Aalto University
School of Economics

# Consumer Attitudes, Expectations, and Financial Market Participation

Finance

Master's thesis

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Abstract
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# CONSUMER ATTITUDES, EXPECTATIONS, AND FINANCIAL MARKET PARTICIPATION

## PURPOSE OF THE STUDY

The purpose of this study is to investigate the determinants of financial market participation. Financial market participation will be reasearched in a very broad context including stock market participation, savings, loans and credit, credit card usage/ownership, and insurance coverage. The drivers tested in this thesis include risk tolerance, optimism, expectations, safety net expectations, sensation seeking tendency, social capital, sociability and political preference. Furthermore, I research the impact of open-mindedness which has not priorly been investigated in this context.

## DATA

The data used is from a comprehensive survey, the RISC Monitor 2009, conducted by TNS Finland during the first quarter of 2009. The final sample size is within the range of 3,400 to 5,000 respondents.

## RESULTS

Various attitude and expectations-related determinants are found to have an impact on financial market participation. Especially interesting are the positive impact of social capital, risk tolerance and right-wing political orientation on stock market participation. On the other hand, a big contribution is the result indicating that positive safety net expectations lead to decreased stock ownership. There is no indication of sensation seeking, optimism or sociability having any influence on participation. Safety net expectations have a negative impact on savings while right-wing political orientation has a slight positive influence. Positive expectations are however found to have a positive impact on housing loans. Optimism and sensation seeking both have a positive effect on all types of loans. Risk tolerance and sensation seeking are found to lead to increased usage or ownership of credit cards while positive safety net expectations have a slight negative effect, contrary to what was hypothesized. Insurance coverage is decreased with risk tolerance and positive safety net expectations.

## KEYWORDS

Stock market participation, financial market participation, savings, loans and credit, credit cards, insurance coverage, risk tolerance, optimism, expectations, safety net expectations, sensation seeking tendency, social capital, sociability, political preference, open-mindedness

Aalto-yliopiston kauppakorkeakoulu
Pro Gradu –tutkielma

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# CONSUMER ATTITUDES, EXPECTATIONS, AND FINANCIAL MARKET PARTICIPATION

## TUTKIELMAN TAVOITE

Tutkielman tavoitteena on tutkia tekijöitä, jotka vaikuttavat kuluttajien rahoitusmarkkinoihin osallistumiseen. Tarkoitus on tutkia riskitoleranssin, optimismin, odotusten, turvaverkkoluottamuksen, sensaatiohakuisuuden, sosiaalisen pääoman, sosiaalisuuden, poliittisen suuntautumisen ja avomielisyyden vaikutuksia osakemarkkinoihin sijoittamiseen, säästämiseen, luoton tai lainan ottamiseen, luottokorttien omistukseen ja vakuutusten kattavuuteen.

## AINEISTO

Tutkielma hyödyntää TNS Gallup Oy:n toteuttaman RISC Monitor –kyselyn. Kysely toteutettiin tammi-maaliskuussa 2009 ja sisältää neljä eri lomaketta, joista viimeisen pääsisällön finanssiin liittyvien kysymysten vastauksia yhdistetään tässä tutkielmassa erilaisiin samassa kyselyssä olleisiin asenneväittämiin. Otokseen kuuluu reilut 5,000 vastaajaa.

## TULOKSET

Sosiaalisella pääomalla, riskitoleranssilla ja oikeistopolitiikkaan suuntautumisella on myönteinen vaikutus osakesijoittamiseen. Toisaalta positiiviset odotukset yhteiskunnallista turvaverkkoa kohtaan alentavat osallistumista. Sensaationhakuisuudella, optimismillä tai sosiaalisuudella ei ole vaikutusta. Turvaverkkoluottamuksella on negatiivinen vaikutus säästämistä kohtaan kun taas oikeistopolitiikalla on heikko myönteinen vaikutus. Sekä optimismi että sensaatiohakuisuus vaikuttavat positiivisesti lainanottamiseen kun taas myönteisillä odotuksilla on myönteinen vaikutus asuntolainojen ottamisen. Riskitoleranssi ja sensaationhakuisuus liittyvät positiivisesti luottokorttien omistukseen. Vakuutusten kattavuus laskee riskitoleranssin ja positiivisen turvaverkostoluottamuksen kasvaessa.

## ASIASANAT

Osakemarkkinoille osallistuminen, rahoitusmarkkinoille osallistuminen, säästäminen, lainat ja luotot, vakuutukset, luottokortit, riskitoleranssi, optimismi, odotukset, turvaverkostoluottamus, sensaatiohakuisuus, sosiaalinen pääoma, sosiaalisuus, poliittinen suuntautuminen, avomielisyys

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# 1. Introduction

## 1.1. Background and motivation

Researchers have for decades attempted to understand the reasons behind financial market participation, most research focusing on participation in stock markets. The equity premium puzzle is one that has intrigued the minds of many researchers. Ever since Mehra and Prescott (1985) first drew attention to it, this phenomenon has fueled extensive research in the field of finance and economics. The relevance of this research has been strengthened through discovery of welfare loss resulting from non-participation in stock (Cocco et al. 2005). I attempt to contribute to this field of study by looking into consumer attitudes and expectations related determinants of stock market participation.

The second purpose behind this thesis is to study also other forms of participation: there is little research focused on non-stock financial market participation although many interesting questions remain largely unanswered. What factors lie behind purchasing insurance? What kinds of people save money? What kind of determinants could explain ownership of credit cards or having loans?

Earlier research has shown that both transaction costs and socioeconomic and demographic factors have an impact on stock ownership. Bertaut (1998) and Vissing-Jorgensen (2004) show that transaction costs affect participation while Barber and Odean (2001) have found men to trade more than women. Campbell (2006) shows that higher levels of wealth, income and education have a positive impact on stock ownership with Cole and Shastry (2009) confirming the results for education.

On the other hand, personal attitudes have also been investigated in this field. Felton, Gibson and Sanbonmatsu (2003) and Puri and Robinson (2007) have found evidence for optimism influencing stock market participation and savings. Campbell (2006) shows risk aversion to play a negative role in participation while Grinblatt and Keloharju (2009) find sensation seeking and overconfidence to have the opposite effect on trading.

Guiso et al. (2004, 2008) find trust and social capital to impact stock market participation while Hong et al. (2004) and Kaustia and Knüpfer (2010) show that more social households also participate more. Kaustia and Torstila (2010) find right-wing political orientation to have

a positive impact on stock investment behavior. Also Luotonen (2009) in his Master's thesis finds evidence of people believing in values linked to power and achievement being more likely to participate. Laakso (2010) looks into a number of both behavioral and socioeconomic factors in her Master's thesis and finds evidence for many prior conclusions.

This thesis is rare in its objective to shed light onto not only stock market participation but also savings, loans and credit, credit card usage/ownership, and insurance coverage. The study is based on an extensive survey, the RISC Monitor 2009, conducted by TNS Finland. The survey consists of hundreds of questions relating to topics ranging from consumer attitudes and marketing to financial issues. The data being of such breadth makes it possible for the scope of this thesis to reach great heights by allowing me to investigate the impact of various attitude and expectations related determinants on financial market participation.

The determinants of financial market participation tested in this thesis include risk tolerance, optimism, expectations, safety net expectations, sensation seeking tendency, social capital, sociability and political preference. Furthermore, I test the impact of open-mindedness which has not previously been investigated in this context.

The sample size is limited to that of the respondents participating in the financial issues part of the survey. Depending on the questions, the final sample size ranges between 3,400 and 5,000 respondents from a good variety of backgrounds. The data set is sophisticated and comprehensive yet unique in its application to such a study.

As for the motivation behind this thesis, it is quite evident that understanding the drivers behind financial market participation can and will benefit financial service providers. Understanding not only what kind of people are likely to purchase insurance but also which group of people are hesitant to buy insurance services will help insurance service providers tailor their marketing efforts and services in ways matching the motivation driving their customers. Commercial banks similarly benefit from obtaining a better view of what kinds of characteristics and incentives influence people to save, apply for loans, and use credit cards.

The benefits are not limited only to financial service providers: the end users of these services gain as well. Participating in the financial market is a pathway to planning one's individual or household finances to cover different stages of the life cycle and accumulate wealth. As

already mentioned, Cocco et al. (2005) show that non-participation in stock results in welfare loss. On a broader level, for example, Guvenen (2006) shows non-participation to be a driver behind wealth inequalities: thus, financial market participation, through smoothening of wealth distribution, narrows the gap between the poor and the rich. All of this again may have indirect consequences on policy making, taxation issues and regulation.

## 1.2. Results and Contribution

The results of this thesis shed light onto the drivers behind financial market participation. As already mentioned, there has been little research that focuses on so many different forms of financial market participation, all at once. In addition, I am looking into a wide range of determinants also, including one that is completely novel to the field.

One of the main contributions of this thesis lies in the discovery that positive safety net expectations decrease stock participation, a result in line with Guiso et al. (2003) but contrary to that of Gormley et al. (2010). Also, contrary to the hypothesis, and earlier work by Puri and Robinson (2007), I find little indication of optimism having a statistically significant impact on stock market participation. The hypothesis that sensation seeking has a positive impact on stock ownership is also rejected.

Social capital is found to have an unexpectedly strong positive impact on participation. Earlier research by Guiso et al. (2004) had indicated to there being a correlation between lower education levels and weaker legal enforcement with social capital: this is obviously not the case in Finland, yet results indicate social capital having a strong influence on participation. Also the theory that right-wing political orientation leads to increased participation receives strong support from my analysis corroborating the results obtained by Kaustia and Torstila (2010). Risk tolerance and expectations are found to have a strong positive impact on stock market participation in most specifications.

As for the other forms of financial market participation investigated, the main contribution for savings is the discovery of the impact of safety net expectations and political orientation. I find support for Gormley et al.'s (2010) recent discoveries claiming positive safety net expectations lead to decreased savings. Right-wing political preference on the other hand is found to have a slight positive impact on savings.

The only variable risk tolerant does not affect is loans and credit. Positive expectations are however found to have a positive impact on housing loans while safety net expectations have an opposite effect on non-housing loans. Optimism and sensation seeking both have a positive effect on all types of loans, although the effect of sensation seeking is twice as strong for non-housing loans and credit than for housing loans.

Risk tolerance and sensation seeking are found to lead to increased usage or ownership of credit cards while positive safety net expectations have a slight negative effect contrary to what was hypothesized. Insurance coverage is decreased with risk tolerance and positive safety net expectations.

This is the first test for the explanatory power of open-mindedness the reasoning being that open-minded people are more likely to invest in stock is that they are less prejudiced against doing so. However, I find no support for open-mindedness having any impact on any form of financial market participation. The explanation could be that open-mindedness in fact has no effect or that the questions used do not correctly measure the desired determinant due to ambiguity in formatting of the questions.

## 1.3. Structure of the study

This thesis is organized into 8 sections. Section 2 looks into the theoretical background behind the phenomena investigated in this thesis, focusing first on previous studies on various forms of financial market participation and moving on to stock market participation and the different explanations behind it. Next, a separate section has been allocated for hypothesis formulation as not all of the hypotheses are based on prior research due to lack therein. The data and methodology used will be examined closely in section 4. Descriptive statistical analysis is an entire section (5) which is quite extensive in its own right due to the need to clarify the wide range of variables used in this thesis. I will present the results in section 6 and continue with a discussion of the most significant results in section 7. Finally I conclude this study in section 8.

# 2. Theoretical Background

The existing literature on financial market participation is from one point of view very abundant while from the other very scarce. Stock market participation or non-participation, and trading habits in general have been studied quite extensively for the past three decades. Research on other forms of financial market participation however remains quite deficient. There are of course studies on different trends prevailing in the demand and supply of these financial products. However, research directly explaining the motivating determinants behind non-stock participation is relatively scarce. This fact equates to the following literature review being focused more extensively on stock market participation.

The literature review has been structured such that I first look into earlier studies on participation in financial products and services other than stock. Next I focus on selected stock market participation research.

## 2.1. Financial market participation (excluding stock)

It is perhaps best to start with savings, which is the one most studied, at least relatively speaking in this context. Once again going from socioeconomic point-of-views, already in 1996, Muradoglu and Taskin find differences in household savings behavior between industrial and developing countries with increases in disposable income, lower real returns and inflation having an impact only in the developed nations while trend income, real balances and dependency ratio have significant impact in less developed countries.

The impact of income on savings is one that possibly comes to mind purely from common sense. Indeed, Cashell (2009) discovers that those with more income save at a higher rate than those with lower income. In addition, a larger percentage of higher earners save relative to people in the lower income brackets. The education level of individuals is also bound to have an effect. This is confirmed by Lusardi (2008) who finds evidence for low literacy and information deficiency influencing an individual's ability to save money and ensure financing for their retirement years. Retirement planning and wealth accumulation is lacking where the people are ignorant about basic financing issues and concepts. Moving along the lines of saving for retirement age, Madrian and Shea (2000) find 401(k) participation to be

considerably higher when enrollment in these programmes is automatic instead of the default option being non-enrolment. They conclude this default tendency to be be a product of participation inenertia and thinking in the lines of the default option being actually a form of investment advice. Dybvig and Liu (2010) again link consumption and investment choices with flexibility in retirement and the ability to borrow against labor income.

Beverly et al. (2003) are one of the few to investigate several household financial management activities at once. They find financial knowledge to have a positive impact on cash-flow management, credit management, saving and investment.

Behavioral issues in connection with financial market participation have been investigated to some extent also. Duflo and Saez (2000) find evidence that peer influence is significant in decision making concerning retirement savings. However, this influence is found only within the individual's own peer group, not across peer groups (predetermined subgroups of the studied people). On a similar note, Bertrand et al. (2000) investigate the linkage between participation and networking. Their results display definite strong impact of social networks on mean welfare participation.

The study of Puri and Robinson from 2007 is also comprehensive in linking optimism with not only stock market participation but savings. They find interesting results indicating the moderate optimists save more because they believe it is something desirable and good while extreme optimists save less as they have shorter planning horizons.

The very recent study of Gormley et al. (2010) has a big contribution to the field as their analysis shows a link between access to insurance and investment and savings decisions. According to their research, the development and availability of insurance markets has a positive impact with stock market participation while being negatively correlated with savings. Also interesting is that they show evidence of the impact of optimistic safety net expectations: the stronger the governmental social security is in insuring the individual's retirement, the more this individual participates in the stock market and the less they are likely to save. Similarly, unemployment insurance is also related to participation rates in stock.

When it comes to credit card ownership and usage, Bertaut and Haliassos seem to have contributed most to the field in the recent past. Haliassos et al. (2003) comment on the fact

that participation in debt has been on a rising trend for quite some time, especially in the form of credit cards and mortgages. Bertaut and Haliassos (2005) infer that self-control hyperbolic discounting could be the explaining factor behind the utilization of both retirement assets and credit card debt. More recently, Bertraut et al. (2009) try to shed light on the puzzling phenomenon where individuals have credit card debt while simultaneously being in possession of low-interest and liquid assets by using the accountant shopper setup. On another note, Agarwal et al. (2009) look into lifecycle patterns in making financial mistakes (e.g. less than optimal credit card balance transfer offer usage) and discover that the pattern is U-shaped with the best decisions being made near the age of 53 years.

## 2.2. Stock market participation

Researchers throughout time have tried to reveal the reasons behind the non-participation phenomenon. Why does only such a small portion of the population hold stocks despite the attractive premiums? Some of the research has been more conventional and has focused on socio-economic variables while others, especially newer publications have attempted to explain non-participation using more novel concepts such as social capital and political orientation. For clarity's sake, the literature has been grouped according to researched determinants. However, overlapping in these topics are inevitable as often several have been looked into in one study and many factors influence one another.

### *2.2.1. Transaction costs and socio-economic and demographic determinants*

Limited stock market participation has been explained in existing literature by costs associated with investing. Results indicating that participation is negatively influenced by various costs have been obtained by various researchers during the past few decades. Bertaut (1998) shows that households may be deterred from stockholding due to perception of high information costs to participate relative to the premium received. Households with lower risk aversion, higher levels of education and more wealth are shown to be more likely to enter into the markets. Vissing-Jorgensen (2004) suggests that information and/or transaction costs could be a possible explanation for non-participation. However, the author also argues that

such irrational behavior has a tendency to weaken with increased levels of investor wealth or sophistication in financial issues. Earlier in 2002, Vissing-Jorgensen shows that even 50 dollars per period as costs is enough to result in non-participation in stockholding.

Haliassos and Michaelides (2003) confirm that even small entry costs for stock ownership have a dissuading impact on participation. Guiso and Jappelli (2005) link awareness of risky securities with participation in stock markets but also touch on the topic of costs by concluding that entry costs have a negative impact on participation as not all individuals own stock although are aware of this opportunity. On a related note to awareness, Cole and Shastry (2009) make important findings. They find proof for education's noteworthy impact on increasing investment income. Also, they find evidence for the importance of cognitive ability showing that controlling for family background, participants with better test scores are more likely to participate in financial markets. Campbell (2006) corroborates by concluding that higher levels of education, wealth, and income are positively linked to stockholding. On the other hand, Campbell finds a weak negative influence of age on stock market participation which could be explained by a unique situation in the 1990s in U.S.A.

Gender effects have been another very popular determinant researched in hope of obtaining insight into non-participation in stock markets. Often gender effect has been linked with risk aversion and over-confidence as these factors seem to be linked. Barber and Odean (2001) start from the base assumption that since psychological research has shown men to display more overconfidence than women, they are consecutively bound to trade more. Evidence is found to support their hypothesis showing that male investors indeed do trade 45% more than their female counterparts. The higher trading levels are shown to lead to higher reductions (close to one percent more than for females) in net returns also.

Men and women are found to differ in their stockholding preferences, explained often by females being more risk-averse than males (Jianakoplos and Bernasek, 1998). Sundén and Surette (1998) again propose that the gender effect is not as straight-forward but is related also to marital status of the investor. Their study shows that single men are more likely to invest in stock than single women and married men.

### *2.2.2. Optimism, expectations*

Puri and Robinson (2007) took on the objective to investigate how optimism relates to an individual's decision-making regarding economic issues. Using life expectancy miscalibration (comparison of individual's self-reported life expectancy to statistical rates) and data from the Survey of Consumer Finance, the writers report that optimistic people are more likely to remarry, work harder, expect themselves to retire later, hold more stock and have more savings. However, while a moderate amount of optimism is found to result in better decision-making and sensible financial choices, extreme amounts of optimism can result in detrimental financial behavior.

Felton, Gibson and Sanbonmatsu (2003) base their study on a sample of 66 undergraduate business majors and investigate the impact of gender and optimism on the risk-level of investment choices of these students. Their findings imply that males make higher-risk investments than females, mainly due to optimistic males making riskier choices suggesting that gender differences in investment tactics may result from the choices of the optimists in men. However, this does not imply that women are less optimistic: just that optimism does not translate into the same behavior with the two genders. Perhaps the underlying risk preference differences between men and women can explain this. Also whether optimism is beneficial in all domains is open to question. Jacobsen et al. (2008) confirm gender differences although their results deviate from Felton et al.'s by indicating that men are significantly more optimistic about their future economic standing than women, both across countries and over time.

Gormley et al. (2010) recently reveal an interesting point of view to the participation puzzle by showing that the lack of insurance coverage has a positive effect on savings while reducing stock market participation. Their work is specifically interesting when considering the effect of safety net expectations on participation: the stronger the social security in insuring retirement comsumption, the less is the saving rate and the more is participation in stock. Also, unemployment insurance is shown to have a similar impact. Guiso et al. (2003) however propose that mistrust in a government-based safety net would have a positive impact on stock holding.

### *2.2.3. Risk preference and sensation seeking*

Risk tolerance has partially been discussed within the subsection on literature on socio-economic and demographic determinants, especially in the studies analyzing gender effects. Related to those studies are the one by Jianakoplos and Bernasek (1998) who find single men to be less risk averse regarding financial matters than single women. This is directly related to men holding proportionately more risky assets than women.

Campbell (2006) finds evidence that U.S. households which are less risk tolerant are also less likely to invest in stocks. Laakso (2010) confirms the impact of risk aversion on participation using European data. The study of Sundén and Surette (1998) also find verification of risk tolerance being linked to portfolio choice, expectedly so that above-average risk tolerance is correlated with allocating funds more willingly to stocks.

Grinblatt and Keloharju (2009) look into how two determinants, sensation seeking and overconfidence (specifically in males), influence investors' inclination towards trading stock. The authors find evidence of trading being influenced by behavioral characteristics and conclude that those who display sensation seeking (measured using amount of speeding tickets) and higher levels of overconfidence (using psychological profiles of army-entering men) also trade more.

On the other hand, differing from most of the already mentioned studies, Haliassos and Bertraut (1995) conclude that risk aversion as such does not account for households' lack of participation in the stock markets. Instead they find intertia and deviations from maximization of expected utility to be the most plausible explanations although minimum investment prerequisites and differences between borrowing and lending rates may also have an impact..

### *2.2.4. Social capital, sociability and trust*

The social capital, sociability and trust factors have risen to be of increasing important in the research of stock market participation, especially after the turn of the century. Guiso et al. (2004) investigate the impact of social capital. Using Italian data where social capital is primarily measured by electoral turnout at provincial level and secondarily by using voluntary blood donations, the authors conclude that in areas of Italy with high levels of social capital,

households invest more in stock and less in cash, display a stronger tendency of using checks, and have more access to institutional credit while depending less on informal credit. The results show a strong correlation between higher levels of social capital in areas with weaker legal enforcement and among people who had lower levels of education. The study however could not fully conclude if the same effect of social capital can be seen in countries or areas where legal enforcement is not as lacking.

Guiso et al. continue their research in 2008 by investigating the influence of trust on participation. The authors hypothesize that less trusting individuals are not only less likely to invest in stocks but also purchase less stock when participating in the stock market. Trust is defined as the individual's view of the probability of getting cheated and is said to reflect not only the traits of the financial markets but also the characteristics of the participant. Controlling for ambiguity aversion and risk aversion, and using data from Dutch households, the writers find support for their hypothesis which indicates that individuals who are more trusting are more inclined to purchase stock and also allocate a bigger share of their wealth into stock.

Along the same line of work is Hong et al.'s article from 2004 where they look into the influence of social activity on stock market participation. In contrast to Guiso et al., Hong et al. use American data, and find evidence of higher participation in stock markets by more social households. Also, their research indicates that the effect of social interaction is stronger in areas where participation in stock markets is higher. Similarly Brown et al. (2008) investigate the influence of "community effects" on participation in U.S.A. The writers find that a ten percentage-point rise in the overall stock ownership rate of the community increases an individual's likelihood of holding stock by four percent. Results indicate that word-of-mouth communication with friends, colleagues and neighbors has a definite impact on an individual's choice to hold stock. Also, not surprisingly, the community effect is discovered to be stronger in neighborhoods or societies which are more sociable.

Georgarakos and Pasini (2009) look into the influence of both trust and sociability on stock market participation. Using data from the Survey on Health, Aging and Retirement in Europe (SHARE) conducted in 2004, the authors find that trust and sociability indeed do have positive influence on participation. Sociability is found to balance out the negative effect of low trust at least partially. Trust in advice obtained from financial institutions is found to also

have a significant effect on stockholding. However, Laakso (2010), also utilizing SHARE data (although a more recent set), does not find trust to have a significant impact on stock participation.

Kaustia and Knüpfer (2010) find that positive returns of nearby peers have a significant affirmative impact on an individual's participation decision. These results however are only confined to positive returns.

### *2.2.5. Personal values and political orientation*

Luotonen (2009) has recently written his thesis on the impact of personal values on stock investments. Based on one of his assumptions that right-wing political orientation is directly related to "self-enhancement values" and stock market investment, Luotonen finds evidence of people believing in these values linked to power and achievement being more likely to participate.

Luotonen bases his assumptions partially on Kaustia and Torstila's work (2010) which focuses on the relationship between political preferences and participation. Their research shows evidence of right-wing political preferences being positively correlated with purchasing stock. The authors conclude that personal values do influence investment behavior. However, results are inconsistent with the concept of risk aversion causing this correlation. On a similar note, Hong and Kostovetsky (2008) also report that political values do have an impact on investment behavior.

Laakso (2010) contributes to the research on stock market participation through the investigation of various determinants and their impact. She also finds sociability and political orientation to be strongly related to stock ownership. Also cognitive skills, life satisfaction, health issues, and religion have an effect on stock holding.

Table 1 below contains a summary of prior research on stock market participation with references to the most important work.

**Table 1. Summary of prior research on stock market participation**

| Determinant | Impact | Prior research |
|---|---|---|
| **Male gender** | Positive | Jianakoplos and Bernasek, (1998), Sundén and Surette (1998) |
| **Education** | Positive | Campbell (2006), Cole and Shastry (2009) |
| **Costs (transaction, information, entry)** | Negative | Bertaut (1998), Haliassos and Michaelides (2003), Vissing-Jorgensen (2004, 2008) |
| **Risk aversion** | Negative | Campbell (2006), Laakso (2010) |
| **Over-confidence** | Positive | Barber and Odean (2001), Grinblatt and Keloharju (2009) |
| **Sensation seeking** | Positive on trading | Grinblatt and Keloharju (2009) |
| **Optimism** | Positive | Felton et al (2003), Puri and Robinson (2007) |
| **Positive safety net expectations** | Mixed | Guiso et al. (2003), Gormley et al. (2010) |
| **High social capital** | Positive | Guiso et al. (2004), Hong et al. (2004) |
| **High sociability** | Positive | Georgarakos and Pasini (2009) |
| **High trust** | Positive | Guiso et al. (2008) |
| **Right-wing political preference** | Positive | Kaustia and Torstila (2010), Luotonen (2009) |

# 3. Hypotheses

The purpose of this thesis is to investigate whether certain attitude and expectations related determinants have a meaningful impact on stock market participation. In addition, as the breadth of the used data allows for it, other forms of financial market participation will also be investigated. These others are savings, loans and credit, credit card ownership and insurance coverage. As has been evident from Section 2, the literature on financial market participation is still quite scarce when considering attitude-related determinants and thus most of the hypotheses for other than stock market participation are based on the use of common sense and psychology. Thus, for the scope of this thesis, it is impossible to look into the impact of so many independent variables on all the dependent variables, especially due to lack of a base point to start upon, leading to only selected determinants being investigated for the non-stock forms of participation.

## 3.1. Stock market participation

Most of the hypotheses in terms of determinants influencing stock market participation are based on prior literature mentioned in Section 2.

*H1.1: Optimism leads to increased stock market participation*

*H1.2: Optimistic expectations lead to increased stock market participation*

*H1.3: Optimistic safety net expectations lead to decreased stock market participation*

*H2.1: Higher tolerance for risk leads to increased stock market participation*

*H2.2: Tendency for sensation seeking leads to increased stock market participation*

*H3: Higher levels of social capital lead to increased stock market participation*

*H4: Higher levels of sociability lead to increased stock market participation*

*H5: Right-wing political orientation leads to increased stock market participation*

*H6: Open-mindedness leads to increased stock market participation*

Optimism and optimistic expectations are thought to be linked and to have a positive impact on stock ownership through decreased risk aversion and increased confidence (Felton et al 2003, Puri and Robinson 2007). Optimism is also linked to even unrealistic expectations about future events (Weinstein 1980). Sanguinity related to safety net expectations can be interpreted in two ways and has lead to results showing both increased participation (Gormley et al. 2010) and decreased stock holding (Guiso et al. 2003). This could be caused by two different interpretations of stock ownership. If one classifies it as saving, it makes sense that individuals save or participate less due to a solid belief in having a safety net to fall back upon. On the other hand, if stock participation is thought or more as only a risky investment, having a reliable safety net could provoke an investor to take this risk because in case the investment turns sour again there is something to fall back upon. In my thesis, I will test the former.

There is abundant literature linking risk preferences either directly (Campbell) or indirectly through gender effects (Gianakoplos and Bernasek 1998) with stock market participation and the formulation of a hypothesis is quite simple. Sensation seeking is just another step from risk tolerance.

Moving on to social capital and sociability, recent profusion of studies (Hong et al. 2004, Georgarakos and Pasini 2009) are quite clear in indicating that the higher the level the more likely the investment in stock. The positive impact of right-wing political orientation again has become evident in recent studies by Kaustia and Torstila (2010) and Luotonen (2009).

Open-mindedness is a determinant I have not come across in financial research to have been investigated, at least not in relation to stock market nor financial market participation in general. The basic idea behind the assumption that open-minded people are more likely to invest in stock is that they are less prejudiced against doing so. It will be interesting to see whether there is a link between participation and open-mindedness.

## 3.2. Savings

The literature investigating savings is relatively speaking more scarce, thus the rise in the importance of discussing the development of the hypotheses here.

*H1.1: Optimism leads to decreased savings*

*H1.2: Optimistic expectations lead to decreased savings*

*H1.3: Optimistic safety net expectations lead to decreased savings*

*H2.1: Higher tolerance for risk leads to decreased savings*

*H2.2: Tendency for sensation seeking leads to decreased savings*

The study of Puri and Robinson from 2007 concludes that moderate optimists save more due to thinking this is the good action to take while extreme optimists save less. The thinking behind this hypothesis in this thesis is that an optimistic outlook on life or optimistic expectations would lead to decreased savings purely based on seeing less of a need to save. If an individual is optimistic and believes there is little chance of a rainy day, why would they save up for it? Also if the outlook on the future is optimistic, saving could also decrease through a rise in consumption. The thinking is quite in the line of the results obtained by Gormley et al. (2010) who conclude that optimism related to society's safety nets leads to decreased savings. If a person believes in a strong societal safety net, the need for a personal safety net is reduced.

When it comes to risk tolerance and from a more extreme point of view, sensation seeking, it is logical to assume that a person willing to take more risk is also willing to bet on their future and refrain from taking precaution from negative situations by saving. In another sense, a preference for risk could also lead to a decision to invest in more risky assets (and thus often with higher returns) such as stock.

## 3.3. Loans and credit

As from now, research focused on behavioral determinants and their impact for the rest of the dependent variables are lacking. Most of the reasoning behind the hypotheses is thus based on common sense and logical interpretation. The results should thus be very interesting.

*H1.1: Optimism leads to increased participation in loans and credit*

*H1.2: Optimistic expectations lead to increased participation in loans and credit*

*H1.3: Optimistic safety net expectations lead to increased participation in loans and credit*

*H2.1: Higher tolerance for risk leads to increased participation in loans and credit*

*H2.2: Tendency for sensation seeking leads to increased participation in loans and credit*

I could argue for optimism leading to both increased and decreased participation in loans and credit. In one sense, an individual could decrease engaging in loans due to believing they can manage without. However, ultimately I have hypothesized optimism and optimistic expectations to increase participation due to an optimistic outlook leading to a belief of being able to pay off the loan in the future.

A higher tolerance for risk or sensation seeking again are thought to lead to increased participation in the sense that these individuals care relatively less about whether they will be able to pay off the debt and instead engage in it when they wish or have a need without further thinking about it.

## 3.4. Credit cards

As credit cards are essentially a form of debt, albeit usually relatively-shorter term, it is quite natural to present the same hypotheses for credit cards as for loans and credit in the previous sub-section with the same reasoning behind them.

*H1.1: Optimism leads to increased usage/ownership of credit cards*

*H1.2: Optimistic expectations lead to increased usage/ownership of credit cards*

*H1.3: Optimistic safety net expectations lead to increased usage/ownership of credit cards*

*H2.1: Higher tolerance for risk leads to increased usage/ownership of credit cards*

*H2.2: Tendency for sensation seeking leads to increased usage/ownership of credit cards*

## 3.5. Insurance coverage

As stated earlier, as most participants of the survey have at least one form of insurance (for example, traffic insurance is mandatory by law in Finland for vehicle owners), looking into insurance coverage provides more insight. The hypotheses for insurance coverage are essentially same as those for savings because both forms of participation are seen as precautionary for negative situations. Again here, optimistic beliefs of all kinds lead to a decreased need to have something to fall back upon in unfortunate circumstances. Why would an individual get insurance if they believe in an optimistic future and have positive expectations?

Insurance is a means to secure oneself from risk, so it makes perfect sense that a risk tolerant person would refrain from high insurance coverage. Also someone who displays a tendency for sensation seeking could be assumed to be a daredevil of some sort who would be unlikely to purchase many forms of voluntary insurance. Actually, I could go as far as to saying that playing with the odds or taking a chance by not having insurance could provide certain satisfaction to sensation seekers.

*H1.1: Optimism leads to decreased insurance coverage*

*H1.2: Optimistic expectations lead to decreased insurance coverage*

*H1.3: Optimistic safety net expectations lead to decreased insurance coverage*

*H2.1: Higher tolerance for risk leads to decreased insurance coverage*

*H2.2: Tendency for sensation seeking leads to decreased insurance coverage*

# 4. Data and Methodology

## 4.1. Data

The data utilized in this thesis has been obtained from TNS Finland. TNS Gallup is Finland's leading service provider of marketing information and business insight. It is a part of the international TNS group, a world leader in its field.

Their RISC Monitor 2009 survey is a continuation of previous surveys, the participant size of the entire survey currently being well over 8000 participants. The data was collected between January and March 2009. The actual survey consists of several parts, one focusing specifically on financial questions. In addition, their database includes a wide variety of background variables. The entire survey data is representative of the Finnish population of ages 15-70.

In this study, I will be using answers from questions in the survey part focusing on financial issues. Thus my sample size will be bound to the 5568 participants whose answers were available for this particular section of the questionnaire.

The data set is sophisticated and comprehensive yet unique in its application to such a study further emphasizing the contributions of this thesis.

## 4.2. Limitations of data

The data analyzed is based on a large questionnaire with hundreds of questions. The formatting of the questions has been carefully designed, tested and refined throughout time. However, some of the questions may be imperfect in their ability to produce the answer to the right question. In general, in most surveys, the questions are subject to misinterpretation and very little can be done to control this. The questions used in this study have been chosen with utmost care and controlled for overlapping.

There is also a danger of sample selection bias as the study focuses only on those respondents who actually participated in answering the financial questions which may affect the results. Also, the questions were sent to the participant in certain bulks: there are no guarantees that the answers are all precise or well thought-out. The mental or physical state of the participant could have had a significant impact on the answers.

## 4.3. Methodology

The data set will first be analyzed using descriptive statistical methods in Section 5. This has been allocated its own section in order to give the reader a clear general overview of the characteristics of the participants. The respondents represent a diverse range of backgrounds socio-economically and personality-wise as will become clear from this descriptive analysis. The descriptive analysis starts off with socioeconomic and demographic characteristics moving then on to the actual determinants and variables studied.

The data being from a diverse and sizeable survey, it was to be expected that the question types, scales of answers and formats would display considerable differences. To ensure the quality and reliability of the results, all of the utilized variables have been standardized so that they are comparable and consistent. In section 4.3, I will go deeper into the development of the various variables.

### *4.3.1. Regression analysis*

Cross-sectional studies involve the analysis of data at a single point in time. In this case the data set represents characteristics of the sample from one specific point in time in 2009. Thus the best and most used way to analyze the data will be to use cross-sectional regression analysis over population.

The cross-sectional regression will test which factors affect participation in the financial markets, separately for each financial instrument or service. Regression analysis in general tests the relationship between a dependent variable and one or more independent variables. The dependent variables will be participation in stock market, savings, loans and credit, usage/ownership of credit cards and insurance coverage. The independent variables will be risk tolerance, optimism, expectations, safety net expectations, sensation seeking, social capital, sociability, right wing political orientation and open-mindedness. Both dependent and independent variables will be looked into in more detail in section 4.4.

### *4.3.2. Model specification*

The econometric regression model used will be a probit model. Probit regression has been commonly used in similar research in the past (Guiso et al. 2002, Luotonen 2009, Kaustia and Torstila 2010).

The regressions will be controlled for age, gender, income, education and area of residence. Even purely based on common sense, some of these socioeconomic variables are likely to be correlated. For example, education is likely to be correlated with income. A correlation matrix has thus been constructed (Table 2) that summarizes the correlation levels between the variables.

As is evident from the correlation matrix, there are no alarming correlations which could jeopardize the results ultimately obtained. None of the results are particularly surprising either. As can be expected, risk tolerance is most strongly correlated with stock market participation indicating the strong positive relationship between these two. Right-wing political orientation is strongly correlated with both stock ownership and insurance coverage. Savings and having a housing loan again are most correlated with insurance coverage. Participation in other forms of loans is related to ownership of credit cards which in turn is strongly correlated with insurance coverage.

Constructing the most correct or appropriate regression equations with the right variables is crucial to the reliability and appeal of this thesis. Thus a good amount of time was spent in determining the final econometric specifications.

This thesis investigates several dependent variables and the determinants that affect them thus it is practical to present only a general form of the probit regression function utilized. The regression function can be modeled as follows

$$y_i = X_i\beta + \varepsilon_i$$

where $i$ is the individual $i$, $y_i$ represents the dependent variable, $X_i$ is a (1 x $n$) vector containing $n$ numbers of independent variables, $\beta$ is a ($n$ x 1) vector containing corresponding coefficients for each independent variable and $\varepsilon_i$ is the error term.

## Table 2. Correlation matrix

This matrix shows the correlations between both the independent and dependent variables investigated in this thesis. Education1 dummy takes the value of one if the respondent has completed a Bachelor's degree or higher. Education2 dummy takes the value of one if the respondent has completed a Master's degree or higher. Income1 dummy takes the value of one if the respondent's annual income is within EUR 20,001-25,000, Income2 if within EUR 25,001 – 30,000, Income3 if within EUR 30,001 – 35,000, Income4 if within EUR 35,001 – 45,000 and Income5 if over EUR 45,001. Residence1 takes the value of one if the respondents live in a city with over 30,000 inhabitants. Residence2 takes the value of one if the respondents live in the Helsinki Metropolitan Area. Risk tolerance is the mean of the answers to three questions, increasing with value from 1-5. Expectations is the mean of the answers to two questions, expectations increasingly optimistic with value from 1-3. Safety net expectations is the mean of the answers to two questions, expectations increasingly optimistic with value from 1-5. Optimism increases with value from 1-3. Sensation seeking is the mean of the answers to three questions, increasing with value from 1-4. Social capital is is the mean of the answers to three questions, increasing with value from 1-4. Sociability is the mean of the answers to three questions, increasing with value from 1-4. Right-wing political orientation increases with value from 0-4. Open-mindedness is the mean of the answers to four questions, increasing with value from 1-3.

| **N=3438** | Stock ownership (dummy) | Savings (dummy) | Housing loan (dummy) | Non-housing loans (dummy) | Credit cards (dummy) | Insurance coverage | Age | Male (dummy) | Education1 (dummy) | Education2 (dummy) | Income1 (dummy) | Income2 (dummy) | Income3 (dummy) | Income4 (dummy) | Income5 (dummy) | Residence1 (dummy) | Residence2 (dummy) | Risk tolerance | Expectations | Safety net expectations | Optimism | Sensation seeking | Social capital | Sociability | Right-wing political orientation | Open-mindedness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stock ownership (dummy) | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Savings (dummy) | 0.073 | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| Housing loan (dummy) | -0.047 | 0.050 | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| Non-housing loans (dummy) | -0.096 | -0.064 | 0.155 | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Credit cards (dummy) | 0.102 | 0.065 | 0.182 | 0.181 | 1 | | | | | | | | | | | | | | | | | | | | | |
| Insurance coverage | 0.167 | 0.150 | 0.221 | 0.082 | 0.310 | 1 | | | | | | | | | | | | | | | | | | | | |
| Age | 0.170 | -0.009 | -0.105 | -0.077 | 0.192 | 0.151 | 1 | | | | | | | | | | | | | | | | | | | |
| Male (dummy) | 0.147 | -0.007 | 0.032 | 0.006 | 0.083 | 0.118 | 0.080 | 1 | | | | | | | | | | | | | | | | | | |
| Education1 (dummy) | 0.159 | 0.078 | 0.091 | -0.005 | 0.153 | 0.114 | -0.013 | -0.004 | 1 | | | | | | | | | | | | | | | | | |
| Education2 (dummy) | 0.166 | 0.058 | 0.054 | -0.035 | 0.138 | 0.094 | 0.027 | 0.046 | 0.608 | 1 | | | | | | | | | | | | | | | | |
| Income1 (dummy) | -0.045 | -0.030 | -0.014 | 0.025 | 0.001 | -0.022 | 0.025 | -0.091 | -0.064 | -0.080 | 1 | | | | | | | | | | | | | | | |
| Income2 (dummy) | -0.048 | 0.004 | 0.059 | 0.036 | 0.052 | 0.040 | 0.029 | -0.055 | -0.050 | -0.088 | -0.156 | 1 | | | | | | | | | | | | | | |
| Income3 (dummy) | 0.000 | 0.024 | 0.093 | 0.032 | 0.055 | 0.074 | 0.003 | 0.043 | 0.017 | 0.008 | -0.141 | -0.151 | 1 | | | | | | | | | | | | | |
| Income4 (dummy) | 0.053 | 0.055 | 0.099 | 0.042 | 0.145 | 0.116 | 0.036 | 0.145 | 0.157 | 0.145 | -0.167 | -0.179 | -0.161 | 1 | | | | | | | | | | | | |
| Income5 (dummy) | 0.172 | 0.081 | 0.121 | 0.012 | 0.156 | 0.202 | 0.057 | 0.191 | 0.212 | 0.231 | -0.150 | -0.160 | -0.145 | -0.172 | 1 | | | | | | | | | | | |
| Residence1 (dummy) | 0.032 | 0.005 | -0.051 | 0.021 | 0.007 | -0.124 | -0.151 | -0.014 | 0.130 | 0.123 | -0.063 | -0.036 | -0.024 | 0.026 | 0.082 | 1 | | | | | | | | | | |
| Residence2 (dummy) | 0.065 | 0.030 | -0.019 | 0.029 | 0.072 | -0.061 | -0.121 | -0.036 | 0.122 | 0.124 | -0.042 | -0.033 | -0.007 | 0.072 | 0.121 | 0.466 | 1 | | | | | | | | | |
| Risk tolerance | 0.217 | -0.027 | 0.054 | 0.017 | 0.061 | 0.064 | -0.089 | 0.195 | 0.098 | 0.097 | -0.044 | -0.038 | 0.001 | 0.053 | 0.116 | 0.049 | 0.055 | 1 | | | | | | | | |
| Expectations | 0.058 | -0.014 | 0.038 | 0.006 | -0.041 | 0.000 | -0.051 | 0.006 | -0.018 | -0.016 | 0.010 | -0.018 | 0.009 | -0.023 | -0.017 | 0.019 | -0.005 | 0.077 | 1 | | | | | | | |
| Safety net expectations | -0.041 | -0.068 | -0.003 | -0.053 | -0.032 | -0.092 | 0.111 | 0.063 | 0.026 | 0.039 | -0.013 | 0.037 | 0.014 | 0.012 | -0.032 | -0.016 | -0.031 | 0.003 | 0.102 | 1 | | | | | | |
| Optimism | -0.005 | -0.015 | 0.055 | 0.072 | 0.046 | 0.061 | 0.094 | -0.033 | 0.045 | 0.010 | -0.024 | 0.041 | 0.006 | -0.009 | 0.032 | -0.027 | -0.015 | 0.033 | 0.094 | 0.131 | 1 | | | | | |
| Sensation seeking | -0.010 | -0.015 | 0.058 | 0.110 | 0.059 | 0.050 | -0.055 | 0.078 | -0.045 | -0.078 | -0.021 | 0.005 | 0.023 | 0.025 | 0.023 | 0.035 | 0.018 | 0.144 | 0.022 | -0.060 | 0.100 | 1 | | | | |
| Social capital | 0.122 | 0.023 | -0.006 | 0.010 | 0.043 | 0.070 | 0.138 | 0.149 | 0.157 | 0.160 | -0.057 | 0.013 | -0.015 | 0.051 | 0.073 | 0.005 | 0.032 | 0.068 | -0.010 | 0.044 | 0.088 | 0.085 | 1 | | | |
| Sociability | -0.010 | 0.043 | -0.002 | 0.071 | 0.028 | 0.047 | -0.095 | -0.099 | 0.095 | 0.039 | 0.004 | 0.059 | -0.014 | -0.021 | 0.007 | 0.071 | 0.103 | 0.066 | 0.034 | -0.011 | 0.176 | 0.196 | 0.196 | 1 | | |
| Right-wing political orientation | 0.185 | 0.058 | 0.036 | 0.024 | 0.137 | 0.226 | 0.254 | 0.139 | 0.119 | 0.085 | -0.024 | -0.001 | 0.028 | 0.058 | 0.166 | -0.028 | 0.011 | 0.066 | 0.028 | 0.006 | 0.079 | 0.015 | 0.145 | 0.036 | 1 | |
| Open-mindedness | -0.021 | 0.029 | -0.019 | 0.037 | 0.020 | 0.006 | -0.006 | -0.214 | 0.147 | 0.130 | 0.001 | 0.006 | -0.027 | -0.009 | 0.011 | 0.055 | 0.053 | -0.050 | -0.017 | 0.065 | 0.125 | 0.005 | 0.152 | 0.154 | -0.036 | 1 |

## 4.4. Socioeconomic and demographic control variables

**Table 3. Socioeconomic and demographic control variables**

| Variable | Format | Range | Scale |
|---|---|---|---|
| **Age** | Continuous | 10 – 98 years | Continuous |
| **Age squared** | Continuous | 100 – 9604 years | Continuous |
| **Gender** | Dummy | Male or female | 0 or 1 |
| **Education** | Dummy | Bachelor's degree or higher | 0 or 1 |
| | Dummy | Master's degree or higher | 0 or 1 |
| **Income** | Dummy | EUR 20,001 – 25,000 per annum (incl.tax) | 0 or 1 |
| | Dummy | EUR 25,001 – 30,000 per annum (incl.tax) | 0 or 1 |
| | Dummy | EUR 30,001 – 35,000 per annum (incl.tax) | 0 or 1 |
| | Dummy | EUR 35,001 – 45,000 per annum (incl.tax) | 0 or 1 |
| | Dummy | EUR 45,001 + per annum (incl.tax) | 0 or 1 |
| **Residence** | Dummy | City (over 30,000 residents) | 0 or 1 |
| | Dummy | Helsinki Metropolitan Area cities | 0 or 1 |

Although the focus of this study is not on conventional socioeconomic determinants of financial market participation, these variables are important for the regressions run.

The **age** variable is a continuous variable ranging from 10-98 years, with very few respondents at the two tails of this range. **Age squared** is simply the age varible to the power of two. The respondents' **gender** has been transformed into a male dummy variable for which the value 1 signifies a male and the value 0 a female.

**Education** can be classified into a seven different groups. The second-highest group includes those who have a lower university degree and the highest group includes those who have a higher university degree or higher. For the purposes of the regressions, two dummy variables have been created. The first dummy (education1) gives everyone who has a lower university degree or higher a value of 1. Otherwise the value is 0. The second dummy (education2) gives

everyone who has a higher university degree or higher a value of 1. Otherwise the dummy gets the value 0. This way the incremental impact of having a higher degree becomes evident.

The survey included information on the respondents' **incomes**. Participants were asked to choose one of the 12 ranges their personal annual income (including tax) falls into. For the regressions, five dummy variables have been created based on as even distribution of people as possible between these groups, excluding first the lowest earners.

Finally, the region of residence of the respondent's is also of interest. The questionnaire divided the respondents into those living in the Helsinki Metropolitan Area, other large cities (over 30,000 inhabitants), cities (under 30,000 inhabitants) and the countryside. Two dummy variables were formed: residence1 including those living in cities with over 30,000 inhabitants and residence2 including people living in the Helsinki Metropolitan Area.

## 4.5. Independent variables

The independent variables required substantial consideration in order to determine the right questions to measure the wanted attitudes and behavior. As several of these variables are based on more than a single question and its answers, the details of these variables are listed in the following tables for clarity. The variables are grouped into related tables, each table further followed by a short description.

**Table 4.a. Independent variables: Optimism, expectations, safety net expectations**

| Variable | Question/statement utilized | Given answer choices | Scale |
|---|---|---|---|
| **Optimism** | Are you mainly an optimist, pessimist or realist? | Pessimist/realist/optimist | Optimism increases with rising value |
| **Expectations** | Do you think living standards in our country will be better, worse, or remain approximately the same during the next 12 months? | Worse/same/better | Expectations increasingly optimistic with rising value |
| | Do you think unemployment in our country will increase, decrease or remain approximately the same during the next 12 months? | Increase/stay same/decrease | Expectations increasingly optimistic with rising value |
| **Safety net expectations** | Looks like public services in the future will weaken to such an extent in Finland that those who need these services will have to finance them themselves in practice (e.g. health care and doctors' costs) | Agree fully / agree to some extent / cannot say / disagree to some extent / disagree fully | Safety net expectations increasingly optimistic with rising value |
| | I believe that pension will weaken in the future to such an extent that I will also have to save up for my retirement. | Agree fully / agree to some extent / cannot say / disagree to some extent / disagree fully | Safety net expectations increasingly optimistic with rising value |

**Optimism** is measured using the respondent's classification of themselves into pessimists, realists or optimists. The scale was adjusted such that optimism increases with value upto three with realists receiving the middle value of 2. The question is straight-forward in asking the respondents generally about their outlook, not focusing on only finance or strictly personality-related situations.

For measuring **expectations**, two questions were available for use. The "cannot tell" replies were recoded as missing values. Ultimately the scales were standardized and a mean value was taken of both questions. Similarly for **safety net expectations**, two mean of answers to two different questions was used. First of course the answers were harmonized to match so that optimism of these expectations increases with value. Both expectation and belief questions relate to societal issues that most probably have an impact directly or indirectly on all respondents.

**Table 4.b. Independent variables: Risk tolerance, sensation seeking**

| Variable | Question/statement utilized | Given answer choices | Scale |
|---|---|---|---|
| **Risk tolerance** | If I invest or save money, I want significant profits for my investments although the risks would grow | Disgree fully / disagree to some extent / cannot say / agree to some extent / agree fully | Tolerance for risk increases with rising value |
| | In matters of money, it is most important for me to obtain or maintain a secure level of finances | Disgree fully / disagree to some extent / cannot say / agree to some extent / agree fully | Tolerance for risk increases with rising value |
| | I could not imagine investing my money into an asset which could face a decrease in its value | Disgree fully / disagree to some extent / cannot say / agree to some extent / agree fully | Tolerance for risk increases with rising value |
| **Sensation seeking** | I willingly do things on a moment's impulse | Disgree fully / disagree to some extent / agree to some extent / agree fully | Sensation seeking increases with rising value |
| | I willingly travel to places to which only few have travelled | Disgree fully / disagree to some extent / agree to some extent / agree fully | Sensation seeking increases with rising value |
| | How often do you engage in different forms of gambling (e.g. lotto, bingo, casino-games, tote board, betting) | Daily or almost daily / 1-3 times a week / 1-3 times a month / a few times a year / even less often / never | Sensation seeking increases with rising value |

The survey contained three questions suitable for measuring **risk tolerance**. As is evident from table 4.b., the questions were not matching in format. For example, answering "agree fully" to the first question would imply the respondent is risk loving as they do not mind growing risks in exchange for profit while answering the same to the third question indicates

the participant is actually risk averse as they cannot imagine investing in a risky asset that could lose its value. Thus the answers to some of the questions were reversed so that ultimately the mean reflects increasing risk tolerance with growing value. One should keep in mind that the risk tolerance measures relate to financial situations and decisions.

**Sensation seeking** was also measured taking the average of three separate questions. Again there were inconsistencies in the questions formats and scales of the potential answers, all of which were standardized before taking the average. The question on gambling is to some extent related to finances; however, the two others are more purely measures of personality.

**Table 4.c. Independent variables: Social capital, sociability**

| Variable | Question/statement utilized | Given answer choices | Scale |
|---|---|---|---|
| **Social capital** | I am very interested in societal issues and their development | Disgree fully / disagree to some extent / agree to some extent / agree fully | Level of social capital increases with rising value |
| | I would be willing to participate in societal activities, for example in some organization | Disgree fully / disagree to some extent / agree to some extent / agree fully | Level of social capital increases with rising value |
| | I follow the news and current affairs less and less | Disgree fully / disagree to some extent / agree to some extent / agree fully | Level of social capital increases with rising value |
| **Sociability** | Going out with friends (movies, restaurants) is an important part of my life | Disgree fully / disagree to some extent / agree to some extent / agree fully | Level of sociability increases with rising value |
| | I have several different friends circles | Disgree fully / disagree to some extent / agree to some extent / agree fully | Level of sociability increases with rising value |
| | Imagine it's your birthday and you're throwing a birthday party. How many people would you estimate to have on your guest list? | A few / less than 10 / 10-29 / 30-49 / 50-74 / 75-100 / over 100 people | Level of sociability increases with rising value |

Fortunately, the survey used being as abundant in questions as it is, there was a good variety of questions for measuring both **social capital** and **sociability**. The distinction between these two are quite clear as social capital questions focus more on willingness for involvement in societal issues while sociability questions revolve around how many friends a person has and

how important socializing is for the respondents. The third question measuring social capital was reversed to match the others in increasing levels of social capital with value. The third question measuring sociability was fixed to match the same scale as the two other questions. After these adjustments, a mean was taken of the relevant questions for these two variables.

**Table 4.d. Independent variables: Right-wing political orientation, open-mindedness**

| Variable | Question/statement utilized | Given answer choices | Scale |
|---|---|---|---|
| **Right-wing political orientation** | The stance towards politics is often described by speaking of leftists and rightists. Where in this meter would you place yourself? | Left / somewhat left / somewhat right / right / cannot say | Right-wing orientation increases with rising value |
| **Open-mindedness** | What is your stance towards the following: gay marriages, immigrants, multiculturalism, religion | Do not approve / neutral or cannot say / approve | Open-mindedness increases with rising value |

Political orientation was measured using a direct question where respondents were asked to place themselves on a meter ranging from fully left to fully right. Thus **right-wing political orientation** increases as the value of the answers rise. There were also two other questions related to political preference available in the survey; however, the one utilized was the most clear-cut. The other possible questions asked the participants for the political party they had voted for in the last parliamentary elections and the candidate of which party or coalition they would vote form is the elections were during the time the survey was conducted. However, it is safer to use the political meter question as there is no guarantee to whether the participants have voted according to their own orientation in politics or according to a preference for a particular candidate.

Finally, the new variable under investigation is open-mindedness. The respondents were asked to state whether they approve, disapprove or feel neutral about four controversial or discussed topics in society, these being gay marriages, immigrants, multiculturalism and religion. As the answers “neutral” and “cannot say” are integrated into the same answer choice, that category is treated as if the answer lies between approval and disapproval of the aforementioned topics. The survey treated the four topics as different topics, therefore these have been merged into a mean taking into consideration all four. The scale again has been altered so that approval or effectively open-mindedness rises with increasing value.

## 4.6. Dependent variables

The careful choice of the dependent variables is certainly very important for the purpose of this thesis.

**Table 5. Dependent variables**

| Variable | Format | Range | Scale |
|---|---|---|---|
| **Stocks** | Dummy | 0 or 1 | 0 = no participation<br>1 = owns stock |
| **Savings** | Dummy | 0 or 1 | 0 = no participation<br>1 = has savings |
| **Loans and credit** | Dummy for housing loans | 0 or 1 | 0 = no participation<br>1 = has a housing loan |
| | Dummy for non-housing loans | 0 or 1 | 0 = no participation<br>1 = has at least one form of non-housing loan |
| **Credit cards** | Dummy | 0 or 1 | 0 = no participation<br>1 = has at least one credit card |
| **Insurance coverage** | Continuous | 1 – 12 | Insurance coverage increases with value |

The respondents were asked to specify in which of the following forms they currently have savings or investments:

- bank account for use (salary, pension etc. account)
- savings, investment or other bank account
- mutual fund
- stock
- savings and investment insurance
- voluntary personal pension insurance
- bonds or other debentures
- other commercial papers / securities (including options)
- dwelling in own use
- summer cottage / dwelling for leisure use
- other owned dwelling
- land and forest
- some other form
- cannot say
- in no form

For the purpose of measuring **stock market participation**, a new dummy was created where all those who have chosen "stock" as one of their answers to the aforementioned question receive a value of 1, and non-participants a value of 0. Although ownership of mutual funds may indicate stock market participation, due to lack of further details of the structure of those mutual funds, it is more reliable to utilize only the choice of stock as a form of savings or investments.

Regarding the issue of **savings**, the survey included more choice of which question to ultimately use. On one hand, the same question as the one used for stock market participation was available. However, it lacks clarity and ease of differentiation between savings and investment. Thus, a savings dummy was created making use of two questions. The first question asked the participants if they are currently saving regularly for any of the purposes listed below. The second question asks them essentially the same but for irregular savings.

- repayment of housing loan
- repayment of other loans
- purchase of own dwelling
- unexpected expenses
- old-age
- holiday trip
- summer cottage or other dwelling for leisure purposes
- a car
- home appliances and utilities
- interior decoration (furniture etc)
- renovation
- retirement
- unemployment
- own studies
- children's studies
- children's dwelling
- some other purpose
- for no special purpose

The savings purposes were summed up for each individual within each question, and these again were summed up for both questions so that a variable including the total amount of savings purposes (regular or irregular) was formed. From this new variable, a dummy was formed by assigning the value 1 for anyone whose total was higher than zero while those whose sum was zero and those who had chosen the answer "I don't save" received the value zero.

A choice was to be made during the formation of a dummy variable to analyze the possession of **loans or credit**. On one hand, the survey included a question "Do you have any loans or credit?" the answer choices to which were simply "Yes", "No" and "Cannot say". However, looking at the data, it was evident that many of the respondents have a housing loan. This again does not necessarily imply a poor financial situation as most people end up relying on

housing loans as the investment is so substantial; rather perhaps the size of the down-payment varies according to whether the participant is in a solid financial state or not. Having other loans even for purchase of smaller or everyday assets/items or just to pay off bills again could suggest financial trouble. Thus loans and credit were divided into two dummy variables: one for housing loans and another for non-housing loans.

**Credit card ownership** was investigated utilizing a question which asked the participants to mark the cards they have in use. The list consisted mainly of various kinds of credits cards, but also included bank cards, and an option to state to have none of the given types. Naturally bank and debit cards were excluded from the variable. Once again, a sum variable was formed from all the answers. After this, a dummy variable was created in which respondents with one or more credit cards received a value of 1 while those with none were assigned a value of 0.

Finally, **insurance coverage** is measured using the answers to a question asking respondents which insurances they have. The answer choices to this question follow.

- home/movables/villa insurance
- mandatory traffic insurance (car or motorcycle)
- voluntary car insurance (“kasko”)
- travel insurance
- life insurance (not purchased by employer)
- health insurance
- voluntary pension insurance (in addition to statutory retirement plan)
- savings or investment insurance
- accident or sports insurance
- farm insurance
- other indemnity insurance
- other insurance

The variable ultimately utilized is not a dummy as it is of more interest to investigate the impact of insurance coverage instead of simply whether the respondent has insurance or not. Also, only very few people (roughly five percent) do not have insurance so creating an insurance dummy would not lead to much insight. Thus the answers to the above were first summed up to receive the total insurance coverage of the participant. Those answering “no insurance” and those whose choices sum up to zero, received a value of 0, while the rest received the value of their total sum of different types of insurances, maximum being 12.

# 5. Descriptive statistical analysis

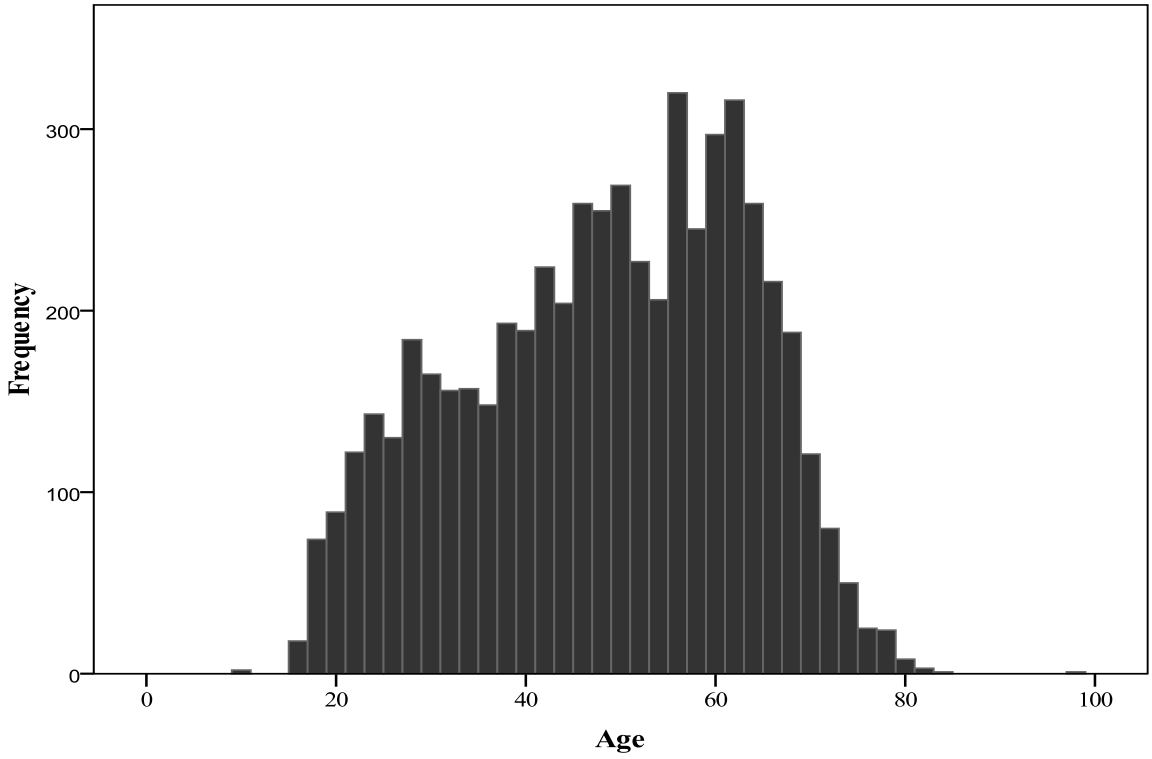
This descriptive statistical analysis section is quite comprehensive and not without reason so. Ultimately, the purpose of this thesis is to look into the impact of various consumer attitudes on different forms of financial market participation. However, it is of interest to see what these attitudes really are and what is the background of the people taking part in this survey and thus in the final analysis. Also looking into the actual patterns in participation brings additional insight. All in all, this section is designed to enhance clarity and ease readers into getting a grasp of the overall picture and the variables dealt with.

## 5.1. Socioeconomic and demographic variables

The sample size of the entire available data set is exactly 5568 respondents. This of course will not remain the final n-size for all the analysis that will be conducted as we face non-response from certain participants depending on the question asked (e.g. younger children naturally have not answered all finance-related questions.

The data consists of respondents between ages 10 and 98, the distribution of which can be seen from the following Figure1.

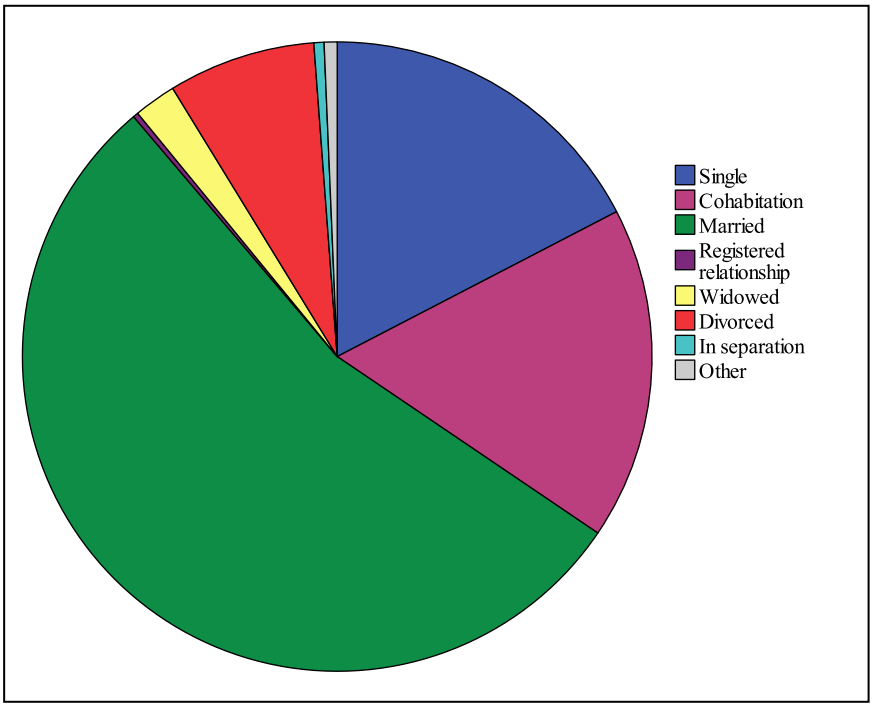
**Figure 1. Age distribution**



The mean age is 47.7 years while the median is at 49 years exactly. It is evident from the figure that the majority of the respondents belong to the working ages to early ages of retirement.

The respondents are equally distributed between females and males, percentage of respondents being 50.1% and 49.9% respectively, the actual difference being only 10 more female than male participants.

**Figure 2. Marital status**

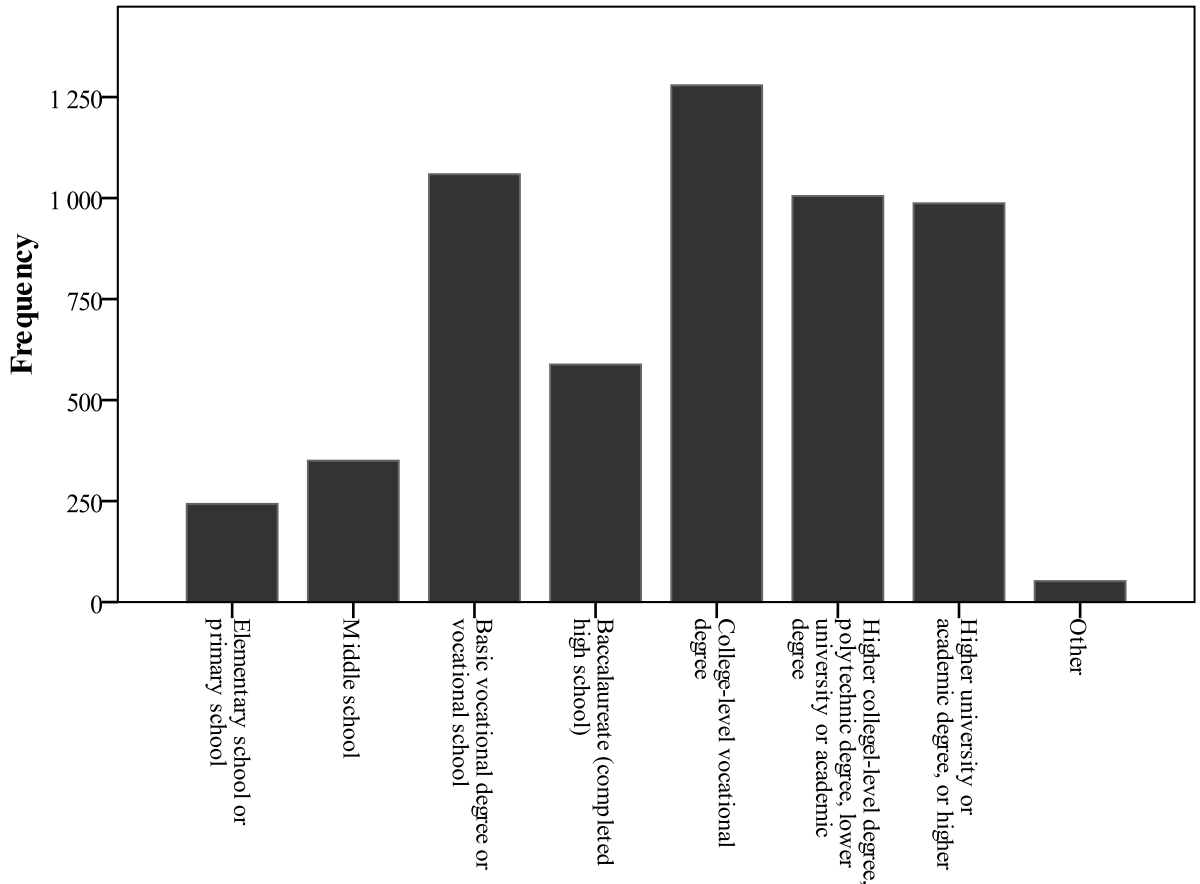



The Figure 2 above displays the marital status of the participants. Over half are married while 17.4% are single and another 17% are living together with their partners without being married. The answers match what expectations one may have from the age distribution of the respondents.

Figure 3 shows the education level of the respondents omitting those whose education information was missing from the data set (only 5 such respondents). Most participants have

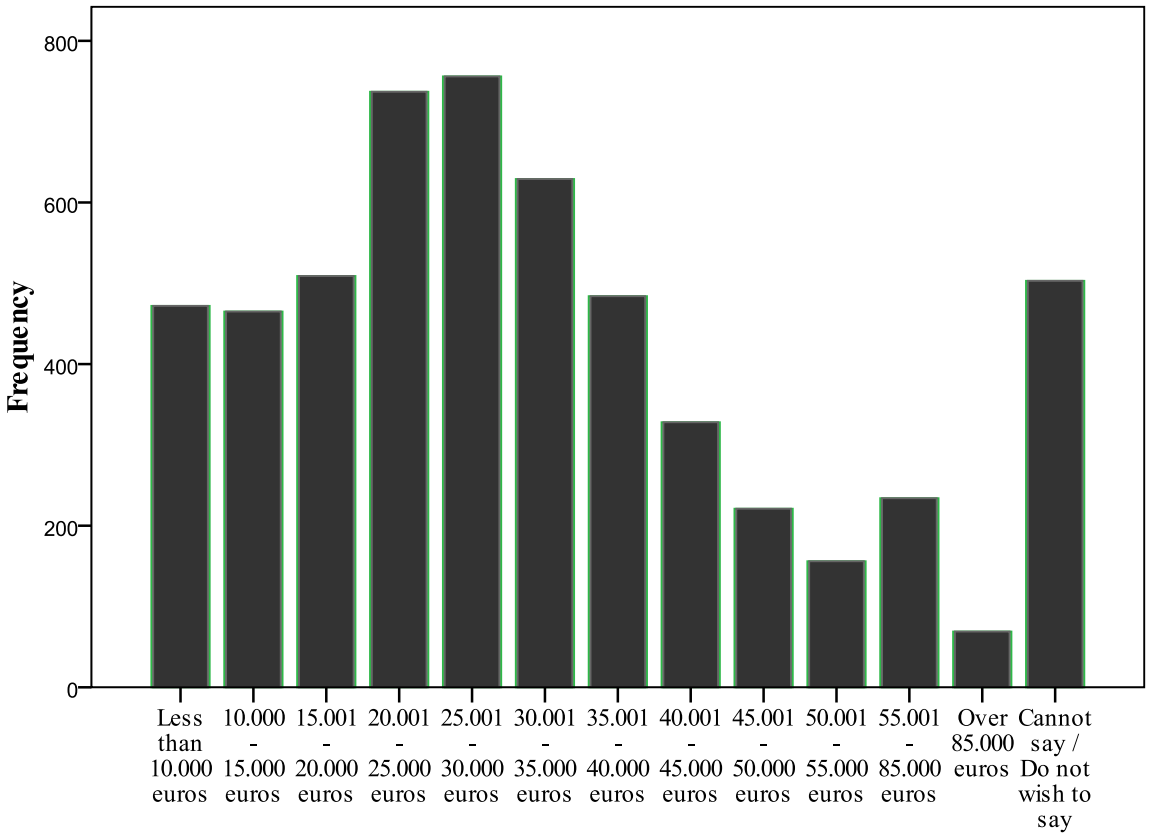
some sort of education past basic schooling, mostly higher or lower level university or vocational degrees.

**Figure 3. Education level**




When it comes to income, a good portion of the respondents who wished to or could answer this question (91%) earn between 15,000 and 40,000 Euros per annum. Only 8.2% of the participants earn over 50,000 Euros annually as can be seen from Figure 3. According to Statistics Finland, the mean salary of Finns was 2,940 Euros per month for a three-month period in spring 2009. According to their study, the average annual income would be 35,280 Euros which is only slightly over the average annual income of the respondents of this questionnaire.

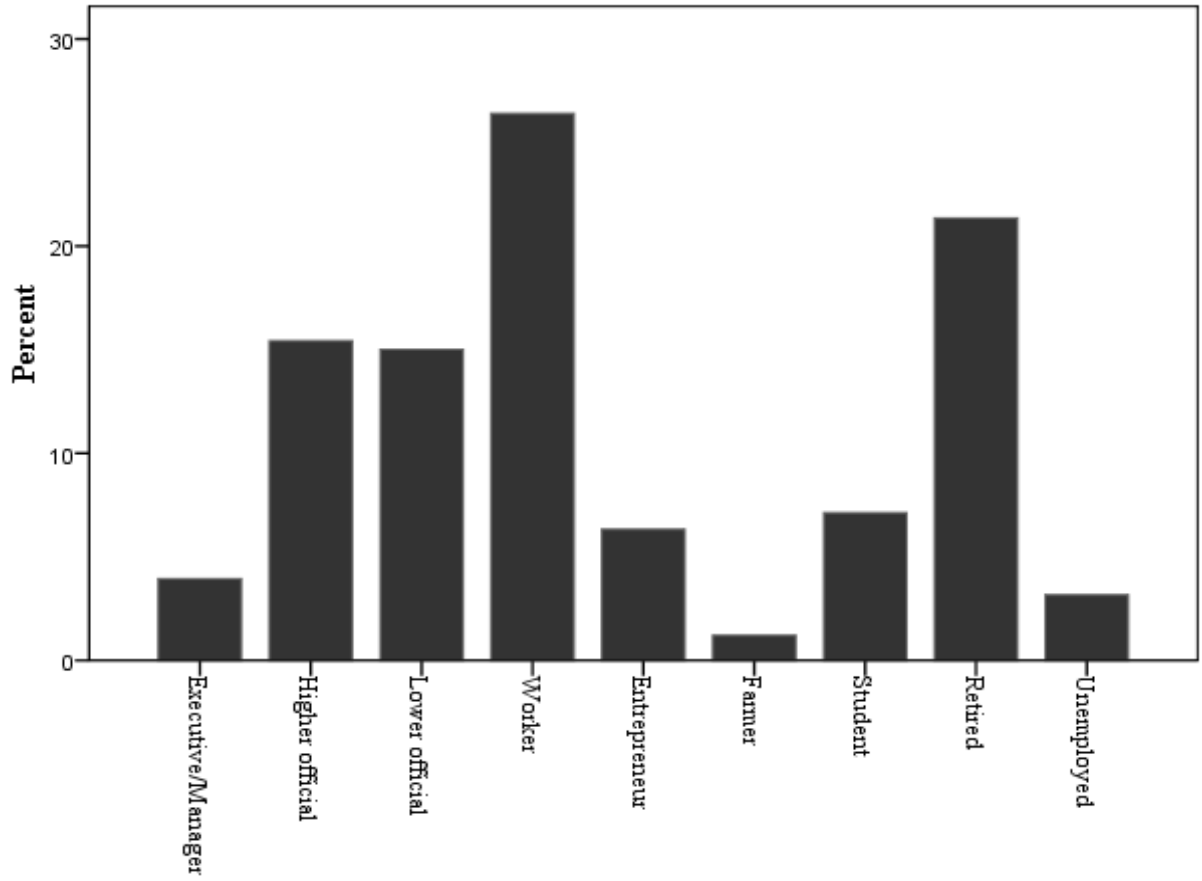
**Figure 4. Individual annual income**




The respondents of RISC Monitor 2009 can be divided into a range of professions or levels of profession the distribution evident from Figure 5. 26.4% would classify themselves as workers while 21.4% are retired. 15.0% are lower officials, 15.4% higher officials and only 3.9% in executive positions. As many as 6.3% would call themselves entrepreneurs, while a minor 1.2% are farmers and 7.1% students. 3.2% of respondents unemployed which is significantly less than the official unemployment rate of 7.6% which prevailed in Finland in 2009 [1].

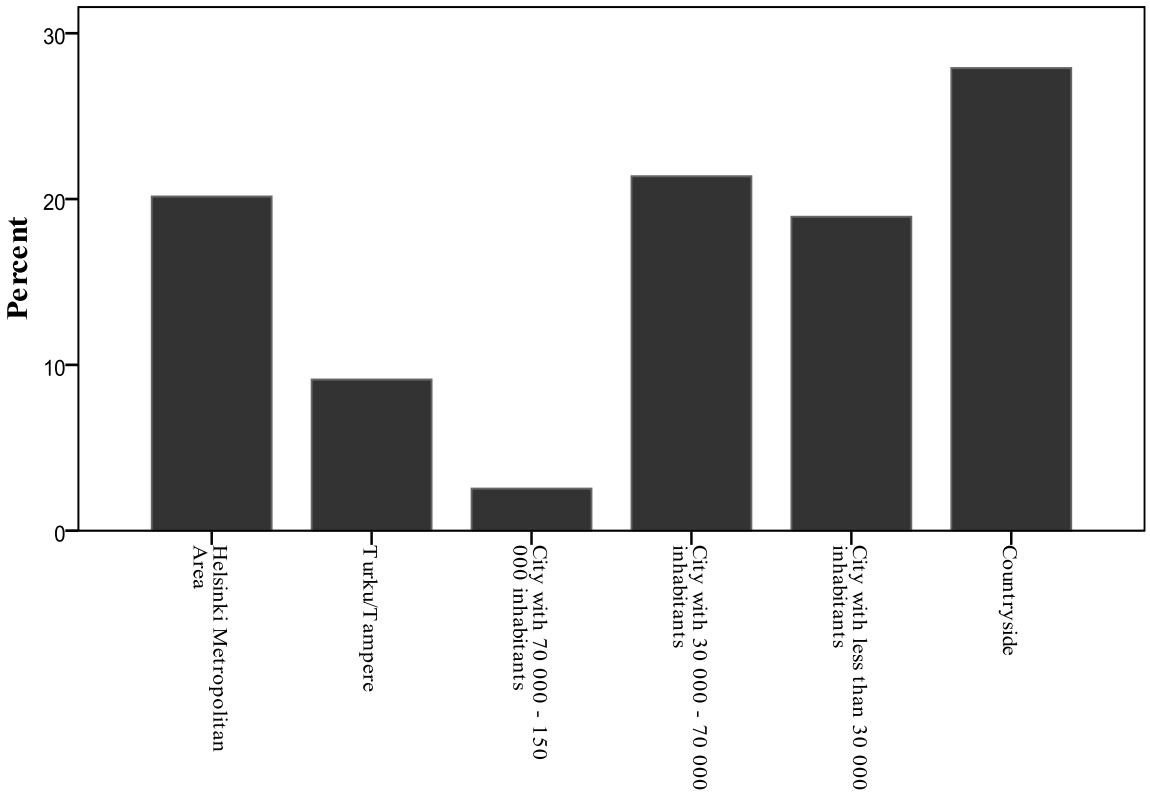
[1] Statistics Finland website

**Figure 5. Vocation**




The place of recidence of the respondents is also of interest (Figure 6). One-fifth of the participants live in the Helsinki Metropolitan Area which consists of Helsinki, Espoo and Vantaa. Nine percent live in the next-biggest cities, Tampere or Turku. As expected, after the five main cities, not too many live in middle-high populated cities that fall into the range of 70,000 – 150,000 residents. A majority of approximately 40% of the respodents of the questionnaire live in smaller cities while almost 28% say they live in the countryside.

**Figure 6. Residence**



## 5.2. Independent variables

### Optimism

One-third of the respondents state themselves to mainly be an optimist, only 6.8% a pessimist and majority (60.1%) a realist. This is not surprising as rarely do people wish to declare themselves negative enough to fall into the group of pessimists.

### Expectations

The respondents display quite pessimistic expectations for the next 12 months. Only 6.4% believe the economic situation of Finland will get better during the next year, while two-thirds or 65.4% think the exact opposite. 28.2% believe the situation will remain approximately the same as it was during the time of conducting the survey. Expectations relating to unemployment show a similar, if not stronger negative trend: 85.4% expect unemployment rates to increase, 12.4% believe they will remain the same and a trivial 2.2% are optimistic.

### Safety net expectations

The safety net expectations of the participants are less negative than their economic expectations. 58.6% of the respondents believe fully or to some extent that in the future, public services will weaken to such an extent that those needing these services (e.g. health care costs) will need to pay for them themselves. 17.2% do not take a stance in this matter while the rest one-fourth disagree with the statement.

When asked if respondents believe the pension scheme will weaken to such an extent in the future that they will need to save up for retirement themselves, 14.1% fully agreed and 41.6% partially agreed with this statement. 21.4% have no opinion, while the remaining 23% disagree and are thus more optimistic.

**Risk tolerance**

Risk-averseness seems to be the dominant trait of the respondents who have given their opinion on the statement "I could not imagine investing my money into an asset which could face a decrease in its value". Agreeing with this statement means that the respondent would not like to invest in anything that could be risky enough to lose value showcasing risk-averseness. 22.3% fully agreed on the statement while 33.5% agreed to somewhat extent, adding up to 55.8%. 19% somewhat disagreed while only 4.3% felt themselves to be fully against this statement. One-fifth of the respondents took neither stance.

This is quite consistent with the answers to the assertion "If I invest or save money, I want significant profits for my investments although the risks would grow". In this case however, disagreeing instead of agreeing with the statement implies that the participant is not willing to enjoy higher profits at the cost of taking on more risk thus displaying risk-averseness. One-fifth of the respondents indeed do disagree completely while 34.3% disagree to some extent totalling again to near 55%. 23.4% neither agreed nor disagreed while 22.3% agreed, only 3.7% of which fully.

The third risk tolerance statement measures the importance of a secure level of finances for the participants. Respondents who find it most important to obtain or maintain a certain comfortable level of finances are most likely not to engage in risk that would disrupt this comfort level. 37.3% completely agree while 48.1% somewhat agree with this statement. Only 3.7% somewhat disagree while 1.2% fully disagree. Although this would suggest almost full-blown risk-averseness, I doubt all respondents fully comprehended the phrase 'most important' as many more are willing to take risk when looking at the responses to the previous questions than if looking solely at this data.

**Sensation seeking**

Looking at the sensation-seeking tendencies of the respondents, it is evident that although only 8% said they completely agree to willingly doing things on a moment's impulse, a good 41.8% state they somewhat agree to behaving in such a way. However, near-similar amounts of people partially or fully disagree with the statement.

23.9% and 36.7% fully and partially, respectively, disagree to willingly travelling to places few have earlier been to. Almost 10% however definitely enjoy travelling to untouched lands, and nearly 30% partially agree to some extent. For this question, there was no option to choose neither agreement nor disagreement: it would be interesting to see how many would opt for that option.

Gambling would seem to be a good measure of sensation seeking as money is put into these games although the chances of actually winning is miniscule. When asked how often the respondents engage in different forms of gambling, over one-fifth state 1-3 times a week while 22.6% 1-3 times a month. 4% actually engage in one or more of these gambling forms everyday or nearly every day. Almost half however rarely or never gamble. Finns however aren't all as much of gamblers as this data would suggest. Lotto is very popular in Finland, many engage in it in an almost routine-like manner with the same bets each week. However, most of the Finnish citizens probably do not realize that lotto is actually classified as gambling. It could almost be considered a Finnish tradition.

**Social capital**

As can be expected, the majority of respondents are socially conscious and either fully agree (24.7%) to being greatly interested in societal issues and their development or agree to somewhat extent (49.8%). This is not surprising as very few would state or like to think they don't care about societal issues at all (2.9% of this data set).

8.7% would fully agree to be willing to participate in some form of societal activity, e.g. being a member of some organization. Slightly less than 30% would agree to some level. I find it quite surprising that as big a portion as one-fifth of the respondents did not wish to take any stance on the matter. However, over one-fourth of the respondents disagreed on this statement to some extent while 15.6% denied fully on being interested in participating in society actively. The majority of respondents disagree on following current affairs and news in a decreasing manner. Only 3.2% fully agree and 13.9% think this statement is correct to a certain level.

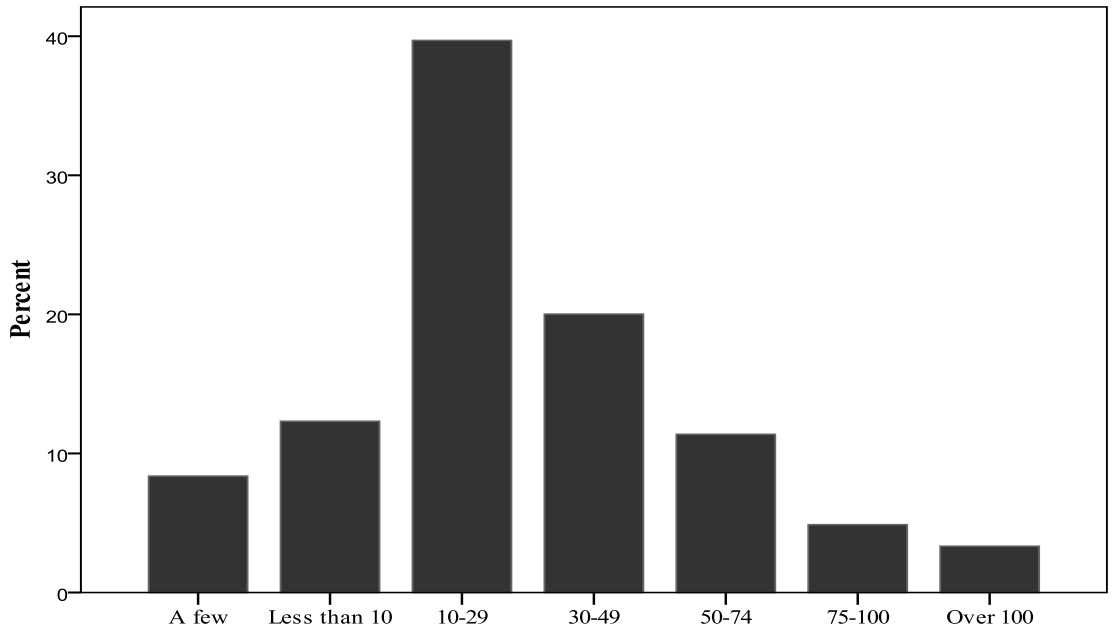
**Sociability**

Three questions in the survey are likely to be good measures of a person's sociability. Firstly, the statement "Going out with friends (movies restaurants) is an important part of my life" received quite negative answers, disagreement somewhat or fully being displayed by as much as 39.7% and 27.4% of the respondents respectively. 26% agree to some extent while 6.8% definitely find spending time with friends outside home to be an important part of their life. These answers do match with the age distribution of the participants as the mean and median ages of the sample lay in the late-40s. Most of the respondents are at an age where family is often put first and/or where going out actively isn't necessary any longer a part of their everyday lives.

When asked whether the respondents have several different friends' circles, nearly same percentages of people agreed and disagreed. However, what actually was asked could have been unclear to the participants as it is difficult to define what is meant by "different circles of friends".

Finally, the participants were given a hypothetical situation where they had to imagine throwing a birthday party for themselves (round figures so the birthday is more significant

**Figure 7. Number of people on guest list of a major birthday party**



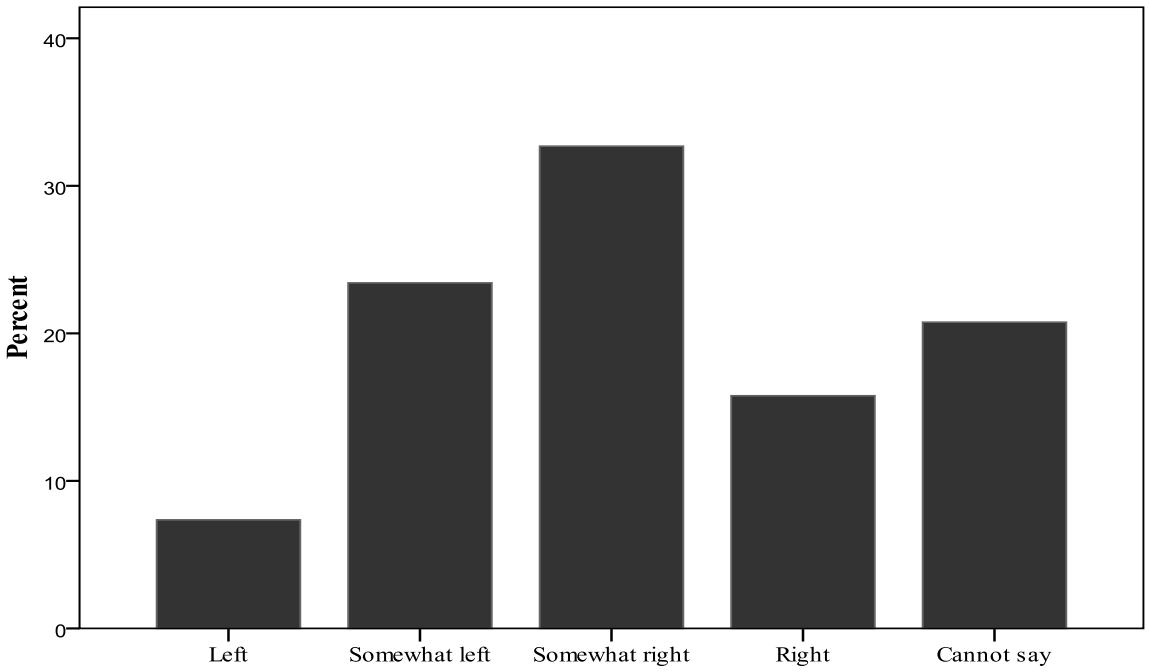
than normally). Next, they were asked to state how many people would be on their guest list.

Above in Figure 7 is the distribution of the answers showing that two-fifths would invite 10 to 29 people while one-fifth have up to 49 people on their list. Another one-fifth chose even higher numbers of guests, similarly the last one-fifth less than 10 people. Most of the respondents seem to thus be quite sociable. It is good to keep in mind however, that the numbers probably include relatives as most people probably would invite family to an important life event, possibly even ones they are not normally in touch with on a regular basis.

**Political preference**

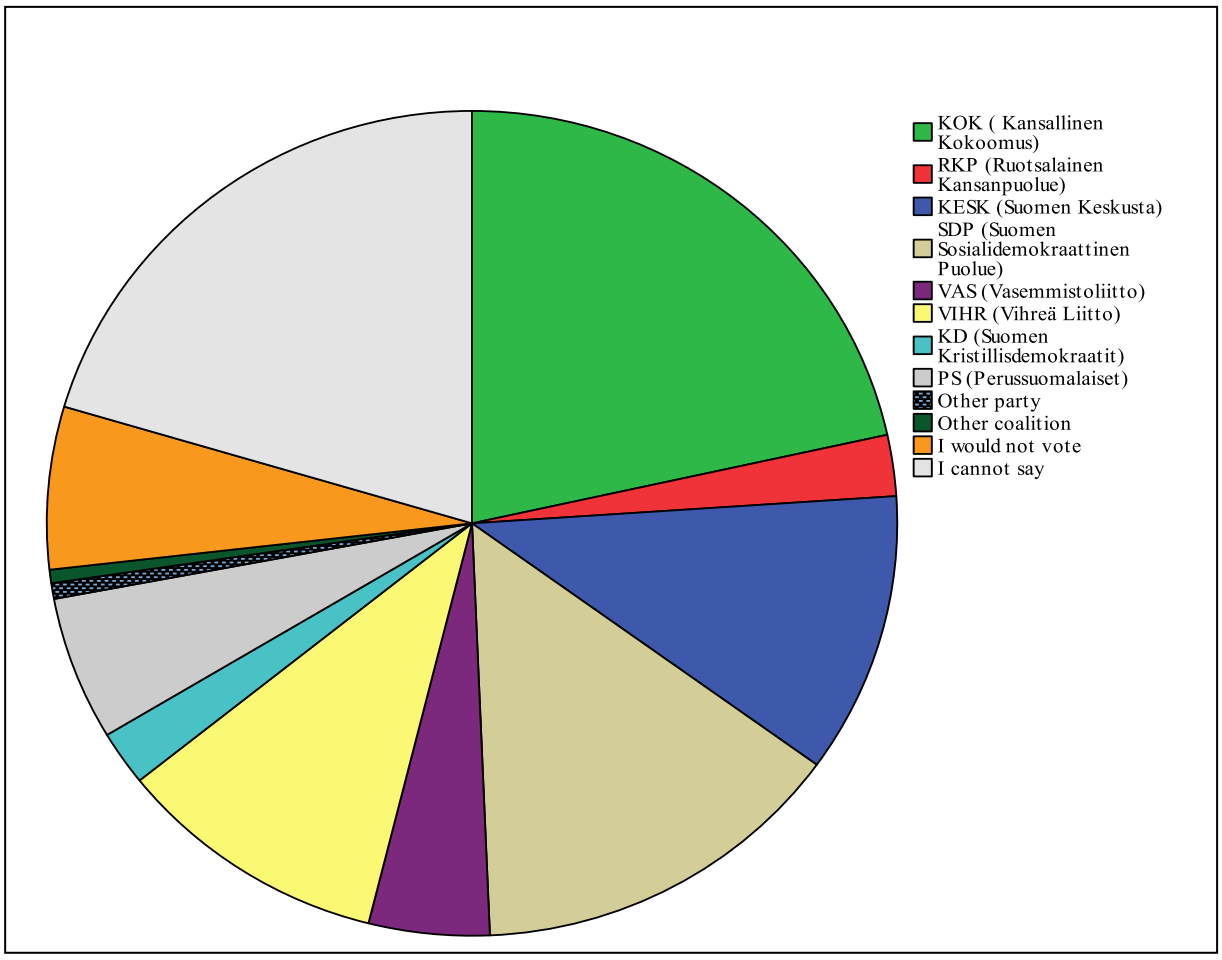
The respondents were asked to place themselves on a political meter ranging from left to right. The results are in the below Figure 8.

**Figure 8. Political preference**



The attitude's of the respondents when considering politics is of specific importance for this study as political preference is one of the determinants tested for impact on financial market participation. Close to half (48.5% exactly) of the respondents would place themselves more on the right wing when it comes to politics while only 30.8% to the left wing. However, as is clear from Figure 8, a much lesser percentage within these groups actually places themselves clearly in the right or left wing (15.8% and 7.4% respectively). A good 20.8% again were unable to place themselves in either sides of the scale.

**Figure 9. Choice of political party or coalition**



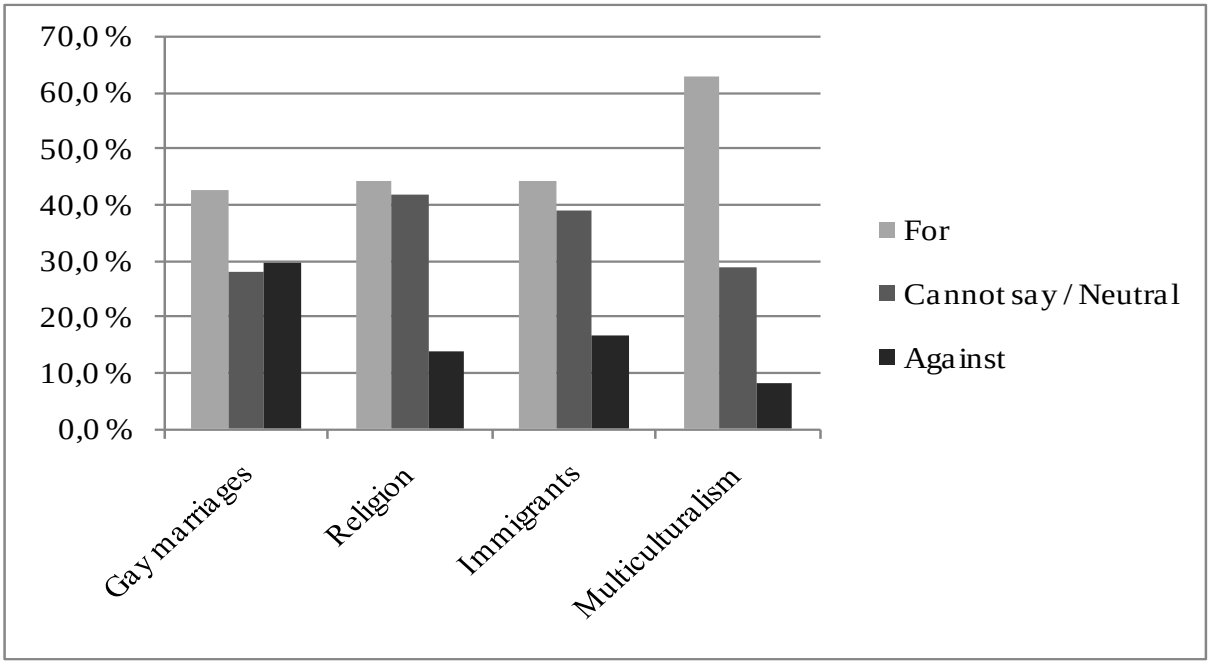

The respondents were also asked more specifically which political party's or coalition's candidate they would vote for if the Parliamentary elections would be at the time this

questionnaire was conducted (Figure 9). Conventionally in Finland, right-wing orientation is represented by support of the National Coalition Party (KOK, Kansallinen Kokoomus) and the Swedish People's Party of Finland, (RKP, Ruotsalainen Kansanpuolue). It is however difficult to establish a clear-cut border between left-wing and right-wing preferences.

**Open-mindedness**

The respondents were asked for their opinion on certain controversial societal topics. The answer choices were: for, against, neutral (or do not know).

**Figure 10. Open-mindedness**




Looking at the data for attitudes towards gay marriages from Figure 10, it is evident that only 42.5% can say that they are for gay marriages or at least accept the issue. This topic has the highest percentage of people against it (29.6%) when comparing with the other three issues looked into. Majority of people accept the question of religion or feel neutral about it (or cannot say). However, I am not certain if the respondents have managed to grasp the idea

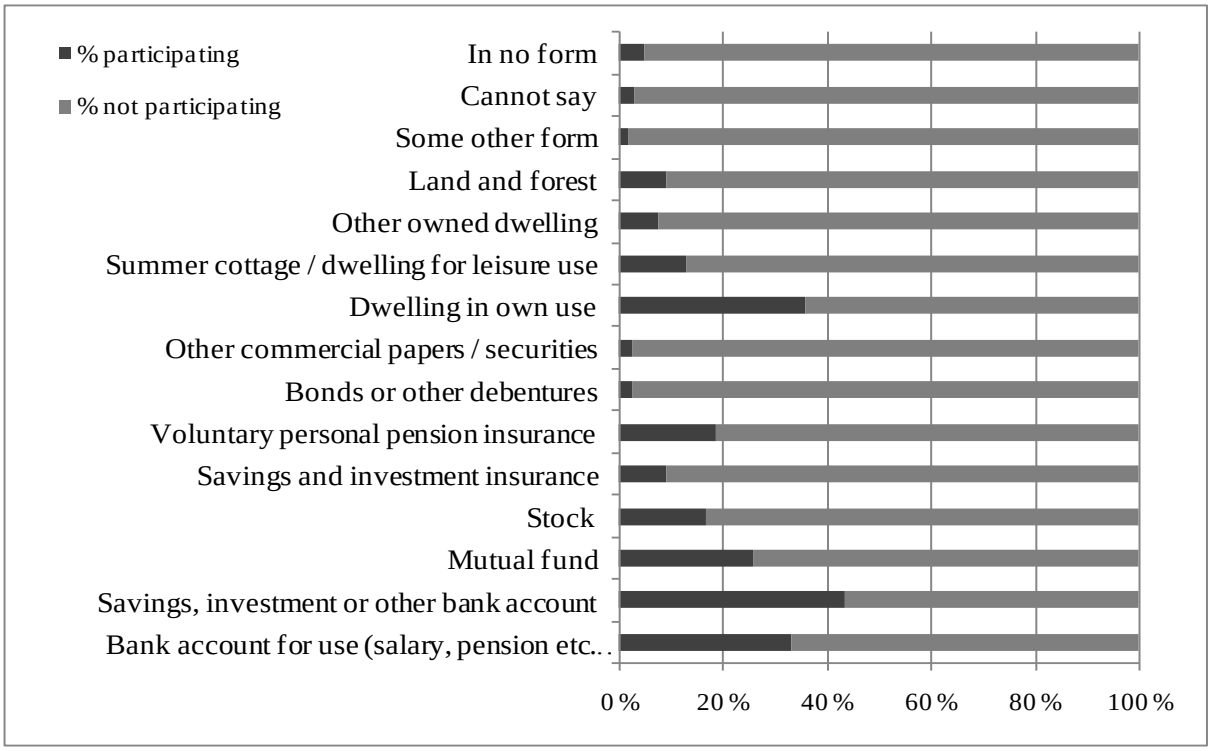
behind this question as no further explanations were provided. 16.5% of the respondents are against or do not accept immigration into Finland. A good portion does not have a clear opinion of this issue while 44.4% are for it. Multiculturalism receives the clearest acceptance amongst these topics with almost two-thirds of the participants either accepting it or being for it.

## 5.3. Dependent variables

**Savings and investments**

The Figure 11 below displays the answer distribution to the question "In which of the following forms do you currently have savings or investments?" (refer to Table 6 for the exact figures).

**Figure 11. Savings and investment participation**



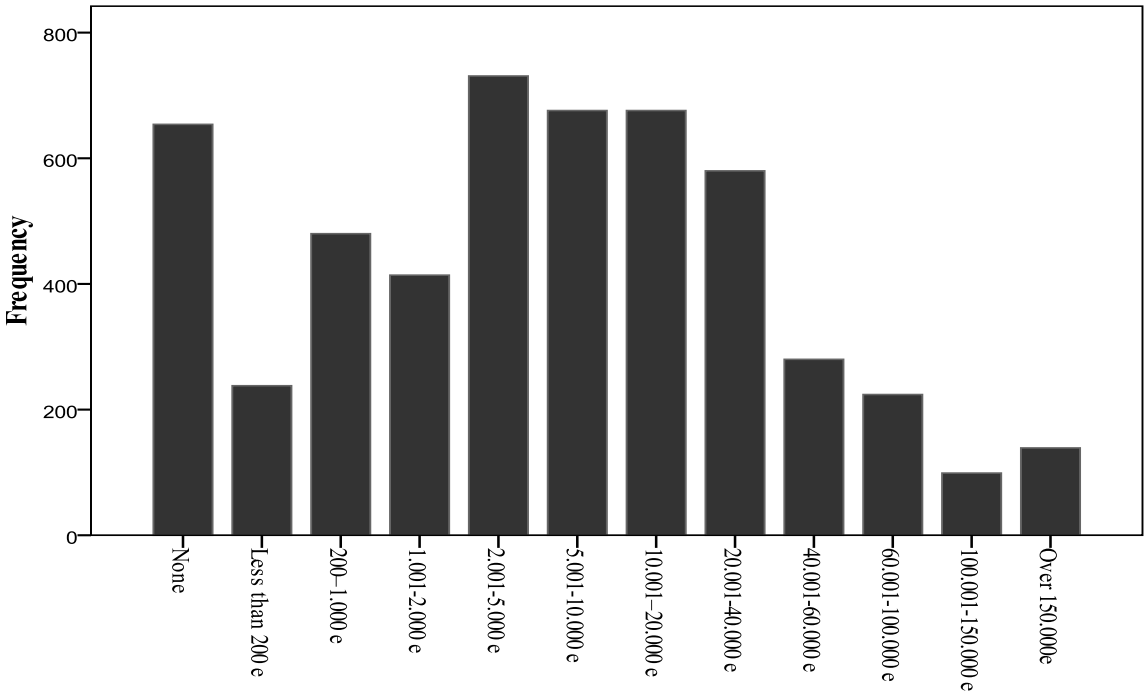
As can be expected, savings, investment or other such bank accounts are most in use (43.2% participation) while participation in bank accounts for other use, ownership of own dwelling and in mutual funds follow not far behind. Exactly one-sixth of the respondents own stock. Attention should be paid to the fact that respondents were not asked if they own these financial instruments or assets for all purposes but whether they have savings or investments in the listed forms. Thus for example, the proportion of people saving in a bank account should not be interpreted as the percentage actually having a bank account for everyday use (for paying bills, receiving wages etc.) as the latter percentage is likely to be much higher.

**Table 6: Participation in different forms of investments or savings**

| **Form of investment or savings** | Frequency of participation | Frequency of non-participation | % Participating | % Not participating |
|---|---|---|---|---|
| Bank account for use (salary, pension etc. account) | 1851 | 3717 | 33.20 % | 66.80 % |
| Savings, investment or other bank account | 2404 | 3164 | 43.20 % | 56.80 % |
| Mutual fund | 1431 | 4137 | 25.70 % | 74.30 % |
| Stock | 932 | 4636 | 16.70 % | 83.30 % |
| Savings and investment insurance | 497 | 5071 | 8.90 % | 91.10 % |
| Voluntary personal pension insurance | 1024 | 4544 | 18.40 % | 81.60 % |
| Bonds or other debentures | 137 | 5431 | 2.50 % | 97.50 % |
| Other commercial papers / securities (including options) | 127 | 5441 | 2.30 % | 97.70 % |
| Dwelling in own use | 1987 | 3581 | 35.70 % | 64.30 % |
| Summer cottage / dwelling for leisure use | 717 | 4851 | 12.90 % | 87.10 % |
| Other owned dwelling | 405 | 5163 | 7.30 % | 92.70 % |
| Land and forest | 496 | 5072 | 8.90 % | 91.10 % |
| Some other form | 102 | 5466 | 1.80 % | 98.20 % |
| Cannot say | 162 | 5406 | 2.90 % | 97.10 % |
| In no form | 268 | 5300 | 4.80 % | 95.20 % |

As Figure 12 displays, the amounts of savings or investments (excluding money tied in real property) vary significantly between different ranges. Unfortunately the survey did not ask for separate answers for savings and investments. Nevertheless, the available data gives us a good picture of the wealth distribution of the participants, the highest percentages of respondents having between 2,000 and 40,000 Euros.

**Figure 12. Savings or investments (excluding real property)**




When asked of the amounts of wealth in real property, the answers lay mostly in the higher ranges when not absolutely nil. 17% do not own any real property while nearly two-thirds of the respondents have more than 60,000 Euros in real estate, land or forest. This is consistent with the Finnish trend of owning your own dwelling often in the suburbs when residence is in the South of Finland and owning forest or land when residing up North.

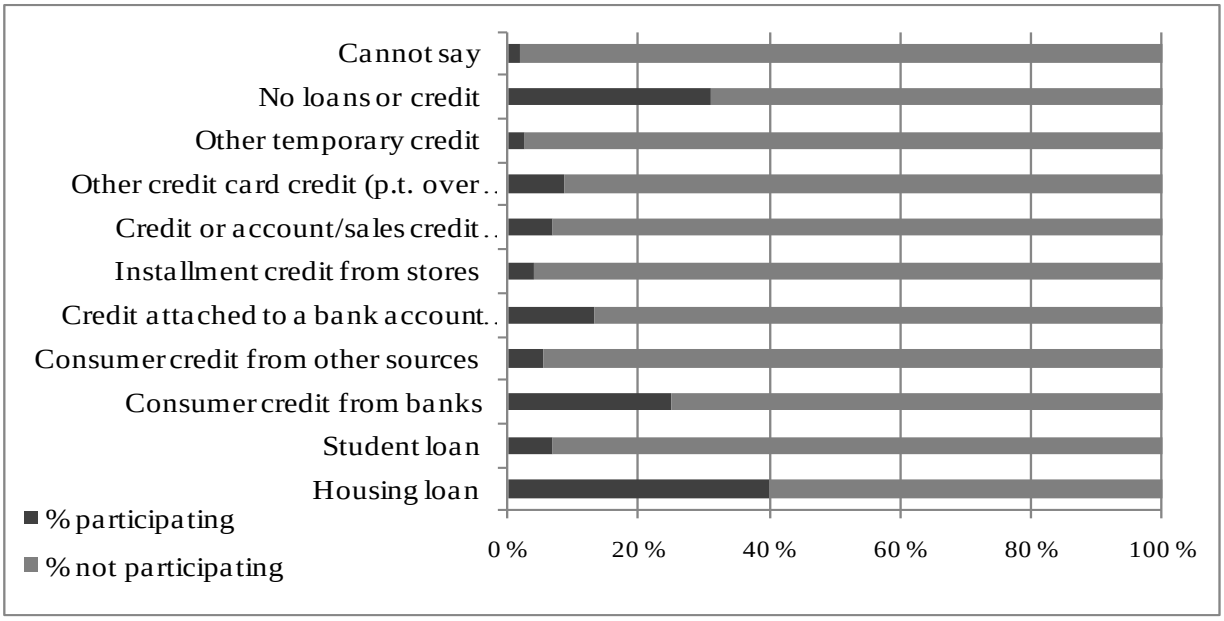
The percentage of people saving money regularly or irregularly for some purpose or the other was found utilizing the question which asked respondents to pick the reasons they were saving for. This new variable revealed that majority of participants, five-sixth to be exact save while the remaining one-sixth does not.

**Loans and Credit**

64.2% or in other words almost two-thirds of the participants have loans or credit in one form or the other. 1.7% could not answer the question and the remaining 34.1% are free from debt.

In more detail, the participants were asked "Which of the following credit facilities or loans do you have?" the answers to which can be found in more detail from Figure 13. At a glance, housing loans and consumer credit from banks are the most popular loan and credit forms. Almost one-third claim to not have any loans or credit.

**Figure 13. Loan and credit participation**



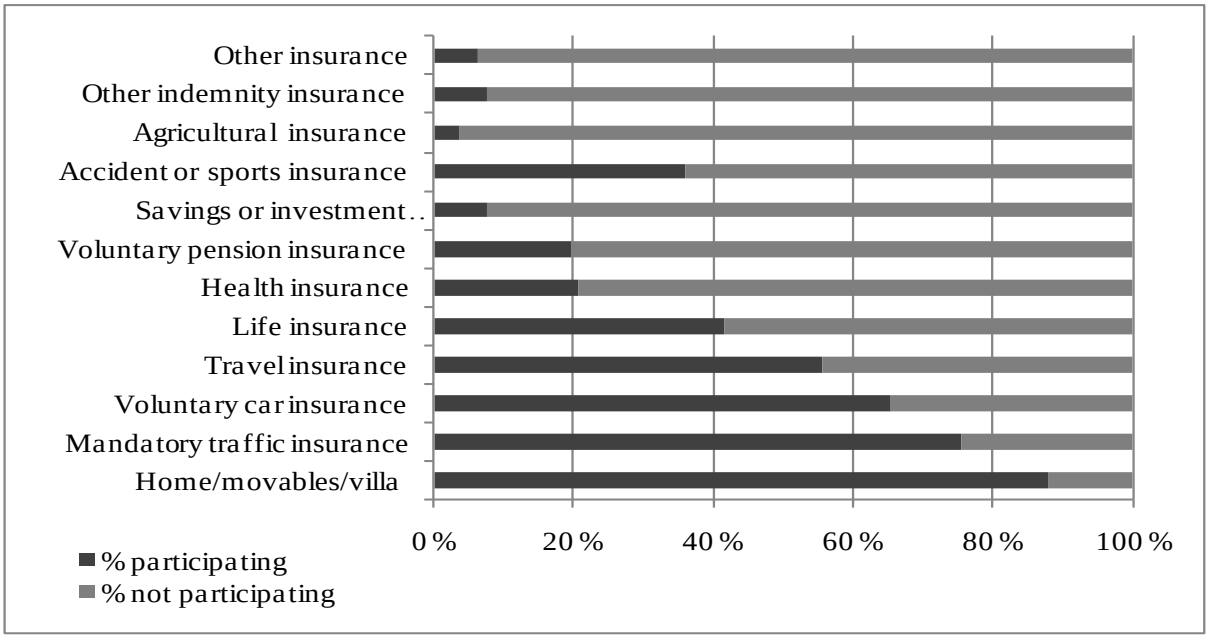

**Credit cards**

The majority of respondents, 77.4% exactly have one or more credit cards in use, the remaining 22.6% having none. As can be expected, most people (45%) have one credit card, about one-fifth of the participants have two in use, 7.8% have three, and the remaining 3.8% have four or more cards with credit facility.

**Insurance coverage**

Only 4.2% of participants do not have any form of insurance, 5.8% having at least one kind and the mean value being 4.28 different kinds per person. This information strengthens the reasoning behind looking at the impact of various levels of insurance coverage instead of purely whether the participant has insurance or not. Below is a Figure 14 displaying the participation of the respondents in various kinds of insurance. Most people seem to have at least home insurance or mandatory traffic insurance.

**Figure 14. Insurance coverage**



# 6. Results

In this section I will present the results of the regression analysis. I will start off with stock market participation, first looking into findings based on regressions on the entire sample after which I will move onto subsample analyses. The latter will be based on sample splits for education, gender and age. From there I will move onto the determinants affecting consumer saving behavior. Finally, I will look into the remaining dependent variables: loans and credit, credit card ownership and insurance coverage.

Before moving on to the actual results, it is worth stopping to comment on the utilized control variables, namely the socioeconomic and demographic variables. This study is rich in its realized potential of combining various consumer attitudes with different forms of financial market participation, not only the more common stock ownership. However, it is also worth noting the variety of control variables utilized all within the same study. Although, a wealth dummy is missing due to the lack of a question clearly addressing these numbers, the controls are quite extensive. Also important is the inclusion of a good measure for risk tolerance which is clearly an important factor affecting people's behavior when it comes to finances.

## 6.1. Stock market participation – full sample analysis

As Table 7 shows, the probit regressions have been run such that the variables have been added incrementally in five stages. The first one includes only the socioeconomic and demographic control variables, and from there on, variables are added to the regression going from more conventional determinants to increasingly exotic ones. Also certain test regressions were run the results of which are not documented here in numeric form but will be discussed where relevant.

If we start off by comparing some of the effects of adding variables in groups, we can see that the impact of gender is reduced continuously as variables are added: ultimately, however, the gender effect is clear, statistically significant and quite strong. This is not surprising considering that stock is considered a risky asset, men are considered more risk-loving and overconfident than women (Jianakoplos et al. 1998, Barber et al. 2001), the aggregate result leading to men being more likely to invest in stock. The impact of education is also clear,

both having a Bachelor's degree or higher or a Master's degree or higher leads to increased stock market participation, the former though has a stronger impact than the latter.

The income effect is statistically significant only for those in the highest income bracket. The two lowest income brackets have no impact regardless of the mix of other variables included in the regression. The third and fourth highest brackets lose their statistical significance as more behavioral determinants are added. There is a distinguishable jump in the level of impact as we look at Income5 where the effect is very strong even after all the determinants have been added to the regression. Again, this was to be expected as higher levels of income most probably imply larger amounts of money available for investment.

Moving on to place of residence, the results are statistically significant only for those living in the Helsinki Metropolitan area. One variation was tested by excluding the income factor from the regression: however, there was no meaningful impact on the numbers anyway nor does the residence group including smaller cities than those in the Helsinki Metropolitan Area gain any significance.

Going on to the actual independent variables looked into in this thesis; risk tolerance was added first to the regression as it is perhaps the most conventional factor. The results obtained are in line with prior research: as tolerance for risk rises, also participation in stock rises significantly. In fact, all regressions produce results at a 1% significance level and the coefficient remains quite the same regardless of how many additional variables are added. It can be concluded that risk tolerance has a strong effect on stock market participation.

Looking at expectations, the hypothesis is supported by the results: optimistic expectations do indeed lead to increased stock market participation. The effect actually initially grows after additional variables have been added and all results are statistically significant.

Moving on to safety net expectations next, it is evident from the results that a belief in a safety net leads to decreased participation in stock markets. The more a person believes that his/her future is supported through a system of a safety net, the less likely this person is to save and invest in stock. The regression was tested by having separate variables for pension and public services as representative of safety net expectations: the results showed little difference from the numbers in Table 7.

According to the results, optimism ultimately does not have a statictically significant impact on stock market participation. To test this, a regression was run where the optimism variable was replaced by optimist and pessimist dummies. Interestingly enough, this new regression indicates that being a pessimist has no impact on stock ownership, while being a optimist has a negative and statistically significant effect. Also, the explanatory power of optimism was tested by running a regression that only included the control variables and risk tolerance in addition to optimism. The coefficient still did not show statistical significance.

Moving on to sensation seeking tendencies, the results are again surprising in that they do not support the hypothesis that sensation seeking leads to increased stock market participation. Again the results are not statistically significant. The explanatory power of sensation seeking was tested also by running a regression that only included the control variables and risk tolerance: again, there is no change of the coefficient to a positive number.

Social capital is next on the regressions and the results are as expected: higher levels of social capital indeed do lead to increased financial market participation being in line with prior research (Hong et al. 2004, Guiso et al. 2004). The results are statistically significant at the highest one-percent significance level. Sociability on the other hand gets similar coefficients as sensation seeking and optimism: slightly negative with no statistical significance. Again, experimenting with only the control variables and risk tolerance measure makes little difference: there is no change to a significant impact. The hypothesis thus receives no support.

Political orientation definitely has a statistically significant impact. In fact, right-wing preference is shown to increase stock market participation as was hypothesized. This clearly corroborates results found by Kaustia and Torstila (2010).

Finally, looking at open-mindedness, the absolutely novel variable, I regret to find no support for my hypothesis. The impact of open-mindedness on stock market participation is inexistent. The results were tested by leaving out the residence control variables but this had little impact on the numbers. The regression was also altered by leaving out the sensation seeking variable: again, no change.

## Table 7. Determinants of stock ownership

Specifications one through five are probit regressions where the dependent variable takes the value of one if the respondent currently owns stock. Education1 dummy takes the value of one if the respondent has completed a Bachelor's degree or higher. Education2 dummy takes the value of one if the respondent has completed a Master's degree or higher. Income1 dummy takes the value of one if the respondent's annual income is within EUR 20,001-25,000, Income2 if within EUR 25,001 – 30,000, Income3 if within EUR 30,001 – 35,000, Income4 if within EUR 35,001 – 45,000 and Income5 if over EUR 45,001. Residence1 takes the value of one if the respondents live in a city with over 30,000 inhabitants. Residence2 takes the value of one if the respondents live in the Helsinki Metropolitan Area. Risk tolerance is the mean of the answers to three questions, increasing with value from 1-5. Expectations is the mean of the answers to two questions, expectations increasingly optimistic with value from 1-3. Safety net expectations is the mean of the answers to two questions, expectations increasingly optimistic with value from 1-5. Optimism increases with value from 1-3. Sensation seeking is the mean of the answers to three questions, increasing with value from 1-4. Social capital is is the mean of the answers to three questions, increasing with value from 1-4. Sociability is the mean of the answers to three questions, increasing with value from 1-4. Right-wing political orientation increases with value from 0-4. Open-mindedness is the mean of the answers to four questions, increasing with value from 1-3. Heteroskedasticity corrected Z-values are in the parentheses below the coefficients. *, **, and *** represent significance on the 10%, 5% and 1% levels, respectively.

| **Dependent variable: Stock ownership (dummy)** | Regressions | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Age | -0.0026 | -0.0087 | 0.0056 | 0.0036 | 0.0039 |
| | (-0.24) | (-0.77) | (0.42) | (0.26) | (0.28) |
| Age squared | 0.0002** | 0.0003*** | 0.0002 | 0.0002 | 0.0002 |
| | (2.06) | (2.94) | (1.38) | (1.3) | (1.28) |
| Male (dummy) | 0.3333*** | 0.2336*** | 0.2122*** | 0.1905*** | 0.1874*** |
| | (7.11) | (4.71) | (3.59) | (3.2) | (3.07) |
| Education1 (dummy) | 0.2838*** | 0.2524*** | 0.2589*** | 0.2305*** | 0.2316*** |
| | (4.8) | (4.12) | (3.68) | (3.26) | (3.26) |
| Education2 (dummy) | 0.2258*** | 0.2372*** | 0.1685** | 0.1815 ** | 0.1821 ** |
| | (3.31) | (3.36) | (2.09) | (2.24) | (2.24) |
| Income1 (dummy) | -0.0076 | 0.0018 | 0.0282 | 0.0030 | 0.0056 |
| | (-0.10) | (0.02) | (0.29) | (0.03) | (0.06) |
| Income2 (dummy) | 0.0259 | 0.0715 | 0.0585 | 0.0283 | 0.0242 |
| | (0.34) | (0.9) | (0.62) | (0.3) | (0.26) |
| Income3 (dummy) | 0.16214** | 0.1500 | 0.1369 | 0.0940 | 0.0874 |
| | (2.1) | (1.86) | (1.43) | (0.97) | (0.9) |
| Income4 (dummy) | 0.1505** | 0.1677** | 0.1590* | 0.1206 | 0.1189 |
| | (2.06) | (2.21) | (1.79) | (1.35) | (1.33) |
| Income5 (dummy) | 0.4494*** | 0.4244*** | 0.4248*** | 0.3504*** | 0.3521*** |
| | (5.82) | (5.27) | (4.54) | (3.67) | (3.68) |
| Residence1 (dummy) | -0.0354 | -0.0201 | 0.0160 | 0.0291 | 0.0323 |
| | (-0.68) | (-0.37) | (0.25) | (0.46) | (0.51) |
| Residence 2 (dummy) | 0.2567*** | 0.2443*** | 0.1864** | 0.1822** | 0.1855** |
| | (4.23) | (3.86) | (2.51) | (2.43) | (2.47) |
| Risk tolerance | | 0.4373*** | 0.4169*** | 0.4116*** | 0.4074*** |
| | | (12.5) | (10.51) | (10.33) | (10.23) |
| Expectations | | 0.1322*** | 0.2285*** | 0.2127*** | 0.2111*** |
| | | (2.57) | (3.84) | (3.55) | (3.51) |
| Safety net expectations | | -0.1211*** | -0.1347*** | -0.1273*** | -0.1248*** |
| | | (-4.69I | (-4.49) | (-4.22) | (-4.13) |
| Optimism | | | -0.0677 | -0.0825* | -0.0785 |
| | | | (-1.41) | (-1.69) | (-1.60) |
| Sensation seeking | | | -0.0753 | -0.0757 | -0.0748 |
| | | | (-1.47) | (-1.49) | (-1.47) |
| Social capital | | | 0.1786*** | 0.1709*** | 0.1751*** |
| | | | (3.67) | (3.47) | (3.51) |
| Sociability | | | -0.0719 | -0.0778 | -0.0748 |
| | | | (-1.44) | (-1.54) | (-1.48) |
| Right-wing political orientation | | | | 0.1331*** | 0.1318*** |
| | | | | (5.36) | (5.3) |
| Open-mindedness | | | | | -0.0299 |
| | | | | | (-0.48) |
| **Constant** | -1.9321*** | -2.7927*** | -3.1370*** | -3.2164*** | -3.1729*** |
| | (-7.90) | (-9.50) | (-7.89) | (-7.74) | (-7.41) |
| **Pseudo $R^2$** | 0.1009 | 0.1505 | 0.1556 | 0.1645 | 0.1640 |
| **N** | 5000 | 4781 | 3475 | 3455 | 3438 |

## 6.2. Stock market participation – subsample analysis

### *6.2.1. By gender*

When it comes to division of the sample by gender, age plays no role in stock market participation. As for education, it is interesting to note from Table 8 that the total effects of education1 and education2 are approximately the same for both genders but the effect comes into place for women in a different stage. Only the highest income level has a statistically significant impact and that too only on participation of male respondents. Living in the Helsinki Metropolitan Area has an impact once more only for men.

Not surprisingly, risk tolerance again plays a significant positive role on stock market participation. Also, the impact of it is much larger for males than for females as could have been expected based on previous literature on men being more overconfident and risk-tolerant than women and thus investing more (Jianakoplos et al. 1998, Barber et al. 2001). A similar result can be seen for optimistic expectations, the impact again being significant only for males.

Safety net expectations result in a similar statistically significant positive impact for both men and women. Optimism, sensation seeking and sociability remain without explanatory power as in the full sample regression. The coefficients for social capital are quite similarly positive for both genders.

Right-wing political orientation once more has a significant positive influence on stock market participation, the impact being stronger for men. Open-mindedness on the other hand has no influence on stock market participation for either of the sexes.

## Table 8. Stock ownership by gender

Both male and female specifications are probit regressions where the dependent variable takes the value of one if the respondent currently owns stock. Education1 dummy takes the value of one if the respondent has completed a Bachelor's degree or higher. Education2 dummy takes the value of one if the respondent has completed a Master's degree or higher. Income1 dummy takes the value of one if the respondent's annual income is within EUR 20,001-25,000, Income2 if within EUR 25,001 – 30,000, Income3 if within EUR 30,001 – 35,000, Income4 if within EUR 35,001 – 45,000 and Income5 if over EUR 45,001. Residence1 takes the value of one if the respondents live in a city with over 30,000 inhabitants. Residence2 takes the value of one if the respondents live in the Helsinki Metropolitan Area. Risk tolerance is the mean of the answers to three questions, increasing with value from 1-5. Expectations is the mean of the answers to two questions, expectations increasingly optimistic with value from 1-3. Safety net expectations is the mean of the answers to two questions, expectations increasingly optimistic with value from 1-5. Optimism increases with value from 1-3. Sensation seeking is the mean of the answers to three questions, increasing with value from 1-4. Social capital is is the mean of the answers to three questions, increasing with value from 1-4. Sociability is the mean of the answers to three questions, increasing with value from 1-4. Right-wing political orientation increases with value from 0-4. Open-mindedness is the mean of the answers to four questions, increasing with value from 1-3. Heteroskedasticity corrected Z-values are in the parentheses below the coefficients. *, **, and *** represent significance on the 10%, 5% and 1% levels, respectively.

| **Dependent variable: Stock ownership (dummy)** | By gender | |
|---|---|---|
| | Male | Female |
| Age | 0.0050 | 0.0090 |
| | (0.26) | (0.43) |
| Age squared | 0.0002 | 0.0001 |
| | (1.03) | (0.52) |
| Education1 (dummy) | 0.3339*** | 0.1054 |
| | (3.41) | (1.02) |
| Education2 (dummy) | 0.0466 | 0.3414** |
| | (0.42) | (2.80) |
| Income1 (dummy) | -0.1360 | 0.0964 |
| | (-0.89) | (0.77) |
| Income2 (dummy) | -0.0046 | 0.0665 |
| | (-0.03) | (0.52) |
| Income3 (dummy) | 0.1690 | -0.0753 |
| | (1.27) | (-0.49) |
| Income4 (dummy) | 0.1188 | 0.1004 |
| | (1.00) | (0.69) |
| Income5 (dummy) | 0.3896*** | 0.2194 |
| | (3.14) | (1.32) |
| Residence1 (dummy) | 0.0452 | 0.0297 |
| | (0.52) | (0.31) |
| Residence 2 (dummy) | 0.1910** | 0.1793 |
| | (1.86) | (1.62) |
| Risk tolerance | 0.4870*** | 0.2888*** |
| | (9.15) | (4.60) |
| Expectations | 0.2736*** | 0.1177 |
| | (3.43) | (1.26) |
| Safety net expectations | -0.1301*** | -0.1198** |
| | (-3.46) | (-2.35) |
| Optimism | -0.1015 | -0.0678 |
| | (-1.51) | (-0.95) |
| Sensation seeking | -0.1043 | -0.0313 |
| | (-1.52) | (-0.41) |
| Social capital | 0.1890*** | 0.1737** |
| | (2.75) | (2.43) |
| Sociability | -0.0505 | -0.0914 |
| | (-0.74) | (-1.22) |
| Right-wing political orientation | 0.1593*** | 0.1023*** |
| | (4.61) | (2.85) |
| Open-mindedness | -0.0231 | -0.0177 |
| | (-0.28) | (-0.18) |
| **Constant** | -3.4319*** | -2.8691*** |
| | (-5.86) | (-4.55) |
| **Pseudo $R^2$** | 0.1803 | 0.1092 |
| **N** | 1679 | 1759 |

### *6.2.2. By education*

The differences between education levels in variables influencing stock market participation are shown in Table 9. The sample was split into two according to the education levels of the respondents: one group included all those who have a Master's degree or higher while the other group included everyone with a degree lower than a Master's. However, one must keep in mind that the sample size for those holding a Master's degree or higher is relatively small in comparison to all other regressions run in this thesis. Thus the results must be treated with some caution.

Being male again has a statistically significant positive effect only for those holding lower than Master's degrees. The effect of income is evident only in the three higher income brackets for people in the lower education group with the impact rising with the level of income. Residence does not play a very statistically significant role.

Once again, risk tolerance plays an important role for both education levels. The results are significant at a one-percent level and the positive impact on stock market participation is stronger for more highly educated people. The effect of positive expectations shows a very similar result the coefficients being significant on a 5% level. Safety net expectations again are as hypothesized: the impact is negative and also significant. The results are practically identical for both education groups.

Optimism, sensation seeking and sociability continue to display no role in stock market participation. Higher levels of social capital again have a positive influence on stock market participation, the coefficients being almost exactly the same regardless of education level. However, the results for the lower than Master's degree group are more statistically significant.

The coefficients for right-wing political orientation are statistically significant and a relatively strong positive impact can be seen for both subgroups. Finally, open-mindedness again has no impact on participation.

## Table 9. Stock ownership by education

Both Masters or higher and lower than Masters specifications are probit regressions where the dependent variable takes the value of one if the respondent currently owns stock. Income1 dummy takes the value of one if the respondent's annual income is within EUR 20,001-25,000, Income2 if within EUR 25,001 – 30,000, Income3 if within EUR 30,001 – 35,000, Income4 if within EUR 35,001 – 45,000 and Income5 if over EUR 45,001. Residence1 takes the value of one if the respondents live in a city with over 30,000 inhabitants. Residence2 takes the value of one if the respondents live in the Helsinki Metropolitan Area. Risk tolerance is the mean of the answers to three questions, increasing with value from 1-5. Expectations is the mean of the answers to two questions, expectations increasingly optimistic with value from 1-3. Safety net expectations is the mean of the answers to two questions, expectations increasingly optimistic with value from 1-5. Optimism increases with value from 1-3. Sensation seeking is the mean of the answers to three questions, increasing with value from 1-4. Social capital is is the mean of the answers to three questions, increasing with value from 1-4. Sociability is the mean of the answers to three questions, increasing with value from 1-4. Right-wing political orientation increases with value from 0-4. Open-mindedness is the mean of the answers to four questions, increasing with value from 1-3. Heteroskedasticity corrected Z-values are in the parentheses below the coefficients. *, **, and *** represent significance on the 10%, 5% and 1% levels, respectively.

| **Dependent variable: Stock ownership (dummy)** | By education | |
|---|---|---|
| | Masters or higher | Lower than Masters |
| Age | -0.0174 | 0.0035 |
| | (-0.64) | (0.21) |
| Age squared | 0.0004 | 0.0002 |
| | (1.33) | (1.19) |
| Male (dummy) | 0.1521 | 0.1560** |
| | (1.26) | (2.21) |
| Income1 (dummy) | -0.1797 | 0.0332 |
| | (-0.72) | (0.30) |
| Income2 (dummy) | -0.1666 | 0.0724 |
| | (-0.68) | (0.70) |
| Income3 (dummy) | -0.3147 | 0.2124** |
| | (-1.43) | (1.99) |
| Income4 (dummy) | -0.1135 | 0.2242** |
| | (-0.65) | (2.14) |
| Income5 (dummy) | 0.0674 | 0.5153*** |
| | (0.38) | (4.46) |
| Residence1 (dummy) | 0.1323 | 0.0170 |
| | (0.98) | (0.23) |
| Residence 2 (dummy) | 0.1775 | 0.1727* |
| | (1.34) | (1.87) |
| Risk tolerance | 0.5194*** | 0.3822*** |
| | (6.36) | (8.28) |
| Expectations | 0.2625** | 0.1942** |
| | (2.10) | (2.82) |
| Safety net expectations | -0.1360** | -0.1174*** |
| | (-2.33) | (-3.32) |
| Optimism | -0.0966 | -0.0660 |
| | (-0.98) | (-1.16) |
| Sensation seeking | -0.1362 | -0.0673 |
| | (-1.38) | (-1.13) |
| Social capital | .1792111* | 0.1807*** |
| | (1.71) | (3.18) |
| Sociability | 0.0074 | -0.0961 |
| | (0.08) | (-1.61) |
| Right-wing political orientation | 0.1203** | 0.1406*** |
| | (2.38) | (4.84) |
| Open-mindedness | -0.0129 | -0.0270 |
| | (-0.09) | (-0.38) |
| **Constant** | -2.3710*** | -3.1451*** |
| | (-2.76) | (-6.26) |
| **Pseudo $R^2$** | 0.146 | 0.1413 |
| **N** | 679 | 2759 |

### *6.2.3. By age*

As was stated earlier in this thesis, the median age of respondents of the survey is 49 years. This seemed like a sensible way to divide the sample into two groups by ages up to 49 years and ages over 49 years.

Even with an age division, being male has an impact on stock market participation while being female does not. The impact of education on participation is much stronger for those who are up to 49 years old than the older-aged group. The results in Table 10 show only the top two highest income groups have a statistically significant impact on the older sample with the impact growing with income. The impact of resident is surprisingly haphazard as either living in a city with over 30,000 inhabitants as a young person or living in the Helsinki Metropolitan Area as an older respondent has statistically significant effects.

As the general trend has been, risk tolerance has a very strong positive impact for both age groups, although the impact is notably higher for the younger respondents. The influence of positive expectations again is strong for older respondents while the numbers for the younger group are not statistically meaningful.

Positive safety net expectations lead to similar amounts of decreased stock market participation, regardless of age. Optimism again finally shows significance as a negative impact on participation for older people. Sensation seeking, sociability and open-mindedness continue to remain meaningless in this analysis. Social capital has a similar positive and statistically significant effect on all respondents. Having a preference for right-wing politics again has a positive impact, doubly so for those over 49 years of age compared to the younger age group.

## Table 10. Stock ownership by age

Both age specifications are probit regressions where the dependent variable takes the value of one if the respondent currently owns stock. Education1 dummy takes the value of one if the respondent has completed a Bachelor's degree or higher. Education2 dummy takes the value of one if the respondent has completed a Master's degree or higher. Income1 dummy takes the value of one if the respondent's annual income is within EUR 20,001-25,000, Income2 if within EUR 25,001 – 30,000, Income3 if within EUR 30,001 – 35,000, Income4 if within EUR 35,001 – 45,000 and Income5 if over EUR 45,001. Residence1 takes the value of one if the respondents live in a city with over 30,000 inhabitants. Residence2 takes the value of one if the respondents live in the Helsinki Metropolitan Area. Risk tolerance is the mean of the answers to three questions, increasing with value from 1-5. Expectations is the mean of the answers to two questions, expectations increasingly optimistic with value from 1-3. Safety net expectations is the mean of the answers to two questions, expectations increasingly optimistic with value from 1-5. Optimism increases with value from 1-3. Sensation seeking is the mean of the answers to three questions, increasing with value from 1-4. Social capital is is the mean of the answers to three questions, increasing with value from 1-4. Sociability is the mean of the answers to three questions, increasing with value from 1-4. Right-wing political orientation increases with value from 0-4. Open-mindedness is the mean of the answers to four questions, increasing with value from 1-3. Heteroskedasticity corrected Z-values are in the parentheses below the coefficients. *, **, and *** represent significance on the 10%, 5% and 1% levels, respectively.

| **Dependent variable: Stock ownership (dummy)** | By age | |
|---|---|---|
| | Upto 49 years | Over 49 years |
| Age | 0.0229 | 0.1428* |
| | (0.48) | (1.75) |
| Age squared | 0.0000 | -0.0009 |
| | (0) | (-1.36) |
| Male (dummy) | 0.2507*** | 0.1611** |
| | (2.72) | (2) |
| Education1 (dummy) | 0.3201*** | 0.1653* |
| | (2.96) | -1.72 |
| Education2 (dummy) | 0.3069*** | 0.0152 |
| | (2.69) | (0.13) |
| Income1 (dummy) | -0.0804 | 0.0719 |
| | (-0.52) | (0.56) |
| Income2 (dummy) | -0.2333 | 0.1839 |
| | (-1.55) | (1.49) |
| Income3 (dummy) | -0.0287 | 0.2003 |
| | (-0.21) | (1.52) |
| Income4 (dummy) | -0.0459 | 0.2794** |
| | (-0.34) | (2.32) |
| Income5 (dummy) | 0.0710 | 0.6045*** |
| | (0.49) | (4.79) |
| Residence1 (dummy) | 0.1707* | -0.0201 |
| | (1.7) | (-0.24) |
| Residence 2 (dummy) | 0.0960 | 0.2765*** |
| | (0.94) | (2.59) |
| Risk tolerance | 0.4780*** | 0.3446*** |
| | (7.9) | -6.65 |
| Expectations | 0.0825 | 0.3013*** |
| | (0.89) | -3.82 |
| Safety net expectations | -0.1093** | -0.1571*** |
| | (-2.26) | (-4.11) |
| Optimism | 0.0188 | -0.1522** |
| | (0.26) | (-2.32) |
| Sensation seeking | -0.1192 | -0.0166 |
| | (-1.46) | (-0.26) |
| Social capital | 0.1888*** | 0.1483** |
| | (2.67) | (2.18) |
| Sociability | -0.1190 | -0.0362 |
| | (-1.51) | (-0.54) |
| Right-wing political orientation | 0.0878*** | 0.1514*** |
| | (2.56) | (4.21) |
| Open-mindedness | -0.0349 | -0.0355 |
| | (-0.38) | (-0.42) |
| **Constant** | -3.6310*** | -7.491*** |
| | (-3.98) | (-2.96) |
| **Pseudo $R^2$** | 0.1849 | 0.1395 |
| **N** | 1843 | 1690 |

## 6.3. Savings

As with stock market participation, the probit regressions have been run such that the variables have been added incrementally, this time in four stages. Again, the first one includes only the socioeconomic and demographic control variables, and from there on, variables are added to the regression going from more conventional determinants to increasingly exotic ones. Although all the determinants were not hypothesized to have an impact on savings, the fourth regression specification is presented out of general interest.

As we can see from Table 11, age has a slight negative impact on savings behavior. Being male similarly has a negative impact which does lessen in strength as variables are added. This could again be due to the fact that men are typically more risk-tolerant and thus less inclined to save up for the future. Education and residence play quite an insignificant role. On the other hand, the results for various income levels are statistically meaningful, with the likelihood of saving growing steadily with increased annual income per individual. This was to be expected as the higher the income, the higher the probability of having excess means to save.

Risk tolerance receives a negative coefficient at first but eventually a positive impact on savings can be concluded the results all being statistically significant at a one-percent level. Safety net expectations have a strong negative, statistically significant effect as was hypothesized. Right-wing political orientation is found to be having a slight positive influence on saving.

None of the remaining determinants, namely optimism, expectations, sensation seeking tendencies, social capital, optimism and sociability have any statistically significant impact on savings.

## Table 11: Determinants of saving

Specifications one through four are probit regressions where the dependent variable takes the value of one if the respondent has savings. Education1 dummy takes the value of one if the respondent has completed a Bachelor's degree or higher. Education2 dummy takes the value of one if the respondent has completed a Master's degree or higher. Income1 dummy takes the value of one if the respondent's annual income is within EUR 20,001-25,000, Income2 if within EUR 25,001 – 30,000, Income3 if within EUR 30,001 – 35,000, Income4 if within EUR 35,001 – 45,000 and Income5 if over EUR 45,001. Residence1 takes the value of one if the respondents live in a city with over 30,000 inhabitants. Residence2 takes the value of one if the respondents live in the Helsinki Metropolitan Area. Risk tolerance is the mean of the answers to three questions, increasing with value from 1-5. Expectations is the mean of the answers to two questions, expectations increasingly optimistic with value from 1-3. Safety net expectations is the mean of the answers to two questions, expectations increasingly optimistic with value from 1-5. Optimism increases with value from 1-3. Sensation seeking is the mean of the answers to three questions, increasing with value from 1-4. Social capital is is the mean of the answers to three questions, increasing with value from 1-4. Sociability is the mean of the answers to three questions, increasing with value from 1-4. Right-wing political orientation increases with value from 0-4. Open-mindedness is the mean of the answers to four questions, increasing with value from 1-3. Heteroskedasticity corrected Z-values are in the parentheses below the coefficients. *, **, and *** represent significance on the 10%, 5% and 1% levels, respectively.

| **Dependent variable: Savings (dummy)** | Regressions | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| Age | -0.0430*** | -0.0484*** | -0.0426*** | -0.0523*** |
| | (-4.49) | (-4.78) | (-4.05) | (-4.09) |
| Age squared | 0.0005*** | 0.0005*** | 0.0005*** | 0.0005*** |
| | (4.56) | (4.76) | (3.99) | (3.91) |
| Male (dummy) | -0.1844*** | -0.1522*** | -0.1366*** | -0.0967 |
| | (-4.09) | (-3.19) | (-2.76) | (-1.62) |
| Education1 (dummy) | 0.0900 | 0.0999* | 0.1041* | 0.1083 |
| | (1.53) | (1.65) | (1.67) | (1.51) |
| Education2 (dummy) | 0.0376 | 0.0818 | 0.0927 | 0.0086 |
| | (0.50) | (1.05) | (1.15) | (0.09) |
| Income1 (dummy) | 0.2285*** | 0.2160*** | 0.1844** | 0.1200 |
| | (3.37) | (3.09) | (2.55) | (1.43) |
| Income2 (dummy) | 0.3787*** | 0.3752*** | 0.3736*** | 0.2814*** |
| | (5.40) | (5.21) | (4.98) | (3.34) |
| Income3 (dummy) | 0.4202*** | 0.4391*** | 0.4312*** | 0.3743*** |
| | (5.55) | (5.57) | (5.28) | (3.97) |
| Income4 (dummy) | 0.4609*** | 0.4738*** | 0.4391*** | 0.5019*** |
| | (6.30) | (6.26) | (5.58) | (5.48) |
| Income5 (dummy) | 0.6539*** | 0.6469*** | 0.6241*** | 0.6763*** |
| | (7.49) | (7.22) | (6.74) | (6.21) |
| Residence1 (dummy) | -0.0444 | -0.0559 | -0.0479 | -0.0487 |
| | (-0.91) | (-1.10) | (-0.91) | (-0.8) |
| Residence 2 (dummy) | -0.0023 | 0.0052 | 0.0201 | 0.0185 |
| | (-0.04) | (0.08) | (0.31) | (0.25) |
| Risk tolerance | | -0.1073*** | -0.1013*** | 0.0903** |
| | | (-3.37) | (-3.08) | (-2.38) |
| Expectations | | -0.0152 | -0.0271 | -0.0075 |
| | | (-0.30) | (-0.52) | (-0.12) |
| Safety net expectations | | -0.1021*** | -0.0958*** | -0.1129*** |
| | | (-4.32) | (-3.87) | (-3.98) |
| Optimism | | | -0.0131 | -0.0490 |
| | | | (-0.32) | (-1.03) |
| Sensation seeking | | | -0.0355 | -0.0609 |
| | | | (-0.83) | (-1.21) |
| Social capital | | | | 0.0083 |
| | | | | (0.17) |
| Sociability | | | | 0.0778 |
| | | | | (1.61) |
| Right-wing political orientation | | | | 0.0455** |
| | | | | (2.14) |
| Open-mindedness | | | | 0.0537 |
| | | | | (0.89) |
| **Constant** | 1.6677*** | 2.3371*** | 2.3214*** | 2.3246*** |
| | (8.04) | (9.24) | (8.23) | (6.07) |
| **Pseudo $R^2$** | 0.0273 | 0.0349 | 0.0329 | 0.0416 |
| **N** | 5000 | 4781 | 4475 | 3438 |

## 6.4. Loans and credit, credit cards, insurance coverage

### *6.4.1. Loans and credit*

Originally, I was to use only one variable for a respondent having loans or credit. In the end however, to distinguish between getting a loan to partially pay for a house (a mortgage) or actually lacking financial means for more everyday purposes, the answers were divided into two dummy variables: housing loans and other loans.

As is evident from Table 12, from the socioeconomic variables, age has a stronger effect on possession of a housing loan than on having loans other than a mortgage. This is no doubt plausible as a purchase of a home becomes a current need often in a later stage in life than for example a student loan or credit from a store. The effect of gender again is not statistically significant.

Having a Bachelor's degree or higher has a positive impact on obtaining a housing loan while having a Master's degree or higher has a negative impact on having non-housing loans. For income levels, the results are both very interesting and statistically significant. The higher the level of annual income, the larger the positive impact of obtaining a housing loan. On the other hand, according to the results, people in the lowest income bracket are more likely to get a non-housing loan than those in the mid-high income brackets the coefficients dropping for Income2 but rising from there, although ultimately the number is at its lowest for the highest earners. Residence again has a significant and negative impact on housing loan participation. The bigger the city, the less a person has a housing loan.

The results for risk tolerance are not significant even at a 10% threshold. Positive expectations have a positive impact on housing loans while positive safety net expectations have a negative impact on non-housing loan market participation. Optimism and sensation seeking tendencies both have a significant and positive effect on all loans, although for the latter, the impact is over twice stronger for non-housing loans or credit.

### *6.4.2. Credit cards*

When it comes to credit cards, the impact of age is positive and statistically significant as can be expected. Being male presents no significance in the matter. Both education dummies have a similar positive effect. The annual individual income levels have an almost surprisingly high impact on credit card possession/usage. The coefficient for the lowest income bracket is already significantly positive and very high and this trend continues with increasingly affirmative effects with rising income. Place of residence has a relatively less substantial positive linkage, although living in the Helsinki Metropolitan Area is related to increased participation.

The coefficients of risk tolerance confirm the hypothesis that risk tolerance leads to increased usage or ownership of credit cards, however at a 10% significance level. Both expectations and optimism are shown to have no impact. Safety net expectations have a slight negative effect while sensation seeking has a stronger positive impact on credit card usage or possession.

### *6.4.3. Insurance coverage*

Finally, the numbers for insurance coverage show that age has a slight positive yet statisticially significant impact on insurance coverage. Gender and education are all found to be statistically insignificant. The impact of income again is both significant and strong, although a clear pattern cannot be seen from the coefficients for the various income brackets. In fact, being in the third group earning a mid-high income annually leads to most increased insurance coverage while the numbers decrease both when falling back to the lowest bracket and climbing up to the highest group. Living a city with over 30,000 inhabitants leads to a significant decrease in insurance coverage.

Moving on to the non-control variables, as was hypothesized, risk tolerance and positive safety net expectations lead to decreased insurance coverage. Expectations, optimism and sensation seeking are found to have no significant impact.

## Table 12. Determinants of remaining forms of financial market participation

All specifications are probit regressions. The dependent variable takes the value of one if the respondent currently has a housing loan, non-housing loan or credit card. Insurance coverage increases with value upto 12. Education1 dummy takes the value of one if the respondent has completed a Bachelor's degree or higher. Education2 dummy takes the value of one if the respondent has completed a Master's degree or higher. Income1 dummy takes the value of one if the respondent's annual income is within EUR 20,001-25,000, Income2 if within EUR 25,001 – 30,000, Income3 if within EUR 30,001 – 35,000, Income4 if within EUR 35,001 – 45,000 and Income5 if over EUR 45,001. Residence1 takes the value of one if the respondents live in a city with over 30,000 inhabitants. Residence2 takes the value of one if the respondents live in the Helsinki Metropolitan Area. Risk tolerance is the mean of the answers to three questions, increasing with value from 1-5. Expectations is the mean of the answers to two questions, expectations increasingly optimistic with value from 1-3. Safety net expectations is the mean of the answers to two questions, expectations increasingly optimistic with value from 1-5. Optimism increases with value from 1-3. Sensation seeking is the mean of the answers to three questions, increasing with value from 1-4. Heteroskedasticity corrected Z-values are in the parentheses below the coefficients. *, **, and *** represent significance on the 10%, 5% and 1% levels, respectively.

| | Various dependent variables | | | |
|---|---|---|---|---|
| | Housing loans (dummy) | Non-housing loan (dummy) | Credit cards (dummy) | Insurance coverage |
| Age | 0.1421*** | 0.0741*** | 0.0754*** | 0.0576*** |
| | (13.76) | (8.31) | (7.82) | (3.43) |
| Age squared | -0.0017*** | -0.0009*** | -0.0006*** | -0.0005** |
| | (-14.78) | (-9.03) | (-6.13) | (-2.41) |
| Male (dummy) | -0.0021 | 0.0129 | -0.0103 | -0.0195 |
| | (-0.05) | (0.31) | (-0.21) | (-0.23) |
| Education1 (dummy) | 0.1694*** | 0.0376 | 0.2043*** | 0.0207 |
| | (3.18) | (0.73) | (3.24) | (0.19) |
| Education2 (dummy) | -0.0225 | -0.1436** | 0.2244** | 0.1382 |
| | (-0.34) | (-2.25) | (2.53) | (0.96) |
| Income1 (dummy) | 0.3378*** | 0.2170*** | 0.4217*** | 0.5017*** |
| | (5.01) | (3.43) | (6.08) | (3.62) |
| Income2 (dummy) | 0.5722*** | 0.1865*** | 0.5661*** | 0.5829*** |
| | (8.72) | (2.98) | (7.86) | (3.92) |
| Income3 (dummy) | 0.6355*** | 0.1972*** | 0.6657*** | 0.8564*** |
| | (9.29) | (2.98) | (8.33) | (4.36) |
| Income4 (dummy) | 0.6555*** | 0.2649*** | 0.9203*** | 0.5914*** |
| | (9.67) | (4.07) | (10.54) | (3.94) |
| Income5 (dummy) | 0.7193*** | 0.1291* | 1.0691*** | 0.4935*** |
| | (9.6) | (1.78) | (9.77) | (3.15) |
| Residence1 (dummy) | -0.1442*** | 0.0456 | 0.0749 | -0.2452*** |
| | (-3.11) | (1.03) | (1.46) | (-2.76) |
| Residence 2 (dummy) | -0.1365** | 0.0451 | 0.1552** | 0.1157 |
| | (-2.45) | (0.84) | (2.3) | (1.12) |
| Risk tolerance | -0.0307 | -0.0390 | 0.0578* | -0.1426*** |
| | (-1.06) | (-1.42) | (1.7) | (-2.64) |
| Expectations | 0.1032** | 0.0424 | -0.0550 | -0.0528 |
| | (2.24) | (0.97) | (-1.05) | (-0.62) |
| Safety net expectations | 0.0181 | -0.0413** | -0.0609** | -0.1328*** |
| | (0.84) | (-2.01) | (-2.41) | (-3.1) |
| Optimism | 0.1262*** | 0.1523*** | 0.0576 | 0.0719 |
| | (3.54) | (4.47) | (1.44) | (1.04) |
| Sensation seeking | 0.0755** | 0.2005*** | 0.1471*** | -0.0313 |
| | (2.05) | (5.67) | (3.49) | (-0.4) |
| **Constant** | -3.7337*** | -2.2633*** | -2.1155*** | 0.7702* |
| | (-14.25) | (-9.54) | (-7.99) | (1.7) |
| **Pseudo $R^2$** | 0.1257 | 0.04 | 0.1612 | 0.1566 |
| **N** | 4475 | 4475 | 4475 | 4475 |

# 7. Discussion

In this section I will discuss the main significant results comparing and contrasting my findings to past research where relevant. In this study, stock market participation is perhaps the easiest to analyze in the sense that there is abundant prior literature and research on the topic making it unproblematic to compare and contrast the results with earlier findings.

## 7.1. Stock market participation

The results for risk tolerance and expectations confirm what has been hypothesized: both have a positive impact on stock market participation. Risk tolerance especially keeps its positive influence in all of the tested regression specifications and subsample analyses. As prior studies (Jianakoplos et al. 1998, Barber et al. 2001) have suggested, there are definitely links between gender and risk tolerance.

One of the main contributions of this thesis however lies in the results concerning safety net expectations. The analysis clearly shows that positive expectations about a safety net being in place lead to decreased stock market participation. As I have explained earlier, the safety net expectation variable has been formulated by taking a mean of the answers to two questions. The first question asked the participants their opinion on the pension system in place while the second question focused on beliefs about the development of public services such as the public healthcare system. The regression was run also by including separate variables for pension and public services: the results showed little difference from the ones obtained from the original regression.

Looking at prior research, Guiso et al. (2003) discuss that positive safety net expectations decrease stock market participation. On the other hand, more recently, Gormley et al. (2010) conclude an opposite effect on stock ownership. My intra-country data is in line with Guiso et al.: The more a person believes that his/her future is supported through a system of a safety net, the less likely this person is to save and invest in stock. The results are particularly interesting because Finland is world-renowned especially for its stable and comprehensive social security structure.

Another interesting result is related to optimism. As stated earlier, respondents were asked to state whether they consider themselves pessimists, realists or optimists. Contrary to the

hypothesis, and earlier work by Puri and Robinson (2007), I find no indication of optimism having statistically significant impact on stock market participation. The explanatory power of optimism was tested by running a regression that only included the control variables and risk tolerance in addition to optimism: the coefficient still did not show statistical significance. For further analysis, the optimism variable was replaced by optimist and pessimist dummies and a new regression was run. Interestingly enough, this new regression indicates that being a pessimist has no impact on stock ownership, while being a optimist has a negative and statistically significant effect. Also, in the age-dependent sub-sample analysis conducted, optimism shows significance as a negative impact on participation for people in the older than median age group.

The initial hypothesis is also rejected when considering the impact of sensation seeking on stock market participation. The results are not found to be significant, even when tested only with the control variables and risk tolerance. Grinblatt and Keloharju (2009) have reported sensation seeking investors to trade more frequently which underlies the assumption that these people also must own the stock to trade. My results counter theirs. It is natural that the measures used to determine sensation seeking are different between these two studies: Grinblatt and Keloharju use the number of convictions for speeding while I use a variable taken as the mean of three different questions that measure sensation seeking tendencies (impulsiveness, travelling to un-travelled places, and gambling). It is unlikely that the measure used in this study is inferior to ones used in prior research, especially considering the diversity of the questions. Another possible explanation behind my results could be the use of different control variables. Perhaps when controlling with a strong risk measure, sensation seeking loses any possible impact.

When it comes to social capital, my results are as predicted and indicate that higher levels of social capital do lead to increased participation which corroborates prior research (Hong et al. 2004, Guiso et al. 2004). Guiso et al. conclude that households in Italy invest more in stock in areas where high levels of social capital exist. My results are thus in line with their study. However, Guiso et al. also state that the impact of social capital is higher when the legal enforcement within the area is weaker and the people have lower educations. The results obtained in this thesis are of specific interest due to the impact of social capital being as strong as it is found to be considering the fact that Finland is a country where trust in

institutions is high and legal enforcement is strong. Also Finland is known for its high quality and levels of education coming up frequently number one in the world when considering literacy rates, yet, the results show the strong positive impact of social capital on stock market participation.

My study shows sociability to have no effect on stock holding, even after experimenting with adjusted specifications including again only the control variables and risk tolerance. These results differ from recent research by Georgarakos and Pasini (2009) who find trust and sociability to have a positive influence on stock market participation.

According to my results, right wing political orientation is definitely a positive influence on stock market participation which clearly confirms results found by Kaustia and Torstila (2010). One significant difference between their study and this thesis is the lack of a direct measure of risk tolerance in their regressions although they obviously include other variables that may control for risk preferences. Also, my results naturally were obtained through the use of a different yet comprehensive set of control variables thus strengthening the contribution of the results obtained to existing literature.

To my dismay, I find no support for open-mindedness having any impact on any form of financial market participation. This could be purely because open-mindedness in fact has no effect or because the questions used do not correctly measure the desired determinant due to ambiguity in formatting of the question.

## 7.2. Other financial market participation forms

For the remaining dependent variables, only risk tolerance, optimism, expectations, safety net expectations and sensation seeking were hypothesized to have an effect. However, for savings, all of the variables were run in the regression, purely out of interest.

Savings is a form of financial market participation that has been investigated in prior research less than stock market participation but more than loans or insurance. In that sense, there are some prior results to compare my results with for better insight into the contribution of this thesis.

In line with prior research (Cashel 2009) income is found to have an impact on savings, with the likelihood of saving growing steadily with increased annual income per individual. Age and gender both have a negative effect.

Of the behavioral determinants, it is of interest to see that risk tolerance receives a negative coefficient at first but eventually a positive effect on savings can be concluded. Safety net expectations have a strong negative, statistically significant effect as was hypothesized. This confirms the findings of Gormley et al. (2010). Right-wing political orientation is found to be having a slight positive influence on saving.

None of the remaining determinants have any statistically significant impact on savings. The results of regressions testing optimism, expectations, and sensation seeking tendencies show no statistical significance although for example, Puri and Robinson (2007) had found linkage between optimism and saving behavior. Social capital and sociability are found to have no effect even though some researchers before (Duflo and Saez 2000, Bertrand et al. 2000) have been able to conclude the existence of an impact of networking and peer influence.

As for loans, having a Bachelor's degree or higher has a positive impact on obtaining a housing loan while having a Master's degree or higher is found to have a negative impact on having non-housing loans. Income-related results are very interesting: The higher the level of annual income, the larger the positive impact of obtaining a housing loan. This could be due to the fact that purchasing a house is a big investment for which a certain level of base income is needed, either due to bank's down-payment requirements or for personal risk preference related reasons. On the other hand, according to the results, people in the lowest income bracket are more likely to get a non-housing loan than those in the mid-high income brackets with the highest earning group being least positively influenced. The coefficients for the lowest and highest earners are not unexpected as one could assume that the people with the lowest income lack financial means most while those earning highest amounts have secured finances for relatively smaller purchases than houses.

Place of residence has a significant and negative impact on housing loan participation: the bigger the city, the less a person has a housing loan. This is probably due to people being more in ownership of their homes further away from the Helsinki Metropolitan Area as a majority of the dwellings, mostly apartments, in the big cities are rented.

Risk tolerance is found to have no significant impact on loans and credit. Positive expectations have a positive impact on housing loans while positive safety net expectations have a negative impact on non-housing loan market participation. Optimism and sensation seeking tendencies both have a significant and positive effect on all loans, although for the latter, the impact is over twice stronger for non-housing loans or credit.

When it comes to credit cards, the impact of age and education is positive and statistically significant as can be expected. Gender bears no significance in the matter. The annual individual income levels have an almost surprisingly high impact on credit card possession/usage with a rising trend with increase in income. Place of residence has a relatively less substantial positive linkage, although living in the Helsinki Metropolitan Area is related to increased participation.

Risk tolerance is confirmed to lead to increased usage or ownership of credit cards, however at a 10% significance level. Sensation seeking has a strong positive effect while safety net expectations have a slight negative effect contrary to what was hypothesized. Both expectations and optimism are shown to have no impact. Risk tolerance and positive safety net expectations are found to lead to decreased insurance coverage. Expectations, optimism and sensation seeking again seem to have no significant impact.

# 8. Conclusion

In this thesis, I attempt to shed light on the determinants of financial market participation. I conduct a thorough analysis of stock market participation, a topic for which research has been abundant in the past. I find interesting results on the impact of attitude and expectations related determinants on stock holding. However, the contribution does not end there. I also investigate how some of the determinants affect savings, loans and credit, credit card ownership or usage, and insurance coverage.

The data used is from a comprehensive survey, the RISC Monitor 2009, conducted by TNS Finland during the first quarter of 2009. The final sample size is within the range of 3,400 to 5,000 respondents. Using this data, unique in its application to such a study, I investigate the possible impact of optimism, expectations, safety net expectations, risk tolerance, sensation seeking, social capital, sociability, right-wing political orientation and open-mindedness on participation in stock, savings behavior, housing and non-housing loans, credit card ownership, and insurance coverage. In addition, the regressions include a variety of control variables: namely age, gender, education, income and place of residence. There are a number of interesting results obtained from this study.

The variables for stock market participation are tested both using the full available sample and sub-samples split according to age, gender and education. A substantial contribution of this study lies in the results relating to safety net expectations. Prior research on the topic has lead to mixed results. On one hand, Guiso et al. (2003) discuss that positive safety net expectations decrease stock market participation while on the other hand, more recently, Gormley et al. (2010) conclude an opposite effect on stock ownership. My intra-country data is in line with the former: The more a person believes that his/her future is supported through a system of a safety net, the less likely this person is to save and invest in stock. The results are especially interesting because Finland has a reputation for having one of the world's most stable and comprehensive social security structures. It is clear that more research on the impact of safety net expectations could prove very interesting on shedding more light on the true impact.

Looking into the effect of optimism has lead to another interesting discovery: differing from prior research by Puri and Robinson (2007), I find no indication of optimism having a statistically significant impact on stock market participation. To test the determinant further,

the optimism variable was replaced by optimist and pessimist dummies and a new regression was run. These new results indicate that being a pessimist has no influence on stock ownership, while being an optimist has a negative and statistically significant impact.

Grinblatt and Keloharju (2009) have found sensation seeking tendencies to lead to increased trading (with the underlying assumption of stock ownership of course). My research however, shows sensation seeking to have no statistically significant impact on stock market participation. This difference could result from use of different control variables or variables for measuring sensation seeking. It could also be that when controlling with a strong risk measure, the impact of sensation seeking is lost. Future analysis on the topic would definitely be desirable.

My results corroborate research by Hong et al. (2004), Guiso et al. (2004) and Kaustia and Knüpfer (2010) and show that higher levels of social capital have a strong positive impact on stock participation. This result is interesting considering that Guiso et al. conclude the impact to be lower in areas like Finland where literacy rates are high and the legal enforcement is strong. On the other hand, the results of Georgarakos and Pasini (2009), who find sociability to have a positive impact, are not confirmed as my results show sociability to have no significance. Right wing political orientation again is found to definitely have a positive influence on stock market participation, this clearly confirming the conclusions of Kaustia and Torstila (2010).

As for the other forms of financial market participation, risk tolerance is found to have a positive impact on savings. Safety net expectations again are found to have a strong negative impact, which is in line with both my hypothesis and the recent findings of Gormley et al. (2010). Also right-wing political orientation can be concluded to have slight but positive influence on saving. The remaining behavioral determinants do not seem to have any impact on savings although prior research has suggested otherwise - Puri and Robinson (2007) with optimism, and Duflo and Saez (2000) and Bertrand et al. (2000) considering networking and peer influence.

When it comes to loans and credit, education and income play significant roles. The same applies to place of residence on explaining housing loans. Surprisingly I find risk tolerance to have no significant impact. I discover positive expectations to have a positive impact on

housing loans while positive safety net expectations have a negative impact on non-housing loan market participation. Optimism and sensation seeking have a positive effect on all loans, with the impact of sensation seeking being twice as strong for non-housing loans or credit.

Risk tolerance can be concluded to having a positive impact and leading to increased usage or ownership of credit cards. Sensation seeking has a strong positive effect while safety net expectations have a slight negative effect on credit card ownership, contrary to what was the preassumption. As for insurance coverage, I find only risk tolerance and positive safety net expectations to have an impact leading to decreased participation.

I find no support for open-mindedness having any impact on any form of financial market participation. It cannot be concluded whether the reason behind this is simply that open-mindedness has no effect on participation or that the variables used to measure the impact do not measure the targetted determinant after all. This was the first test in this field for this determinant - perhaps other researchers could some day present different results.

At the start of the development of this thesis, I was also interested in testing the impact of personal competitiveness on participation but due to data constraints had to drop this variable. I realise having access to such a comprehensive data set as I have in this thesis is rarely self-evident. However, I would encourage researchers to keep an open mind and tear away from conventional thinking. The past decade has shown a delightful increase in studies investigating the impact of newer, less-traditional variables on stock market participation. This is certainly a desirable trend for the future and I hope a decade from now many novel determinants have been researched.

When attempting to find prior literature on financial market participation other than stock ownership, I came across the realisation on how lacking this field of research is. The consumption behavior of individual's has been researched: however, the drivers behind participation have been scarcely looked into. I do not know whether this phenomenon is due to difficulty in obtaining appropriate data or if it is a result of researchers preferring to investigate the more popular and in some senses easier topic of stock market participation. I would again encourage academics to keep in mind these other forms of participation also, especially since these are often relatively more relevant in the everyday lives of consumers.

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