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## Attitudes and Behaviour in Everyday Finance: Evidence from Switzerland

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# Attitudes and Behaviour in Everyday Finance: Evidence from Switzerland

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## Abstract

The aim of this study is to examine the underlying dimensions of self-stated attitudes and behaviour concerning everyday financial affairs, and classify individuals based on those dimensions. A questionnaire was answered by 1282 respondents in the German-speaking part of Switzerland. The sample of this study is relatively heterogeneous, which allows us to have an overview of the financial attitudes and behaviour tendencies of a variety of demographic groups.

Factor analysis revealed five almost independent components: anxiety, interests in financial issues, decision styles, need for precautionary savings, and spending tendency. Based on these components a two-step cluster analysis (Ward and K-means analyses) identified five distinct subgroups with differing typical financial attitudes and behaviour. Linear Regressions were used to investigate the impacts of socio-demographic variables; gender, age, and education were found to have significant impact on financial attitudes and behavioural tendencies.

Better understanding the underlying psychological factors and behavioural tendencies of different types of consumers can help financial consultants to offer more effective advice. It also helps policy makers and practitioners to discover the most suitable approach to improve personal finance management.

**Keywords** - Personal finance; Saving; Questionnaire; Factor analysis; Cluster analysis; Switzerland

**JEL-Classification** – D12, D14, E21, M31

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## Introduction

Everyone has to manage his or her personal finance in one way or another. Some tend to save a lot, some like to collect information before each purchase, some like to follow their gut feelings. The objective in this research is to examine the extent to which a broad range of private investors can be classified into a small number of clusters according to their self-stated attitudes and behaviour tendencies concerning financial affairs.

Based on a financial-attitude survey that was conducted in Switzerland, we demonstrate that our respondents can be classified into five distinct groups based on five underlying dimensions: anxiety, interests in financial issues, decision styles, need for precautionary savings, and spending tendency. Instead of only focusing on savings behaviour, as undertaken by EBRI (2002) and MacFarland *et al.* (2003), the present study embraces a wider scope of financial concerns. In addition to helping us understand private investors' behaviour, this study also allows for guidance to design and adopt instruments to assist in specific financial needs as opposed to creating "investment programs that consist mainly of risk tolerance questionnaires" (Pompian and Longo, 2005, p. 9).

To illustrate how financial behaviour can be modified to improve personal finance specific for each group, examples from the domain of retirement savings are chosen. It is of interest to look at which factors promote or inhibit setting up old-age provisions, because retirement arrangements have increasing relevance for a good later living standard (Normann and Langer, 2002). In addition, the pension decision is an example of the trend towards assuming increasing responsibility for one's own wealth status in western societies (Clark-Murphy and Soutar, 2005) and, therefore, an important part of day-to-day financial management.

More than 1200 participants in Switzerland have answered our questionnaire with a response rate of 79%. Unlike some other studies in this field, such as Lim and Teo (1997) or Wood and Zaichkowsky (2004), this survey is not limited to students, but includes a broader range of the public. The gender and age distribution of the respondents reflect the distribution in the Swiss population (except that the older-age group was underrepresented).

An understanding of day-to-day behaviour can help reveal the most suitable approach by which a private investor can identify ways to improve his/her personal finance. From the perspective of a financial adviser, sound advice must be directed by an in-depth understanding of the clients' needs, in comparison with their actual behaviour pattern. As a result, the inconsistent behaviour can be modified or adapted according to their needs (Kahneman and Riepe, 1998). The results of this paper have implications for private investors and financial consultants, as well as initiatives aimed at improving financial management.

## **Literature Review**

Individuals show considerable deviation from the expectation of rational behaviour implied by financial models (Barberis, 2003). Being conscious of the empirical limitations of the homo economicus model for exploring the behaviour of private individuals, behavioural finance broadens the view by combining knowledge from psychology and economics (Camerer and Loewenstein, 2004). Our study belongs to this area. However, instead of focusing on particular anomalies and biases that individuals succumb to, such as overconfidence and procrastination (e.g., Biais *et al.*, 2005; O'Donoghue and Rabin, 1998), we broaden the scope under review by studying the general patterns of attitudes and behaviour when dealing with financial issues.

Previous research often focus a specific area such as risk attitude and behaviour (Wärneryd, 1999; Wood and Zaichkowsky, 2004) or saving (Euwals *et al.*, 2004; Gunnarsson and Wahlund, 1997; Normann and Langer, 2002), with questions on what determines savings (Alessie and Teppa, 2004; Kotlikoff, 1989), how to increase the savings of employees who lack willpower (Thaler and Benartzi, 2004), and finally why households fail to plan for retirement (Lusardi, 2003). Other fields of research focus on investment in securities (Barber and Odean, 2001; Brennan 1995; Keller and Siegrist, 2006) or decision-taking by private investors (Agarwal *et al.*, 2007). Some studies that take a more comprehensive approach on the behaviour of individuals tend to be tool-oriented (Oehler, 1995; Schulz, 2003) or focus on specific segments such as occupational groups (e.g., dentists and managers, Jörg 2005). Several studies ex-

amine aspects of an individual's attitudes toward money and habits of money usage, especially the meaning of money (Furnham, 1984) and the link to risk behaviour (Fank, 1994); others focus on ethical aspects (Lim and Teo, 1997; Tang, 1995) or basic values concerning money (Raich, 2008; Wang, 2005).

Several typologies concerning financial issues of private investors can be found in the previous literature, but with more specific domains: Wood and Zaichkowsky (2004) explore the trading behaviour of stock market investors, while Keller and Siegrist (2006) investigate money attitudes linked to investment decisions and Wärneryd (1999; 2001) provides a typology for savers and for stock-market investors. Other segmentations are based on financial maturity and knowledge (Harrison, 1994), provision for retirement (Gough and Sozou, 2005) or savings strategies (Gunnarsson and Wahlund, 1997). In this study we examine the self-stated financial attitudes and behaviour through a broader basis, linked to the day-to-day exposure to financial affairs of the individuals, and do not restrict ourselves only to risk attitudes or saving behaviour. We apply the methodology of cluster analysis to identify groups of private investors in order to obtain insight on how to enforce or modify specific behaviour. This study demonstrates that by segmenting respondents on the basis of a broader range of financial attitudes and behaviour, a yield of clearly interpretable profiles can be realised and helpful to identify who are the people in most need of professional financial advice.

## **Participants and Questionnaire**

The data comes from a questionnaire that was completed by 1282 respondents from various regions of the German-speaking part of Switzerland. The respondents were recruited from two sources: 53% of the participants (n=680) were clients seeking consulting advice from a Swiss financial planning company, together with participants in courses in financial training within the same firm. The rest, 47% of our sample, was composed of participants in a study relating to financial literacy and from different sources such as a nursing home, a group of students, group of teachers, company em-

ployees from four different Swiss companies, a group of self-employed persons, participants in a course for the unemployed, and a group made up of parents.

The questionnaire was originally designed in German. Participants were first asked to give their self-assessment by answering 17 questions on their financial behavioural practice or attitude towards financial affairs. The response format is a 5-point-Likert-type scale with “absolutely” and “not at all” as the two ends of the question spectrum. Subsequently the questionnaire contains questions concerning socio-demographic variables such as age, gender, career stage, and education.<sup>[1]</sup>

The age of participants ranges from 18 to 84 years old, with 58.9% between 36 and 65 years old (n=755). The natural demographic balance of men and women is reflected in the sample with 49.3% men (n=632) and 50.7% women (n=650). The proportion of people with a university degree or equivalent is 46.6% (n=598), whereas 33.8% participants (n=433) obtained an apprenticeship (up to five years). There are 14.5% participants (n=186) who have a high school diploma as the highest educational level, whereas 5.1% participants (n=65) have only attended secondary school. There are 10.5% (n=135) participants who were studying at a university or at another institute of higher education at the time of our survey.

## **Methodology and Results**

### ***Factor Analysis***

As the first step we conducted an exploratory factor analysis in order to determine the underlying dimensions of the financial attitudes and behavioural tendencies. We adopted the Principal Component Analysis (PCA), which has been recommended as the best linear transformation for maintaining the subspace which has the greatest variance (Bryman and Cramer, 2005).

The chosen solution with five principal components was constructed using the varimax rotation technique and can explain 53.3% of the total variance. Two assumptions are required: Kaiser-Meyer-Olkin Measure of Sampling Adequacy must be greater

than .60 and the Bartlett's Test of Sphericity must be significant. Both are satisfied, the former with .71 and the latter at the 0.01 level. Different opinions concerning what constitutes a high loading are found in the literature, e.g., .30 (Gardner, 2001). Here the rotated factor loading of .50 was chosen as a threshold.

Kaiser-criterion and scree plot were selected as technical criteria to determine the number of factors. The eigenvalue greater than 1 (Kaiser's criterion) can be taken as the divide between the components based on true co-variation and additional components based on random error. The Kaiser's criterion was chosen here as the minimum requirement. Additionally, the scree test (Cattell, 1966, as cited by Bryman and Cramer, 2005, p. 330), which plots the eigenvalues against the number of components, suggested in this case five substantive factors. Table I gives an overview of the five factors and their items. The ranking of factor 1 to 5 reflects the declining eigenvalues.

Take in Table I.

The five components resulting from the factor analysis are described as follows:

*Factor 1 - Anxiety:* a person who scores high on '*Anxiety*' feels unsure and is worried and anxious about money matters. Unsure here does not refer to uncertainty with respect to the level of information available (Wärneryd, 1999), but to a subjective feeling of doubt and insecurity. Furthermore, it is highly correlated with the statement that they delay financial decisions, which equate to procrastination, an important source of poor performance in retirement saving (O'Donoghue and Rabin, 1998). '*Anxiety*' is also linked to feelings of regret after having or not having done something. Problems in financial matters can occur because people who score high on '*Anxiety*' are prone to withdrawing from actions they have taken. This indicates that '*Anxiety*' comprises two features which are difficult to manage in financial areas: procrastination and unstable preferences.

*Factor 2 - Interest in financial issues:* this factor deals with the individual's interest in financial topics and exposure to financial information (enjoying conversations about

financial matters, reading business news). A person with a high score on this area is interested in financial matters and is more likely to have some financial knowledge.

*Factor 3 - Intuitive decisions:* this factor measures whether the person tends to decide spontaneously vs. deliberately, intuitively vs. analytically. The more analytical decision makers score lower on '*Intuitive decisions*'. They prefer to collect more objective information, calculate risks, apply impersonal analysis to problems, and value logic. They trust what is certain and concrete, value realism and common sense. The structure of the process and the need to understand appear to be crucial for them (Sjöberg, 2003). Conversely, more intuitive individuals, scoring highly on '*Intuitive decisions*', make intuitive and spontaneous decisions, and are less interested in factual information and analytical processes. They tend to trust inspiration and prefer to be general and figurative (Pompian and Longo, 2005).

*Factor 4 - Need for precautionary saving:* this dimension corresponds to the perceived relevance of future financial provision. People who score highly on this factor find it difficult not to have secure financial savings for covering any negative consequences of unforeseeable events. They believe it is essential to invest for the future. Conversely, participants with a low score can be identified as individuals who do not recognise the need for such strategic planning for the future.

*Factor 5 - Free-spending:* this factor captures the attitudes and behavioural tendency of spending. For example, spending money for some people is a result of being discontent and such people are easily attracted by special offers. A person with a high score perceives money as having an additional self-contained value: there is a temptation to spend money because the act of spending in itself has a value and not only the objects which were purchased. A common term is a "living today" person (OECD, 2005) as compared to a "living tomorrow" person, who enjoys saving money. A "living today" type is easily enticed into buying, and it is more likely that preferences are inconsistent across time or context (Laibson, 1997). This implies, as an example, that even if a person states a strong need for saving for retirement, this preference might be superseded when the opportunity for short-term enjoyment presents itself through the act of spending.

### ***Reliability Assessment***

In order to assess reliability, Cronbach's alpha test was used to determine the degree of consistency amongst the multiple measurements of each factor. Cronbach's alpha measures the interitem reliability of a scale generated from a number of items. It indicates the extent to which the items are answered in a similar fashion by any respondents and range from 0 to 1. A value higher than 0.6 is normally treated as satisfactory in research for the use of a scale (Robinson *et al.*, 1991). Factor 5 did not meet the criteria, therefore the item "I feel annoyed when things do not go my way" was deleted. This deletion was due to the low factor loading of the item (none exceeds the .50 required) and, without it, Cronbach's alpha augmented to an acceptable .51.

Additionally, the reliability was assessed using two item analyses: the first analysis indicated that the correlation of each item with the overall scale is higher than .3. In the second conducted item analysis, the percentiles P25 and P75 was compared per item; t-tests showed that for each item the difference is significant, as is requested. Based on the result of the two analyses, no further items had to be deleted. Table I presents the Cronbach's alpha of each factor and the correlations of the items with the corresponding factor (factor loadings). It shows that the correlations are predominantly moderate to high.

The correlation matrix for the five factors is shown in Table II. None of the correlations exceeds 0.3; this shows that the components are not correlated practically. It proves that the requirement for the five factors to be set up in relatively independent dimensions has been met. Correlations up to  $r = 0.5$  are even regarded as independent in these circumstances (Cohen, 1988).

Take in Table II.

### ***Cluster Analysis***

Cluster analysis was used as a means of representing the potential structure of data to identify groups of people who share certain common characteristics in attitudes and

financial behaviour. The aim is to obtain clusters whose members are as similar in the cluster and, at the same time, as distinct to the other clusters as possible.

The results of the factor analysis (Principal Component Analysis) were used to construct the variables. An overall score for each component was calculated by adding the scores for each included item and dividing this by the number of items in the component; in this way the participants can be segmented based on their factor scores. As all the factors have therefore the same scale, no further standardisation was needed. Cluster analysis requires commensurable and independent variables. Both requirements were met because factor analyses are used to set up the variables. Additionally, no loss of information due to dummy variables had to be taken into account.

In the first step, using the five average factor scores as variables, a hierarchical cluster procedure with Ward's linkage and squared Euclidean distances as the dissimilarity measure were used to identify the number of clusters and define group centroids.

Such agglomerative procedures use an algorithm which initially adds all the same combinations to the cluster. As soon as the identical subjects' score can no longer be combined anymore, two clusters are combined so that internal heterogeneity is least increased. This process is performed until the last merger step when the last two remaining clusters are united into one. To determine the potential number of clusters, the step chosen immediately prior to the heterogeneity increases erratically, since this increase in dissimilarity is not tolerated. As hierarchical cluster analyses are not appropriate for large samples (typically > 300-350), this first step was based on different subsamples which are drawn by random sampling (20-25% of the sample, equals 256-326 respondents). Previously, an analysis with the Single-Linkage-method was conducted and shows that there are no outliers which could distort the result of a Ward analysis.

Ward's method offers a good criterion for the number of possible clusters. The main disadvantage, however, is that the allocation of subjects is final, with no possibility of reassignment to another (more appropriate) group during the procedure. The necessary flexibility can be provided by adding a non-hierarchical cluster analysis approach in order to profit from the possibility of "re-sorting". In the second step, therefore, the non-hierarchical (partitional) cluster analysis K-means method was used to

improve the results of Ward's method. Its optimising algorithm checks for each case, as to whether the previous assignment from the hierarchical analysis is really best or, whether with another assignment, the homogeneity of the new target cluster is less affected than with the previous one.

K-means method is sensitive to the initial value setting and unfortunately can provide a local optimum which can be far from the global optimum. Empirical evidence suggests that the global optimum can be found if centroids from hierarchical methods are taken as initial points for the K-means method (Bacher, 1996). Therefore in this study, centroids from the Ward's method were employed as the starting point.

K-means cluster analysis (with simple Euclidean distance) was used because it appeared to be more robust than any of the hierarchical methods (Punj and Stewart, 1983). This procedure attempts to identify relatively homogeneous groups of cases, based on selected characteristics, using an algorithm that can manage large numbers of cases. Since the variables were measured on the same 5-Likert-scale, scaling of variables was not under consideration, and therefore no standardising was needed.

Cluster solutions ranging from 2 to 9 clusters were tested. A graphical representation of the increase in error sum-of-squares in the different cluster solutions of Ward and the dendrogram allowed for the four- and the five-cluster solution. The final five-cluster solution provides the greater contrast between the groups, all five factors contribute significantly and it is supported by its interpretability. The final cluster centres are displayed in Table III.

Take in Table III.

### ***Segmentation Profiles***

The 1282 participants were classified in five clusters, with cluster sizes ranging from 199 to 368 people. Table III gives a schematic and simplified overview of the characteristics concerning the five factors that emerged from the Principal Component Analysis, and of the proportion of each cluster. The five clusters are described as follows.

*Cluster I - Rational consumers:* the first cluster is characterised by the strongest involvement in economic and financial matters in the whole sample. This is also reflected in the idea of certainty: people in this cluster feel assured (i.e., low anxiety) and comfortable in the “financial world”. They take their decisions in an analytical way, compare risks, read about results of product comparisons, and have a need for precautionary saving. They are highly interested in financial matters. In addition, money does not have a value of its own but is a tool to be wisely handled.

*Cluster II - Myopic consumers:* people in this cluster belong to the secure and not anxious type of the sample. They feel at ease with financial terminology and affairs, and state a medium interest in financial matters. There are some characteristics in common with the previous *'Rational consumers'* cluster, but they differ with respect to precautionary saving. Unlike *'Rational consumers'* who state a high need for precautionary saving, the *'Myopic consumers'* group states a distinctively low need for precautionary saving. Altogether, they appear to be in control of their financial matters.

*Cluster III - Anxious savers:* in contrast to the second cluster, 96.2% of the people in this cluster state absolutely, or at least mostly a need for precautionary saving. They prefer an analytical way of decision making, and do not like spontaneous spending. This goes hand in hand with a clear rating for saving, whereby spending per se is not seen as a means to become happier. However, people in this cluster tend to feel anxious about financial issues, to be uncertain about financial terminology, and to postpone financial decisions. Moreover, they show low interest in financial issues.

*Cluster IV - Gut-feeling followers:* the distinctive characteristic of this cluster is the spontaneous and intuitive decision style. In addition, people in this cluster are not interested in financial matters, but this does not make them feel insecure or anxious. They do not think that money is just a means of becoming happier, whereas, they do not recognise the need for precautionary saving.

*Cluster V - Anxious spenders*: cluster V has complex conditions: 71% of the cluster members feel absolutely or mostly insecure about financial matters, and two thirds declare virtually no interest in financial topics. Furthermore, they state a need for precautionary saving, but at the same time enjoy spending and view spending as a remedy against frustration. They make decisions intuitively and spontaneously, even on large purchases. The self-stated spending behaviour is in conflict with the self-stated need for precautionary saving.

### ***Impacts of socio-demographic variables***

Socio-demographic variables including age, gender, and education show significant differences in their distribution over the five clusters (Chi-squared test ( $X^2$ ), Table IV). In each cluster the distribution of men and women differ significantly: nearly 40% of men belong to the cluster of '*Rational consumers*' whereas only 18% of women are in this group. Similarly, men are much more likely to be in the '*Myopic consumers*' cluster (20% men vs. 10% of women). On the other hand, women are overrepresented in each of the three remaining clusters. In particular, the cluster '*Anxious spenders*' shows the strongest disparity between male and female: women are more than three times more likely to belong to this group (26% women vs. 7% men).

The OLS regressions with the five factors as dependent variables also showed strong gender differences (Table V). Women decide more intuitively and are less interested in financial matters but have a stronger need for precautionary savings (e.g., '*Gut-feeling followers*'). In addition, they enjoy spending and tend to be more anxious ('*Anxious spenders*'). Altogether, it makes financial management more difficult for women.

The distribution in the clusters relating to age and highest level of education are more balanced, although there are notable exceptions. The '*Anxious savers*' are more often found in the age-groups of the 51-65 and the over 66 year olds ( $p < 0.05$ ,  $X^2_{(3)} = 8.0$ ). Within these age-groups people are more interested in financial matters and precautionary saving becomes more important. They are less likely to be involved in excessive spending and are not easily persuaded by special offers. The regression models also show age as a significant predictor for '*Interest in financial issues*', '*Need for*

*precautionary saving*' and *'Free-spending*'. In contrast, in the *'Myopic consumers*' cluster, the younger group (up to 35 years old) are overrepresented, indicating an "life is now" attitude, but it fails to meet the level of significance by a small margin (Table IV and V).

In terms of education, only the group differences in the *'Anxious spenders*' cluster are significant ( $p < 0.05$ ,  $X^2_{(3)} = 7.8$ ). There are a disproportionately high number of people with secondary school or apprenticeships as the highest level of education. They state more often to be anxious and unsure in financial affairs as reflected in the regression model. University students are most likely to be in the *'Rational consumers*' cluster (44% university students vs. 27% non-students;  $p < 0.05$ ,  $X^2_{(1)} = 11.5$ ), i.e., they are on average more interested in financial matters, and are less anxious. They are less likely to belong to the *'Gut-feeling followers*' ( $p < 0.05$ ,  $X^2_{(1)} = 7.0$ ) and *'Anxious spenders*' ( $p < 0.05$ ,  $X^2_{(1)} = 4.0$ ) for the same reasons (Table IV).

Take in Table IV.

Take in Table V.

## **Discussion**

The five segments resulting from the cluster analysis provide an opportunity for private investors and financial advisors to improve upon financial decisions and implementation. The *'Rational consumers*' cluster together with the *'Myopic consumers*' cluster share the best starting position in the overall sample in terms of managing financial matters in a rational way, e.g. cluster members feel at ease with financial affairs, and do not have a preference for excessive spending. These two clusters constitute 44% of our participants. The *'Rational consumers*' demonstrate a thoughtful and prudent financial behaviour with care for (adequate) saving, high interest in financial issues, and an analytical way of decision making, indicating that these cluster members might be more apt to work in the financial sphere than people from the other clusters.

The *'Myopic consumers'* have integrated financial matters into their life and seem to manage it well. Nevertheless, a weak point is denying the need for precautionary saving, a kind of overconfidence in their future finance. Men are more prone to overconfidence than women (Barber and Odean, 2001), a finding which is reflected in the higher proportion of men in this cluster. The OECD (2005) recognises an increased need as a result of greater responsibility for pension saving and recommends better awareness through financial education or work-place seminars on retirement planning. *'Myopic consumers'* are neither uninterested in financial affairs nor emotional decision takers. They can benefit from systematic information such as realistic facts about expected consumption after retirement and the need for retirement savings as one's own responsibility.

The other three clusters (*'Anxious savers'*, *'Gut-feeling followers'* and *'Anxious spenders'*) share the common features of medium to high anxiety and low interest in financial topics. As a consequence, the financial advisory to these groups become more important but at the same time more challenging. The *'Anxious savers'* are cautious, make their decisions in an analytical way, and like to compare and calculate risks. They state a high need for precautionary saving, and have a preference for saving over free-spending. Nevertheless there are potential problems for managing financial matters. People in this cluster are not very interested in financial affairs, and at the same time they feel insecure or anxious in financial issues. Insecurity can be alleviated by a clear decision-making process to make them feel more comfortable. In addition, greater knowledge diminishes anxiety and a higher level of information can lead to less cognitive dissonance. To base oneself on some sort of authority may encourage people who otherwise feel insecure in taking financial decisions: this could be a recommendation from the employer's side or, as Thaler (1994) suggested, labels on products like energy-efficiency labels on appliances. The same mechanism applies to tax incentives, as a kind of approval from governmental authorities, in order to encourage the individual to invest in retirement plans like IRAs, 401k plans in the US or third pillar in Switzerland. These measures can be automated, such as with regular annual payments in the third pillar system, so that these individuals do not have to look after this anymore, which is beneficial given their disinterest in financial affairs.

Compared with the first three groups, the *'Gut-feeling followers'* cluster needs more guidance and advice in terms of financial matters. They are characterised by a disinterest in financial issues and by a spontaneous manner in decision-taking, even for larger purchases. This can be counterproductive to attaining long-term financial goals, particularly when neglecting to take care of precautionary saving, which may lead to later regrets on not having invested for their retirement (O'Donoghue and Rabin, 1998). A central issue is how to reach these people as they are not interested in financial matters. Financial education seems often to be designed to meet the needs of people who are already involved in financial matters, but *'Gut-feeling followers'* are not at all interested and not included in any way in the "financial world". This can imply that conducting a campaign highlighting the importance of additional retirement arrangements in the business section of a newspaper will not reach them (Harrison, 1994). Without this level of preliminary motivation other stimuli should be used such as employer matching, or mandatory pension funds as currently legislated in Switzerland. If there is an opportunity to take some financial action, a commitment for a deposit on a regular basis can be signed. In order to avoid people using their savings because they have a spontaneous way of decision making and do not have a deeper understanding of the need for making provisions, features to limit imprudent spending are possible such as short-term restricted access to resources (e.g., a 30 day notice period), or long-term restricted access like a feature of a long-term savings instrument.

Finally, the *'Anxious spenders'* is the group of all clusters where financial advice is most needed. They demonstrate attributes like a propensity for spending money, taking decisions intuitively and spontaneously, even on large purchases, and are not interested in financial issues. These people have a strong desire for precautionary saving, but feel insecure in financial matters and therefore have problems finding their way. As the *'Anxious spenders'* enjoy spending, even use spending as a remedy against frustration, and decide spontaneously, this makes precautionary saving difficult, and features to refrain from spontaneous spending must be taken into consideration: it might be useful to restrict access to resources and avoid spontaneous loss of their previous intention to save (based on their need for precautionary saving). Short-term restricted access can include the use of cancellation periods, or mechanisms to avoid modifying actions could be implemented, such as commitments with scheduled

penalties for premature access and midterm cancellation costs to avoid opting out of contracts. Long-term features include access to a pension only upon arriving at pensionable age. The detachment of financial issues makes it difficult to argue for or to initiate remedial action. Mechanisms to be exposed to financial issues can be mandatory pension funds, compulsory insurances and the offer of employer matching. High anxiety demands a clear decision (and action) process with information to rationalise why an action has been taken in this way in order to feel assured. One possible way to mitigate postponing decision-making because of anxiety is to allow less frequent transaction dates, e.g. each last day of the month, so that the person will be forced to recognise that if they do not decide to transfer money then, it will become more expensive (O'Donoghue and Rabin, 1998). In summary, the situation of '*Anxious spenders*' is not easy to handle so that it is recommended to receive support from financial professionals. Financial consultancy can provide them with detailed instructions and broad support to learn to manage their financial affairs in a sound way, e.g. to keep a budget and refrain from excessive spending, and to gain more confidence in dealing with financial matters.

Gender shows a significant difference in the distribution within the clusters. The number of women is in all of the three precarious clusters disproportionately high. The main reasons are that women are less interested in financial affairs, more anxious and are more prone to spending money, results which are in line with Jörg (2005) and Ricciardi (2008). Men are more likely to be '*Rational consumers*' or '*Myopic consumers*', two clusters which are on the safe side concerning financial management. For women, insecurity combined with disinterest in financial topics create complex conditions with enjoyment in spending underpinned by a contradictory and strong need for saving. Therefore particular attention should be given to women. Nevertheless, in each cluster a noteworthy number of both genders are found. This is in line with the results of Keller and Siegrist (2004) that the differences *within* all men and *within* all women appear "far greater than the differences *between* men and women" (cited from Keller and Siegrist, 2006, p. 89, not italic).

In contrast to the EBRI study (2002) concerning personality types of savers, the clusters vary by age group but no cluster dominates any age-group. Age does not appear to be a sufficient predictor for cluster membership in this study. Regression shows that the younger group is less interested in financial matters, and sees less need for

precautionary saving, but is more likely to enjoy spending money. This demonstrates that for more reasonable financial management, the younger group needs to maintain control especially over excessive spending. The distribution in the clusters concerning education differs significantly from the distribution in the overall sample in the '*Anxious spenders*' cluster in that people with a lower level of education are more anxious and insecure.

This leads to the conclusion that the clusters highlight socio-demographic characteristics and help generate a better understanding, although one socio-demographic factor alone does not offer enough information to detect cluster membership. To put it in a simplistic way, women, younger people, and those with a lower level of education have a higher risk of unreasonable financial management. In dealing with clients it is an advantage to have identified the cluster the person belongs to. As an example, the '*Anxious spenders*' are the people in most need of professional financial advice. In this case more women, more people with a lower level of education and less students are concerned. If it would be possible to identify them, their specific needs could be addressed directly, e.g. keeping budget in spite of their spending activities.

In reference to the study by MacFarland *et al.* (2003), the current study is informative in that it both reflects some of their defined dimensions, such as uncertainty, a "living today" mentality, and enjoying dealing with finances, whilst amplifying the financial matters. The findings show that private individuals differ in their day-to-day financial behaviour and this has, to a specific extent, an influence on the choice of instruments used to modify behaviour. The findings can be used in order to increase the added value that financial professionals offer to their clients and to improve financial education. A way to change harmful behaviour of people is to take their everyday life behaviour as a starting point, and implement incentives linked to their preferences to increase the contributions. Based on these findings, financial services can address these needs and thereby attract clients by offering a more professional approach. Instead of providing standard products to individual investors, investment programmes can be designed and tailored to specific groups of people, e.g., '*Anxious spenders*'.

## Concluding Remarks

This study demonstrates that by segmenting private investors on the basis of their self-stated financial attitudes and behaviour, a yield of clearly interpretable profiles can be realised. Cluster analyses based on the results of factor analysis indicate that private investors can be divided into five clusters with specific characteristics in their financial day-to-day behaviour and certain socio-demographic variables (e.g., gender, age, and education). Each cluster raises key issues to meet their needs and to use of adequate financial instruments. From cluster I to V, the need for action to better handle financial matters increases. The results of this paper have implications for private investors and providers of financial consultancy, as well as for initiatives aimed at increasing retirement savings. More research needs to be undertaken to investigate the relationship between actual behaviour with the self-stated behaviour and the change in attitudes and behaviour over one's life cycle.

## Endnote

[1] The questionnaire can be obtained by contacting the authors.

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**Table I: Factors from Principal Component Analysis**

<b>Factor 1: Anxiety (<math>\alpha = .648^a</math>)</b>	<b>Factor Loadings<sup>c</sup></b>
I get unsure by the lingo of financial experts.	.567
I am anxious about financial and money affairs.	.701
I tend to postpone financial decisions.	.679
After making a decision, I am anxious whether I was right or wrong.	.713
<b>Factor 2: Interest in financial issues (<math>\alpha = .711</math>)</b>	
I read the business section of the newspaper attentively.	.811
I like to join conversations about financial matters.	.826
<b>Factor 3: Intuitive decisions (<math>\alpha = .605</math>)</b>	
I compare and calculate risks.	-.537
Even on large purchases, I tend to spend spontaneously.	.629
I enjoy reading about results of product testing.	-.545
I do not complain very often, even if I have a reason to.	.508
At the end of the day, I decide intuitively in financial affairs.	.595
<b>Factor 4: Need for precautionary saving (<math>\alpha = .611</math>)</b>	
I find it hard not to have some money away for a rainy day.	.767
To care for the future is essential for me.	.706
<b>Factor 5: Free-spending<sup>b</sup> (<math>\alpha = .501</math>)</b>	
I spend money when I am unhappy or frustrated.	.623
Special offers can entice me into buying.	.705
I enjoy spending money more than saving.	.515

N = 1'282. Principal Component Analysis with varimax orthogonal rotation. Eigenvalues > 1. Factor loadings > .50.

<sup>a</sup>  $\alpha$  = value of Cronbach's Alpha (based on standardised items) for the corresponding factor.

<sup>b</sup> Item 'I feel annoyed when things do not go my way' has been deleted.

<sup>c</sup> After varimax orthogonal rotation. Factor loadings are the correlations of the items with the corresponding factor.

**Table II: Correlation Matrix for the Five Factors**

	<b>Factor 1 Anxiety</b>	<b>Factor 2 Interest in financial issues</b>	<b>Factor 3 Intuitive decisions</b>	<b>Factor 4 Need for precau- tionary saving</b>
<b>Factor 2 Interest in financial issues</b>	-.30**			
<b>Factor 3 Intuitive decisions</b>	.15**	-.21**		
<b>Factor 4 Need for precautionary saving</b>	.15**	.05*	-.13**	
<b>Factor 5 Free-spending</b>	.16**	-.13**	.15**	-.08**

N = 1'282. Pearson Correlation, Sig. (2-tailed).

\*\* = Correlation is significant at the 0.01 level. \* = Correlation is significant at the 0.05 level.

**Table III: Profiling of Individual Investor Segments (based on final cluster centres)**

Cluster	<b>I. Rational consumers</b>	<b>II. Myopic consumers</b>	<b>III. Anxious savers</b>	<b>IV. Gut-feeling followers</b>	<b>V. Anxious spenders</b>
Factor					
<b>1. Anxiety</b>	low (-.66)	low (-.60)	high (.37)	medium (.08)	high (1.13)
<b>2. Interest in financial issues</b>	high (.96)	medium (.24)	low (-.31)	low (-.98)	low (-.49)
<b>3. Intuitive decisions</b>	low (-.33)	medium (-.03)	low (-.59)	high (1.03)	high (.34)
<b>4. Need for precautionary saving</b>	high (.42)	low (-1.65)	high (.55)	low (-.31)	high (.39)
<b>5. Free-sending</b>	medium (-.23)	medium (.13)	low (-.63)	medium (-.07)	high (1.17)
<b>No. of people</b>	368	199	285	215	215
<b>%</b>	28.7	15.5	22.2	16.8	16.8

N = 1'282. The table gives a schematic and simplified overview of the clusters as related to factors. Numbers in brackets refer to the value of the factors converted to Z-scores.

**Table IV: Socio-demographic Characteristics of the Five Clusters**

Cluster	Whole Sample		I. Rational consumers		II. Myopic consumers		III. Anxious savers		IV. Gut feeling followers		V. Anxious spenders		$X^2$
	n	%	n	%	n	%	n	%	n	%	n	%	
<b>Gender</b>													
Male	632	49.3	<b>250</b>	<b>39.6</b>	<b>127</b>	<b>20.1</b>	<b>122</b>	<b>19.3</b>	<b>86</b>	<b>13.6</b>	<b>47</b>	<b>7.4</b>	$X^2_{(4)} = 144.9^{**}$
Female	650	50.7	<b>118</b>	<b>18.2</b>	<b>72</b>	<b>11.1</b>	<b>163</b>	<b>25.1</b>	<b>129</b>	<b>19.8</b>	<b>168</b>	<b>25.8</b>	
<b>Age</b>													
18-35	427	33.3	112	26.2	77	18.1	<b>88</b>	<b>20.6</b>	77	18.0	73	17.1	$X^2_{(12)} = 26.0^*$
36-50	472	36.8	138	29.3	80	16.9	<b>88</b>	<b>18.7</b>	87	18.4	79	16.7	
51-65	283	22.1	83	29.3	38	13.4	<b>79</b>	<b>27.9</b>	41	14.5	42	14.9	
66-85	66	5.1	28	42.3	4	6.1	<b>18</b>	<b>27.3</b>	5	7.6	11	16.7	
Missings	34	2.7	7	20.6	0	0	12	35.3	5	14.7	10	29.4	
<b>Education</b>													
Secondary School	65	5.1	14	21.5	8	12.3	20	30.8	7	10.8	<b>16</b>	<b>24.6</b>	$X^2_{(12)} = 20.9^*$
Apprenticeship	433	33.8	110	25.4	64	14.8	103	23.8	72	16.6	<b>84</b>	<b>19.4</b>	
High school diploma	186	14.5	54	29.1	35	18.8	33	17.7	30	16.1	<b>34</b>	<b>18.3</b>	
University degree	598	46.6	190	31.8	92	15.4	129	21.6	106	17.7	<b>81</b>	<b>13.5</b>	
<b>Students</b>													
University students	135	10.5	<b>59</b>	<b>43.7</b>	29	21.5	22	16.3	<b>11</b>	<b>8.1</b>	<b>14</b>	<b>10.4</b>	$X^2_{(4)} = 28.0^{**}$
Non-Students	1147	89.5	<b>309</b>	<b>26.9</b>	170	14.8	263	22.9	<b>204</b>	<b>17.9</b>	<b>201</b>	<b>17.5</b>	
<b>Whole sample</b>	1282	100	368	28.7	199	15.5	285	22.2	215	16.8	215	16.8	

N = 1282.  $X^2$  is tested based upon apriori probabilities related to the study sample.

\*\* =  $X^2$  statistic is significant at the 0.01 level. \* =  $X^2$  statistic is significant at the 0.05 level.

Figures in bold show significant differences between the groups within the specific cluster ( $X^2$ ).

**Table V: Regression Analysis on Socio-demographic Characteristics**

Factor	1. Anxiety		2. Interest in financial issues		3. Intuitive decisions		4. Need for pre-cautionary saving		5. Free-spending	
	B	SE	B	SE	B	SE	B	SE	B	SE
<b>Gender</b> (male=0)	.407	.048 **	-.682	.062 **	.092	.042 *	.278	.065 **	.265	.040 **
<b>Age</b>										
18-35										
36-50	-.041	.061	.344	.079 **	.026	.053	.062	.083	-.146	.051 *
51-65	.026	.069	.465	.089 **	-.017	.060	.294	.093 *	-.294	.057 **
66-85	.150	.114	.910	.146 **	.140	.099	.503	.154 *	-.485	.095 **
<b>Education</b>										
Secondary School										
Apprenticeship	-.214	.114	.127	.147	.008	.099	.065	.154	-.022	.095
High school diploma	-.121	.128	-.064	.165	-.040	.111	.038	.173	.239	.107 *
University degree	-.289	.113 *	.175	.146	-.062	.099	.030	.153	-.032	.095
<b>Students</b> (non-student=0)	-.366	.095 **	.605	.122 **	-.104	.082	.131	.128	-.132	.079
<b>Constant</b>	2.581	.120	2.962	.154	2.792	.104	3.683	.162	2.914	.100
<b>R<sup>2</sup></b>	.095		.142		.013		.032		.082	
<b>F</b>	16.174**		25.464**		2.106*		5.150**		13.808**	

N = 1282. Beta (B) and Standard Error (SE): unstandardized coefficients. Age and Education converted into dummy variables.

Multicollinearity is tested by variance inflation factors, eigenvalues and condition index, and is not to be assumed.

Autocorrelation is excluded by testing with Durbin-Watson test.

\*\* = significant at the 0.01 level. \* = significant at the 0.05 level.