



The Actuarial Profession

making financial sense of the future

Consumer Understanding of Risk

A summary report prepared by Alan Goodman

Chairman of the Financial Consumer Support
Committee, The Actuarial Profession

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This report summarises research undertaken between 2002 and 2004 by Professor Nick Chater and Ivaylo Vlaev, Design Technology Group, Department of Psychology, University of Warwick. The research was commissioned by the Actuarial Profession.

Executive Summary

- There is a dearth of experimental research in the UK looking at consumer understanding of financial risk. Most of the research has been done in the US.
- Most people do not learn rational preferences to guide their financial decisions and don't transfer learning from one situation to another without the aid of simple rules or heuristics. Although greater financial literacy is beneficial, it alone cannot be relied on in seeking to improve financial decision-making.
- People tend to be more sensitive to decreases in their wealth than to increases.
- People tend to be 'myopic' when studying their investments too frequently and unable to adopt the best strategy for the longer term. People take more risks if they evaluate their investments less often.
- Consumers don't like the experience of 'having the meter running', in the sense of paying for each piece of financial advice, but prefer termly charges.
- People allocate their retirement funds evenly across various investment funds without regard to the number of funds and the degree of risk they entail.
- It is easier to convince a person to save if the sacrifice involved - the consumption foregone - is delayed than if it is immediate.
- Consumers considering a high risk/high return option will, if the projected income is far enough in the future, over-discount the gains to a greater extent than the losses that would result if the expected return turns out to be negative.
- People choosing from a range of options tend to select the middle option whether the overall range is low in value or high. In this way they may not be behaving rationally according to standard economic criteria.
- Manipulating the range and the rank of the options offered to a consumer can, within limits, influence the proportion of earnings they save and the proportion of savings they place in more risky investments.
- For example, by giving a set of savings options in the higher part of an overall range, people are more likely to choose to save more than if they are given a set of options from the lower part of the range. Similarly, by giving a set of options from the higher part of an overall range representing degrees of risk (expressed as different proportions of equities and bonds), they are more likely to invest higher proportions of their earnings in risky investments than if they are given a set of options from the lower part of the range.
- The above findings from the research provide guidelines for how financial information should be presented (section 5). This is important in view of the fact that most people have little understanding of financial markets, whilst being anxious about their financial welfare.

Introduction

The research project was initiated because it was clear to the Actuarial Profession's Personal Financial Planning Committee (PFPC) that in many circumstances the financial decisions made by consumers tend to be sub-optimal. This was felt to be true even when advice was sought from a financial adviser. Experience suggests that there appears to be mismatches between a consumer's understanding of risk, his underlying attitude to risk and the financial decisions that are made. The PFPC wanted to explore why that should be the case and whether it could learn anything that would be of practical interest to the financial services industry.

The Report of Sir John Banham, commissioned by the Profession, recommended that the Actuarial Profession should take forward its 'work on consumer understanding of risk, both from a mathematical and from a psychological standpoint, in conjunction with other specialists' (Banham, 2001, p. 22). Following this, the Profession's Social Policy Board agreed in 2002 that the PFPC could commission research into consumers' attitude to risk. The Committee asked Professor Nick Chater of Warwick University to undertake the research.

The study started by looking at relevant experimental research both in the UK and US. The relevant key findings are given in Section 2. This led to the design of our own experiments building on this earlier research. A number of experiments were done as a pilot study (Section 3) and these were followed by more substantive experiments (Section 4). Professor Nick Chater and his research assistant Ivo Vlaev conducted the research between 2002 – 2004.

It became clear to us that there was a dearth of experimental research looking at consumer understanding of financial risk and that most of the relevant research had been done in the US. This gap in the research literature has implications for the new landscape that consumers now face where government and employers increasingly expect them to take command of their own pension and investment decisions.

This report summarises the research and draws a number of conclusions from which more detailed research may be done in future.

2. Relevant Experimental Research

2.1 The role of education

There has been a strong focus from Government on improving financial literacy. There also appears to be an underlying view (based on traditional economic theory) that education will improve financial decision-making.

Analysis of existing research literature on learning and education suggests that people cannot learn rational preferences, particularly with regard to financial decisions.

In order to converge to a rational equilibrium, learning requires endless trials and practical experience of success and failure. This is impractical for many aspects of consumer financial decision-making, because of the relative infrequency of having to make such decisions in real life.

One might hope that learning acquired from one financial decision might allow more optimal decision-making in another. In fact, psychological research suggests that transfer of learning across situations is surprisingly weak. Even when subjects are explicitly informed that their experience on one task is relevant to a second task, they often learn the wrong lesson from the first task (Bassoc et al, 1995).

In summary, people need to be given specific rules and simple heuristics on how to behave rationally in various situations where financial choices are made. In this respect, Tversky and Kahneman suggest that “people rely on a limited number of heuristic principles which reduce the complex tasks of assessing probabilities and predicting values to simpler judgmental operations” (1974, 35). Importantly, the proper understanding and application of these principles and rules depends on how financial information is presented.

2.2 Presentation of Information

A number of research experiments have been done relating to the presentation of information. These experiments are helpful in considering how information might be presented in order for consumers to make rational decisions. The findings are highlighted in the following sections.

2.3 Presentation of context and language

A major discovery of cognitive psychology is the degree to which all forms of thinking and problem solving are dependent on the context and language used.

For example, if you have four cards, each with a letter on one side and a number on the other. The exposed faces read 'X', 'Y', '1', and '2'. Subjects are asked which cards would need to be turned over to test the rule: *'If there is an X on one side there is a 2 on the other.'* Very few subjects give the right answer, which is X and 1.

However, when the problem is put into a more familiar context (for example, there are 4 children from two different towns and two school districts and the rule is *'If a child lives in Concord he goes to Concord High'*), a much higher fraction of subjects give the right answer.

Applying these findings to financial decision-making suggests that the financial goals and benefits, and the corresponding financial means to achieve these goals, should be formulated in everyday language.

Relevant Experimental Research

2.4 Loss aversion and myopia

People tend to be more sensitive to decreases in their wealth than to increases. The disutility of losing £100 is roughly twice the utility of gaining £100.

Moreover, there is a tendency to be 'myopic' because frequent evaluations prevent the investor from adopting the most appropriate strategy over a long time horizon, resulting in 'myopic loss aversion'. Experimental evidence (e.g. Tversky and Kahneman, 1992, Thaler et al, 1997) suggests:

- individuals elect more risky options when a long-term horizon is imposed externally
- myopic loss averse investors accept risks more willingly when they evaluate their investments less often.
- Investors, therefore, seeking the most frequent feedback and more information take the least risks and achieve the lowest returns
- Investors accept more risks when all payoffs increased enough to eliminate losses

2.5 The probability weighting function

People overvalue small probabilities, so if a decision is framed in such a way as to indicate a small probability of incurring losses, then these small probabilities will loom larger, and will also be additionally magnified by the loss aversion effect (Tversky and Kahneman, 1992).

2.6 Payment decoupling

Research suggests that consumers don't like the experience of 'having the meter running'. Health clubs typically charge members by the month or year rather than on a per-use basis. This strategy decouples usage from fees, making the marginal cost of a visit zero (Thaler, 1999).

2.7 The diversification heuristic

Studies have shown how people allocate their retirement funds across various investment vehicles (Benartzi and Thaler, 1998, 2001). They find evidence that when an employee is offered a number of funds to choose from in their retirement plan, there is a bias towards dividing the money evenly among the funds offered. The asset allocation an investor chooses will depend strongly on the array of funds offered in the retirement plan. Thus, in a plan that offered one equity fund and one bond fund, the average allocation is likely to be 50% equities, but if another equity fund were added, the allocation to equities would jump to two thirds.

Relevant Experimental Research

2.8 Prospect relativity

Instead of having reasonably well articulated values fitting different tasks into the same analytic framework, most individuals have only rather basic and fuzzy preferences (Loomes, 1999).

People tend to devise various rules of thumb for handling the different problems presented to them, drawing on salient characteristics and cues suggested by the nature and framing of the problems; and they then stick with those rules unless and until they produce solutions which jar sufficiently to call for some reassessment.

Moreover, the very fuzziness of their underlying preferences may allow a number of different rules of thumb or heuristics devised for a range of different decision tasks to co-exist quite peacefully, without the individuals themselves ever being aware they are doing anything that theorists might regard as inconsistent.

In addition to context effects, psychologists have documented social effects, such as pressures to conform, which can exert a powerful influence. In social encounters, including laboratory experiments, most people are engaged in a constant search for cues about how they are supposed to behave. These cues can trigger off complex inferences.

2.9 Discounting

Preferences between two delayed outcomes often switch when both delays are incremented by a given constant amount (e.g. a person might prefer one apple today to two apples tomorrow, but at the same time prefer two apples in 51 days to one apple in 50 days) (Thaler, 1999).

This means that people should be easily convinced to commit to a savings plan provided it involves delay in having to reduce their future consumption. Therefore one can argue that the financial adviser should not offer a savings plan that offers immediate loss of consumption for the sake of saving for future consumption, but should offer the savings plan to start after some time (e.g., one year).

Studies have shown that the amount required to compensate for delay in receiving a reward by a given time interval, from t to $t + s$, was from two to four times greater than the amount subjects were willing to sacrifice to speed consumption up by the same interval, i.e., from $t + s$ to t . In other words, people experience disproportionate amount of pain when they have to give up (or even decrease) immediate reward (consumption).

Relevant Experimental Research

2.10 Gain-Loss Asymmetry

Losses are discounted at a lower rate than gains; e.g. experiments have found that people are indifferent between receiving £10 immediately and £21 in one year, and indifferent between losing £10 immediately and £15 in one year. Large amounts suffer less proportionate discounting than do small ones.

This means that consumers considering a high risk/high return option will, if the projected income is far enough in the future, over-discount the gains to a greater extent than the losses that would result if the expected return turns out to be negative.

2.11 Investor's autonomy

Employees who elected to take charge of their own investment portfolios generally do not show much skill (Benartzi and Thaler, 2002). Given the complexity of the task, it is not that surprising that people have a hard time constructing a well-diversified portfolio that fits their personal preferences.

If investors have incoherent or ill-formed preferences about their investments, then it would not be surprising that they would end up preferring a portfolio someone else has picked for them. When presenting individuals with three choices ranging from low risk to high risk, they found a significant tendency to pick the middle choice. For instance, people viewing choices A, B, and C, will often find B more attractive than C. However, those viewing choices B, C, and D, will often argue that C is more attractive than B (Simonson and Tversky, 1992).

This illustrates that choices are not rational according to standard economic criteria. When choice problems are hard, people often (sensibly) resort to simple rules of thumb to help them cope.

In summary, investors do not actually gain much by being able to choose their own portfolio. Most participants in a study find the portfolio of the median participant more attractive than the one they have chosen for themselves, and this was even true for those who rejected a portfolio customised for them by experts.

2.12 Conclusions from earlier research

Although improving financial literacy is beneficial, it cannot be relied on to achieve the objective of optimal decision-making. On the other hand, the means by which information is presented to consumers is highly influential on the decisions they make.

Earlier research has never been applied in the context of the UK financial services industry. We wanted, therefore, to apply these general research findings and see whether the results were equally applicable to the UK financial services industry. We chose "saving for retirement" as the subject on which our experiments would be based.

3. Pilot Study

In this study aspects of decision behaviour in long-term retirement saving and investment risk were investigated, with the particular objective to see whether people can be motivated to increase their savings rates (as a percentage of earnings) and their investment risk (the balance between equities and bonds) by manipulating the context in which the options are presented and decisions made.

The pilot study was conducted to test a number of hypotheses using a small sample of post-graduate students. The idea was to build on previous experimental results with a view to using the pilot results to devise a much broader based piece of research.

There were 5 experiments. The aim of the first three experiments was to determine whether the *range* of options that are offered influences people's judgments and decision. The final two experiments investigated whether the *rank order* of the offered options affects judgments and decisions. These experiments also examined whether the effects observed are strongly influenced by the material previously given to the respondent.

The experiments were based around five variables; potential savings amount, investment risk, retirement income, income variability and retirement age.

3.1 Experiment 1

There were three separate groups each offered a different set of options (free choice, low range and high range). For example, for potential savings amounts the free choice options varied from 2% to 22% of earnings, the low range options from 2% to 12% and the high range options from 12% to 22%. The same principle was applied for the other variables in the test.

If a participant is not influenced by the set of options, then his or her choice of each value in the high and low range conditions should be independent of the other values in the set and the chosen values should be the nearest to his or her free choice.

The results clearly demonstrated that the choices were strongly influenced by the set of choice options.

Pilot Study

3.2 Experiment 2

The distribution of responses in the high range condition of Experiment 1 was very much skewed towards the lower options. This result might arise because the options are too far apart of each other. It is possible that if the options are more closely spaced then people are more likely to be indifferent between them, and then the responses would be less skewed. In this experiment the effect of decreasing the spacing of the options was investigated. The intention was to check to what extent saving and investment decisions are influenced by the magnitude of the range and whether the amounts of saving and risk taken can be increased by manipulating this scale.

The results from this experiment demonstrated that reducing the spacing of the options did not make the responses more evenly distributed and the effects of the choice set were the same as in Experiment 1. The responses were still heavily skewed towards the lowest option, i.e., there was a greater tendency to select lower options from the high set.

3.3 Experiment 3

There is convincing evidence that preceding options (context) influence current judgments in decision making. There is also a more general result that all perceptual judgments of stimuli are strongly influenced by the preceding material. Therefore it was decided to investigate whether there are some sequence effects between the choices in the experiments. For example, if participants have seen on a previous trial a high range of options for the amounts of savings, then they might be willing to save more on the current trial, because in this case a moderate option on the current trial would appear relatively low compared to the options on the previous trial.

The results replicated the findings in Experiment 1 and thus demonstrated that people exhibit the same context dependent behaviour even when they see both high and low range conditions in the same session. This result rejects the possibility that the participants learn to readjust their judgments to fit their responses within the alternatives given when they are repeatedly presented with trials containing only high or only low options.

3.4 Experiment 4

There is substantial evidence in research literature that the rank order of the presented stimuli also affects the responses, in the sense that stimuli with higher rank in the distribution are judged to have higher subjective values.

In order to investigate these effects on saving and investment risk decisions, the skew of the distribution of values was manipulated to produce a positive skew, so that in one condition people were offered choice options mostly from the lower range of the continuum, while in the other condition the participants were presented with values mostly from the higher range.

Pilot Study

Earlier experiments had shown that people tend to prefer to save around 12% of their earnings in the free choice condition. Therefore it was expected that this option would be perceived as a more moderate value when it had a lower rank, which could motivate people to select it more often compared to the condition in which it has a higher rank, because the participants in the free choice condition did not seem to be particularly prone to save at higher rates.

It was found that decisions about savings amounts seemed to be unaffected. However, when the same principles were applied in the design of the investment risk options, there were significant effects of the rank order for the choices of investment risk where the lower and higher ranges were chosen relative to a middle choice of 50% in equities. One possible explanation of this result is the effect of the rank, but another possible explanation is that people prefer lower levels of risk (the most preferred value in the free choice condition was around 30%).

3.5 Experiment 5

The general design and procedure was the same as in Experiment 1, except that for the questions about saving amounts only the values 6%, 8%, 10%, 12%, 18% in one condition were included, while in the other values 6%, 12%, 14%, 16%, 18% were included. For the other variables the same design principle were applied.

The results show that the rank order of the options within the choice set selectively affects only the choices of investment risk, while the preferences for savings amounts were unaltered.

3.6 Summary

General results across all five experiments showed that the effect of the range was stronger for the savings amounts than for the risk related decisions, which is evident from the fact that the responses in the high and low range conditions in Experiment 1-3 were more evenly distributed and less skewed for saving amounts than for investment risk, while the reverse result was evident for the effects of the rank factor.

The results show that manipulating the range and the rank of the options offered to a consumer can influence the amounts of savings and investment risk.

4. Main Research Project

The research consisted of two studies. The first investigated the degree to which context affects financial decision making, while the second investigated consumers' understanding of financial risk.

Study 1

4.1 Aims and objectives

The goal was to make a provisional estimate of the degree to which the kinds of effects that were revealed in the pilot study could be applicable to more realistic financial decision-making. In particular, to investigate how the range of options offered affects the amount of pension savings made and the level of risk accepted.

4.2 Procedure

The study was conducted on a sample of working people, rather than university students. Compared with the pilot study, more plausible financial assumptions were used, the descriptions of investment risk were simplified and financial affordability was taken into account.

People were categorised according to their individual financial circumstances before measuring whether the context effects were of the same magnitude as in the pilot tests. The experiments were made more realistic for the participants by asking them specific questions about their own financial circumstances. By focusing their attention on their own real life issues at the beginning of the experimental session, people were expected to provide more adequate and valid responses to the questions.

Participants were sent a booklet containing a financial affordability questionnaire, comprising ten prospect relativity questions and five questions measuring risk aversion. They received written instruction explaining that there were no right and wrong answers and that they were free to choose whatever most suits their preferences. It was explained that the choice options are predetermined because these are the outcomes that can be realistically accomplished according to a standard economic model and that the task is to choose the option that is nearest to the participant's preferences. The participants were also informed that if they found the options to be unsatisfactory then they could indicate values outside the given ranges.

Participants were informed that their answers did not need to be consistent between the questions, and that they could freely change their preferences on each question and choose different savings and risk values.

In various questions, the participants were asked to select from a predefined set of values relating to five variables:

- the desired percentage of annual income saved for retirement,
- the required level of investment risk expressed as the percentage of the saving invested in riskier assets,
- retirement age,
- expected retirement income
- possible variability of the retirement income

Main Research Project

Questionnaires were sent to 600 working people split into three separate groups, each being offered a different set of options (free choice, low range and high range). A total of 24 men (average age 36.5) and 40 women (average age 37) responded from the three separate groups, producing an over-representation of women in the study.

For potential savings amounts, the free choice options varied from 2% to 22% of the hypothetical salary (£25,000), the low range options from 2% to 12% and the high range options from 12% to 22%. Investment risk was expressed in terms of the percentage invested in equities (higher risk to capital) relative to bonds (lower risk to capital). The same principle was applied for the other variables.

Although the questions related to amounts of savings and to investment risk, the participants were asked to trade-off different variables (e.g., savings versus retirement income in one question, and savings versus risk in another question). The weighted average of the answers for each participant were used across all five questions relating to saving and all five questions relating to risk, in order to derive the mean values for saving and risk in each condition. This was done because the results showed no difference (i.e., the general pattern was the same) across the five questions for saving and risk respectively.

The hypothesis to be tested was that if people are not influenced by the context (i.e., the other available options), then the proportion of times the lowest option in the high range condition was selected should not be less than the total proportion of times the same option plus others below it were selected in the free choice condition. However, if the lowest option in the high range condition is selected less of the time then the choice set is affecting the responses and inducing people to select higher options than they would have selected if they were in the free choice condition. The same logic applies for the low range condition.

4.3 Results

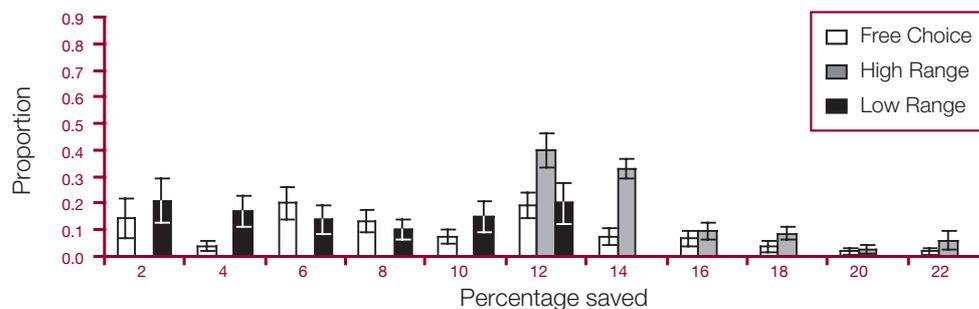
4.3.1 Amount of Savings

The average amount of savings in the high range condition was £3,596. This was significantly higher than the average amount of £2,343 under the free choice condition (in statistical terms: $t(42) = 5.11$, $p < 0.0001$). By contrast, the average savings in the low range condition was £1,660, which was significantly lower than the average amount under the free choice (£2,343) ($t(39) = 2.26$, $p = 0.030$). This indicates that the range of offered options has strongly affected the mean of the selected values in each group.

The proportion of times each saving option was chosen in the free choice, low range, and high range conditions is plotted in Figure 1. The results were averaged over all participants (which was also done for all statistical tests). The error bars – sticking out of the top of each column - represent the standard error of the mean, which is also presented in all other figures overleaf.

Main Research Project

Figure 1
Proportion of times each saving option was chosen in the free choice, low range and high range conditions



The proportion of times the lowest option in the high range condition (the 12% option) was selected was 0.40. This was lower than 0.78 which was the proportion of times the same option plus other options below it were selected in the free choice condition ($t(42) = 4.37, p < 0.0001$). This result indicates that the context has affected choices in the high range condition.

The proportion of times the highest option in the low range condition (again the 12% option) was selected was 0.20. This was lower than 0.41, the proportion of times the same option plus other options above it in the free choice condition were selected ($t(39) = 1.75, p = 0.088$). This result also means that the context has affected choices in the low range condition.

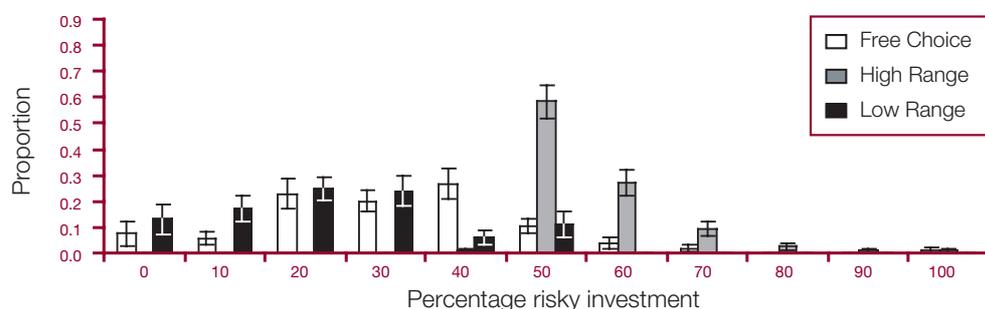
4.3.2 Investment Risk

The average investment risk was significantly higher in the high range condition (56.1%) compared to the free choice condition (31.6%) ($t(42) = 9.35, p < 0.0001$), and the average investment risk in the low range condition (22.9%) was significantly lower than that in the free choice condition (31.6%) ($t(39) = 2.36, p = 0.023$). This result also indicates significant context effects on the mean risk preferred in each condition.

The proportion of times each investment risk option was chosen in the free choice, low range, and high range conditions is plotted in Figure 2.

The proportion of times the lowest option in the high range condition (the 50% option) was selected was 0.58. This value was significantly lower than the proportion of times the same option plus other options below it were selected in the free choice condition, which was 0.93 ($t(42) = 5.10, p < 0.0001$).

Figure 2
Proportion of times each investment risk option was chosen in the choice low range and high range conditions



Main Research Project

The proportion of times the highest option in the low range condition (again the 50% option) was selected was 0.11. This result was lower than 0.17, which was the proportion of times the same option or other options above it in the free choice condition were selected. However, this difference is not statistically significant ($t(39) = 0.931$, $p = 0.358$).

4.4 Conclusion

The results clearly demonstrate that the choices were strongly influenced by the set of choice options offered.

The non-significant difference between the low range condition and the free choice condition can be explained by the fact that the participants in the free choice condition naturally preferred low amounts of saving and risk.

The skewed results in the high range condition clearly show that there is a tendency towards certain preferred values for savings and investment risk. However, the choices were still significantly affected by the context in the high range condition. It seems that people might have developed some stable preferences for savings and investment risk, although their responses are still malleable to context effects.

Study 2

4.5 Aims and objectives

None of the existing experimental research has focused on people's understanding of financial risk associated with investments relating to retirement pension provision. Moreover, most other relevant research has been conducted with a US population. Study II was a more qualitative study aimed to fill these two gaps, and also provide some suggestions on how to communicate investment risk to UK consumers of financial products.

A questionnaire was issued containing three main sections. In the first section, respondents were asked to list those things that first come into their mind when they think about the investment risk of their stakeholder pension plan. In particular, what factors come to mind that might cause retirement income to vary. The factors had to be listed and then ranked in order of importance.

In the second section, respondents were asked to rate on a scale from 1 to 7, different ways risk information is presented according to usefulness, suitability and clarity. The aim was to investigate alternative ways of presenting risk.

In the third section, there were 21 questions that related to different factors that could affect people's perception of the risk of financial products and their retirement investment decisions. For each section, the respondents were asked to think about the extent to which their decisions might be affected and choose on the scale from 1 (not at all affected) to 7 (very much affected). The goal was to assess on which dimensions people fear taking out various financial products, and see whether this fear might be caused by factors being unfamiliar.

Main Research Project

There were 52 participants – 22 males with average age around 35, and 21 females with average age around 40, while 9 did not identify their gender and age.

4.6 Results

4.6.1 Main risk factors

The following table presents the results from the first part of the questionnaire, which is a summarised listing of the factors indicated as most important (ranked first) by 41 respondents (the others did not answer this question).

Table 1
Risk factors by prime importance participants accorded them

Characteristic Category	Percentage of Time Mentioned First
Stock market volatility	34%
Economic uncertainty	22%
Saved amount (exposure)	12%
Salary/job uncertainty	7%
Characteristics of the investment company	7%

Note: The median number of attributes mentioned per respondent was three.

As can be seen, responses related to the stock market volatility dominate in importance. The first two categories accounted for 56 percent of all top rankings and usually included some reference to a market or economic condition that could cause a loss in terms of the value of the investment.

4.6.2 Presentation of Risk

The following 11 statements of presenting risk were then assessed according to their usefulness, clarity and suitability. The results are shown at the end of this section.

Statement 1 was in line with current market practice of presenting investment risk on a superficial comparative scale.

Statements 2–11 presented investment risk in a number of different ways.

Questionnaire - Part 2

1. Your investment can be rated on a scale from 1 to 5, indicating overall how risky is the investment. For example, 1 is least risky and 5 is most risky investment. These ratings of risky investments (or funds) can also be described in the following way:
 - **Very Cautious** – provides steady return with minimal fluctuations.
 - **Cautious** – provides steady returns however they will experience some degree of price fluctuations.
 - **Balanced** – offers good growth potential, but is subject to average levels of price fluctuations.
 - **Adventurous** – returns may be expected to be higher over longer terms but will be subject to greater fluctuations.

Main Research Project

Questionnaire - Part 2 continued

- **Speculative** – offers excellent growth potential over the long term but may be subject to very significant (wider) return fluctuations in the shorter term.
According to this scale your investment fund can be rated as number 3, i.e. a “Balanced” investment. Note that this information just says that one investment is riskier than another and higher risk is expected to produce higher returns but with bigger variability of these returns. This risk rating does not provide a numerical forecasting of expected future returns.
- 2.** The precise amount of your pension is unpredictable, because of possible variation in investment performance, but it is very likely (more than 95% chance, i.e. the 5th percentile) that your retirement income cannot get below a certain minimum, which for your fund is £4,153 (so here we show you the minimum possible return).
- 3.** The precise amount of your pension is unpredictable, but if you invest in this fund, then on average (50% chance) you can get more than £9,825 annual retirement income (i.e., what is the median expected pension).
- 4.** The precise amount of your pension is unpredictable, because of possible variations in investment performance, but it is very likely (more than 95% chance) that it will be between certain minimum and maximum values with some average in between. For instance, if you invest in this fund, then it is very likely (95 percent chance) that your annual retirement income will be more than £4,153 and less than £23,248, and on average (50 percent chance) you can get more than £9,825 (thus here we show you minimum, average, and maximum possible returns).
- 5.** When you invest in the fund there is a 10% chance of getting less than you put in (save). Here we show you the chance of a loss of the accumulated investment so that you get less money back from your pension fund than the amount you paid in.
- 6.** There is 50% chance that you might not get the desired £10,000 annual pension (thus your investment will earn a return below what you expect, i.e. your target).
- 7.** There is a 90% chance that you will get back at least the amount of money you put in the fund.
- 8.** If you invest in the fund, then there is a relatively high potential (above 87% chance) that you will gain 10% return (interest rate) on your invested savings. Here we present the probability of gain – how likely is it that you will gain certain return on your savings for retirement.
- 9.** If you invest in this fund, there is less than 10% chance that your invested savings will not cover your basic needs after retirement so that you will not be able to provide for yourself (with food, health, and shelter, which estimated to cost at least £5,000 per year) after retirement.
- 10.** There is a 48% chance that you will be able to receive £10,000 annual pension – this is the probability that you can get your target retirement income.
- 11.** The graph overleaf presents the probability distribution of the possible annual retirement incomes that you can get from your investment in the fund. In particular, each bar on the graph represents a retirement income and how likely it is to achieve that income in comparison with the other possible incomes after you retire. In other words, the higher the bars are, the more likely you are to get that income relative to the other incomes.

Main Research Project

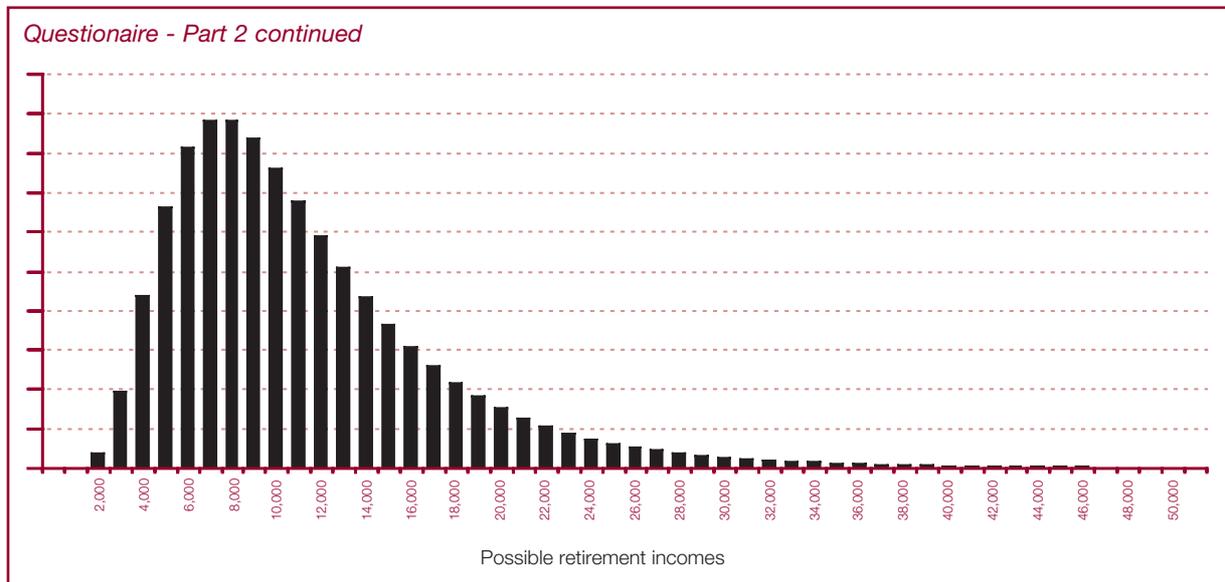


Table 2
Average results from all participants for each statement.

Statement	Useful	Understandable	Suitable	Average
1	3.9	5.2	4.0	4.4
2	4.1	4.7	3.5	4.1
3	4.1	4.7	3.7	4.2
4	4.9	5.0	4.3	4.7
5	4.3	4.8	3.5	4.2
6	4.1	5.1	3.1	4.1
7	4.3	5.5	3.6	4.5
8	3.9	4.1	4.0	4.0
9	4.5	4.9	3.5	4.3
10	4.4	5.0	3.5	4.3
11	4.6	4.9	3.9	4.5

The table presents the average results for each statement.

The results are quite similar for all statements and across the three criteria – the maximum difference is hardly above one point on each scale. However, some conclusions can still be drawn from these results.

Statement 4 received highest ranking on average. The risk there was presented as variation between certain minimum and maximum values with some average in between. This appears to provide a good balance between usefulness, suitability and clarity in comparison to other statements such as 1, 7, and 11.

4.7 Evaluation of risk factors

The third part of the questionnaire asked the respondents to evaluate 22 factors according to the degree to which the respondents would be affected (not at all affected being 1, affected being 7 on the scale).

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Questionnaire - Part 3

- 12.** Possibility for very large loss in relation to the amount of money invested (for example, due to large drop in share prices).
- 13.** Unfamiliarity with a type of investment (for example foreign stock rather than UK stock, or company stocks rather than government bonds).
- 14.** Lack of knowledge about particular investments (for example the investments held and the performance of each fund)
- 15.** The unsuitability of particular types of investments (for example some people might not want to invest in shares in principle because they are uncertain)
- 16.** Lack of trust in the particular industry (for example people might believe that telecom or high tech industry is unstable and can crash any time).
- 17.** Lack of trust in the particular company in which you are investing, which might depend on its competitive position, industry type – for example, Microsoft or Enron might be seen as unreliable companies because they have been accused of illegal business conduct.
- 18.** Lack of confidence in the future performance of the economy and/or the stock market. This relates to uncertainty about the growth prospects for the economy or other factors influencing the performance of the stock market, which will affect what your investment is worth.
- 19.** Lack of confidence in the workings of the financial markets (for example arising from concerns over accounting standards)
- 20.** General uncertainty about investment products in general (for example you might feel more comfortable saving in simple products such as deposits or investing in property).
- 21.** Lack of trust in the product provider (the financial services company which sells you the stakeholder pension plan).
- 22.** Lack of trust in the financial adviser who advises you about your savings and investments. (e.g. some people might think that financial advisers may try to sell you products which are not necessarily in your best interests).
- 23.** Feeling of loss of control over the course of the investment (for example, would you know when and be able to change your investments to respond to events affecting financial markets)
- 24.** The worry and anxiety that may be caused if the value of your investment decreases (for example, you can now see daily fluctuations in the value of your investment)
- 25.** The fact that investing for a pension is a complex process and something you are not used to doing.
- 26.** Concern as to whether you will lose state benefits to which you would otherwise be entitled if you did not save for your retirement.
- 27.** The possibility that, even if your investment increases in value, it may still not be enough to provide a proper style of living after retirement in case of investment loss.
- 28.** The possibility that your investment does not increase in value so that you do not reach your target retirement income.

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Questionnaire - Part 3 continued

- 29.** The fear that you might be making a wrong decision (for example, the investment might not perform well and you would have been better off choosing another investment or not saving at all).
- 30.** The fear that you may not be able to meet the saving commitment of £2000 a year in future years or that you will not be able to access your savings until retirement.
- 31.** The liquidity of your investment – how easily you could get your cash, which is affected by the ability to sell quickly, the degree of investor interest, capital markets trade volume, and so on.
- 32.** Equity or fairness of the risk-benefit distributions. Where there is a risk involved it is much more acceptable if the risk is confined to individuals who have a potential for personal gain from taking the risk. Are you (and your dependants) taking the risk that everybody else takes in order to obtain the expected benefits or others might get away with lesser risk?
- 33.** Likelihood that cost of living (prices) will go extremely high due to high inflation, which will make you savings unable to cover your living needs (in other words, the prices might increase so much so your pension would not be enough to provide you).

Table 3
Average ratings for the factors included in the third part of the questionnaire

Question	Result	Question	Result
12	5.6	23	5.3
13	4.3	24	4.6
14	5.0	25	4.2
15	4.6	26	4.4
16	4.6	27	5.4
17	4.7	28	5.3
18	4.9	29	4.9
19	3.8	30	4.0
20	4.0	31	4.1
21	5.1	32	4.4
22	5.2	33	5.1

The highest score was for question 12, which is related to the possibility for very large loss in relation to the amount of money invested (for example, due to large drop in share prices).

Otherwise, there was not a substantial difference between the evaluations of the various factors – the average responses vary between 3.8 and 5.6. These results indicate that all factors that were included in the questionnaire were perceived as important determinants of risky financial decision-making. However, in future research, there is scope to group the most important factors (e.g., the ones rated above 5) and focus more specifically on their effects (e.g., during real financial advice sessions or another experimental study).

5. Practical Conclusions Drawn from all the Research

5.1 General approach to advice

- Consumers need to be given simple rules from financial theory (e.g., how to diversify, to look at longer horizons, etc.) when faced with various financial decisions. But the proper understanding and application of these rules will depend on how the financial information is presented. We have to ask people simple questions about their objectives and then translate their preferences into appropriate financial solutions.
- In providing financial advice, the discourse should be in everyday language and require the customer to have no understanding of the underlying financial markets or the normative rational choice models. The rationale is that people don't have the time, inclination or aptitude for finance, while at the same time they worry extensively about their financial welfare and its management.

5.2 Time horizons

- By providing investors with less frequent feedback about how an investment fund is doing might make the fund appear more attractive by decreasing the likelihood that a loss will be experienced or a potential loss identified. Similarly, if investors are given less freedom of adjustment ("tying their hands"), this may induce them to evaluate financial outcomes in a more aggregated way, and help them to resist the temptation to drop out after the occasional setback.
- Consumers are more likely to commit to a savings plan if payments to that plan are designed to start after a period of time (e.g., one year). This might have implications for encouraging long-term savings among consumers who are reluctant to commit disposable income to savings products.

5.3 Choice structure

- Presentation of fund choices is likely to effect the decision made. People can be influenced into making appropriate choices by manipulating the way choices are presented.
- Extreme care must be taken in providing model portfolios from which a choice has to be made. For example, three model portfolios are labelled as conservative, moderate, and aggressive and the equity allocation of the three portfolios is 0 percent, 40 percent, and 80 percent, respectively. In this case, choosing the middle portfolio implies an equity allocation of 40 percent. However, suppose that the equity allocation of the three portfolios is 40 percent, 70 percent, and 100 percent, respectively. In this case, choosing the middle portfolio implies an equity allocation of 70 percent. Depending on what is being perceived as the "middle" choice, individuals might end with different portfolios.

Practical Conclusions Drawn from all the Research

5.4 Presentation of gains & losses

- When financial advisers are recommending a high risk/high return option, future gains can be so much over-discounted by the client compared to the potential losses that the client may feel that overall returns are likely to be negative.
- One consequence for the presentation of options is that people are likely to exhibit different time preferences depending on whether they are presented with the total wealth that could be accumulated (the large amount) as opposed to the pure gain based on the expected rate of return (the small amount).

5.5 Charging structure

- Payment for financial advice could be presented differently. Financial advisers could charge a fixed fee for servicing during the whole year instead of charging a one-off fee for each service.

5.6 Overall conclusion

- The results suggest that product providers and financial advisers can push people into behaving in a way that is expected to maximise their welfare. This is particularly important if we assume investors, in principle, are unable to make optimal decisions about their financial future.

6. The Next Steps

Much of the research appears to be relevant to work currently being undertaken by the Financial Services Authority, HM Treasury and industry bodies. In particular, the findings provide insight into how consumers may react to the frequency and means by which information and advice are presented to them.

We believe, therefore, it is important that current policies on financial consumers' savings are reviewed in the light of these research findings.

The Actuarial Profession would like to meet with any interested parties to discuss how the results might be utilised.

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It is hoped that sufficient interest will lead to more detailed research that might ultimately result in consumers' needs being met more effectively. This can be achieved if financial advisers and product providers have a better understanding of consumers' attitudes to risk, and apply that knowledge by means of more appropriate processes and communication methods.

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