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Measuring the financial capability of investors

A case of the customers of mutual funds in Finland

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Abstract

Purpose – The purpose of this paper is to provide further understanding of the financial capability of mutual fund investors, and compare internet and branch office investors. It seeks to examine mutual fund investors' abilities and awareness of the terms and risks of mutual fund investments using a novel measurement instrument.

Design/methodology/approach – Ability measurement techniques adapted from educational and psychological studies were applied in the paper. Empirical survey data were collected in Finland.

Findings – There were differences between different types of investors in terms of financial knowledge. The channel used by the investors in making investments differentiated the more knowledgeable internet investors from the less knowledgeable branch office investors.

Research limitations/implications – The subjects of the study are the clients of a mutual fund company. Future research could concentrate on examining the consequences of financial knowledge. One interesting question is how the consumers understand their personal financial capability and its role in their lives.

Practical implications – The measures and indicators of financial capability are important evaluative instruments for banks and financial corporations as well as for the authorities involved in evaluating investors' financial behaviour.

Originality/value – The ability measurement technique adapted from education and psychological research proved to be applicable in the field of financial capability measurement.

Keywords Financial management, Financial information, Unit trusts, Investments

Paper type Research paper

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1. Introduction

Active financial markets are important to the whole of society. From the 1980s, the structural and technical changes in the financial market, as well as internationalisation

have modified and even created financial products. The supply of these products has extended and diversified. The interest of households in investing has increased, particularly in the last decade. The amount of privately-owned financial capital has rapidly increased during the past ten years throughout Europe (European Central Bank, 2010). The increased wealth of households has expanded the opportunities to invest instead of using conventional bank deposits. Furthermore, the discussion concerning the ageing population and the sufficiency of pension plans has increased the interest in saving for the future (OECD, 2005).

Financial institutions today develop and offer a wide assortment of financial services, especially investment services including new and unpredictable risks for consumers and themselves. This means that more consumers have become acquainted with various financial products and services and have entered financial markets as investors. In today's wealthy and market-oriented environment individuals are increasingly required to take responsibility for their financial affairs (see, e.g. Atkinson *et al.*, 2007). People need to be able to manage their finances in order to maintain their well-being, and in many countries for example people's pensions are highly dependent on their financial know-how.

The financial authorities and companies on the field of financial services have recently expressed concerns over the level of financial awareness of consumers (FSA, 2005, 2006a; OECD, 2005; FINRA, 2009). For instance in the US, Ben Bernanke has given several speeches expressing his concern about the low level of information investors' in the changing financial service industry are working with (Bernanke, 2008, 2009). Consumers' capability to manage their finances has also become one of the key consumer issues in the EU (see McCreevy, 2007).

The changes in the financial markets and the challenges facing private investors, underline the necessity of measuring how well individual investors are informed about the concepts and terms concerning their investment or credit market in general. This study concentrates on examining mutual fund investors' abilities and their awareness of the terms and risks of mutual fund investments. The aim is to obtain information that can be used when developing credit markets and planning information campaigns targeted at private investors who make choices on mutual funds. The purpose of this paper is to provide further understanding of the financial capability of mutual fund investors, and compare internet and branch office investors. In addition, we investigate if the level of capability differentiates investors in terms of their investment behaviour. Thus we put forward the following research questions:

(1) We explore if the capability level of the investor is connected to investment behaviour. Specifically, have those investors investing in equity funds with a high risk and return got better knowledge and ability than money market investors?

(2) We examine if there are differences in capability between those who use the branch office and those who use the internet when making investment decisions.

(3) We investigate the investors' awareness of their own capability. Overconfidence is present if investors think that they know more about the investment field than they actually do.

(4) We examine if investors with different capability levels use different information sources.

The structure of the paper is as follows. In the first section the concept of financial capability is explained and defined. After that we present a brief review of mutual funds as investment objects and summarize previous findings concerning investors' motives and decision making. Subsequently, we present the methodology used in estimating the mutual fund investors' capability, and the results of the empirical study. Finally, conclusions and implications of the study are discussed.

2. Conceptualising financial capability

In a contemporary world, consumers' capability to manage their finances may to a large extent affect their well-being. Consumers are expected to be active and well-informed in their financial activities and they are responsible for the consequences of their choices.

Education and counselling authorities, in particular, have been interested in defining financial capability. According to the UK Financial Services Authority (FSA, 2005), financial capability consists of an individual's personal characteristics that are influenced by several factors in their micro and macro environment. The influence of environmental factors on a person's capability is essential because every person lives in a certain society and belongs to various communities. The societal environment gives the framework for consumer activities and the forum for the interaction between the actors in the society. This view focuses on both the depth and breadth of financial capability. The depth of financial capability is related to an individual's personal characteristics:

- financial knowledge and understanding;
- skills and competence; and
- responsibility (FSA, 2005, p. 7).

The breadth of financial capability refers to the investors' knowledge, skills and responsibility about the variety of financial commodities in the market, e.g. financial services and institutions, legislation, taxation. Below, we will examine these concepts more closely.

Financial knowledge and understanding means that a person knows and understands the forms, functions and use of money and financial services. Financial knowledge and understanding are needed when a person decides upon the best way to conduct payments and take care of banking issues. Financial knowledge and understanding involve the awareness of the income available: that is, how much money there is for consumption and saving. In financial behaviour it is also relevant to understand taxation questions. Hilgert and Hogarth (2003, pp. 320-321) have suggested that financial knowledge is associated with financial practices like cash-flow management, credit management, saving and investment.

Financial skills and competence are know-how that are shown in the practices and habits formed in everyday and long-term financial management. Financial skills and competence are based on financial knowledge and understanding and are influenced by attitudes towards the use of money, i.e. spending and saving (Cramer *et al.*, 2004).

Consumers who behave financially responsibly take into account the other members in their environments, like family members, relatives and friends, when making financial decisions (Financial Capability through Personal Financial Education, 2000, p. 6; Roy Morgan Research, 2003, pp. 73-76). A financially

responsible person understands that the decisions made always have an influence on other people or actors in the community. Responsible behaviour is also needed to provide for potential economic, social or personal risks in the future.

In this article, we have modified the earlier definitions of financial knowledge, financial skills and competence, and financial responsibility from the perspective and environment of our study. The dimensions of financial capability interact strongly with each other. Financial knowledge and understanding, skills and competence, and responsibility are of no use unless consumers are able to use them in practice. Thus, people's financial market behaviour is an essential element of financial capability.

How much knowledge and what skills does a person need to reach a sufficient level of competence in financial issues? Financial capability and its dimensions have various levels: from basic to extended ones. The development of financial capability is influenced by various inner and outer factors. Inner factors contain consumer demographic characteristics (like sex, age, education, phase of life) and mental ones (like values, attitudes, preferences, habits). Outer factors are the factors in micro and macro environments (culture, inflation, and infrastructure). In other words, financial capability develops in a process that evolves over a person's life cycle and follows the circumstances in society (see Leskinen and Raijas, 2005).

In this study we focus on private investors' financial knowledge and understanding, and investigate how this aspect of financial capability becomes evident in their actual investment decisions. The investment process is influenced by five domains (Figure 1): information, taxation, investment period, risk-taking vs expected returns and the

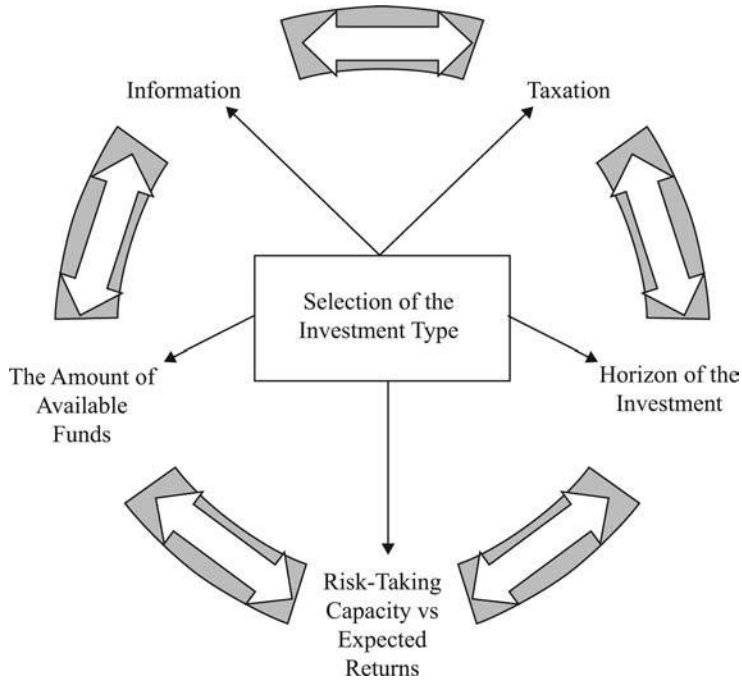


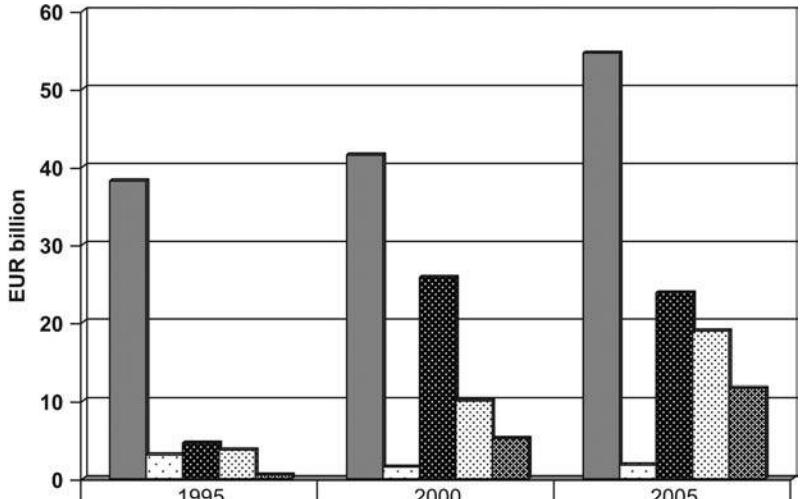
Figure 1.
The main domains in planning the investment type

amount of available funds (Puttonen and Kivisaari, 1997). To construct the measurement instrument, a group of multiple-choice items was developed covering the mutual fund investors' knowledge and skills.

3. Mutual funds as investment objects and investment behaviour

Economic growth has increased both the wealth of households and the liberation of the money market. These two factors have in turn multiplied the opportunities for investing. While the amounts of all available assets have increased, the shares of mutual funds and insurance savings have grown the most. Since the adoption of the euro as the common currency in most European countries, the basic interest rate of loans and savings has been relatively low. The low interest rate of bank deposits has increased savers' interest in new investment alternatives, such as mutual funds. Figure 2 displays the change that has occurred in Finland. After 1995, the amount of mutual funds and insurance savings started to grow, and the rate of growth has accelerated since 1999.

At the same time, the marketing of mutual funds has increased radically. The new investment products offer consumers new opportunities to gain more profits, but at the same time, the risk of losing money has increased. This changeover from bank deposits to mutual funds has led to a new situation, in which consumers are required to learn new financial concepts and, most importantly, to understand the relation between risk



	1995	2000	2005
Deposits	38.2	41.5	54.6
Bonds	3.1	1.5	1.8
Stocks	4.6	25.8	23.8
Ins.savings	3.7	10	18.9
Mutual funds	0.5	5.2	11.6

Data Sources: The Finnish Bankers' Association, Bank of Finland, Statistics Finland, Federation of Finnish Insurance Companies

Figure 2.
Investment of assets in different securities

and return (see Bell and Eisingerich, 2007). This kind of change is difficult to follow for consumers and they may be forced to trust bank personnel, or be able to find information from other sources like the internet.

In the last few years, banks and insurance companies have vigorously developed mutual funds for investors. This has led to mergers between these different branches and to new finance corporations or consortium groups. Their mission is to introduce mutual funds for private investors and to give them basic information about suitable investment funds, their expected returns and other terms. Thus, after a customer has decided to make an investment, bank personnel usually takes care of practical operations. The personnel are responsible for giving full information concerning the investment of clients. On the other hand, it is also possible to invest money in the mutual funds in the internet, in which case private investors are supposed to find out the terms and risks of the investment.

Mutual funds usually consist of stocks and bonds, which are owned by a group of investors: be they persons, associations or foundations (Fabozzi *et al.*, 2009). The owners of the mutual funds are called investors. A fund management company takes care of investment decisions, when a financial company or a bank maintains the funds. The net asset values account for capital gains, dividends (reinvested) and management fees (subtracted). The investment activities of the fund management companies are monitored by the authorities, for example in Finland the Finnish Financial Supervision Authority issues licenses for mutual funds and monitors their operations.

Mutual funds are marketed in ways similar to those of many other consumer products, and buying them is becoming almost a familiar task for consumers (Wilcox, 2003). For the consumer, buying daily products and durable goods is usually a familiar process, and they come with guarantees for a fixed period, whereas buying investment products is primarily different in that they do not generally carry any guarantees. Thus the investors' uncertainty is higher, and they should have better awareness of the risks and greater resources in order to take them.

The prior literature on investors' motives and decision making has traditionally assumed that an investor behaves rationally. However, rational decision making demands an excessive amount of time in gathering relevant information about the risks and rate of return of a specific investment, investment terms in general and knowledge of markets. A rational choice perspective is not enough since decisions based on trust usually involve both reasoning and feeling (Komiak Xiao and Benbasat, 2006). Capon *et al.* (1996) pointed out that investment as a rational activity cannot be based on rational decision making in the majority of cases, but is more or less based on the beliefs and behaviour of the investors.

Kahneman and Tversky (1979) made a significant contribution related to the psychology of economic decision making under uncertainty. They showed that financial decision making does not follow the assumptions of rational decision making. The implications of Kahneman and Tversky's (1979) findings have been investigated in several studies, and they indicate that further studies concerning the knowledge and ability of investors and their links to decision making are needed.

Behavioural finance literature investigates the influence of social, cognitive and emotional factors in financial decision-making. The main empirical problems studied in behavioural finance are loss aversion, overconfidence, optimism, pessimism and reaction to market news (Godoi Kleinubing *et al.*, 2005). The empirical findings from

behavioural finance have suggested that a person may even behave irrationally concerning her/his financial issues. In this kind of behaviour, research has found constructs like mental accounting, decision framing, regret avoidance and familiarity bias.

The influence of financial information in decision making is very complicated. Mullainathan and Thaler (2000), for example, suggested that a person may place too much trust in certain institutions, and then neglect to gather any information. The opposite reaction is that a person is too sensitive to new information, resulting in an overreaction to the situations where the information is relevant. Private investors are usually more concerned about the losses in the short term than payoffs in the long term. For them, lost money is more valuable than captured money (Kahneman and Tversky, 1979). Therefore people prefer the safe modes of investments, like bank deposits.

Affect as an important part of human information processing and decision making has been acknowledged by the behavioural finance researchers (e.g. MacGregor *et al.*, 2000; Statman *et al.*, 2008). Statman (2004) suggests that investors expect not only utilitarian benefits such as low risk and high expected returns, but also expressive benefits such as patriotism, social responsibility and fairness.

Researchers in the finance-marketing interface have also challenged the assumption that investment decisions are made purely based on expected financial returns and risks. Aspara and Tikkanen (2010) found that individual investors' willingness and decisions to invest in certain companies' stocks is linked with their evaluations of these companies' products and brands. Aesthetics may have a role when investors evaluate a company's stocks as investment objects. Then, the investor aims at expressing him/herself and shows appreciation of the products and brands of the company (Aspara, 2009). However, in the case of mutual funds, the effect of the company is likely to be minimal.

Even though investment behaviour has traditionally been regarded as rational decision making based on information, the recent literature shows that various affective and behavioural factors are present in investors' decision-making processes (Shefrin, 2002; Slovic *et al.*, 2004). The presence of affect does not, however, imply that information, knowledge, and capabilities are unnecessary qualities. Successful investment performance is likely to be based on the investors' awareness and understanding of the investment terms and his/her capability to act on this knowledge.

4. Empirical study

The private investment business is relatively immature in Finland, and thus the investors' knowledge of the investment field may not be very extensive. The Finnish context highlights a case in which mutual fund investors have faced a rapid change from a regulated financial environment towards a free market-based supply of investment instruments, such as mutual funds. In 2004, 17 per cent of all Finnish households owned mutual funds. An average amount of an investment was €18,000. The largest investments were held by the age group of 55 to 64 years, entrepreneurs and the highest wealth cohort (Säylä, 2007). Moreover, there has been a considerable change in the use of the distribution channels through which investments are made. The use of the internet has increased in Finland so that 28 per cent of bank clients used

it to manage their banking services in 2001 and in spring 2005 the percentage was 66 per cent (Finnish Banker's Association, 2005).

The observations selected for this study were mutual fund investors excluding investors under 18 years old, investors with a professional status or those investing very high amounts (over €100,000). The respondents were sampled from the customer base of two different mutual funds managed by the OP fund company. The company has been operating in the market for a long time and is considered a substantial provider of financial products. OP-Euro is a money market fund that primarily invests in the euro-denominated short-term bonds and money market instruments within the EU area. It is marketed as a low-risk alternative. OP-Delta is a country-specific equity fund primarily investing in equities and equity-related securities issued by Finnish companies. The risk level of this fund is higher because of its policy of investing in equities.

In order to examine the influences of the past investment behaviour and the choice of the distribution channel, we constructed four groups, which operated as the basic sampling units (see Table I). In the sampling plan an equal amount of observations were obtained from the selected four groups. The goal was to collect 400 respondents both from the branch office and internet investors in order keep sampling error under 5 per cent of the standard deviation[1] in both sampling units. For balanced comparisons both sampling units were divided into two groups or strata (200 respondents each) based on the risk profiles of the funds. Thus, we obtained observations from four types of investors. Because the return rate in this kind of study is typically estimated to be around 25 per cent, the designed sample consisted of 3,200 individuals to achieve 800 respondents to the executed sample.

Respondents who returned the questionnaire were entered into a draw for €500 in mutual funds and ten low-value prizes were available for runners up. As a result, 30.7 per cent ($n = 983$) of the people receiving the questionnaire returned it. The minimum target of 400 respondents set for the two sampling units was not achieved from the branch office investors (388), but it was clearly exceeded from the group of internet investors (595). Among the branch office investors there were 172 money market fund investors and 216 equity fund investors. The group of internet investors consisted of 266 money market fund investors and 329 equity fund investors.

5. Method of estimating the mutual fund investors' capability

The instruments used to evaluate financial capability have been on the agenda of the financial service authorities in many countries, for instance in the UK (FSA, 2006a). The OECD (2005) reported on financial literacy surveys in 12 countries. The key findings in these surveys were:

- the low level of financial understanding among respondents;
- financial understanding is correlated with education and income level;

Table I. The mutual fund investor groups – a sampling plan

	Money market funds	Equity funds	Total
Branch office investors	200	200	400
Internet investors	200	200	400
Total	400	400	800

- overconfidence; and
- the notion that consumers feel financial information is difficult to find and understand.

Regarding the measurement of financial literacy, the OECD (2005) suggested the use of a uniform questionnaire with similar questions in all the member countries. This would allow comparisons of financial literacy across the countries. The report also recommended an objective test instead of a subjective self-assessment of the understanding of financial issues. The national survey of the financial capability in the UK covered attitudes and behaviours that were more or less capable (FSA, 2006a). Our study utilises the approach which earlier instruments related to financial capability have used. However, the earlier instruments have investigated financial capability on a wider level. Our study differs from the earlier studies; it focuses on the financial capability in investment behaviour, which can be measured by correct and incorrect factual knowledge.

The capability measurement technique applied in this study is adapted from the field of educational and psychological studies. These fields have developed sophisticated ability measurement techniques and methodologies. The educational researchers have used the Rasch model and ability measurement for over 30 years when measuring students' ability in different subjects at school. This measurement technique is suitable for any kind of ability or achievement evaluation, if the items are tailored to fit the subject area in question.

The measurement instrument is based on the five domains presented in Figure 1. In accordance with these domains, 65 items were developed based on expert sources such as publications of a mutual fund company (Monthly report 2/2005 OP-Euro, OP-Delta Fund), publications of the Finnish Foundation for Share Promotion (Tax Guide for Investor, 2005; Mutual Fund Guide, 2005), and a handbook for investors (Puttonen and Repo, 2003).

Because the items included in the measurement instrument have not been used before, the testing instrument including the 65 multiple-choice items was piloted using the classical item analysis (Allen and Yen, 1979) and the Rasch model (Rasch, 1960; Wright and Stone, 1979; Smith, 1992; Smith and Smith, 2004; Baker, 2001; Bond and Fox, 1998). In a pilot study there are two goals in applying the Rasch model to a group of items. First, there should be items with different difficulty levels covering a relatively large calibration area and, secondly, the best items for the final study should be qualified by using the fitting indices. The items were analysed by using the Winsteps-program (Linacre and Wright, 2001; Linacre, 2001), which provides information on the whole test. The Winsteps program calculates the unidimensional factor for the items included in the analysis. It also calculates the correlations between the estimated score and single items and the amount of unexpected answers measured by fitting values (standardised mean squares). Based on this pilot test, 25 easiest items were dropped from the scale, taking into account that all five domains of financial ability were covered. Accordingly, the 40 most qualified items were included in the final questionnaire (see the Appendix). The earlier applications of this method in the field of education give firm support that the use of 40 items results in a separation of the respondents according to their abilities.

To measure the ability and knowledge, a multiple-choice test with 40 items was presented to the respondents and the ability was computed as a score of the correct

answers. The multiple-choice items with four response alternatives (one correct, three incorrect) were analysed with the dichotomous Rasch analysis by using the Winsteps-program.

One goal in planning an item test is to design items that vary in their level of difficulty, so that the calibration level is sufficient to be able to discriminate between respondents in terms of their ability. Another, equally important goal is to have a very good fit between the model and data. This is one of the results and advances of the Rasch analysis.

The reliability of this kind of measurement is based on the fitting values. If the respondent answered according to his/her ability to a certain item, the reliability of this item is acceptable. In this study the reliability of the item scale was high (Cronbach Alpha = 0.86). The validity of this kind of measurement is considered good, provided that the items support the score and if they are based on the expertise of the field studied. In the Rasch model the validity can be improved leaving out items with poor fitting values.

Potential factors affecting investment behaviour such as gender, age, education and the identity of the investment decision maker in the family were included in the questionnaire as background variables. Moreover, questions concerning the respondents' investments were also added to the questionnaire, e.g. time span of investment, length of affiliation with the branch office, number of times investments had been made and the total amount of investments. Finally, we enquired about the sources that the respondents used when seeking information concerning investment markets or the mutual funds.

6. Results

The respondents were divided into four groups according to the distribution channel used and the risk profile of the investment. Branch office investors made their investments in the office, and received personal information. Internet investors have made their investments through the direct channel. Moreover, money market fund investors represent short-term investment with low risk and equity fund investors represent long-term investment with high risk. The ability score distributions of different investor groups are shown in Figure 3. The distribution for the whole sample is near to the normal distribution, but there is a lot of random deviation in all groups.

The least knowledge group (group 1, mean score 51.95) is the branch office group with money market funds, who have invested their money in relatively secure mutual funds avoiding any risks. The second weakest (group 3, mean score 57.38) is the investors who have taken the risk, and possible return, but use the branch office. Both of the internet channel groups (group 2, mean score 61.10 and group 4, mean score 65.92) have better ability estimates than the branch office investor groups, but the internet group (group 4), who invests in equity funds instead of in money market funds, obtained the best ability estimates and thus has the best knowledge of investment markets.

The branch office investors receive personal service whereas the internet investors gather information independently. The results show that the knowledge of the branch office investors is at a low level. Thus the clients have not received enough information from the branch offices, or they have not understood and internalised the investment terms. Nevertheless, the group with the weakest knowledge has invested in a low risk

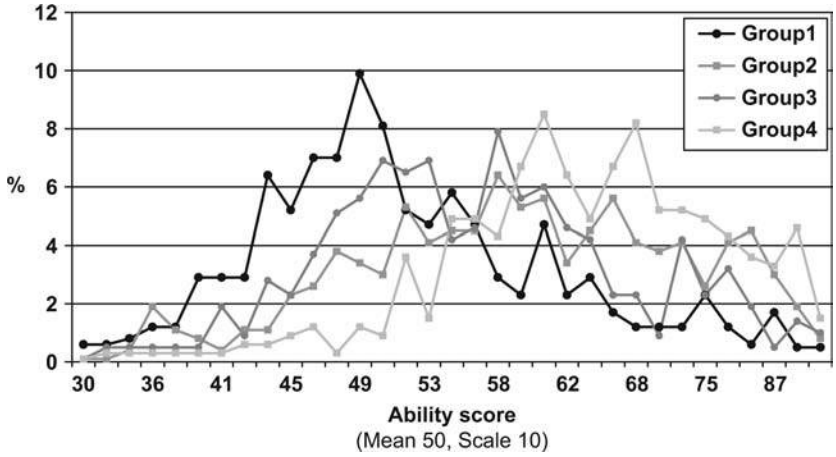


Figure 3.
The empirical ability distributions of the investor groups (Cronbach $\alpha = 0.86$)

fund, and thus these investors' behaviour can be considered compatible with their financial knowledge and understanding.

The internet investors are more or less active in collecting information. They receive information concerning the funds, and they have to mark an *x* in the internet interface confirming that they have read the terms of the fund. But as users of the channel without personal service, they are more independent to decide how much and what information sources they use. The results of this study indicate that the internet investors have a high level ability and knowledge of the investment markets.

The corresponding ability means and standard deviations for the investor groups are shown in Table II. The means of all groups are above the mean of the item scale 50[2] which indicates either that all groups did rather well, or the test was easy. The internet equity fund investors obtained higher scores than the other investor groups. The standard deviations are larger for internet investors indicating that ability is more heterogeneous among internet investors.

6.1 Explaining the variation of the capabilities

The influences of the background variables (gender, age, education, the identity of investment decision-maker in the family) were tested with the t-test or in straightforward variance analyses. It was found that the male respondents obtained better ability scores (mean 61.9) than females (mean 57.7) with equal variances. The

Investor group	Number of investors	Mean of the group	SD of the group
Branch office investors, money market funds	172	52.0	9.8
Internet investors, money market funds	266	61.1	13.3
Branch office investors, equity funds	216	57.4	10.8
Internet investors, equity funds	329	65.9	12.7
Total	983	60.3	13.0

Table II.
The ability means and standard deviations of the investor groups

equity fund investors with higher risk were mainly men and this may explain why the men did better than women in this study.

Age was classified in the questionnaire into ten-year intervals from 18 to 68 years. When there were no respondents over 65 years, the classification included five age groups. The age difference was statistically significant with $p = 0.02$ (< 0.05), as the youngest and oldest group obtained a little lower ability scores than the middle groups. The lack of responses from investors over 65 years was surprising, because people at this age usually have a lot of money to be invested. Based on bank statistics, almost 10 per cent of the respondents should have been in that over-65 age bracket.

The education level of the investors was the best predictor of ability. The education levels ranged from the minimum basic education level (ability mean 53.5) via professional school or higher level education to the maximum university degree level (ability mean 66.7). The difference between these groups was statistically significant ($p = 0.000$). It is not surprising that more educated people were used to looking for information and thus were also more educated in terms of investment knowledge.

The responses to the question concerning the identity of the investment decision maker in the family showed that almost all of the respondents had an active role in the investment decisions. Only 4.1 per cent of the respondents had a mutual fund investment while not participating in the decisions concerning that investment.

Investor experience, measured by the length of time investing in a particular fund and the amount of mutual fund investments, explained some of the differences in ability. Money market fund clients who had been investing in these mutual funds over a longer time (6-10 years) obtained considerably lower ability scores than those money market fund clients who had been investing in these funds over a shorter time (less than six years). Furthermore, those money market fund clients who invested smaller amounts (less than €1,000) obtained lower ability scores than any other group. Investor experience did not explain ability differences among equity fund clients.

6.2 Are novices and experts different investor groups?

The respondents were classified into two equal size groups according to their ability scores in order to examine if there are differences in the investment behaviours of the novices and experts. As reported above, investor experience, especially the length of time investing in a particular fund, does not necessarily increase investors' capability. We wanted to investigate the factors that differentiate novices and experts from each other. The respondents were divided into two even groups by conducting a median split. The group with the median value was added to the expert group. The novices group consisted of the respondents with an ability score of below 57.7 ($n = 477$ or 48.5 per cent), and the expert group included those respondents with higher scores ($n = 506$ or 51.5 per cent). Table III shows that the money market fund investors, who use the branch office to make their investment, are mostly novices (79.1 per cent). The number of novices is also high among the branch office investors, who have made equity fund investments (60.0 per cent). The majority of the investors in the group who have made an equity fund investment by using the internet (73.9 per cent) could be termed experts. The group of internet investors with money market funds included more experts than novices. In general, there were more experts than novices found among the internet investors, while the branch office investors were mostly novices.

6.3 Do investors overestimate their knowledge?

The accuracy of investors' evaluations about their own knowledge is an important aspect in financial decision making. Confidence in decision making can be considered a positive human behaviour trait, and often a lack of confidence is seen as failure. It has been proposed that investors also tend to consider themselves better investors than they actually are (e.g. Barber and Odean, 2001). This phenomenon – called overconfidence – was measured by the respondents' opinions of their own knowledge concerning money markets. The stated opinion was compared with the measured capability score. Subsequently, the sample was divided into five groups based on the ability scores (see Table IV). High values in the upper right corner of Table IV indicate overconfidence, and high values in the lower left corner mean lack of confidence. The results show that most of the respondents in this study are located on the diagonal of the table, indicating that they have an accurate view of their own investment capability.

6.4 Information sources and financial capability

We also wanted to know whether the investor groups differed in terms of the information sources that they used to seek understanding of the financial markets and mutual funds. The possible information sources cross-tabulated with the four groups of investors are shown in Table V. As many as 79.6 per cent of the internet investors, who have invested their money into the equity funds get their information primarily from the internet and also to some extent from their job and studies, while only 11.2 per cent of these investors use the bank as the information source. The internet investors, who have invested in the money market funds, get somewhat more of their information from the bank (37.6 per cent) than the internet (32.3 per cent), whereas the equity fund investors of the branch office surprisingly get slightly more of their information from

	Novices		Experts		All respondents	
	n	%	*n*	%	*n*	%
Branch office, money market funds	136	79.1	36	20.9	172	100
Internet, money market funds	124	46.6	142	53.4	266	100
Branch office, equity funds	131	60.6	85	39.4	216	100
Internet, equity funds	86	26.1	243	73.9	329	100
Total	477	100.0	506	100.0	983	100

Table III.
Novices and experts among the investors

	Self assessment					
Ability group	Poorly	To some extent	Enough	Well	Very well	Total
Poorest ability	70	74	50	5	4	203
Poor ability	49	63	49	13	1	175
Middle	19	63	108	22	2	214
Able	6	20	119	54	8	207
More able	0	8	69	74	32	183
Total	144	228	395	168	47	982

Table IV.
Investors' confidence in their own ability as investor

Source of information	Investor group: Branch office, money mkt funds (%)	Internet, money mkt funds (%)	Branch off, equity funds (%)	Internet, equity funds (%)	Total (%)
School	6.4	8.6	3.7	9.4	7.4
Work	0.6	9.8	6.0	9.7	7.3
Magazines, internet etc.	13.5	32.3	39.4	60.5	40.0
Friends	2.9	6.0	10.6	2.4	5.3
TV programmes	1.2	0.8	2.8	1.2	1.4
Investment club etc.	1.2	1.5	0.5	0.3	0.8
Contact person in the bank	73.1	37.6	34.3	11.2	34.2
Member of finance union	1.2	3.4	2.8	5.2	3.5
Total	100.0	100.0	100.0	100.0	100.0

Table V.
The source of information in planning the investment

the internet. Money market investors mainly get their information from the bank (73.1 per cent).

Table VI shows the information sources of the experts and novices. There are notable differences between these groups in terms of information acquisition behaviour. Novices use the bank as the most important source (55.0 per cent), while the experts use the internet (50.6 per cent), information from the workplace (13.0 per cent) and studies (11.3 per cent). The latter indicates that there are more educated respondents in the experts group.

7. Conclusions

The purpose of this study was to provide further understanding about the financial capability of ordinary mutual fund investors' knowledge and ability. Financial capability was conceptualised as the investors' knowledge concerning their investment into mutual funds. Thus, financial capability is a latent trait, which can be evaluated with indicators (test items). The measurement instrument (the Rasch model) was based

Source of information	Investor group: Novices (%)	Experts (%)	All respondents (%)
School	3.4	11.3	7.4
Work	1.3	13.0	7.3
Magazines, internet etc.	28.8	50.6	40.0
Friends	7.1	3.6	5.3
Investment programmes on TV	1.9	1.0	1.4
Investment club, etc.	1.3	0.4	0.8
Contact person in the bank	55.0	14.6	34.2
Member of finance union	1.3	5.5	3.5
Total	100.0	100.0	100.0

Table VI.
The source of information in planning the investment decision

the techniques developed by the scholars in educational and psychological studies, that are experts in ability measurement. Five domains were adopted to evaluate financial capability from the perspective of a mutual fund investor: information, the amount of available funds, risk-taking capacity versus expected returns, horizon of the investment and taxation. Moreover, a measurement instrument to evaluate financial knowledge was developed consisting of a test with 40 indicators or items. By using these domains and the test instrument, financial knowledge of mutual fund investors was evaluated in the Finnish context.

The Rasch model operated well in the context of financial capability evaluation. The method provided personal capability scores for fund investors. This type of measurement could be an option for larger financial capability studies. The method measures factual knowledge and the same questionnaire could be used in different countries (see OECD, 2005). The results of this study are in line with the study in the UK (FSA, 2006b). Both studies highlight high education level as the important precondition for financial capability.

In order to examine whether the level of capability differentiates the investors in terms of their investment behaviours, the respondents were classified according to the channel through which they made the investment (internet or branch office) and the investment type they had made (high risk and return or low risk and return). The internet investors differed from the branch office clients in several ways. One important finding is that the internet investors had a high level knowledge of investment markets. They are well informed without any personal information from the branch office staff. They are able to search for information from various sources. Branch office investors used the financial advisors in the bank as their major source of information, and obtained low ability scores. Because of the important role of the financial advisors, their proficiency should be guaranteed by issuing personal licenses. For example, a questionnaire such as the one used in this study can also be used in evaluating the skill levels of the financial advisors. In addition, the role of the branch office staff to inform investors should be highlighted. At the moment, their role is often to recommend particular investments to clients rather than to provide objective information about the various investment instruments.

Different ability levels are associated with different behaviours, e.g. in terms of information acquisition. The results of this study raise the question about the role of the banks and other companies in financial sector as providers of information for investors. Experts, who have a good ability to make investment decisions, seem to search for information from various sources. Novices, on the contrary, get their information largely from the branch office staff. One implication from this finding is that the financial knowledge of clients should be taken into account when planning the contents and amount of information disseminated through the branch offices. However, while the branch office staff could give information and suggestions based on the client's knowledge level, the final decision and risk is carried by the client.

In addition, the type of mutual fund selected by the investor seemed to be a differentiating factor. The group tolerating the highest risk and return investment obtained the highest ability scores whereas the group with the lowest risk and return investment had less knowledge about the investment field. This finding indicates that investors behave consistently with their knowledge levels, and investors with low

ability choose low risk investment instruments. However, consumers may incur negative consequences from their weak knowledge. A case in point is the money market fund clients with a long investment history in the same fund, who have obtained lower ability scores that the other groups. This group may have suffered from the low ability level, because it is likely that by investing in other investment instruments they would have obtained higher financial returns for their investments. Thus, in order to increase their long-term financial well-being, the low ability investors should be encouraged to improve their financial capability. Both the financial services companies and public actors could provide forums where consumers are learning new issues in the financial environment. Because of the constant changes in the financial markets and the instruments provided by the financial services industry, consumers have to update their knowledge and skills continuously.

There have been worldwide different pyramid scams or Ponzi schemes, which are types of frauds. The core message of these frauds is high return without risk. These frauds are possible because ordinary people have a low level in financial capability. The best consumer protection method in financial matters is a systematic study which finds those consumers with lowest level of financial capability. Improving their financial capability is a huge social task worldwide.

From the viewpoint of behavioural finance, the current financial environment challenges financial capability. The number of investment products has increased and for laymen, it is extremely difficult to compare them; even though there is much information available. When planning and implementing the policies and programmes that aim at increasing individual investors' financial capability, the financial services actors and public organizations are advised not only to provide increased amounts of information. As the behavioural finance literature suggests, the investors are also influenced by emotional and social factors (Shefrin, 2002; Slovic *et al.*, 2004) and they expect also expressive and emotional benefits from their investments (Statman, 2004).

Today consumers are supposed to be able to organise their financial issues to a great extent by themselves. They are expected to follow the changes in global and national economies, as well as in the financial markets. Regarding their own economy, consumers are also expected to take the initiative in the financial market. Thus many important skills are required, and this paper provides a method to estimate the factual knowledge that constitutes much of that skill set. These measures and indicators of financial capability offer important evaluative instruments for banks and financial corporations as well as the authorities to understand investors' financial behaviour.

The respondents in our study had experience of making investment decisions; they were clients of a mutual fund company. This paper considered domain-specific factual knowledge, and so other possible dimensions of financial capability are not included. The measures and indicators of financial capability are important evaluative instruments for banks and financial corporations as well as the authorities involved in evaluating investors' financial behaviour. It is to the benefit of all the actors in the financial sector that consumers are highly conscious of their financial behaviour.

However, while sufficient knowledge about financial products and concepts is important, it does not guarantee that investors are able to use the knowledge in

investment decisions (see Kozup *et al.*, 2008). Therefore, future studies could concentrate on examining the consequences of financial knowledge. One interesting question is how the consumers understand their personal financial capability and its role in their life. What do consumers think they have to know about financial issues?

Future studies should focus on examining, for example, the multiplicity of financial issues that consumers should be aware of.

Notes

1. According to the basic principle of random sampling, 5 per cent sampling error is considered acceptable. Branch office investors and internet investors were regarded as separate samples, whereas the subgroups consisting of the investors of the funds with different risk profiles were regarded as strata of the samples.
2. The item calibration on the logit scale was rescaled to the mean value of 50. The value of the mean can be any number and it works as a barometer for the mean values of the respondents.

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Appendix 1

Please answer the following multiple choice questions checking the square, which you think is the correct alternative. **There is only one correct answer in each question.**

1. The purpose of financial markets is
   - ☐ Channel funding from the surplus sector to the sector with monetary deficit
   - ☐ Provide the Bank of Finland
   - ☐ Provide the Helsinki Stock Exchange
   - ☐ Sell Finnish stocks to foreigners

2. The Euribor-interest rate is the
   - ☐ Daily published market interest rate of the Euro-area
   - ☐ Interest rate defined by the European Central Bank
   - ☐ Fixed interest rate on the Euro-area
   - ☐ Interest rate defined by the Bank of Finland

3. The Euribor-interest rate for 3 months was at 08.02.2005
   - ☐ 0.54 %
   - ☐ 2.14 %
   - ☐ 4.54 %
   - ☐ 6.34 %

4. Deposit guarantee fund will protect the depositors' deposits in case an individual bank becomes insolvent up to the
   - ☐ 5.000 euros/bank coalition
   - ☐ 15.000 euros/bank coalition
   - ☐ 25.000 euros/bank coalition
   - ☐ Unlimited amount

5. Risk and return go hand in hand in the financial markets. The higher the risk for a certain investment, the better return is required by the investor. The highest risk of the following investments have the
   - ☐ Bank deposit
   - ☐ Stock of Nokia
   - ☐ Bond fund
   - ☐ Equity fund

6. In Finland the supervision of the mutual funds belongs to the
   - ☐ Finnish Foundation for Share Promotion
   - ☐ Finnish Bankers' Association
   - ☐ Finnish Financial Supervision Authority
   - ☐ European Central Bank

7. The assets of the mutual funds are owned by the
   - ☐ Bank
   - ☐ Fund management company
   - ☐ Shareholders of the mutual funds
   - ☐ Custodian

8. The reference index of mutual fund is the
   - ☐ Annual ranking of mutual funds in the Helsinki Stock Exchange
   - ☐ Comparison of the similar mutual funds between Finland and Sweden
   - ☐ Comparison of the return of the mutual funds with the reference interest rate of the Bank of Finland
   - ☐ Index, with which the mutual funds is compared

9. When stocks and bonds are combined to a portfolio, the return of the portfolio is the
   - ☐ Weighted mean of the returns of each security
   - ☐ Dividend yield of all securities
   - ☐ Best dividend yield in the portfolio
   - ☐ Sum of dividends and yields of profitable securities

(*Continued*)

Figure A1.
The ability items for the mutual fund investors

10. The maturity of a bond is the name used of the
- ☐ Emission company
- ☐ Uncertainty appended to the refunding of the bond
- ☐ Interest rate of the bond
- ☐ Term of the bond

11. Peter is changing his apartment. He has a normal salary account in the bank and no other investments. He will get the selling price today, but he did not have to pay the new apartment until after 6 months. Which of the next alternatives is the most recommendable to invest the selling pricef or 6 months?
- ☐ The equity fund
- ☐ The speciality fund
- ☐ The money market fund
- ☐ The bond fund

12. An ordinary mutual fund portfolio can hold stocks or bonds from the same emission company at most
- ☐ 25 %
- ☐ 20 %
- ☐ 15 %
- ☐ 10 %

13. Steven, 30 years old, wins a lot of money in the lottery and after all purchases he still has 100,000 euros left to be invested for a long period. His goal is to increase the amount of the money as much as possible so that he could retire at age of 60. The best way to invest the money in mutual fund would be the
- ☐ Money market fund
- ☐ Equity fund
- ☐ Bond fund
- ☐ Intermediate bond fund

14. When the interest rate increases, the value of the mutual funds
- ☐ Stays the same
- ☐ Decreases
- ☐ Increases
- ☐ The direction of the change cannot be estimated

15. The theoretical valuation of securities is the
- ☐ Present value of the expected cash-flow
- ☐ Corrected net value after inflation
- ☐ Market price corrected with an index
- ☐ Experts' estimation of the price of securities

16. Risks and returns of an investment are bound together according to the finance theory. A person, who invests all his assets in the stocks of Nokia, is seeking for
- ☐ High risk – high return
- ☐ High risk – low return
- ☐ Low risk – high return
- ☐ Low risk – low return

17. Investor's risk tolerance capacity has a big influence in the choice of a certain investment target. This tolerance capacity can be measured with what is the
- ☐ Maximum loss you can tolerate
- ☐ Return in the normal circumstances
- ☐ Return compared with the bank account
- ☐ Assumed expected profit

18. Risks and returns of an investment are bound together in the financial markets. The higher the risk the better return is required. The lowest risk of the following investment choices have the
- ☐ Equity fund
- ☐ Stock of Nokia
- ☐ Money market fund
- ☐ Bond fund

(*Continued*)

Figure A1.

19. The redemption fee is the commission paid by the
- ☐ Fund managing company, when it sells securities
- ☐ Investor, when the investor buys his share of the mutual funds
- ☐ Fund managing company, when the company buys securities
- ☐ Investor, when the investor redeems his share of the mutual funds

20. The risk premium is
- ☐ An additional profit over the interest yield without a risk
- ☐ A capital with risk
- ☐ An investment without a risk
- ☐ Investors' return without risk

21. In estimating the development of the future value of the mutual funds
- ☐ The development during the past year will tell the future development
- ☐ Bond funds profit always less than equity funds
- ☐ Big funds succeed definitely
- ☐ The future development cannot be foreseen with certainty

22. Fund management companies collect management fee from the shareholders of the mutual funds
- ☐ Once a year
- ☐ Once in six months
- ☐ Every month
- ☐ Included in the daily rate of the mutual fund

23. Diversification of the risk of an investment means that the assets are invested in
- ☐ Many targets, which reduces the risk
- ☐ The targets without a risk
- ☐ The exchange stocks without a risk
- ☐ The mutual fund without a risk

24. The investment horizon means
- ☐ A time point, when I get back my invested capital with the yields and dividends
- ☐ The economic expansion in the future
- ☐ The time span, which I have chosen for my investment
- ☐ A review of the Bank of Finland for the economic situation in 2015

25. Duration means with the bonds and mutual funds
- ☐ A parameter, which shows the interest level of the investment
- ☐ The average back payment time of the investment
- ☐ The average costs of the investment
- ☐ The expiry date of the investment

26. A mutual fund gets capital gain of the investments. The mutual fund pays taxes of the capital gain in Finland.
- ☐ 29 %
- ☐ 28 %
- ☐ 26 %
- ☐ 0 %

27. Which one of the next statements is true?
- ☐ A long investment horizon, a high expected return – choose equity fund
- ☐ A long investment horizon, a high expected return – choose money market fund
- ☐ A short investment horizon, a high expected return – choose money market fund
- ☐ A long investment horizon, a low expected return – choose equity fund

28. Peter is a mutual fund investor, who follows the development of his mutual fund daily in the newspapers. He cannot sleep, if the daily quoted value of his mutual fund is below the value of the previous day. The best investment type for him is the
- ☐ Equity fund
- ☐ Balanced fund
- ☐ Money market fund
- ☐ Bond fund

(*Continued*)

Figure A1.

29. When you are planning an investment, the planned purpose of the use of the money (for instance to buy a summer house or buy a car at a certain point in the future)
- ☐ has no relevance, except in the foreign investment
- ☐ has no relevance in making the choice for the investment type
- ☐ has a considerable relevance in making the choice for the investment type
- ☐ has a considerable relevance, only if the investment type is a money market fund

30. Considering the risk of an investment target, it is most accurately described by
- ☐ Without a risk it is impossible to gain considerable profits
- ☐ The risk is as big in all investment targets
- ☐ There is a risk only in stocks
- ☐ There is a risk only in the big investments

31. The risk of the investments can be measured with the volatility, which means
- ☐ The amount of losses
- ☐ The probability of losses
- ☐ The oscillation of returns
- ☐ The loss of return

32. The reference interest rate, which influences the economy of Finland, is given by
- ☐ The Board of the Bank of Finland
- ☐ Parliamentary Supervision Council
- ☐ The government of Finland
- ☐ The Commission of the European Central Bank

33. TER-figure measures
- ☐ The profitability of the closed deals of the mutual fund
- ☐ The charged fees of the mutual fund company
- ☐ The success of the fund manager
- ☐ The amount of profit of the mutual fund company

34. In the redemption of mutual fund it is necessary to pay taxes on the possible capital gain
- ☐ Based on taxations defined for the earned income
- ☐ Not at all
- ☐ Based on the taxation defined for the capital income
- ☐ 15 %

35. P/E-figure will tell the
- ☐ Relation between the market price and the profit of a certain stock
- ☐ Relation between the substance price and the share price of a certain stock
- ☐ Actual and real price of a certain stock
- ☐ Relation between dividend and share price of a certain stock

36. The interest yields of an ordinary domestic bank deposit are
- ☐ Tax-free
- ☐ Under the final withholding tax of the interest incomes
- ☐ Capital incomes to be reported to the IRS
- ☐ Partially tax-free, otherwise capital incomes to be reported to the IRS

37. Eric has invested assets in the equity fund, the value of which has increased strongly. He decides to transfer the money inside the same fund management company to the money market fund. Because of this change of investment policy
- ☐ Eric will not gain capital gain, because the same fund management company administers the assets
- ☐ Eric manages with final withholding tax, which is cashed by the fund management company
- ☐ Eric will gain a taxable capital income
- ☐ Eric will gain a taxable earned income

(*Continued*)

Figure A1.

38. The period of time, for which I am planning to invest my money, is called the
- ☐ Investment horizon
- ☐ Liquidity of an investment
- ☐ Volatility of an investment
- ☐ Substance of an investment

39. The nearest substitute investment for money market funds is to make an investment in
- ☐ Stocks
- ☐ Long-term bonds
- ☐ Options
- ☐ Bank account

40. When an investment target is liquid, then it is
- ☐ Difficult to cash
- ☐ Easy to cash
- ☐ Overpriced
- ☐ A risk investment

Figure A1.

Appendix 2

A. What is your opinion about the following statements? Check one square for each of the next 11 statements, which describe your opinion best. Use the next scale:

1. Strongly disagree
2. Disagree
3. Almost disagree
4. I can't say
5. Almost agree
6. Agree
7. Fully agree

		1	2	3	4	5	6	7
A1.	Making an investment to the mutual funds I expect get a good return	☐	☐	☐	☐	☐	☐	☐
A2.	Making an investment to the mutual funds I expect to make a safe investment	☐	☐	☐	☐	☐	☐	☐
A3.	Making an investment to the mutual funds I expect to make an investment, which is easy to liquidate	☐	☐	☐	☐	☐	☐	☐
A4.	Making an investment to the mutual funds I expect to make it easily	☐	☐	☐	☐	☐	☐	☐
A5,	Making an investment to the mutual funds I expect to make an investment, which will stay in the OP-banking group	☐	☐	☐	☐	☐	☐	☐
A6.	My family or my closest think that investment to the mutual funds is a good investment	☐	☐	☐	☐	☐	☐	☐
A7.	My closest friends or my colleagues think that investment to mutual funds is a good investment	☐	☐	☐	☐	☐	☐	☐
A8.	The scientific knowledge, which recommends to invest in the domestic mutual funds, has influence on my decisions	☐	☐	☐	☐	☐	☐	☐
A9.	I will make a mutual fund investment in some mutual funds in the future	☐	☐	☐	☐	☐	☐	☐
A10.	I will make an additional investment in the same mutual funds in the future	☐	☐	☐	☐	☐	☐	☐
A11.	Most of my closest and important people think that it is good for me to invest in the mutual funds	☐	☐	☐	☐	☐	☐	☐

Answer also the next questions:

A12. The personnel of the bank have recommended mutual funds as a good investment

Many times ☐ Sometimes ☐ Once ☐ Never ☐ I don't know: ☐

A13. I make a mutual fund investment, if I understand the function and terms of the financial markets

Fully agree ☐ Agree ☐ I can't say ☐ Disagree ☐ Strongly disagree ☐

A14. In my view I understand the financial markets

Excellent ☐ Well ☐ Satisfactory ☐ Not very well ☐ Poorly ☐

(*Continued*)

Figure A2.
Questionnaire for the mutual fund investors

B. How important do you find the next statements? Check one square for each of the next 10 statements, which describe your opinion best. Use the next scale:

1. Not important at all
2. Very little important
3. Little important
4. I can't say
5. Quite important
6. Important
7. Very important

		1	2	3	4	5	6	7
B1.	Getting a good return is to me……	☐	☐	☐	☐	☐	☐	☐
B2.	Having a safe investment is to me……	☐	☐	☐	☐	☐	☐	☐
B3.	Easy liquidation of my investment is to me……	☐	☐	☐	☐	☐	☐	☐
B4.	Easy investment without problems is to me……	☐	☐	☐	☐	☐	☐	☐
B5.	Investing in the OP-group of banking is to me……	☐	☐	☐	☐	☐	☐	☐
B6.	Taking into account the opinion of my family is to me.. ……	☐	☐	☐	☐	☐	☐	☐
B7.	Taking into account the opinion of my colleagues is to me.....	☐	☐	☐	☐	☐	☐	☐
B8.	Taking into account the recommendations of the scientific knowledge is to me……	☐	☐	☐	☐	☐	☐	☐
B9.	Taking into account the recommendations of the bank personnel is to me……	☐	☐	☐	☐	☐	☐	☐
B10.	Making an investment in the OP-mutual funds is to me……	☐	☐	☐	☐	☐	☐	☐

Answer the next questions:

B11. Making an investment in mutual funds is to me

Very rewarding	Rewarding	Somewhat rewarding	Poorly rewarding	Very poorly rewarding
☐	☐	☐	☐	☐

B12. Making an investment in mutual funds is to me

Very pleasant	Pleasant	No difference	Unpleasant	Very unpleasant
☐	☐	☐	☐	☐

B13. Estimate your total satisfaction with your choice as OP-mutual funds

Very satisfied	Satisfied	No difference	Dissatisfied	Very unsatisfied
☐	☐	☐	☐	☐

C. Answer also the next background variables:

C1. I am a
- ☐ male
- ☐ female

C2. My age is
- ☐ 18-25
- ☐ 26-35
- ☐ 36-45
- ☐ 46-55
- ☐ 56-65
- ☐ over 65

C3. My education is
- ☐ University level
- ☐ Polytechnic level
- ☐ College level examination
- ☐ Professional school
- ☐ Secondary school
- ☐ Elementary school

Figure A2.

(*Continued*)

C4. I am living in the area in a
- ☐ Urban city area of over 50,000 inhabitants
- ☐ City less than 50,000 inhabitants
- ☐ Municipality centre, not city
- ☐ Rural area, not city

C5. My role in making investment decisions
- ☐ I make all decisions
- ☐ I participate in the investment decisions in our household
- ☐ I do not participate in the investment decisions

C6. I have been a client in the OP-bank
- ☐ never
- ☐ less than a year
- ☐ 1-5 years
- ☐ 5-10 years
- ☐ 10-15 years
- ☐ 15-20 years
- ☐ over 20 years

C7. I have had an investment in OP-mutual fund
- ☐ less than a year
- ☐ 1-3 years
- ☐ 3-6 years
- ☐ 6-10 years
- ☐ over 10 years

C8. I have invested in the OP-mutual fund
- ☐ less than 1,000 euros
- ☐ 1,000-5,000 euros
- ☐ 5,001-10,000 euros
- ☐ 10,001-15,000 euros
- ☐ 15,001-20,000 euros
- ☐ over 20,000 euros

C9. I have invested in the OP-mutual fund
- ☐ just once
- ☐ 2 times
- ☐ 3 times
- ☐ 4 times
- ☐ 5-10 times
- ☐ over 10 times

C10. The most important source, which influenced my investment
- ☐ I have studied finance in school
- ☐ I have got acquainted with finance in my job
- ☐ I have taught myself from magazines, internet etc.
- ☐ I have heard about investment from my friends
- ☐ I have followed investment programmes on TV
- ☐ From the investment club of a bank or other institution
- ☐ My contact person in the bank has told about investment
- ☐ I am a member of the Tax Payers' Union or/and Shareholders' Union

C11. I have investments in
- ☐ Basic deposit
- ☐ Bonds
- ☐ In other mutual funds than in OP-funds
- ☐ Insurance savings
- ☐ Shares in stock exchange
- ☐ Shares outside stock exchange
- ☐ Investment in real estates
- ☐ Investments in apartments
- ☐ Investments in forests

Figure A2.

About the authors

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