perception of financial knowledge, agents of financial information distribution and risk tolerance. By understanding gender differences in financial behaviors, the research aims to help financial counselors to specify their different groups of clients to assist them obtain economic wellbeing.

The current research basically comprises of five sections, the first section is to introduce background information about gender differences in saving and investing behavior and its significant to recent study; the second section is review of previous literatures, the third section is empirical research methodology, the forth section is findings, and the last section is limitation.

This study will solve five questions all in college level (a) Does willingness to take financial risk differ by gender? (b) Does preference to primary financial social learning agent differ by gender? (c)Does primary financial socialization agent affect gender fi-

nancial risk tolerance? (d) Does primary financial decision making result in difference by gender? (e) Does the relationship of primary financial social learning agent and propensity to take financial risks differ by gender?

2 LITERATURE REVIEW

In order to study investment and saving among college students, we have to know initially what financial behavior is. Shefrin (finance, Santa Clara Univ.) concluded that "a rapidly growing area that deals with the influence of psychology on the behavior of financial practitioners." Financial behavior it deals with everyday human practices related to saving, investment, borrowing, spending. Some educators thought that it was the area that using psychological and economic background explains the economic phenomena and outcome brought from illogical behavior. Belsky and Gilovich (1999)

2.1 Social learning and financial social learning theory

It is widely documented that financial socialization is the fundamental step to model financial knowledge, financial attitude and, consequently, future financial behavior in people's early age. One important factor directing gender financial behavior is gender different ways of socialization. Thus, we need to understand whether gender role in socialization contributes in determining gender financial behaviors as well as perceived knowledge of women's low risk tolerance and men vice versa.

Initially, in Bandura (1977) social learning theory, he pointed out that people learned their own behavior by observing behaviors of their most awesome or intimate people in their lives. He named the process of observing learning modeling. He explained further that modeling would make human being learn more quickly and more efficiently. For example, a child seeing how his or her parents quarrel may imitate to practice in quarrel with his or her peers more quickly. People copy the dress of their favorite actors or singers, and mimic their actions constantly.

The socialization process starts from childhood and continues throughout life (McNeal, 1987;Moschis, 1985). Throughout socialization processes people develop any knowledge (including financial knowledge) and skills by contacting, observing, interacting (Fox, Bartholomae, &Gutter,2000). As Ward (1974) denoted, "consumer socialization process is that youngsters develop their own knowledge, skills and attitudes regarding their consumer role in the marketplace". The knowledge can be extended to the financial socialization process that could be that genders develop their financial behavior depending on their perceived stereotyped social role and norms. The stereotypic social construction defined a typical female as homemaker and caretaker with emotional sensitive (such as great warmth heart, take care others),   while a typical male as family supporter and defender with insensible but more aggressive and assertive emotion. The modern divide of labor asks women to be unconditionally responsible for nonpaid house care work and ask males to be industrial or economic activists. Through socialization at young age, males are taught to be outgoing and achievement oriented, whereas females are taught to be emotionally oriented and reserved in their interactions with others (e.g., Fennell, Barchas, Cohen, McMahon, & Hildebrand, 1978; Marshall, 1984). Furthermore, girls are generally socialized to respect males' power, authority and to refrain from expressions of aggressiveness or assertiveness (Greenspan, 1983). Boys, on the other hand, are typically socialized to be assertive and aggressive (Powell, 1988).

2.2 Financial socialization agents

Consumer socialization theory suggests that most consumer behaviors are learned through socialization agents such as family members, parents, peers, schools, or mass media, mostly starting from their adolescence and continuing to adulthood (Churchill & Moschis, 1979; Valence, d'Astous, & Fourtier, 1988). As the most essential socialization agents, Parents, peers, schools, mass media directly influence the development of youngsters' psychology, emotion, and behavior (Moore, Raymond, Mittelstaedt, &Tanner, 2002). The theory itself can be extended to financial socialization. Hereafter, the question will be asked how gender matters, in particular, in financial socialization process. Sociological research implied that gender social role significantly influences gender social behavior. Biologically, "gender is not necessarily explained whether an

person is male or female, but socially, interpreted as the way that an individual learn to act as a stereotyped masculine or feminine" (Hare-Mustin & Marachek, 1990). Social role means that every social person Social learning resources might not be equally distributed to male and female, resulting as individuals socialized differently regarding money and more importantly their financial behavior. Based on that view, Chen and Volpe (2002) found that, generally, women tended to have insufficient financial knowledge compared to men, and ranked personal finance as less important subject.

Around one third of the participants considered that either parents or their fathers are the most influential sources on their financial learning. Most of them mentioned that their parents discussed about budget, savings, and investing in front of them, and that they thought families are financially safe places. When asked who taught them investing skills, most of participants said that personal contact with financial adviser would be more comfortable and much beneficial, instead of their parents or school teachers. However, when told about parents' effect, women often considered that their mothers had the fundamental effect on their financial decision making. On the contrary, most of male students recalled father as most influential people in their lives. Furthermore, male students more often listed that teachers and peers had a similar impact on their financial decision making than women did. (gender differences in investment behavior)

2.3 Biological determinism versus socialization in predicting behavior

Psychology professor Sheri Berenbaum once took an unusual empirical research on the issue of genetics and sex roles. By asking that whether there is evidence that any human behaviors are "male-typical" or "female-typical", she took into decades of studies and finally explained that "from a young age, girls and boys are apt to choose different kinds of toys, splitting stereotypically into the "truck" and "Barbie doll" camps. Boys tend toward more active and aggressive play than girls, and fare better than girls in tests of spatial, navigational, and mathematical abilities."

In her research, she mentioned that female strengths usually include better verbal skills, precision manual dexterity, emotion decoding, and "landmark memory," defined as the ability to recall objects and their locations within a confined space.

She said that socialization—the molding power of our environment—is the main cause of gender differences. Berenbaum used her empirical data on girls with CAH(namely hormone disorder) explain the power of sex hormones. The girls in Berenbaum's study appeared to prefer toys more typical for boys, showed more interests in sports, held better spatial capability, and had less interest in infants and dolls than those without CAH. "Despite the hormone-balancing medication they've received since birth, exposure to high androgen levels during brain development in utero seems to have a lasting masculinizing effect," She said.

She concluded, "There's evidence that biology does work on behavior that shows sex differences. But do not forget that socialization plays a significant role on differences." "What happens to most people is that we start out with small biological differences which send us off on different environmental trajectories. Socialization then magnifies the differences until they become bigger over time." For instance, she adds. "Say as a girl you have a slightly increased predisposition to be interested in babies. So you hang around babies. You get comfortable with babies. You get lots of rewards for hanging around babies—getting paid and praised for babysitting—so after a while, a slight preference becomes a strong interest because it's magnified by the experiences you have."
Nature or nurture (namely biology evolution or sociology evolution), people have to ask which one does take primary responsibility of growth of human being (namely development of human behavior).

"With training and support, we can strengthen cognitive and behavioral skills across the gender divide," says Berenbaum. "No matter what the cause of the difference, the behavior can be changed by the right intervention. Men could be taught to be more emotionally sensitive, and women to have better spatial abilities."
On the contrary, negative social messages undermine the effect. People often fall into the predefined mystery. For instance, "If, before giving a math test to women, and told them the message that 'Women don't do as well on this test as men do,' they don't do as

well as they don't receive that message. Thus negative expectation will lower the performance of human being. Employers presume that women are over emotional and irrational when making decisions, men can generally make quick decision without involving too much emotion, and in light of which men may be likelier to ladder onto promotion.

Why do people matter so much about gender differences? "The most probably provided that we care about whether women are in math and science careers," hypothesizes by Berenbaum, "is because those careers pay more money and have more prestige than typically female careers. If women's careers were paid more value maybe this would not be such an issue." "While I think the differences are real, differences still matter because we still value males and females differently."

—Melissa Beattie-Moss

(http://www.rps.psu.edu/probing/gender.htm)

Social identity stands for "the common identification with a collectivity or social stratify which creates a common context for participants referred (Snow, D.A. and Oliver, P.E. 1995). Social identity theory (Taifel, H. & Turner, J.C. 1986) accounts that three important components of the self-identify which are interpersonal intergroup continuum, positive distinctiveness and positive distinctiveness strategies; on the other hand, the theory holds that the people via participating in identified group are motivated and gain the higher or positive value of self-esteem. But some controversies were lifted as well, for instance those thought that increased sense of self esteem would lengthen the distinction between each social stratify, vice versa, increased between social stratifies would result in depressed self esteem. The classes to which person belong will consequently show their participants with the pattern of who they are and how they should behave in the social atmosphere (Terry, D.J., Hogg, M.A. 1996). Assuming male and female are two clusters, women should feel sense of belonging to the socially defined feminine group and men tent to join masculine group. The inference would be that women raise their sense of self-esteem to become more feminine and male raise their self-esteem to become more masculine.

"Males and females in social roles are divided as bipolar in which individuals have to be at least one "end of a linear spectrum" and must recognize themselves as norm man or woman". Generally, communities bestow a set of properties by expecting that biological women and men follow these "appropriate" and as well bestow that men have priority to access rights, resources, and power of society (Galdas P. M. & Johnson J.L. & Percy M.E. & Ratner P.R. 2010). Although cultures differ from one society to the next, the mainstream favors men, creating patriarchy and gender discrimination which spans nearly all countries (Winnie Byanyima, 2005).

The philosopher and feminist Simone de Beauvoir depicted women's experience of life: "One is not born a woman, one becomes one."(Simone de Beauvoir, 1949). Gender sociologists believe that cultural and customers shape behaviors of biological gender. For example, Michael Schwalbe (2005) demonstrated that human beings were taught to be their culturally defined male or female via different social agents including parents, friends, teachers, schools, and even modern media, and that their learned social and family roles must be consistent with social expectation. Schwalbe expressed that humans "are the results of many people embracing and acting on similar ideas." Beautiful women are expected to be long hair, reddish lips, and pink chins.
(*http://en.wikipedia.org/wiki/Gender*)

2.4 Gender differences on risk tolerance of investing

According to aforementioned theories of gender socialization, men socialized to be more outgoing, aggressive and assertive while women to be more sensitive and emotional. The differences in gender role socialization between men and women can be realized as one key factor of gender variation in risk tolerance. Risk taking can also be linked with the notions of aggressiveness and assertiveness in the context of managerial decision making behavior. (Bandura, 1986) looked into both men and women who possessed the domain of decision making found that their risk tolerance were explicitly influenced by self-assertive and self-efficacy.

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Do male have innate high risk tolerance, compared with female? Although there is no evidence to directly assert that risk preference is a trait and that there are biological differences, lots of previous studies suggest that men in general appear to demonstrate tendencies to take greater risks than women. With regard to understanding why men and women might differ naturally in risky decision making, it is useful to draw the picture of gender differences based on social role theory.

Brooke Harrington, a sociologist at Brown University, insisted that females are experiencing with what she calls ''demographic risk'': females live longer than males and they have higher probability of withdrawing from the work force because of their role as mother. Consequently, they often maintain low benefits of pensions and social security in retirement (McGregor, 2003). Diversified earlier works identified that females have lower risk tolerance than males in their financial activities, such as choosing low risk investment fund, or saving in fixed horizon. One literature investigated that female in United States invested their pension money more in risk free bound rather than any high risk stocks. On the contrary, male favor to invest their pension in stocks. (Hinz et al., 1997). (Bajtelsmit and Bernasek,1996) found the same results that women tent to invest in more conservative instruments. Finally, a study conducted by Charles Schwab found that women held a lower percentage of stock in their retirement accounts that investment portfolio decided by them than did men (Bernasek and Schwiff, 2001).

There are large numbers of literature assert that women are low risk tolerance and men are risk against. Levin et al. (1988) examined the effects of gender on a simulated risky decision-making task and then found that men responded more favorably than women to risk. The results of Levin et al.'s (1988) study suggested that women were more cautious in their decisions and less likely to take gambles compared to men. Zinkhan and Karande (1991) employed Kogan and Wallach's (1964) instrument (Choice Dilemmas Questionnaire) for measuring risk-taking behavior and found that women tended to be more conservative than men when the former perceived the situation to be ambiguous and hence had to make decisions under uncertainty. Similarly, Hudgens and Fatkins (1985) used a computer-simulated task to investigate gender differences in risk taking and concluded that men are more inclined to take risks than women.

In a survey of 27 original investigations of gender differences in individual risk taking, 20 studies indicated greater risk taking for men, 3 indicated greater risk taking for women, 3 suggested conditional differences, and 1 indicated no gender difference (cf. Hudgens&Fatkins, 1985). Recently, a meta-analysis conducted by Byrnes, Miller, and Schafer (1999) similarly indicated that men tend to exhibit greater risk tolerance than women over a variety of contexts. Although this finding suggests there may be underlying differences between men and women, understanding the causes of potential differences in risk taking is equally important (Byrnes et al., 1999);

In summary, the aforementioned researches largely suggest a general pattern of conservative attitudes toward risk among women and more liberal attitudes toward risk among men. In other words, the general impression conveyed by the literature is that at an individual level, males, consistent with socialization into their gender role, tend to accept riskier decisions than females.

2.5   Gender saving and risk tolerance

Consistent with previous studies, Patti, J Fisher in 2010 using the 2007 Survey of Consumer Finances (SCF) showed that the financial saving behaviors of male and female differ. The empirical analysis of gender saving behavior depicted that the relationship between risk tolerance and results of saving. He described that in his sample female were average older, presented lower risk tolerance, had shorter saving term, would lead to less likely than men to have saved over the previous year, while the proportion of the male and female samples reporting to save regularly was similar. The descriptive analysis also showed that women in the sample were older, had lower risk tolerance, had a shorter saving horizon, were more likely to be retired and less likely to be unemployed or self-employed, were more likely to be in fair health, had fewer years of education, were more likely to own a home, and had less wealth on average. .

The study outcomes indicated that risk tolerance also affected men and women in terms of whether they engaged in saving. Interestingly, women reporting low risk tolerance were significantly less likely to save over the short term as well as to be regular savers,

while this effect does not apply to the sample of men. In fact, although not found to be statistically different for men and women, high risk tolerance significantly decreased the likelihood of short-term saving for men. Poor health also decreased the likelihood of short-term saving for women but not men.

The finding showed that low risk tolerance decreased the likelihood of saving among women has many implications for the financial well-being of this group. Women with low risk tolerance are less likely to save in the short term as well as to save regularly, and women with low risk tolerance may be unwilling to take a chance on losing any of their income by investing in risky assets. This was particularly important for women with no retirement saving plan as well as those with a defined contribution retirement plan. Women with low risk tolerance may be less likely to save, and when they do save, are less likely to choose assets that have greater growth over time, leaving them financially unprepared for retirement. The finding also suggests that low risk tolerance is negatively related to the likelihood of being a regular saver is interesting because at first thought it would seem that those who are less willing to take financial risks would be more cautious and save regularly in order to have protection from unexpected expenses or income losses. Finally, as single women live longer in retirement, often have fewer working years and have lower earnings in many cases, it is critical to educate this group on saving and investing. (Pantti, J, Fisher, 2010)

Based on selected model, Judy F.& Edward J. & Mark J.(2006)they concluded that gender processing varying types of information cues significantly contributes to the gender varying risk tolerance. They mentioned what Sternthal (1986) proposed that gender differences in receiving advertisement, because male focus mainly on a single inference and female process all available information. The paper suggested that men are single and direct minded, while women are perplexed and undirected minded.

2.6 Self- assessment of financial knowledge

Worthington (2004) who used ordered logit models to explain the components of a consumer behaviour model, put forward by the Consumer and Financial Literacy Taskforce

(CFLT, 2004), made a conclusion that female, non-English speaking, unemployed and non-working respondents, farm workers and persons whose highest level of educational attainment was year 10, year 12 or technical education had the greatest likelihood of a low level of financial literacy.

Studies have also shown that university students in the US have inadequate knowledge on personal finance (Chen and Volpe, 1998; Volpe, Chen and Pavlicko, 1996). Chen and Volpe (1998) conducted a financial literacy survey involving 924 college students from thirteen colleges and that the overall mean percentage of correct scores was just 52.87 percent. The survey examined literacy across four main areas, investigated the relationship between literacy and the student characteristics, and analyzed the impact of literacy on student opinions and decisions. They found that those students with a non-business major and who were female, in a lower class rank, under the age of 30 and with little work experience had lower levels of knowledge. The study indicated that these students with less knowledge were more likely to hold wrong opinions and make incorrect decisions.

Chen and Volpe (2005) asserted that importance of personal financial literacy in workplace results because of the national debate about social security reform, with government encourage workers to invest in stock and bond funds in their private accounts representing a fundamental change in the social security system. Chen and Volpe argued that for employees to be 'better off', they must be financially knowledgeable in order to make informed investment decisions and take advantage of investment opportunities.

2.7 Gender differences on financial information processes

Meyers-Levy (1989), used the selective model to estimate that male and female selected different cues from around environment as they processed information. Based on the selective model, he said that men did not process all information cues, while they simplify the more perplexed information by focusing on only dominant cues, and that Women, conversely, were more likely to process all information including both unrelat-

ed and consistent information. Given that he hypothesized that male utilize highly dominant information while female prefer more comprehensive news.

(Edward J. Stendardi, Judy F. Graham, Mary O'Reilly, (2006) "The impact of gender on the personal financial planning process: Should financial advisors tailor their process to the gender of the client?", Humanomics, Vol. 22 Iss: 4, pp.223 – 238)

3. RESEACH METHOD

This study will solve Five questions (a) Does age have an effect on financial decision making? (b) Does willingness to take financial risk differ by gender in college students? (c) Does exposure to financial social learning opportunities differ by gender in college students? (d)Do financial socialization agents affect gender financial decision making? (e) Does the relationship of social learning opportunities on willingness to take financial risks differ by gender? In order to explicitly understand the area of gender financial behavior, the study will judge the following four hypotheses by employing different statistic methodologies.

Assuming:

H1: Male students have a high risk tolerance than female students

H2: Primary financial social learning agents differ by gender in college students

H3: Primary financial decision making differ by gender in college students

H4: Male and female college students have different relationships between financial risk tolerance and primary financial social learning agents.

3.1 Methods and procedures

3.1.1 Sample gathering

Data for this study was collected from the students of university of Helsinki during the summer term of 2011. The survey was distributed to 142 students from university of Helsinki in Finland. Only 115 data were finally coded in SPSS, because some data

were missing value which was useless. Each student was accessed either by face to face contact, paper-based survey, or by email. The email list was provided by students of university of Helsinki. The participants were all voluntary and the information they provided was recorded anonymously. The sample was randomly selected in two campuses of Kumpula and Viiki of university of Helsinki.

3.1.2 Structure of survey

The study examines the relationships between independent variables: self-assessed financial knowledge, primary financial social learning agents, primary financial decision making, covariate gender, age, racial, and dependent variable: financial risk willingness.

Self-assessed financial knowledge is examined by creating dummy variable Yes or No. Considering the limited time and convenience of taking survey, the author designed the simplest questions to exam participants' self-assessed financial knowledge.
Do you know the exact definition of Finance?

1. Yes
2. No

3.1.3 SCF single risk tolerance question

In financial planning and counselling, there is a widely used measure of risk tolerance, which is the use of single risk tolerance item found in the Survey of Consumer Finances (SCF). SCF single- question measure is one of frequently and widely used assessment instruments by researchers and policy makers. The question in survey constitutes resembles below:
Which of the following statements on this page comes closest to the amount of financial risk that you are willing to take when you save or make in investments?

1.   Take substantial financial risk expecting to earn substantial returns
2.   Take above average financial risk expecting to earn above average returns
3.   Take average financial risk expecting to earn average returns
4.   Not willing to take any financial risk

The question is part of a large national survey sponsored by the Federal Reserve Board (US) and administered by the National Opinion Research Centre housed at the University of Chicago. Although there was widely debated on the use of SCF single question measure, as many researchers have undertook the reliability and validity exam of the single question SCF measure suggested that the measure itself was insufficient to reflect the perplexed nature of financial risk tolerance (Bonoma &Schlenker, 1978; Culter, 1995; Grable & Lytton, 2001; Roszkowki, Davey, & Grable, 2005), however, the measure is still a mostly comprehensively used in many financial planning researches. The primary reason is that the measure directly expresses consumers' risk attitudes.Thus, current research will implement the SCF single question to measure the risk attitudes of college students. (Cliff A. Robb, Deanna L. Sharpe, 2009, "Effect of Personal Financial Knowledge on College Students' Credit Card Behavior", Journal of Financial Counseling and Planning, 2009- Volume 20)

3.1.4 Agents of financial socialization learning

Financial socialization learning agents were measured by basic four alternatives. The participants were selected those practices, which one of them is the most primarily used. Question was asked:

By what methods did you learn financial knowledge?

Financial discussion with parents

Internet and other print media

Social network (discuss with peers)

Enrol finance course at your school

3.1.5 Agents of financial decision making

Financial decision making agents were used to define what factors would have influence on person's decision making.

The question looks like below:

Before you make decision of using 1000€, what would you consider to do firstly:

Discuss with our parents

Discuss with your peers

Look for information through internet or other mass media

Ask for financial experts' advisories

The last question is what your major is right now:

3.1.6 Descriptive statistics

Data was coded in to SPSS statistic software. Gender was dichotomous variable by coding male as 1, and female as 2. Age was interval variable. Racial was nominal variable by coding black as 1, white as 2, and yellow as 3. Self-assessed financial knowledge was created as a dummy variable by coding Yes as 1 and No as 2. Primary financial social learning agent was categorical variable by coding 1 as financial discussion with parents, 2 as internet and print media, 3 as financial discussion with peers and 4 as enrolling financial courses at school. Financial risk willingness was ordinal variable because it has natural hierarchy by coding 1 as accept no risk, 2 as take average financial risks expecting to earn average returns, 3 as take above average financial risks expecting to earn above average returns, 4 as take substantial financial risks expecting to earn substantial returns. For primary financial decision making, four categories were coded as 1 discuss with parents, 2 discuss with peers, 3 look for information through internet or other mass media, 4 ask for financial consultant. The major of participant of last question was created as string variable.

3.1.7 Demographic characteristics

The total 115college students who were from university of Helsinki took part in the study. Male student were counted to be 54(47%), and female students counted to be 61(53%). Female students outnumber 7 than male students. The data was exhibited in Figure 2 below.
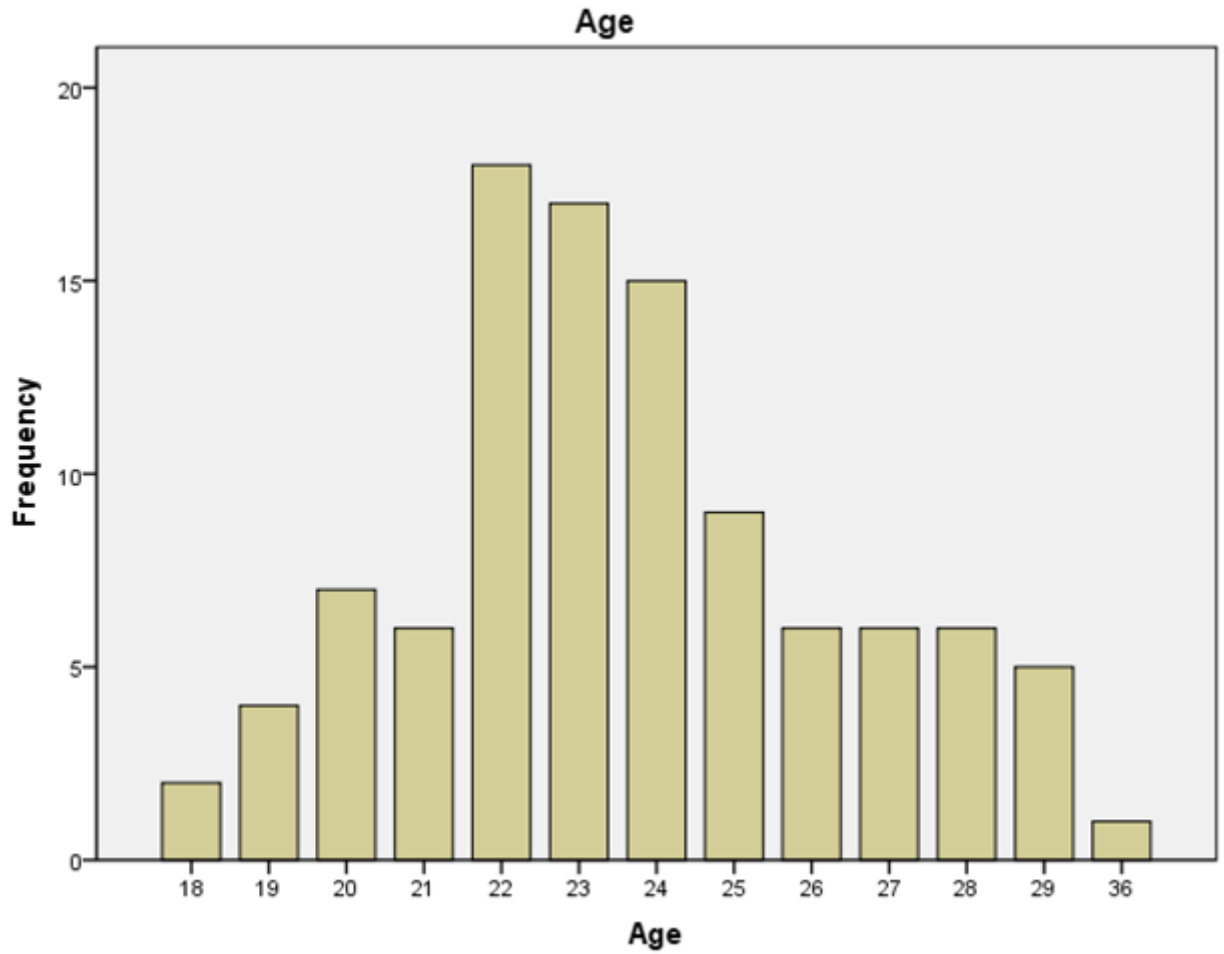
Figure 2. the frequency of Age

It is evident that majority of students were 22, 23, and 24(18.3%, 15.7%, 15.7%). 82% of students were under 26 year old and only two students were 36 year old which accounted 1.7% of entire sample. Two students as well were 18 year old. The range of the age starts from age 18 to age 36. The data was showed in the figure 1 above.
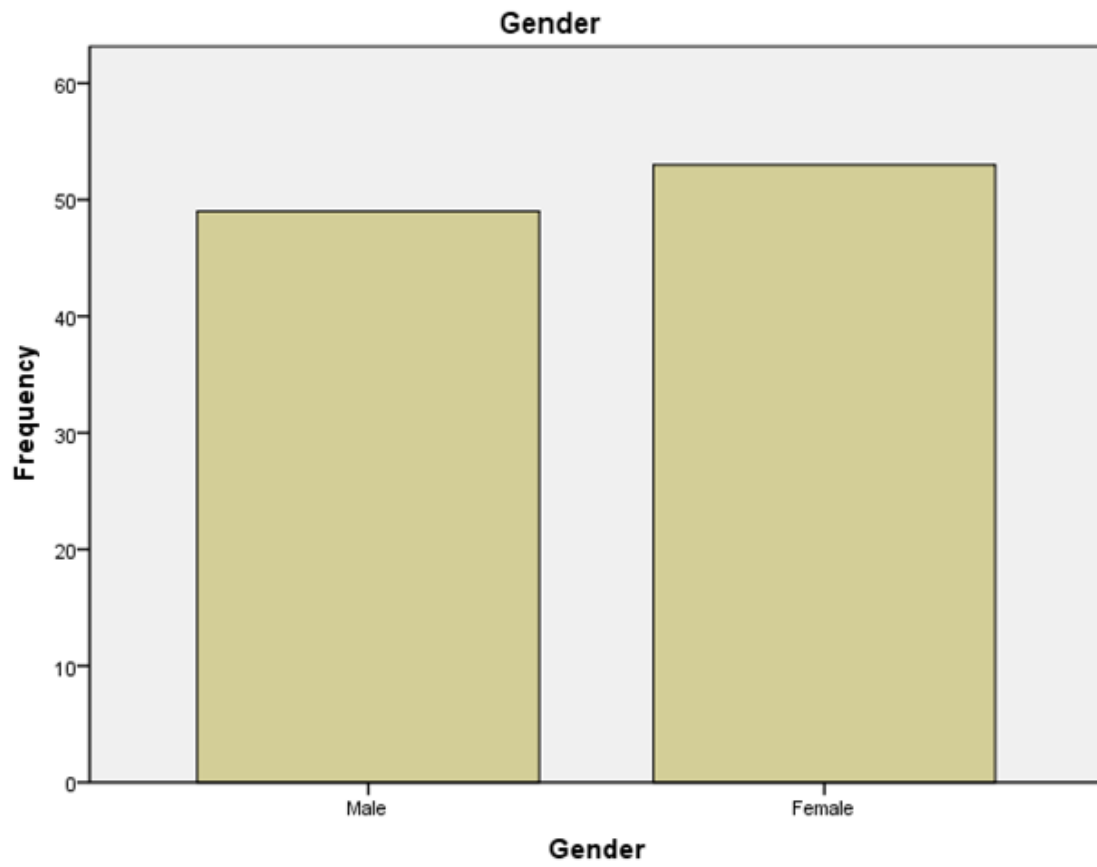
Figure 3. gender frequency
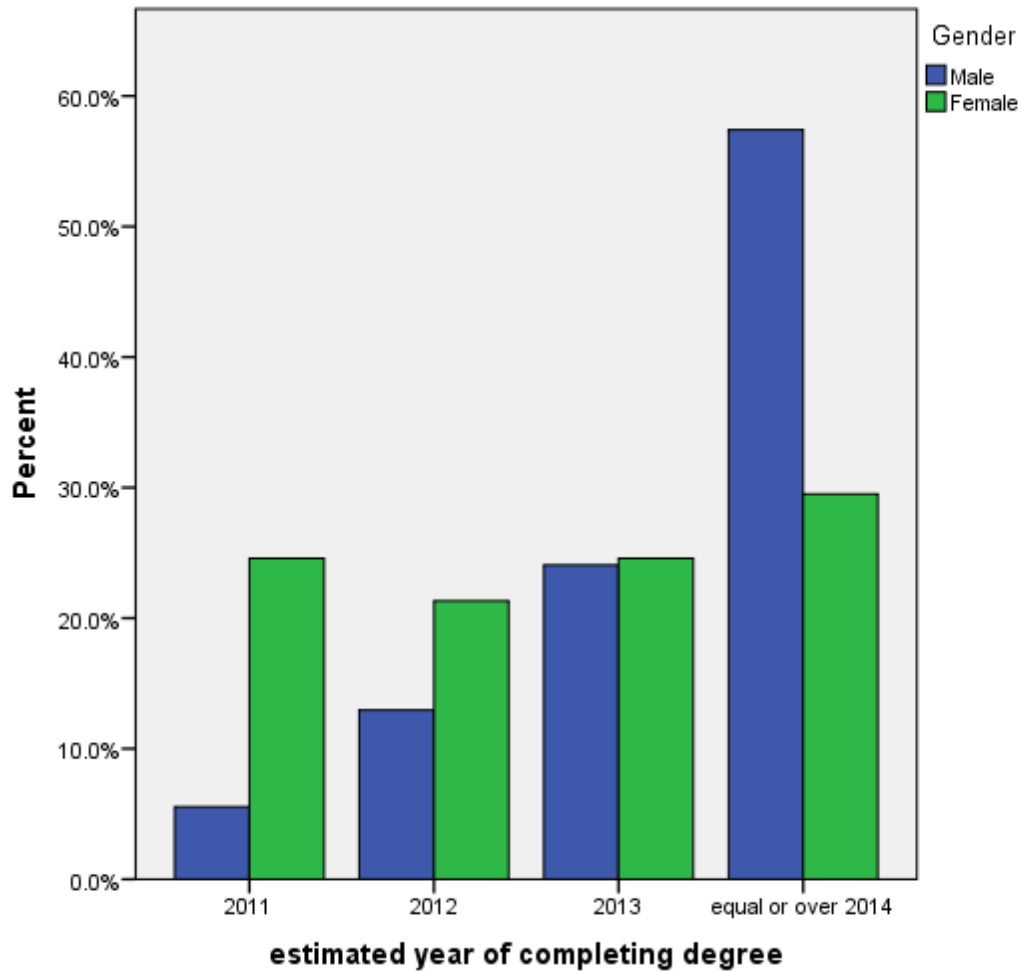
Figure 4 estimated completed year (percentage)

In the Figure 3, compared with female students, male students (over 55%) were estimated to complete their study equal or over 2014, while female students counted for 30%. 31male students and 18 female students were in cluster four (equal and over 2014). For female students, there was the same number of two15 students in both 2011 and 2013 clusters. Only three male students (5.6%) were in the first cluster.
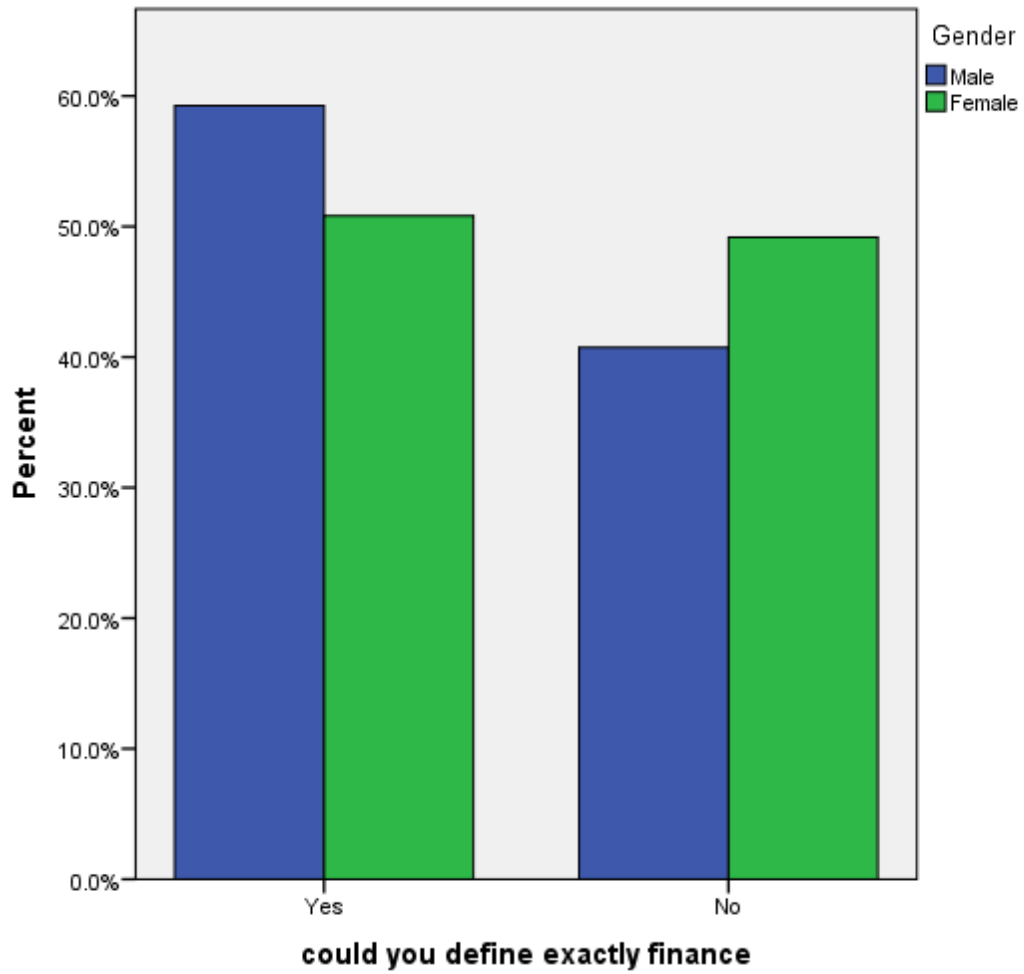
Figure 5 self-assessed financial knowledge (percentage)

In figure 4 above, 32 (59.3%) male students compare to 31(50.8%) female students had confidence of defining finance, while 22(40.7%) male students and 30 (49.2%) female students could not define finance exactly. A slightly more than one male student over female students could define finance they thought.
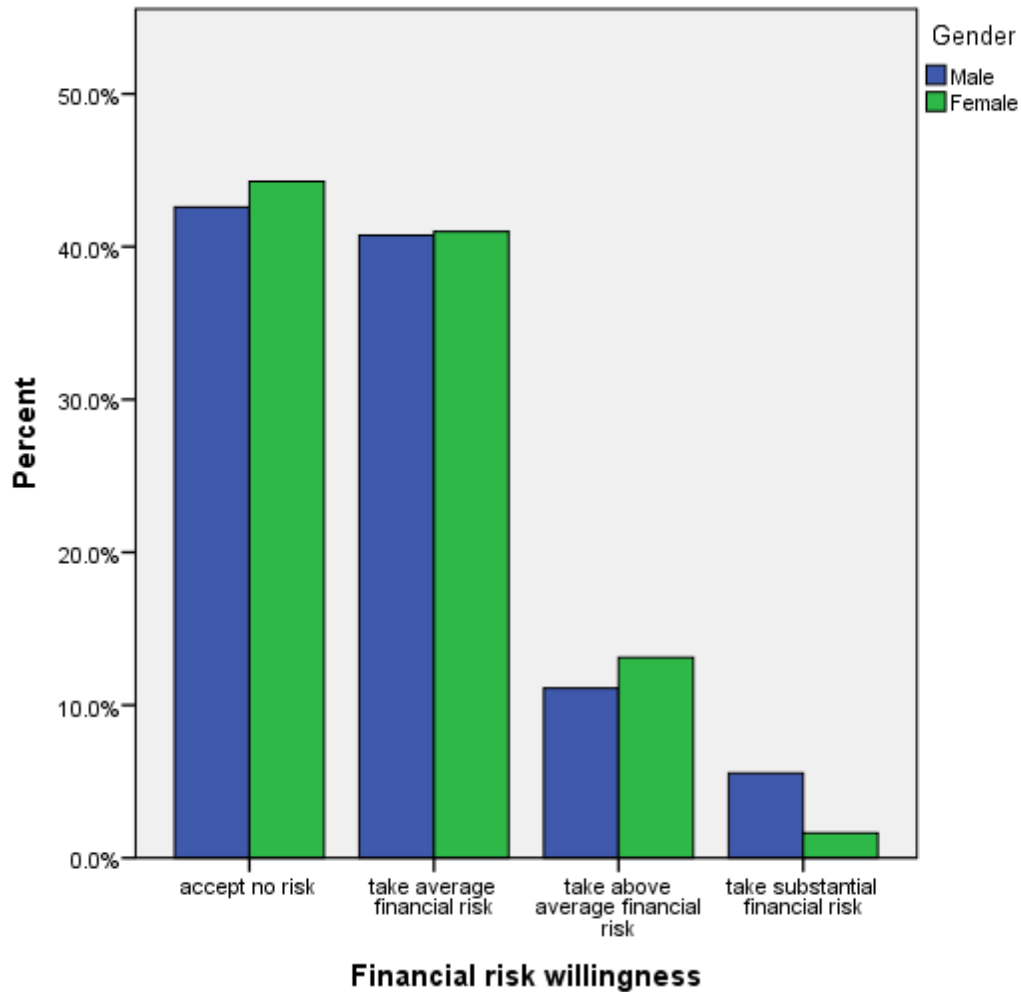
Figure 6 Financial risk willingness (percentage)

Figure 5 patterned that 23 (42.6%) male students and 27(44.3%) female students accepted no financial risk. 22(40.7%) male and 25(41%) female students would like to take average financial risks. 6(11.1%) male and 8(13.1%) female students have propensity to take above average financial risks. Merely three male and one female student considered that they could shoulder substantial financial risks.
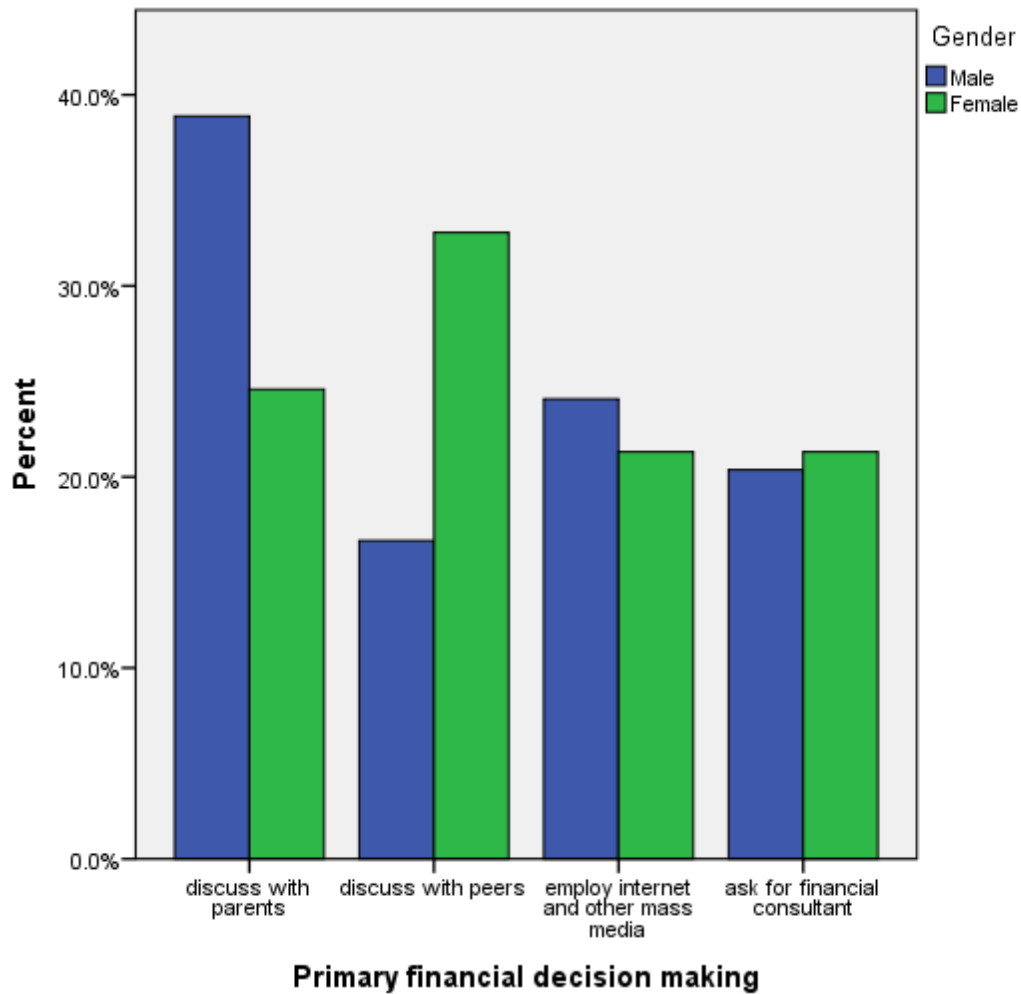
Figure 7 Primary financial decision making (percentage)

Figure 7 patterned that 21(38.9%) male students and 15(24.6%) female students would like to talk with their parents before financial decision making. 9(16.7%) male and 20(32.8) female students have propensity to discuss with their friends before making financial decision. Both male and female were counted the same number 13(24.1%,21.3% respectively) in internet and mass media level. 11(20.4%) male and 13 (21.3%) female students would like to employ consultant as making financial decision.
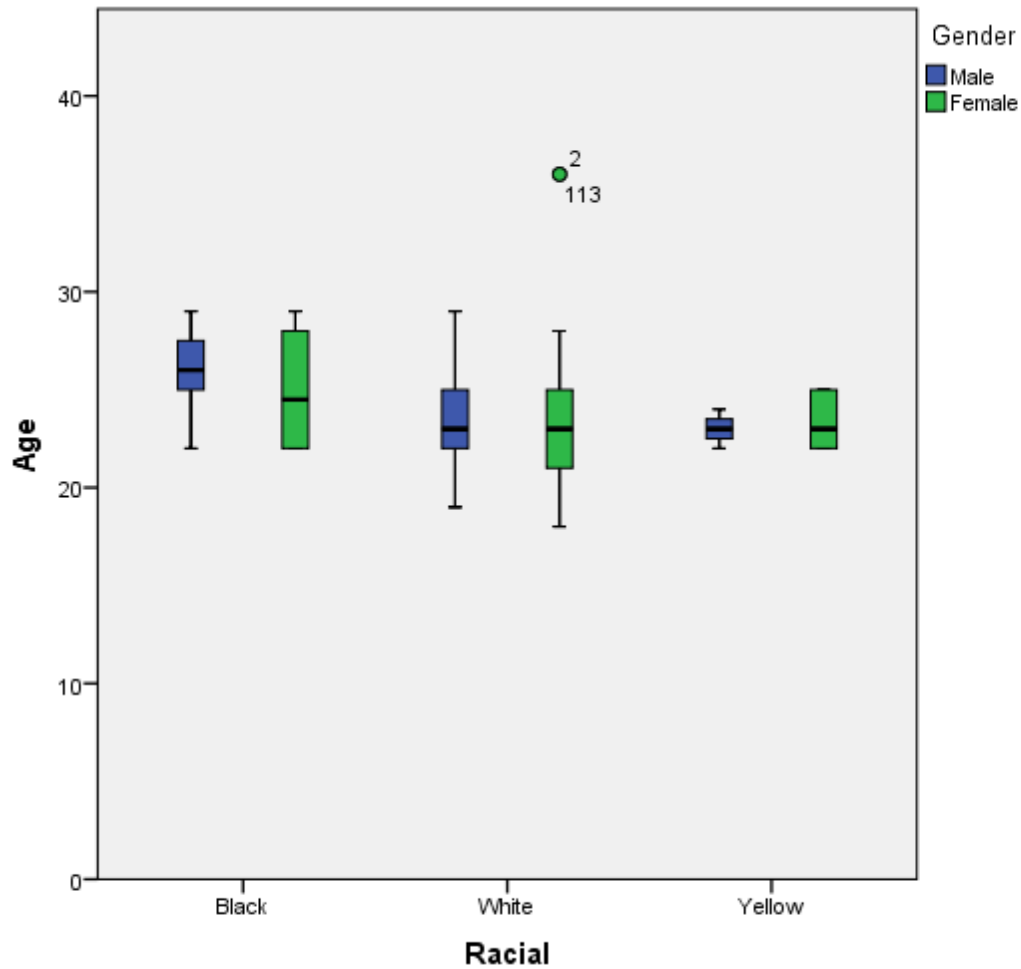
Figure 8 Boxplot (the medians and disperse of age by gender)

In figure 7, black male students were counted to 7 and female students 6 (13%, 9.8%). Majority of students were white which counted to 44male students and 45female students (81.5%, 73.8%). Merely three male students and ten female students were Asian(yellow) (5.6%, 16.4%). Majority of white male and female students were at age 23. And most of yellow male and female students were at age 23 as well. There were two outliers that were over age 35 in white clusters.

3.1.8 Inferential statistics

Hypothesis 1 whether there is statistic significant gender differences on financial risk willingness was examined by using cross tab analysis, since the dependent variable risk willingness has a nature of internal rank and independent variable gender was categorical, so the Chi square statistic was to test overall gender significant differences of financial risk willingness. However, the χ^2 did not test which one (riskless, average risk, above average risk, substantial risk) of risk willingness variables contributes significantly to the overall gender differences. Hypothesis 2 was tested by using cross tab analysis, and if the result of Chi-square test was statistic significant, each one of financial socialization learning agents had a significant contribution to gender differences would be tested by using independent T-test.

For hypothesis 1, the outcome of the Chi-square test illustrated that there was no significant difference of accepting financial risk willingness by gender ($\chi^2=1.376$, df $=3$, p>0.05). So the null hypothesis 1 was failed to reject. The Chi-square test indicated that 42.6% male and 46.3% female had propensity towards involving in riskless financial activities, 40.7% male and 41% female could take average financial risk to gain average returns, 11.1% male and 13.1% female could shoulder above average risk to achieve above average returns, 5.6% male and 1.6% female could shoulder substantial risk in order to get substantial returns. In the light of insignificant of result of Pearson Chi-square test, the t test was not employed to test each. The results of the test weekly indicated that the female college students were more likely to involve in low risk behaviour than male college students, and male students were more likely to take high risks. Therefore, there was no significant difference of risk willingness behaviour between male and female students.

For hypothesis 2, the outcome of the Chi-square test illustrated that there was no significant difference of choosing primary financial socialization learning agents between male and female students ($\chi^2=4.446$, df $=3$, p>0.05). Therefore, the null hypothesis 2 was failed to reject. The Chi-square test showed that 50% male and 32.8% female had propensity toward involving in discussing with parents to learn financial knowledge, 27.8% male and 41% female would like to use internet and other mass media to gain

knowledge, 7.4%male and 13.1% female preferred to discuss with their peers to grasp financial knowledge, and 4.8%male and 13.1% female considered that taking finance courses were best way to get knowledge. The results of the test weekly indicated that most of male students would like to discuss with parents to gain financial knowledge and most of female college students would like to use internet to grasp financial knowledge. The more male students than female students preferred to discuss with parents. Therefore, there was no overall significant difference of choosing financial social learning agents between male and female students.

For hypothesis 3, the outcome of the Chi-square test illustrated that there was no significant statistic difference of primary financial decision making between male and female students (χ^2=4.931, df =3, p>0.05). Null hypothesis was failed to reject. The Chi-square test showed that 38.9% male and 24.6% female had propensity toward involving in discussing with parents before making financial decision, 24.1%male and 21.3% female would like to use internet and other mass media making financial decision, 16.7%male and 32.8% female preferred to discuss with their peers before making financial decision, and 20.4%male and 21.3% female considered that talking with financial consultant would be the best way before making decision. The results of the test weekly indicated that still most of male students would like to discuss with parents to make financial decision but most of female college students would like to discuss with peers to make financial decision. The more male students than female students preferred to discuss with parents ahead of financial decision making. All in all, there was no overall significant difference of choosing financial social learning agents between male and female students. All compared results were showed in Table 1.

Table1. Sample feature by Gender

Variable	Male(%)	Female(%)	Significance test ($\chi^2=$)
Financial risk willing-ness(dependent)			1.376[a]
riskless	42.6%	46.3%	
Average risk	40.7%	41%	
Above average risk	11.1%	13.1%	
Substantial risk	5.6%	1.6%	
Independent			
Primary financial			
Learning agents			4.446[b]
Discuss with parents	50%	32.8%	
Discuss with peers	7.4%	13.1%	
Use Internet and media	27.6%	41%	
Enroll finance courses	14.8%	13.1%	
Primary finance decision making			4.931[e]
Discuss with parents	38.9%	24.6%	
Discuss with peers	16.7%	32.8%	
Use internet and media	24.1%	21.3%	
Ask for consultant	20.4%	21.3%	
Race			3.444[d]
Black	13.0%	9.8%	
White	81.5%	73.8%	
Yellow	5.6%	16.4%	
Define Finance			0.824[g]
Know Finance definition	59.3%	50.8%	
Unknown Finance	40.7%	49.2%	

a.2 cells (25.0%) have expected count less than 5. The minimum expected count is 1.88.

b. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.63.

e .0 cells (0.0%) have expected count less than 5. The minimum expected count is 11.27.

d. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.10.

g.0 cells. (0.0%) have expected count less than 5. The minimum expected count is 24.42.

Hypothesis 4 was examined by using multinomial logistic regression to judge the relation between gender and financial social learning agents affect differently on dependent variable of risk willingness of college students. The reason of employing multinomial logistical regression was that the author expected to predict the results of categorical dependent variables of risk willingness built on the value of two predictors like gender, primary financial social learning agents and to predict whether independent gender and financial socialization learning agents have joint affection on financial risk willingness. Multinomial logistic regression is the "extension for the binary logistic regression" Moutinho and Hutcheson (2007) when the categorical dependent outcome has more than two levels and it outputs a number of logistic regression models by using a reference category to compare each response variables. In the light of this property, the multinomial logistic regression is good to predict multiple risk preferences. In this case, there are four categories, namely: willingness of no risk, willingness of average risks, willingness of above average risks and willingness of substantial risks. It is convention that reference group should be a group of the highest numeric score. Thus the reference group would be willing non risk, i.e. willing average risk compared to riskless, above average risk compared to riskless and substantial risks compared to riskless. The predictors used are two categorical (gender and financial socialization opportunity). The model comprised of three logistic regression equations. The three equations showed below:

Equation1

$$log \frac{Pr(willing\ average\ risk)}{Pr(willing\ non\ risk)} = \alpha + \beta 1x1 + \beta 2x2 + \bullet \ldots + \beta kxk$$

$$log \frac{Pr(willing\ above\ average\ risk)}{Pr(willing\ non\ risk)} = \alpha + \beta 1 x 1 + \beta 2 x 2 + \bullet \dots + \beta k x k$$

$$log \frac{Pr(willing\ substantial\ risk)}{Pr(willing\ non\ risk)} = \alpha + \beta 1 x 1 + \beta 2 x 2 + \bullet \dots + \beta k x k$$

The aim of this analysis is to test which risk level someone is likely to choose given gender (male or female), and financial socialization preferences. Therefore, the parsimonious model would be:

Equation 2

$$log \frac{Pr(risk\ willingness)}{Pr(willing\ non\ risk)}$$

$$= \alpha + \beta 1 Financial\ socialization\ opp\ 1$$
$$+ \beta 2 Financial\ socialization\ opp\ 2$$
$$+ \beta 3 Financial\ socialization\ ipp\ 3$$
$$+ \beta 4 Financial\ socialization\ opp 4 + \beta 5\ gender\ 1 + \beta 6\ gender\ 2$$

Table 2. Parameter estimate for multinomial logistic regression

Risk willingness *	Parameter	Estimate	Standard Error	Odds ratio
Average risk	(intercept)	.689	.644	
	Gender 1	.008	.419	1.008
	Gender 2	0[b]		1
	Socialization opportunity 1	-.799	.694	0.449
	Socialization opportunity 2	-.915	.699	0.497
	Socialization opportunity 3	-.874	.863	0.417
	Socialization Opportunity 4	0[b]		1

reference risk willingness = willing non risk

b. the parameter set to zero because is redundant

Table3. Parameter estimate for multinomial logistic regression

Risk willing-ness *	Parameter	Estimate	Standard Error	Odds ratio
Above average risk	(intercept)	-.583	.908	
	Gender 1	-.246	.625	0.782
	Gender 2	0[b]		1
	Socialization opportunity 1	-.333	.974	0.717
	Socialization opportunity 2	-.940	1.027	0.391
	Socialization opportunity 3	-1.132	1.388	0.322
	Socialization Opportunity 4	0[b]		1

reference risk willingness = willing non risk

b. the parameter set to zero because is redundant

Table 4 Parameter estimate for logistic regression

Risk willing-ness *	Parameter	Estimate	Standard Er-ror	Odds ratio
Substantial risk	(intercept)	-1.296	1.210	
	Gender 1	1.006	.4191.228	2.735
	Gender 2	0[b]		1
	Socialization opportunity 1	-.1.697	1.154	0.183
	Socialization opportunity 2	-19.805	6632.025	2.504E-09
	Socialization opportunity 3	-19.766	.000	2.605E-09
	Socialization Opportunity 4	0[b]		1

reference risk willingness = willing non risk

b. the parameter set to zero because is redundant

In order to get odds ratio, the author employed the ratio equation, which was eˆβ, with calculating by hand. The parameters for the model shown in Table 1 are interpreted as follows. For gender1 (male) whilst controlling for other variables, the log odds of students choosing average risk as opposed to non risk increases by0.008, which equates to an odds ratio of 1.008(eˆ1.008), in other words, the male students as controlling other variables were more likely to choose average risk rather than non risk, whereas female students have no effect to average risk compared with non risk. For a unit increase in financial socialization opportunity 1 whilst controlling for other variables, the log odds of a student choosing average risk as opposed to non risk decreases by 0.799, which equates to an odds ratio of 0.449(eˆ-0.799), that is to say, students using financial socialization opportunity 1were more likely to choose non risk. For a unit increase in financial socialization opportunity 2 whilst controlling for other variables, the log odds of a student choosing average risk as opposed to non risk decreases by0.915, which equates to an odds ratio of 0.497(eˆ-0.915). For a unit increase in financial socialization opportunity 3 whilst controlling for other variables, the log odds of a student choosing

average risk as opposed to non risk decreases by 0.874, which equates to an odds ratio of 0.417($e\hat{\ }$-0.874). Thus students who belonged to financial socialization cluster 3 were more likely to choose non risk.

There are two types of tests for individual independent variables: The likelihood ratio test evaluates the overall relationship between an independent variable and the dependent variable. The Wald test evaluates whether or not the independent variable is statistically significant in differentiating between the two groups in each of binary logistic comparisons.

Table 5 Model Fitting Information

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	60.979			
Final	51.060	9.919	12	.623

Table 5 shows whether this Financial learning opportunity + gender model give adequate predictions compared to the Intercept Only (Null model). We want the p-value (sig) of Final to be <0.05, but the p value > 0.05($x2$= 9.919, df=12, p=0.623). Table 2 shows that this Financial learning opportunity + gender model compared to the Null model gives lesser accuracy. Through the Model fitting information shows that the current model is not outperforming the null, we see that it is not a "good" model to predict risk willingness.

In order for the multinomial logistic regression question to be true, the overall relationship must be statistically significant, which is p value < critical value (0.05), and the stated individual relationship must be statistically significant as well. The table 6,7 and

8 showed that all of p value were >0.05, therefore there was no statistically significant relationship between each individual, and the outcome of analysis was failed to reject the null hypothesis four that in the equations, each coefficient of independent variable was not statistically significant difference from zero. The results of multinomial logistic regression probably indicated that the outcome variables were ordinal variable, and should be tested by ordinal logistic regression, which might be expected to output a good regression equation.

4 FINDINGS

For hypothesis 1, the outcome of the Chi-square test illustrated that there was no significant difference of financial risk willingness by gender (χ^2=1.376, df =3, p>0.05). The results of the test weekly indicated that the female college students were more likely to involve in low risk behaviour than male college students, and male students were more likely to take high risks. Because p value larger than 0.05 critical value, there was no significant difference of risk willingness behaviour between male and female students.

For hypothesis 2, the outcome of the Chi-square test illustrated that there was no significant difference of choosing primary financial socialization learning agents between male and female students (χ^2=4.446, df =3, p>0.05). The results of the test weekly indicated that most of male students would like to discuss with parents to gain financial knowledge and most of female college students would like to use internet to grasp financial knowledge. The more male students than female students preferred to discuss with parents. Since p value overweight 0.05 critical values, there was no overall significant difference of choosing financial social learning agents between male and female students.

For hypothesis 3, the outcome of the Chi-square test illustrated that there was no significant statistic difference of primary financial decision making between male and female students (χ^2=4.931, df =3, p>0.05). The results of the test weekly indicated that still most of male students would like to discuss with parents to make financial decision but most of female college students would like to discuss with peers to make financial

decision. The more male students than female students preferred to discuss with parents ahead of financial decision making. Since p value larger than 0.05 critical values, there was no overall significant difference of choosing financial social learning agents between male and female students.

Hypothesis 4 was examined by using multinomial logistic regression to value whether there were relationships between outcome value of financial risk willingness with gender and financial social learning agents among college students. The outcome of multinomial logistical regression indicated: there is generally no significant relationship between each risk willingness level and independents including gender and each financial socialization learning agents. Therefore the equation of multinomial model was not used to predict financial risk level.

5 DISCUSSION OF FINDINGS AND LIMITATION

The findings of this study were interesting at several levels. Initially, previous studies found that male have higher risk tolerance than female, and male tend to involve in high risk financial instruments. Lots of literatures from US record that college students generally possessed the same traits of financial behaviours as overall gender characteristics of in society. However, this study did not find the same conclusion as previous'. The study found that students were accepted in Finnish high education have overall low financial risk tolerance. Most of male and female college students preferred to save at least 1000 € in their bank account. They often do not have enough money in their saving accounts. Some of students told the author that if they had 1000€ in their bank accounts, they would pay for their credit cards immediately. Secondly, for financial socialization agents, previous studies identified that female students tended to talk more about financial information with their parents and friends. However, this study did not find the significant differences of using different socialization agents like parents, friends, media, and school to gain financial knowledge by male and female college students. The only significant level was found that most of male and female students preferred to talk with their parents about financial information than to other three. Therefore the study could not tell any gender differences. Family education of financial knowledge plays a pivot role among young Finnish people. It indicates that parents

should play fair roles as treating their female or male kids. Parents should engage in sound financial behaviours in light of social modelling mechanism. Gender gap in Finnish society is diminishing. Female are quiet economic independent. Although, there are still some phenomena of divide of work, female engage in more broad jobs than before. Increasing number of female students thought that they had abilities to shoulder average risks or above average risks in Finnish high educations. Female students improve their overall confidences of financial knowledge faster than do male students. Finally, the author concluded the limitation of the study: Firstly, the number of sample collected was not sufficient. According to the theory of law of large sample, the larger the sample was collected, the more accurate the data represent. The number of the data recorded in this study was only 115, since some data are missing value that could not be recorded. The data had no representative of entire students of university of Helsinki. Secondly, since limited time and insufficient preparation, author could not explicitly gain the ideology of participants. For instance, the question 6 could you define exactly finance by asking dummy variable Yes or No could not fairly judge the financial knowledge of participants. The author found that some students could not fully understand certain question which resulted in inaccurate answer. Thirdly, although the survey conducted students from university of Helsinki generally avoid ambiguous condition that previous study used household data that female 's financial decision making might reflect his husband idea, there are still some uncertain factors affect different gender 's making his or her own decision, such as culture value, racial customs Due to the limitation of this study, the author recommends that further study should focus on reliability of sample selection, sample size, question design. More factors could be studied such as gender self-efficacy, herding behaviour.

REFERENCE

Albert Bandra (2003). On the pyschosocial impact and mechanisms of spiriture modelling *International Jounal of Psychology for region* 13(3) 167-173

Bajtelsmit, V. L., & Bernasek, A. (1996). Why do women invest differently than men? *Financial Counselingand Planning, 7*, 1-10.

Bajtelsmit, V. L., Bernasek, A., & Jianakopolos, N. A. (1996). Gender effects in pension investment allocation decisions. *Center for Pension and Retirement Research*, 145-156

Belsky, Gary and Thomas GILOVICH, 1999. Why Smart People Make Big Money Mistakes—and how to correct them : lessons from the new science of behavioral economics

Bernheim, B. D., Garrett, D. M., & Maki, D. M. (2001). Education and saving: The longterm effects of high school financial curriculum mandates. Journal of Public Economics, 80(3), 435–465.

Blau, F. D. & Lawrence, M. K. (2000). Gender differences in pay. Journal of Economic Perspectives, 14(4), 75-99.

Dorius S, Firebaugh G. Trends in Global Gender Inequality. *Social Forces* [serial online]. July 2010;88(5):1941-1968. Available from: Academic Search Elite, Ipswich, MA. Accessed December 18, 2011

Dana-Nicoleta Lascu, Harold W. Babb, Robert W. Phillips, (1997) "Gender and Investment: The Influence of Gender on Investment Preferences and Practices", Managerial Finance, Vol. 23 Iss: 10, pp.69 – 83

Edward J. Stendardi, Judy F. Graham, Mary O'Reilly, (2006) "The impact of gender on the personal financial planning process: Should financial advisors tailor their process to the gender of the client?", Humanomics, Vol. 22 Iss: 4, pp.223 – 238

Grable, J. E. (2000). Financial risk tolerance and additional factors that affect risk taking in everyday money matters. Journal of Business and Psychology, 14(4), 625-630.

Grable, J. & Lytton, R. H. (1999). Financial risk tolerance revisited: The development of a risk assessment instrument. Financial Services Review, 8, 163-181.

Galdas P. M. Johnson J.L. Percy M.E. and Ratner P.R. (2010) Help seeking for cardiac symptoms: Beyond the masculine-feminine binary Social Science & Medicine

Judy F. Graham, Edward J. Stendardi, Jr, Joan K. Myers, Mark J. Graham, (2002) "Gender differences in investment strategies: an information processing perspective", International Journal of Bank Marketing, Vol. 20 Iss: 1, pp.17 – 26

Moutinho L. and Hutcheson, G. D. (2007). Store choice and patronage: a predictive modelling approach. *International Journal of Business Innovation and Research.* **1(3)**: 233-252.

Peggy D. Dwyera, James H. Gilkesonb, John A. Listc , (2002) Gender differences in revealed risk taking: evidence from mutual fund investors, Economics Letters 76 (2002) 151–158

Selena T. Garrison (2010) Gender differences in financial socialization and willingness to take financial risks

Susan Durbin and Steve Fleetwood, (2010) "Gender inequality in employment: Editors' introduction", Equality, Diversity and Inclusion: An International Journal, Vol. 29 Iss: 3, pp.221 – 238

Sung, J, & Hanna, S. (1996). Factors related to risk tolerance. Financial Counseling and Planning, 7, 11-19.

45

Snow, D.A. and Oliver, P.E. (1995). "Social Movements and Collective Behavior: Social Psychological Dimensions and Considerations." In Karen Cook, Gary A.Fine, and James S.House (eds) Sociological Perspectives on Social Psychology, pp.571–600. Boston: Allyn and Bacon

Simone de Beauvoir, *The Second Sex*, 1949, as translated and reprinted 1989

Schwalbe, M. The Sociologically Examined Life: Pieces of the Conversation Third Edition.2005.22–23

Taifel, H. & Turner, J.C. (1986). The social identity of intergroup relations. In S. Worchel & W.G. Austin (eds), The psychology of intergroup relations, pp.7–24. Chicago:Nelson-Hall

Terry, D.J., Hogg, M.A. (1996). Group norms and the attitude-behavior relationship: A role for group identification. Personality and Social Psychology Bulletin, 22, 776–793

Ward, S. (1974). Consumer socialization. *Journal of Consumer Research, 1*, 1-14.

Ward, S., Klees, D. M., & Wackman, D. B. (1991). Consumer socialization research: Content analysis of post-1980 studies and some implications for future work, inadvances in consumer research, R.H. Holman and M .R. Solomon, eds. Provo,UT: Association for Consumer Research, 798-803.

Winnie Byanyima's sabbatical period at the African Gender Institute, University of Cape Town narrative report.http://idl-bnc.idrc.ca/dspace/handle/123456789/27243,2005

Yao, R., Gutter, M. S., & Hanna, S. D. (2005). The financial risk tolerance of blacks, Hispanics, and whites. Financial Counseling and Planning, 16(1), 51-62.

See how your saving accrue (2010)http://www.Nordea.fi/see how your saving accrue

Gender differences (2009) http://www.rps.psu.edu/probing/gender.html

Gender (2008) http://en.wikipedia.org/wiki/Gender
Gender gaps (2011) http://www.economist.com/node/21539928

7 APPENDIX I

Questionnaire

Hello, I am glad to welcome to you to take part in the survey, which is part of my thesis. The survey is going to explore relationships among different variables including gender, saving behavior, and investment behavior. The survey itself is only used for academic research. Please fill out the questionnaire, and note that your response is confidential and that any data summaries made available will not include your individual responses. Please finish the questionnaire as soon as possible. After done the questionnaire, save it, then send it to this email address: qiaoxuew@arcada.fi. Thanks for your participant.

1. Your age and nationalities

2. Please state your gender.

   ⚪ Male

   ⚪ Female

3. Year you are completing your degree:

   ⚪ 2011

   ⚪ 2012

   ⚪ 2013

   ⚪ equal or over 2014

4. Do you know exactly what finance means:

   ⚪ Yes

○ No

5. By what methods did you learn finance knowledge:

○ Financial discussion with parents

○ Internet and print media

○ Social network (discuss with your peers)

○ Enroll finance course at your school

6. Assuming you were given 1000€, what you would like to do with this 1000€:

○ Deposit in a saving account which regards as riskless.

○ Take average financial risks expecting to earn average returns

○ Take above average financial risks expecting to earn above average returns

○ Take substantial financial risks expecting to earn substantial returns

7. Before you make decision of using 1000€, what would you consider to do

○ Discuss with your parents

○ Discuss with your peers

○ Look for information through internet or other mass media

○ Ask for financial experts' advisory

8. What is your major right now

8 APPENDIX II

Nominal Regression

[DataSet1] F:\gender financial behavior study.sav

Case Processing Summary

		N	Marginal Percentage
Financial risk willingness	accept no risk	50	43.5%
	take average financial risk	47	40.9%
	take above average financial risk	14	12.2%
	take substantial financial risk	4	3.5%
Primary financial learning opportunity	Financial discussion with parents	47	40.9%
	Internet and print media	40	34.8%
	Financial discussion with peers	12	10.4%
	Enroll finance course at school	16	13.9%
Valid		115	100.0%
Missing		0	
Total		115	
Subpopulation		8	

Model Fitting Information

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	60.979			
Final	52.087	8.892	9	.447

Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	6.630	12	.881
Deviance	7.658	12	.811

Pseudo R-Square

Cox and Snell	.074
Nagelkerke	.084
McFadden	.035

Likelihood Ratio Tests

Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	52.087[a]	.000	0	.
Financial_learning_opportunity	60.979	8.892	9	.447

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

a. This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.

Parameter Estimates

Financial risk willingness[a]		B	Std. Error	Wald	df
take average financial risk	Intercept	.689	.644	1.144	1
	[Financial_learning_opportunity=1]	-.799	.694	1.325	1
	[Financial_learning_opportunity=2]	-.915	.699	1.713	1
	[Financial_learning_opportunity=3]	-.874	.863	1.026	1
	[Financial_learning_opportunity=4]	0[b]	.	.	0
	[Gender=1]	.008	.419	.000	1
	[Gender=2]	0[b]	.	.	0
take above average financial risk	Intercept	-.583	.908	.413	1
	[Financial_learning_opportunity=1]	-.333	.974	.117	1
	[Financial_learning_opportunity=2]	-.940	1.027	.837	1
	[Financial_learning_opportunity=3]	-1.132	1.388	.665	1
	[Financial_learning_opportunity=4]	0[b]	.	.	0
	[Gender=1]	-.246	.625	.155	1
	[Gender=2]	0[b]	.	.	0
take substantial financial risk	Intercept	-1.296	1.210	1.148	1

[Financial_learning_opportunity=1]	-1.697	1.154	2.163	1
[Financial_learning_opportunity=2]	-19.805	6632.025	.000	1
[Financial_learning_opportunity=3]	-19.766	.000	.	1
[Financial_learning_opportunity=4]	0[b]	.	.	0
[Gender=1]	1.006	1.228	.670	1
[Gender=2]	0[b]	.	.	0

Financial risk willingness[a]		Sig.	Exp(B)	95% Confidence Interval for Exp(B)
				Lower Bound
take average financial risk	Intercept	.285		
	[Financial_learning_opportunity=1]	.250	.450	.115
	[Financial_learning_opportunity=2]	.191	.400	.102
	[Financial_learning_opportunity=3]	.311	.417	.077
	[Financial_learning_opportunity=4]	.[b]	.	.
	[Gender=1]	.984	1.009	.444
	[Gender=2]	.[b]	.	.

take above average financial risk	Intercept	.521		
	[Financial_learning_opportunity=1]	.732	.717	.106
	[Financial_learning_opportunity=2]	.360	.391	.052
	[Financial_learning_opportunity=3]	.415	.322	.021
	[Financial_learning_opportunity=4]	.b	.	.
	[Gender=1]	.693	.782	.230
	[Gender=2]	.b	.	.
take substantial financial risk	Intercept	.284		
	[Financial_learning_opportunity=1]	.141	.183	.019
	[Financial_learning_opportunity=2]	.998	2.504E-009	.000
	[Financial_learning_opportunity=3]	.	2.604E-009	2.604E-009
	[Financial_learning_opportunity=4]	.b	.	.
	[Gender=1]	.413	2.734	.246
	[Gender=2]	.b	.	.