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How do consumers evaluate risk in financial products?

by

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Abstract

This dissertation reviews the decision making processes consumers use in investing lump sums, focussing on how investment risk is perceived and assessed. This includes identifying the information sources consumers use and value, the type of involvement they experience with financial products and the role played in evaluation of investment risk by risk perceptions and risk propensity.

Primary research was carried out with investment customers which showed that financial decisions are high involvement, high thinking decisions that require complex decision making. Customers place the highest value on information sourced from their own knowledge and experience with investments. The personal finance press was found to be the most valued source of external information, followed by product literature.

Both the literature review and the research findings indicate the central role that risk perceptions play in financial decisions. A risk model based on work by Sitkin and Weingart (1995) is presented where risk propensity and risk perception are key mediating variables for investment decisions. Risk propensity and risk perception were found to be negatively correlated. However, deposit accounts were selected for investment irrespective of how risky a respondent considered them to be.

An additional mediating variable, expected return, is itself mediated by risk perception for investment experts. Risk perceptions and expected return were positively correlated for all asset types apart from property. Further investigation revealed that experts exhibited positive correlation in risk return judgements but

novices showed no correlation. There was no correlation between risk and return for either novices or experts for property.

Return expectations were positively correlated with investment allocation. Past performance information was provided to half the sample and the returns expected by the group with this information were close to these past returns for all asset types except for equities. Providing past performance information appears to create an expectation for a future return around the same level as past returns.

The research findings suggest that outcome history is a predictor variable, with a positive outcome history leading to a higher risk propensity. The high correlation between current and past levels of risk assumed in the portfolio holdings of respondents suggests that past behaviour is a good indication of future behaviour. The level of risk customers are assuming shows a significantly increasing trend. Literature research suggests that framing is also a predictor variable but only the role of past performance information was tested in this study.

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1 Introduction and Aims of the Research

1.1 Introduction

Falling stock markets over recent years have led to some financial products returning less than the initial investment to consumers when they have matured. Despite product literature including information about risk to capital, consumers appear not to have understood the risks they were taking on. The press have suggested that this may be a mis-selling scandal, in particular for high-income products that they have dubbed 'precipice bonds'.

Providers of financial services products need to investigate how consumers evaluate financial products, including how consumers perceive investment risk, so that they can ensure that consumers understand the products they are buying. The first step in this process involves understanding the information sources consumers use in making their financial decisions. Product literature is the focus of information provision by product providers, but this may not be of most importance to consumers. Decision making within financial products has not yet received much research attention and consumer understanding of risk within financial products even less so. Therefore these topics are of practical importance if providers want to ensure that consumers understand their products.

1.2 Aims of the Research

The research has two main aims:

- to identify the information sources consumers use in financial decision making and the relative importance of these
- to investigate the role that risk perceptions play in the evaluation of different financial products

Much of the literature around risky decision-making is based on simple gambling decisions and often uses students as a research sample. The aim of this research was to generate results that were practically applicable. Therefore it was considered important to study real life financial decisions made by actual consumers of financial services products. This meant that the research sample was selected from financial services customers and the research instrument focussed on typical investment decisions that consumers might make.

1.3 Scope

This dissertation is limited to lump sum investment decisions for a range of financial products.

1.4 Dissertation Sponsor

This research is sponsored by Pinnacle Insurance plc (Pinnacle) by providing the customer database to contact to participate in the research. Pinnacle is a UK insurance company offering a range of niche insurance products differentiated by quality service. It has annual turnover, measured by Gross Written Premiums, of £500m and employs 600 staff.

Pinnacle Investments is the business unit that writes life insurance products designed for long-term saving. Pinnacle commenced writing Investment business in 1996 and products offered include Guaranteed Income and Growth Bonds (GIBs) and structured products. This research is important for Pinnacle to gain an insight into the information sources their customers value and to ensure that benefits and risks are effectively communicated.

1.5 Dissertation Structure

The literature that is available on decision making in general and its relevance to financial decision making is reviewed in Chapter 2. The literature on risky decision making is evaluated, including the role of heuristics and the different facets of risk. The methodology for conducting the research is discussed in Chapter 3, which covers the development of the research instrument, pilot testing and data collection techniques. The results of the research are presented in Chapter 4 and the practical implications of these are discussed in Chapter 5. Finally, Chapter 6 draws some conclusions and makes recommendations for further areas for research.

2 Review of the Literature

Literature on consumer decision-making in the context of financial products is surprisingly scarce. In an editorial in the Journal of Financial Services Marketing, Harrison (2003, p6) states:

> "In the academic literature there have been relatively few attempts to develop models that explain consumer decision processes specifically in the context of financial services. A considerable amount of theoretical and empirical work exists relating to how consumers make decisions, yet the majority of it has been developed for tangible goods rather than services, or even financial services."

Risky decision-making is a topic that has been covered by both economists and psychologists. However, much of this research relates to simple choices and often uses gambling devices. There has been very little coverage of consumer understanding of financial risk involved in the evaluation of financial products. This is why the Institute of Actuaries commissioned research in 2002 into consumer understanding of risk. A summary report on this research (Goodman, 2004, p2) notes:

> "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 the government and employers increasingly expect them to take command of their own pension and investment decisions."

Decision making for financial products is complex because the products are intangible, outcomes are uncertain and there is significant financial risk if a poor decision is made. These factors mean that decisions are important to consumers and so they are likely to be involved in the decision. This review looks first at consumer involvement and then at the general decision-making models in use and their relevance to financial decision-making.

An important part of the decision making process is evaluation of competing products. It is at this stage of decision making that investment risk is evaluated and quantified. Therefore the evaluation stage is reviewed in detail and risk is defined in relation to financial products. The literature on risky decision-making is reviewed and this includes the role that heuristics play, along with the biases that these can introduce. Finally, the different facets of risk are considered, including risk propensity, risk perceptions, investment risk, the risk/return trade off and the investment time horizon.

2.1 Consumer Involvement and Decision Making

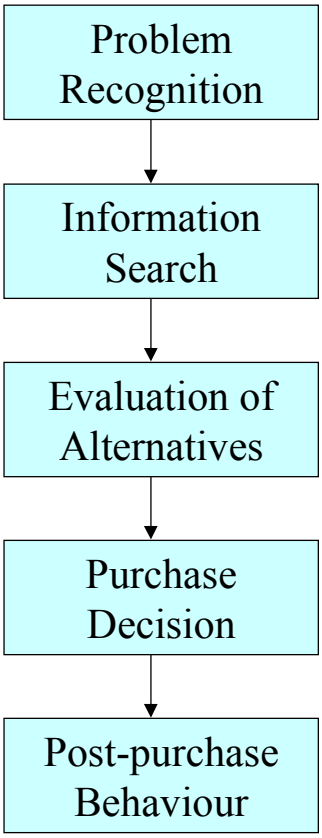
Assael (1995) suggests that consumers will become involved with a product when it is important to them, is continually of interest, entails significant risks, has emotional appeal or is identified with the norms of a group. Financial decisions will have high involvement as they are important due to the amount of money at stake and have a high-perceived risk due to uncertainty about the decision and the potential consequences of making a bad decision.

Laurent and Kapferer (1985, 1986) put forward the view that there is more than one type of consumer involvement. No one factor can capture it alone even though some factors are correlated, each factor provides some specific information. They identify antecedents as interest in the product, perceived pleasure value, sign value and perceived risk value (importance and probability). Their studies were based on tangible goods and their research resulted in the development of a consumer involvement scale with ten involvement types.

Ratchford (1987) is critical of the Laurent and Kapferer approach as he says it appears to create the possibility of defining almost everything as involvement. His paper presents a detailed account of the development of scales for the Foote, Cone and Belding (FCB) grid. This categorises purchase decisions on dimensions of involvement and thinking/feeling. The resulting grid model classifies purchase decisions into four types: high involvement/thinking (quadrant 1), high involvement/feeling (quadrant 2), low involvement/thinking (quadrant 3) and low involvement/feeling (quadrant 4). The narrower definition of involvement as relating to attention and importance is used in the FCB grid. The thinking construct is defined as a strong utilitarian need and consequent cognitive evaluation. Feeling implies ego gratification, social acceptance or sensory pleasure motives and consequent affective evaluation. This paper develops scales for measuring the location of various products on the grid and the results can be used to develop marketing strategies according to grid location. Financial products tested were life insurance, car insurance and credit cards and these were found to be high involvement, high thinking decisions, which suggests complex decision-making.

Marketing textbooks, for example, Assael (1995), Kotler (2003), present a five-stage model of complex decision-making (Figure 1).

Figure 1:Decision Making Model



Source:Kotler, 2003, p204

Assael (1995) suggests that to adapt a general consumer behaviour model to a specific market requires research that will define the perceptions, attitudes and desired benefits most likely to influence consumer's choices of particular brands. Therefore a consumer behaviour model is essential in defining the important variables in the consumer choice process. The application of this general model to financial decisions is now considered.

Problem Recognition

For investment products, problem recognition is relatively straight forward as a need arises when a consumer has a lump sum to invest. However, for other financial products, Harrison (2003) notes that the need may arise for legal reasons, for example car insurance, or may have been generated by a financial adviser carrying out a financial review.

Information Search

Once a need has been established the consumer will search for information, which Harrison (2003) suggests can be internal information, such as their own experience and knowledge, or information from external sources such as product literature, advice from friends and advertisements. The need for external information will depend on the extent to which the consumer considers their own information to be sufficient. External information can be further subdivided into personal and non-personal sources. Kotler (2003) states that from a marketing perspective, it is important to know what the major information sources are and the relative importance of them. Harrison suggests that research is needed to assess the type and nature of information sought and the value that consumers place on different types of financial services information.

Evaluation of Alternatives

Marketing textbooks (Kotler,2003; Assael,1995) state that the consumer is looking for certain benefits from the alternatives being considered. Products are considered as a series of attributes with different abilities to produce the benefits to satisfy the need identified. Consumers decide which attributes are relevant to them and which

are the most important. Whilst different processes may be used to evaluate products and form preferences, the decision is rational and cognitively based. Harrison (2003) suggests that for financial products there are difficulties in obtaining pre-purchase information and that cues for attributes are limited due to intangibility and the long time horizon. Therefore decision processes financial services consumers go through generally do not fit with traditional 'learning-response' and 'low involvement' models. She thinks that financial services buyers' behaviour fits more closely with the dissonance response model where most evaluation occurs after purchase. Further research is suggested into how consumers evaluate financial services, the extent to which information processing and evaluation fits the learning response model and the extent to which decisions are rational and based on informed choice.

Risk perceptions play in important role in the evaluation of competing products and behavioural Finance authors, such as Tversky & Kahneman(1974), Kahneman & Tversky (1979), Thaler(1980), Slovic(1991), Camerer (1998), Rabin (1998), have demonstrated that risky decision-making can be irrational rather than rational and cognitively based. This is explored in more detail later.

Purchase Decision

The outcome of the evaluation of alternatives is an intention to buy or a decision not to buy.

Post-purchase Evaluation

After purchase, the consumer will evaluate the product and will either be satisfied or dissatisfied with the purchase. If customer expectations are met or exceeded

then the customer is satisfied, if they are not met the customer is dissatisfied. If the purchase involved several close alternatives with not much to separate them, then the customer may feel insecure about their decision. Any negative information about the product may cause post purchase dissonance, which is conflict resulting from two contradictory beliefs. This causes consumer doubt which consumers reduce by ignoring the dissonant information, selectively interpreting the information, lowering the level of expectations, seeking positive information about the brand or by convincing others that they made a good choice and in so doing convince themselves (Assael, 1995).

If there is a disparity between expectations and performance, then if this is small an assimilation effect occurs and consumers ignore the poor performance. However, Anderson (1973) says that for simple products there is a point beyond which consumers will not accept increasing disparity between product claims and actual performance. When this threshold of rejection is reached consumers will perceive the product less favourably than at a slightly lower level of expectations. Complex products were not tested and so these may produce different results. He also found that a more favourable evaluation is obtained when a product is accurately described than when little or no information is provided and that it is better to provide too much information than too little. If consumers do not have enough information about a product they will seek information from elsewhere.

2.2 What is Risk?

The classical economist view of risk is a situation in which the future outcome is unknown but it is possible to place a probability on each possible outcome. Olsen

(1997), citing Dean and Thompson (1995), suggests that risk is a continuum taking into account both the emergent and multi-dimensional nature of risk. Dean and Thompson (1995) put forward two major concepts of risk, the positivist and contextualist, with a positivist concept of risk being defined in terms of probabilities based on objective, verifiable experience and the contextualist concept of risk being based on the context in which it is used. Olsen (1997) suggests a risk spectrum and defines 'probabilists' (equivalent to positivists of Dean and Thompson), who see risk as a function of probabilities and consequences, and 'contextualists' who believe risk has a varying set of attributes, which may or may not include probabilities. He concluded that experts tended to focus on probabilistic models whereas non-experts use contextual models.

Kahneman and Tversky(1979) were the first to bring behavioural aspects into economically based risk models. They put forward the concept that people appear irrational in decision-making and that utility theory does not fully explain how people make decisions. They offered an alternative theory, Prospect Theory, which assigns values to gains and losses rather than to final assets and replaces probabilities with decision weights. The value function is concave for gains and convex for losses and steeper for losses than gains. Decision weights are lower than probabilities except in the low probability region. They observed two effects, firstly the certainty effect, where outcomes that are merely probable are under weighted compared with certain outcomes. This leads to risk aversion in choices for sure gains and risk seeking in choices for sure losses. Secondly, the isolation effect where people generally discard components shared by all prospects which

leads to inconsistent preferences when the same choice is presented in different formats.

Kahneman (2000) said that the two clear ideas that emerged initially from Prospect Theory were the non-linearity of decision weights and the reference dependent characteristic of the value function. Two further ideas that followed later were the importance of framing and the need to distinguish experienced utility from decision utility. Over the twenty-five years since Prospect Theory was proposed these and other biases have been identified by researchers.

Prospect theory deliberately used a theoretical framework based on a choice between simple monetary gambles with objectively specified probabilities. Kahneman(2000) says that this framework was used because choices between gambles were simple cases that contained many elements of larger problems and could therefore be extended to more complex situations. Einhorn and Hogarth (1986) took into account that peoples' experience under uncertainty in real world decisions was different from that in gambling devices used in Prospect Theory. They looked at decisions under ambiguity and their Ambiguity Model was a descriptive model of judgement under ambiguity, based on an initial estimate to serve as an anchor from which adjustments were made for ambiguity via a mental simulation process. Their model is similar to Prospect Theory in representing how uncertainty affects choice. They also found that a change of context could strongly affect the evaluation of risk. However, payoffs can systematically affect the weight given to uncertainty especially in the presence of ambiguity and so independence, which had been assumed by all previous models, could not be assumed.

Harvey's (1998) Heuristic Judgement Theory model identifies processes and sub processes necessary to decision making. Sub processes involve probability assignment, confidence determination, decision weight assessment, choice and post event assessment. Probability assignment and confidence determination are guided by the availability, representativeness and anchoring heuristics. Framing of data and choices has a strong impact on the decision made, as does optimism and overconfidence. Decision weight assignment, which is how people use probabilities and confidence to weight decisions, show that people are generally risk takers in the area of losses and risk averse in the area of gains. People prefer higher levels of confidence when other factors appear equal and prefer to make decisions in their area of expertise, even when their analysis shows they should not. Usually the choice is the outcome with the highest decision weight. However, other strategies (compensatory and non compensatory strategies) are used when there is a multi-attribute choice. Citing Plous (1993), Harvey describes compensatory strategies as ones that compare attributes and consider how high qualities offset low ones and goes on to describe four non-compensatory strategies, which do not allow for trade offs. The non-compensatory strategies are:

- Conjunctive rule: choices are eliminated which posses at least one attribute that falls outside a predetermined acceptable range.
- Disjunctive rule: values each choice according to its most desirable attribute
- Lexicographic strategy: choice is based on the most important choice dimension, if after comparing on this dimension there are still equal alternatives then the choice is made on the next most important dimension until only one choice remains

- Elimination of aspects: this is a probabilistic version of lexicographic choice

Sitkin and Pablo (1992) identify several studies that present contradictory results to those predicted by prospect theory. They present a model that reconciles these unresolved contradictions by examining the usefulness of placing risk propensity and risk perception in a more central role than has previously been recognised. Their model is based on a theoretical analysis and the paper puts forward an agenda for future research to test their propositions. Sitkin and Weingart (1995) test some of these propositions and present a model in which risk propensity and risk perception mediate the effects of problem framing and outcome history on risky decision making behaviour. They conclude that a mediated model of risk behaviour is more powerful than one in which the direct effects of a large number of antecedent variables are examined individually.

2.3 Heuristics and Biases

In complex decision making consumers must make choices between different alternatives and so they use heuristics, or rules of thumb, to simplify the choice they have to make and in doing so introduce bias into their decision making. For example, Theil (2002), studied the heuristics used by consumers in insurance purchasing. Examples of heuristics that may be used in financial decisions are now explored.

2.3.1 Framing

Kahneman (2000) explains how he and Tversky coined the term 'framing' to describe decision problems at two levels, the formulation to which decision makers are exposed is called a frame and so is the interpretation

that they construct for themselves. Thus framing is a label for two very different things: an experimental manipulation and a constituent activity of decision-making.

The consequence of framing is that alternative descriptions of a decision problem often give rise to different preferences when the same problem is framed in different ways. Johnson at al (1993) give examples of disability insurance premiums that show that the way premiums are framed can determine the attractiveness of the policy. They found that the extra amount customers were willing to pay for a policy that offered a rebate of premium for not claiming over the premium for a non-rebate policy was significantly higher than the discounted value of the rebate.

2.3.2 Representativeness

The concept of representativeness has been extensively investigated, primarily by Tversky and Kahneman. For example, Tversky and Kahneman (1971,1974,1982), Kahneman and Tversky (1972,1973), and Bar-Hillel (1982). Kahneman and Tversky (1972) describe representativeness as the evaluation of the probability of an uncertain event by the degree to which it is similar to essential properties to its parent population and reflects the salient features of the process by which it is generated. They found that in many situations an event A is judged more probable than an event B whenever A appears more representative than B. Therefore people order events by representativeness rather than by the actual probabilities of the event occurring. This leads to bias because people ignore objective

information that does not fit with their stereotype and place more weight on information that confirms stereotypes.

An example to illustrate this is given by Tversky and Khaneman (1982, p92). A personality sketch followed by eight possible outcomes, including a representative outcome, an unrepresentative outcome and the conjunction of the two was presented to participants:

> *"Linda is 31 years old, single, outspoken and very bright. She majored in philosophy. As a student, she was deeply concerned with issues of discrimination and social justice and also participated in anti-nuclear demonstrations."*

This description was constructed to be representative of an active feminist and unrepresentative of a bank teller. Participants were asked to rank order eight statements assigning 1 for the most probable to 8 for the least probable. The statements were:

> *"Linda is a teacher in an elementary school*
>
> *Linda works in a book store and takes yoga classes*
>
> *Linda is active in the feminist movement*
>
> *Linda is a psychiatric social worker*
>
> *Linda is a member of the League of Women Voters*
>
> *Linda is a bank teller*
>
> *Linda is an insurance sales person*
>
> *Linda is a bank teller and is active in the feminist movement"*

The results showed that participants ranked the compound target (bank teller and feminist) as more probable than the critical simple target,

therefore violating the conjunctive rule. When participants were questioned afterwards why they had chosen the rankings they had, they said that they had selected the compound target because it was similar or more typical. On reflection they agreed that their answer was wrong as it broke the conjunctive rule.

2.3.3 Availability

Availability is defined by Tversky and Kahneman (1974) as the ease with which relevant instances come to mind. The more easily an instance comes to mind, the more frequent or likely people will deem it (Harvey, 1998). Thus availability is used to assess the frequency or likelihood of some event. Tversky and Kahneman (1974) describe six specific sources of bias arising from availability:

- Familiarity
- Salience
- Recentness
- Effectiveness of search set
- Ease of scenario construction
- Illusory correlation

An example of bias from availability is presented by Combs and Slovic (1979) who studied newspaper coverage of causes of death and how this affected people's judgments of the number of deaths from different causes. They found that violent and catastrophic causes of death, such as murder and accidents, got more coverage in newspapers than the more statistically frequent causes of death such as diabetes, emphysema and cancer. They found that people's judgements of the number of deaths by cause were

highly correlated with the reporting of the causes rather than with the probability of that cause.

2.3.4 Anchoring

People make estimates of future values by starting from an initial estimate, and then adjust their estimate to get to a final answer. The phenomenon of different starting points yielding different estimates, which are biased towards initial values, was called anchoring by Tversky and Kahneman (1974). Even if an arbitrary figure is given, a respondent uses this anchor to determine their answer. Jordan and Kass (2002) demonstrated that the effect of anchoring on return expectations was to increase the expected return when respondents were given the name of a fund that included a high number rather than a low number.

2.3.5 Overconfidence

This bias refers to an individual's overconfidence in their own abilities compared to those of others. Camerer and Lovallo (2000) investigated overconfidence by creating experimental entry games where entrants' payoffs depended on their skill and found that individuals tend to overestimate their chances of success in tasks based on relative skill and enter such games more frequently. They also found a new dimension of overconfidence when subjects self select into the experimental sessions, knowing that their success will depend partly on their skill. In these sessions there is even more entry and a new phenomenon "*reference group neglect*"

was observed specific to competition, which is the tendency of people to underweight the nature of the reference group against which they compete.

2.3.6 Loss Aversion

This was documented in Prospect Theory, where people were more likely to take a gamble than a certain loss. Losses and disadvantages have greater impact on preferences than gains and advantages (Tversky & Kahneman 1971). Harvey (1998) also demonstrated that people are generally risk takers in the area of losses and risk averse in the area of gains, which means that people tend to overvalue small probabilities and undervalue moderate to high probabilities. Loss aversion is an explanation for the endowment effect and status quo bias that are described next.

2.3.7 Endowment Effect

Thaler (1980) labelled the phenomenon that people often demand much more to give up an object than they would be willing to pay to acquire it the endowment effect. In a market experiment using mugs and pens Khaneman, Knetsch and Thaler, (1991) found that the median selling prices were about twice the median buying prices and the trading volume was about half of what was expected. They suggest that the main effect of endowment is not to enhance the appeal of the good owned but to enhance the pain of giving it up.

2.3.8 Status Quo Bias

Khaneman, Knetsch and Thaler, (1991) state that an implication of loss aversion is that individuals have a strong tendency to remain at the status quo because the disadvantages of changing appear worse than the advantages. They describe a study carried out by Samuelson and Zechauser (1988) relating to an investment portfolio:

> *"You are a serious reader of the financial pages but until recently have had few funds to invest. That is when you inherited a large sum of money from your great-uncle. You are considering different portfolios. Your choices are to invest in a moderate risk company, a high risk company, treasury bills and municipal bonds."*

In the study some participants were presented with a version in which one of the options was presented as the status quo, for example, a significant portion of the portfolio was invested in a moderate risk company. The results suggested that an investment became significantly more popular when it was designated as the status quo and the advantage of the status quo increased with the number of alternatives.

2.3.9 Confirmation Bias

People see a positive outcome as a confirmation that they made a correct decision and look for reasons why they were correct but do not look for reasons why they were wrong if the outcome is negative. Harvey (1998) says that in doing this they are biasing the search set.

2.3.10 Hindsight Bias

Fischoff (1982) says that in hindsight people consistently exaggerate what could have been anticipated in foresight. They not only tend to view what has happened as having being inevitable but also view it as having appeared relatively inevitable before it happened. People believe that others should have been able to anticipate events much better than was actually the case. He gives the example of market analysts explaining movements in stock prices. If the market rises following good economic news it is said to have responded to the news, if it falls then that is explained by saying that the good news had already been factored in. Such explanations for changes in market prices are inconsistent.

Hindsight bias means that events that happen are thought of as having been inevitable prior to the event whereas those that don't are thought to have been unlikely.

2.3.11 Mental Accounting

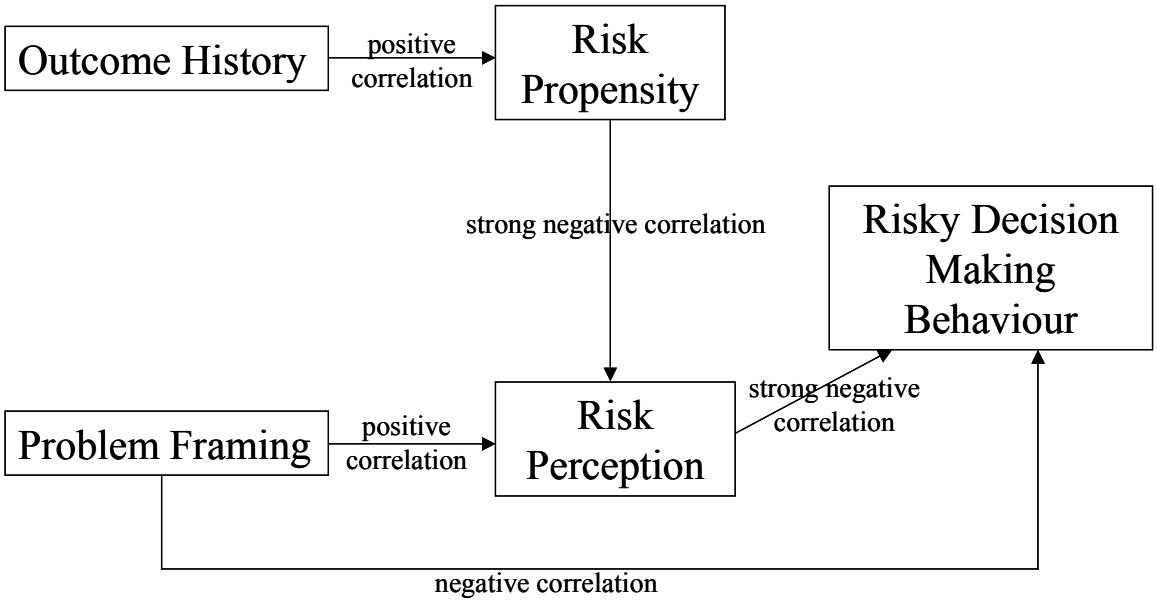
Thaler (1999) describes mental accounting as the set of cognitive operations used by individuals and households to organise, evaluate and keep track of financial activities. He identifies three components of mental accounting. The first is how outcomes are perceived and experienced, and how decisions are made and subsequently evaluated. The second component involves the assigning activities to specific accounts and the third concerns the frequency with which he accounts are evaluated. Mental

accounting matters because it influences choice as each of the components of mental accounting violates the economic principle of fungibility.

2.4 Risk Propensity

Several researchers have investigated the link between personality and risk propensity in order to test whether risk propensity is a stable personality trait. Sitkin and Pablo (1992) conceptualised risk propensity as a current tendency based on cumulative historical outcomes rather than a fixed dispositional characteristic.

Figure 2: Model of the Determinants of Risky Decision-Making Behaviour



Source:Sitkin and Weingart (1995)

Sitkin and Weingart (1995) examined a model of risky decision making behaviour in which risk propensity and risk perception mediate the effects of problem framing and outcome history on risky decision making behaviour. Figure 2 shows their revised model based on the results of two studies involving management decisions. Decision risk is the dependent variable, risk perception and risk propensity are mediating variables and outcome history and problem framing are two key

exogenous predictor variables. They found that risk perception is a crucial influence on individual risk taking behaviour and is an influence that mediates the effects of several other influences on risk behaviour. Risk perception was found to substantially mediate the relationship between problem faming and decision making, although their results also indicated that a direct effect of problem framing remained. They also found that risk propensity is negatively associated with risk perception. They suggest future research could investigate the role of other variables including demographic variables such as age and gender. Experience of decision makers is theoretically important because it raises the question of whether different models apply to experienced decision makers and to inexperienced ones and should be investigated.

Weber and Milliman (1997) looked at three definitions of risk preference, which measure different constructs. Firstly risk attitudes in the utility framework describe choice patterns, secondly relative risk attitudes measure people's attitudes towards uncertain outcomes (uncertainty attitudes) and thirdly perceived risk attitudes measure people's tendency to be attracted or repelled by alternatives that are perceived to be risky. If risk preference is defined as the tendency to be attracted or repelled by alternatives that are perceived as risky, then if risk preference was a stable personality trait then the effect of situational variables on choice may be the results of changes in risk perception. They carried out two studies, the second of which was a stock market investment task. In the investment task, investor's stock selections were consistent with the simple decision rule: If it works, stay; if it doesn't work, switch. Their studies suggest risk perception rather than risk attitude is the

driving force and therefore decision-making can be improved by providing information for a more realistic evaluation of risk perception.

Weber, Blais and Betz (2002) investigated whether risk taking is domain specific, that is risk attitudes inferred from behaviour are domain specific rather than reflections of a stable attitude or trait. Individual, gender and content domain differences in apparent risk taking seem to be due to differences in perceptions of the activities' benefits and risks rather than differences in attitudes towards perceived risk. They present a risk-attitude scale that allows assessment of both conventional risk attitudes and perceived risk attitudes in six content domains. They found that personality variables affect both risk perception and risk taking but have little or no effect on attitude towards perceived risk and that situational factors influenced perceived risk attitude.

Thus the research appears to suggest that risk propensity or risk preference is not a personality trait and the way people perceive risk is important in their propensity to take on risk or not. Therefore ensuring people have the right perception of the level of risk should ensure that they understand the risks they are taking on.

2.5 Investment Risk

Olsen (1997) found that professional investment managers and experienced individual investors share a common conception of investment risk. The purpose of his study was to see if a common set of risk attributes that have market significance could be identified. He found that investment risk, as well as risk in other decisions domains, appeared to be a function of four attributes:

- the potential for a large loss,
- the potential for below target returns;
- the feeling of control;
- the perceived level of knowledge

His study showed that these risk factors explained approximately 77% of the variation in security returns between 1965 and 1990.

More recently, Jordan and Kass (2002) found that investor's risk perceptions have four slightly different dimensions:

- downside risk
- upside risk
- volatility
- ambiguity

Whilst there is some overlap (downside risk and return below target, volatility and potential for a large loss) these constructs are different, the attribute of economic uncertainty did not make Olsen's final list but was considered and this is comparable to the ambiguity dimension of Jordan and Kass.

2.6 Risk and Return

Ganzach (2000) found that for familiar assets, risk/return judgements tend to be derived from past performance as proxies for current risk perceptions. The relationship between risk and return judgements is positive, i.e. the higher the risk the higher the return is expected. For unfamiliar assets, risk and return judgments are derived from global preferences and the relationship between risk and return is negative.

Muradoglu (2002) looked at experts and novices predictions of stock prices. Previous research suggested that investors predict stock prices by extrapolating from past trends. This was not substantiated from this study for all time horizons and investors. Potential investors are positive feedback traders when presented with a time series without any contextual information, supporting previous research. However, forecasting with contextual and real-time information is different. Optimism is the norm, bullish trends are extrapolated and mean reversion is expected in bear markets only. Differences are observed in return expectations and perceived risks due to presence of contextual information, trends in the stock market and levels of expertise. Experts are in general more optimistic than novices but they hedge their optimism better.

Jordan and Kass (2002) investigated the role of judgemental heuristics in private investors' evaluation of risk and return. They found that anchoring, representativeness and the affect heuristic are used by investors and lead to biases in risk return judgments. Their 'affect heuristic' postulates that perception of risks and benefits are derived from global affective evaluations and impressions, with a positive affective impression leading to a lower risk perception and higher benefit expectation compared with neutral emotional states. They found that anchoring effects only occur in expected returns, whereas the affect and representativeness heuristics only affect perceived investment risk. Both informed and uninformed groups show judgmental heuristics but uninformed investors show larger biases.

2.7 Time Horizon

Baz et al (1999) looked at the role of time horizon in decision-making under risk and found that risk taking under a short time horizon is likely to be different than risk taking under a long horizon. Features of individual preferences over time include dynamic inconsistencies, loss aversion, experiential learning, resolution preferences and uncertainties about preferences. They found that many aspects of consumer behaviour were the outcome of risk reduction strategies.

2.8 Summary

The review of literature seems to suggest that people are far from rational in making decisions under risk. This arises because the complex nature of financial decisions means that consumers use heuristics to simplify complex decisions and in doing so bring bias into their evaluations. Table 1 provides a summary of the main literature findings.

Table 1 Literature Summary

Main Research Finding	**Author(s)**
Financial decisions use complex decision making	Assael, 1995 Kotler, 2003
Involvement	
Financial decisions are high involvement and have high perceived risk	Assael, 1995
There is more than one type of consumer involvement, ten involvement types identified and Consumer Involvement Scale developed	Laurent and Kapferer, 1985, 1986
Purchase decisions categorised on dimensions of involvement and thinking/feeling. FCB grid developed to identify appropriate marketing strategies. Financial services decisions are high involvement, high thinking decisions	Ratchford, 1987
Information Sources	
External sources more important than internal sources. Personal sources of external information more important than non personal sources	Harrison, 2003
The more accurate the information provided the more favourable post purchase evaluation. Better to provide too much information rather than too little.	Anderson, 1973

Main Research Finding	Author(s)
Evaluation of Alternatives	
Decisions are rational and cognitively based	Assael, 1995; Kotler, 2003
Risky decision making can be irrational	Tversky & Kahneman, 1974; Kahneman & Tversky, 1979; Thaler, 1980; Slovic, 1991; Camerer, 1998; Rabin, 1998
Risk	
Risk is multi dimensional and emergent in nature	Dean & Thompson, 1995; Olsen, 1997; Jordan & Kass, 2002
Risk propensity is not a stable personality trait	Sitkin & Pablo, 1992; Sitgin & Weingart, 1995; Weber & Milliman, 1997; Weber, Blais & Betz, 2002
Risk/Return relationship is positively correlated for experts/familiar assets and negatively correlated for novices/unfamiliar assets	Ganzach, 2000; Muradoglu, 2002
Risk propensity and risk perception are key mediating variables in risky decision making	Sitkin & Pablo, 1992; Sitkin & Weingart, 1995
Heuristics and Bias	
Framing	Khaneman, 2000; Johnson et al, 1993
Representativeness	Tversky & Kahneman, 1971,1974,1982; Kahneman & Tversky, 1972,1973; Bar-Hillel, 1982; Jordan & Kass, 2002
Availability	Tversky & Khaneman, 1974; Harvey, 1998; Combs & Slovic, 1979
Anchoring	Tversky & Khaneman, 1974, Jordan & Kass, 2002
Overconfidence	Camerer & Lovallo, 2000
Loss Aversion	Tveresky & Khaneman, 1971; Harvey, 1998; Baz et al, 1999
Endowment Effect	Thaler, 1980; Khaneman, Knetsch & Thaler, 1991
Status Quo bias	Khaneman, Knetsch & Thaler, 1991; Samuelson & Zeckhauser, 1988
Confirmation bias	Harvey, 1998
Hindsight	Fischoff, 1982
Mental Accounting	Thaler, 1999

Current examples of bias in financial products include press reporting of returns under precipice bonds, an example of availability, where stories quote only the worst results where customers lost large amounts of capital rather than presenting a more balanced picture. This scenario also brings in mental accounting, where the income received under such products is left out of the equation, being in the 'income' rather than the 'capital' account.

An example of hindsight bias was beautifully demonstrated in a letter from a customer who was not happy with the return from his policy. He thought that an insurance company like Pinnacle should have known that September 11th was going to happen and that this would result in the market crash that had ultimately affected the return under his policy.

Risk perceptions appear to play a central role in financial decisions. In addition, the role of risk propensity, past experience and framing also appear to be important. In terms of investment risk, experts appear to be better at evaluating risk than novices and therefore the impact of expertise on risk perceptions and decision-making is expected to be important.

3 Methodology and Data Collection Techniques

3.1 Research Context

An important part of the research was to investigate how consumers actually made investment decisions in practice. This meant that the research sample should be people that had a lump sum to invest or were considering a lump sum investment. The second key aspect was that the questionnaire content should be based on realistic investment decisions rather than simplified gambling examples often used by researchers investigating decision making under risk or ambiguity.

The literature review suggests several areas for research and two main areas are selected to focus on. Firstly, the information that consumers use and value for making financial decisions is investigated along with the level and type of involvement they experience. Secondly, the role of risk perceptions in choosing between alternative financial products is considered.

3.2 Research Model

3.2.1 Information and Involvement

The literature review suggests that there should be a difference in importance between internal and external information sources and between personal and non-personal sources of external information. It suggests that external information sources are more important than internal information sources and that within external information sources personal sources are more important than non-personal sources. These hypotheses can be tested:

H1: External information sources are more important than internal information sources.

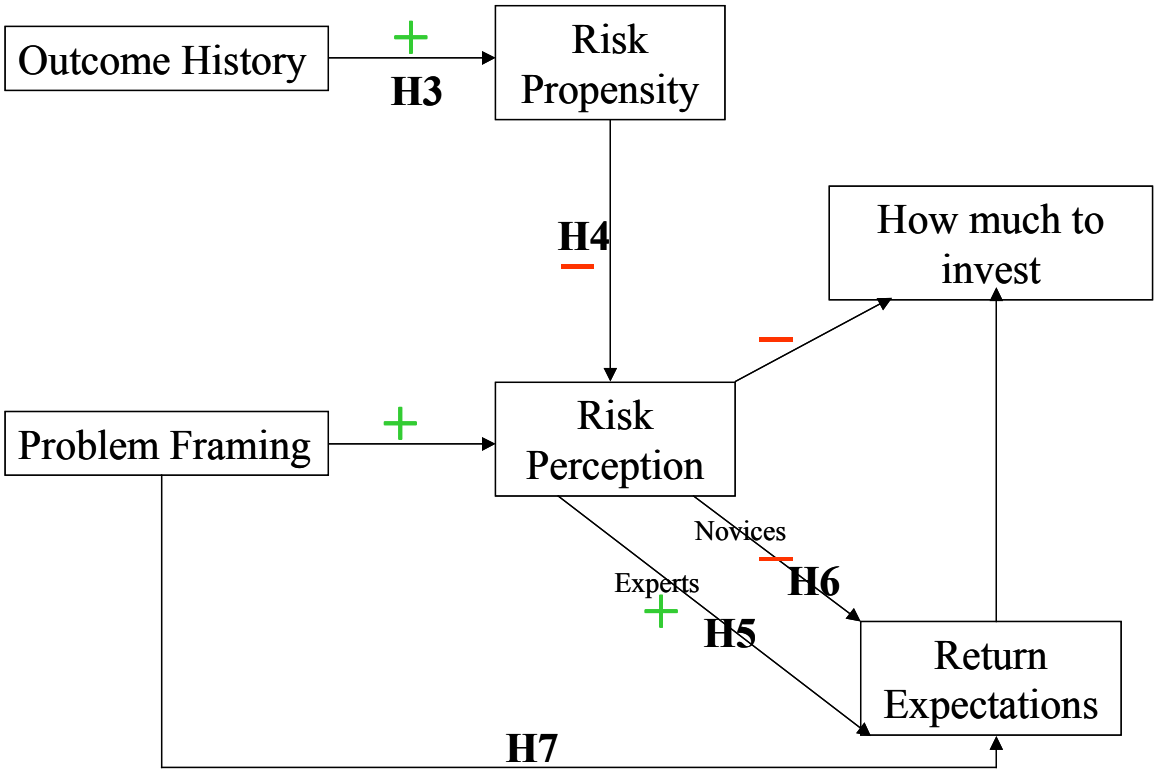
H2: Personal sources of external information are more important than non-personal sources.

The FCB grid can be used to test whether investment decisions are high involvement, high thinking decisions as is expected from the literature review for financial services products.

3.2.2 Role of Risk Perceptions

The model tested by Sitkin and Weingart (1995) and shown in Figure 2 was developed for management decisions under risk but appears to be applicable to financial decisions as risk perceptions are a key mediating variable in both types of decision. In addition, for financial decisions, the expected return and investor expertise are expected to be important. This model is used as a research framework, adapted to include return and expertise variables. Figure 3 shows an adapted version of the Sitkin and Weingart model, which includes return expectations and investor expertise. The direction of each relationship is indicated by a positive or negative sign and the purpose of the research is to test whether these relationships exist and the strength of them. The hypotheses to be investigated in the research are also shown in the model.

Figure 3: Model of the Determinants of Investment Decisions



Source: Adapted from Sitkin and Weingart (1995)

Suitable hypotheses based on this model are now discussed.

H3: Outcome history is positively correlated with risk propensity.

This means that successful risk taking experience will lead to a higher risk propensity and unsuccessful risk taking experience will lead to risk aversion in future decisions.

H4: Risk propensity is negatively correlated with risk perception.

In this situation the higher the level of perceived risk, the less likely someone is to take that risk on and vice versa. In the investment context this means that the higher the level of perceived risk the less likely someone is to invest in the asset and, if they do invest, the smaller the investment the

higher the level of perceived risk. Conversely the lower the perceived risk, the more they will invest in the asset. The link between risk perception and a decision to invest is complicated by an additional variable, which is the expected return from the investment. The literature review has shown that the rational view is that the higher the level of risk associated with an investment then the higher the return the investor should expect from that investment. This is where investment expertise might show different results with experts following the rational view of positive correlation between risk and return and novices showing negative correlation. This leads to the following hypotheses:

H5: There is positive correlation between risk perception and expected return for expert investors.

H6: There is negative correlation between risk perception and expected return for novice investors

Framing effects are difficult to measure in complex situations and so the effect of anchoring on return expectations is the only framing effect investigated. This leads to the hypothesis:

H7: Return expectations will be driven by past performance information provided as an anchor.

3.3 Methodology

3.3.1 Constructs

The literature review supplemented by the Handbook of Marketing Scales was used to identify suitable constructs for the concepts to be researched.

Information sources

The literature suggests that information sources can be divided into internal/external information sources and within external information sources this information can be from personal or non-personal sources. A list of possible sources was drawn up and subdivided into these categories with the aim of having a minimum of three sources per category. For internal information sources only two were identified, ten external information sources were identified with three of these being personal sources and the other seven non-personal sources.

Experience

Several authors looked at investor's expertise in their research including Jordan and Kass(2002), Muradoglu(2002) and Olsen(1997). The expertise construct used by Jordan and Kass(2002) includes knowledge and experience components. In addition, the Handbook of Marketing Scales was consulted and the consumer expertise scale of Kleiser and Mantel (1994) was identified. This construct has five components, with only the knowledge component overlapping with the Jordan and Kass construct. However, this scale was developed for a tangible product (camera) and so is not directly relevant to an intangible product like financial services.

Therefore Jordan and Kass's construct using knowledge and experience was used.

Involvement

The literature review (p12) identified several consumer involvement scales including Laurent and Kapferer's (1985, 1986) Consumer Involvement Profile and Ratchford's (1987) Foote, Cone and Belding (FCB) Grid. The Laurent and Kapferer scale was developed for tangible products whilst the FCB grid has been tested on both tangible products and services, including financial services. Therefore the FCB grid was selected as the most appropriate construct for measuring involvement for financial products. The involvement construct includes attention and importance components. The thinking construct is defined as a strong utilitarian need and consequent cognitive evaluation. The feeling construct implies ego gratification, social acceptance or sensory pleasure motives and consequent affective evaluation.

Risk Perception

This construct encapsulated a variety of components covering both probabilistic and contextual elements of risk perception and used the overlapping elements from Jordan and Kass (2002) and Olsen(1997). These were:

- Upside risk (potential for good returns)
- Downside risk (potential for loss, not meeting investment objectives, strength of regulation)

- Volatility (returns varying over time)
- Feelings (uncertainty, worry)

Risk Propensity

This was defined as the likelihood to engage in a particular activity and in the investment context was measured by the amount invested in a specified asset class.

Brand Image

The construct used incorporated superior performance, safety, life concept, speciality and prestige elements.

3.3.2 Sampling

Pinnacle's investment customers were selected as a suitable group to study as these people had already made a lump sum investment or were considering doing so. By using this customer base bias is introduced, as Pinnacle's customers may not be representative of the whole population of UK consumers with a lump sum to invest.

There was a limited budget available for this research and so focus groups were not considered due to cost. Financial constraints meant that a quantitative questionnaire based approach was the most practical.

In order to be able to investigate decision-making across different customer groups, the customer base was segmented by customers' past investment experience with Pinnacle. Two main product types had been offered in the

past, a Guaranteed Insurance Bond (GIB) and structured capital at risk products where the return was linked to the performance of specified stock market indices. These two groups have different past experience with their Investments with Pinnacle as falling stock markets have reduced returns under structured products but have not affected GIB returns as these are guaranteed fixed rate products. Therefore the GIB customers should feel that they have had a good experience with their Investment with Pinnacle, whilst the structured product customers may have been disappointed with their returns. The third customer group were members of Pinnacle's Investors Club who are individuals that have registered to receive product offers and information from Pinnacle and would invest directly rather than using an Independent Financial Adviser (IFA). Some of these customers have policies with Pinnacle and some do not, so this group has neutral past experience with Pinnacle. Three customer groups were identified as follows:

Group 1: Premier Bond Customers (Premier)

These structured product customers had policies that matured recently (March 2004 and November 2003).

Group 2: Maturing GIB Customers (GIB)

These customers had GIB policies that had matured over the last twelve months (June 2003 to June 2004) and so would have been subject to similar market conditions to the Premier bond customers.

Group 3: Direct Customers (Direct)

These are Investors Club members.

Each of the sample groups needed to have 50 to 100 respondents so that results compared across groups would be statistically significant. A 10% response rate was expected so this meant sending out questionnaires to between 500 and 1000 customers in each group. As well as comparisons between different customer groups, the effect of past performance information on future decisions was to be tested. This necessitated two versions of the questionnaire, one with past performance information and one without this. Therefore the aim was to send out questionnaires to roughly 1000 customers in each customer group so that around 50 responses for each version of the questionnaire would be obtained.

An extract from the customer database for the three customer groups was obtained at 30th June 2004. A report was run against this database to remove the following customers:

- Customers that had opted out from mailings, which is a legal requirement
- Private bank customers, since these IFAs might object to questionnaires being sent to their clients
- Customers that had invested over £100,000 in a single investment because the aim was to look at the views of the mass affluent rather than ultra High Net Worth customers.

3.4 The Research Instrument

Questions were designed based on previously tested questionnaires where this was possible as such questions had already been tested for validity. The questionnaire was divided into five sections with an introductory paragraph preceding these. Questions were structured with a four-point scale so that respondents had to make a choice on whether or not they agreed or disagreed with the statement. The choice was limited to four, as customers were not expected to be able to make very fine distinctions. In some questions a don't know response was allowed so that respondents were not forced to make a choice when they genuinely did not know how to answer.

The questionnaire was sent out with a personalised covering letter to each customer and an incentive of a prize draw for a case of wine to encourage completion. A deadline was included which allowed three weeks for responses to be sent in. Respondents could complete the questionnaire on paper or online. A reply paid envelope was included. A copy of the covering letter and questionnaire is included in Appendix 1.

3.4.1 Introductory Paragraph

This gave the instructions for completing and returning the questionnaire, the deadline date and contextual information including:

- Expected completion time 15 minutes
- No right or wrong answers, respondents should base answers on their experience
- To include their name and address at the end if they wanted to be included in the prize draw

- Replies would remain confidential.

3.4.2 Section 1:Investment Information and Experience

This section contained five questions related to decision making. Question 1 required respondents to assess the importance of twelve potential information sources (x1a to x1l) in investment decision-making. Question 2 was a follow up to Question 1 and asked which newspapers or magazines (if any) were used for investment information and a choice of groups of titles was given (x2a to x2f). Question 3 related to respondents knowledge (x3a) and experience (x3b) with investments.

The FCB grid was the basis for question 4 and the statements were reworded from a seven-point semantic difference scale to a four-point agree/disagree structure so that a consistent response rating was used throughout the questionnaire. There were three Involvement (x4a to x4c), two Thinking (x4d, x4e) and two Feeling (x4f, x4g) scales. The original instrument included a third feeling scale, which was:

'Decision is based mainly on looks, taste, touch, smell or sound'

This was not relevant to financial services products and so was excluded.

Question 5 asked respondents to select investments they currently held or had held in the past from a list of 17 different financial products (x5a to x5q). A definition of two types of structured product was given to ensure that all respondents had the same understanding. This question was designed to identify the scope and level of risk assumed so far in each respondent's investment portfolio.

3.4.3 Risk Perceptions

Questions 6 and 7 asked respondents to first assess how likely they were to engage in various gambling and financial activities (x6a to x6i) and then to assess how risky they considered each activity to be (x7a to x7i). This pair of questions was designed to explore the link between risk perception and risk propensity in simple situations. Later questions studied this link for more complex situations.

3.4.4 Investment Choices

Question 8 was the most complex question included and required an assessment of risk for four financial products. A definition was provided at the beginning of the question for each of the four products (x81 to x84) to be considered so that all respondents had the same understanding. The eight statements (a to h) were designed to gain respondent's views on different facets of the risk construct (upside risk, downside risk, volatility and feeling) without directly asking about risk.

Having made assessments about risk in question 8, respondents were asked in question 9 to estimate the future returns under each of the financial products (x9a to x9d) presented in question 8. Returns were presented as the amount in pounds (£) the respondent would expect to get back after a five year investment. In version 1 of the questionnaire, sent to half the sample, no information was given on past returns. In version 2, past return information was provided as a note to the question.

Question 10 required an investment decision to be made to allocate a £10,000 investment between the four products reviewed in questions 8 and 9. The total allocated was required to sum to £10,000 (x10a to x10d).

3.4.5 Opinion of Pinnacle Insurance plc

Five questions were presented to measure brand strength of Pinnacle (x11a to x11e).

3.4.6 General Information

Basic demographic information was collected on age group and gender. At the end of the questionnaire name and address could be completed to enter the prize draw.

3.5 Pilot Testing

A pilot questionnaire was designed based on the literature review and included five feedback questions at the end on the time taken to complete, the questionnaire design and ease of completion. The pilot was tested on a small sample selected to be similar to the Pinnacle customer base. Ten questionnaires were sent out by e-mail with the option of a paper or online response. Five responses were received and were all submitted online.

The feedback from the pilot was used to improve the design of the questionnaire. Some questions were restructured to ensure a consistent response structure throughout the questionnaire, others were combined and simplified to make them easier to complete.

Questions that were significantly changed from the pilot to the final questionnaire included question 1 (information sources) that was piloted as a question requiring ranking of information sources by order of importance. This was thought to be too complex by respondents and would also be difficult to analyse. Question 2 (expertise) had four components in the pilot but these were thought to be too similar by respondents and so were simplified to two components. Question 8 was reformatted from the pilot to make it more straightforward to complete. Question 9 was changed from an answer format involving percentage returns to an amount in pounds for the final questionnaire.

3.6 Data Collection

Each questionnaire was coded at the foot of each page with the customer group (Premier, GIB or Direct) and the questionnaire version (1 or 2). As completed questionnaires were received they were logged with an identification number starting at 1, so that data captured could be referenced back to the paper questionnaire for checking and reference purposes.

Data was keyed from the questionnaires into the SPSS computer package using a scoring system (Appendix 2) to record the results. Once the data had been keyed, a one in ten sample was checked for data accuracy and any errors were corrected. From 4070 data items checked, five errors were discovered, an error rate of 0.12%.

After the questionnaires were received back it was discovered that the post room had mixed some of the questionnaires between customer groups and so the customer group code could not be relied upon. Therefore the names and addresses from the completed questionnaires were checked back to the original databases to correctly identify the customer group. If the name and address details were not completed the customer group was recorded as missing data.

4 Results

There were 371 useable questionnaires, which was an overall response rate of 11.24%, with 53% responding on version 1 of the questionnaire and 47% on version 2. Premier Bond customers accounted for 32% of respondents; GIB customers for 32%; direct customers for 25% and the remaining 11% had no customer group recorded. Table 2 summarises the responses received.

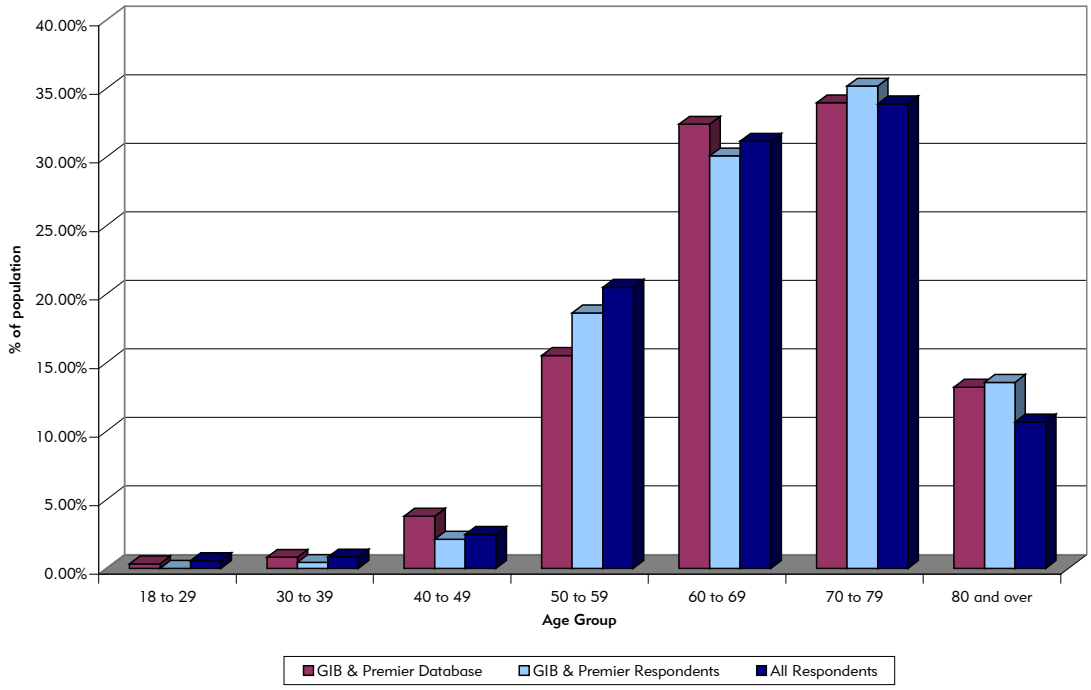
Table 2 Questionnaire Responses

	Premier Customers		GIB Customers		Investors Club (Direct Customers)		Customer Group Unknown	
Number on database	1240		1001		1060			
Number mailed	622	618	501	500	530	530		
Questionnaire version	1	2	1	2	1	2	1	2
Responses Received	54	66	56	61	63	29	24	18
Responses by group	120		117		92		42	
Response Rate	9.68%		11.69%		8.68%			

Appendix 3 gives the full statistical results for each of the hypotheses postulated in the research model described in Section 3.2.

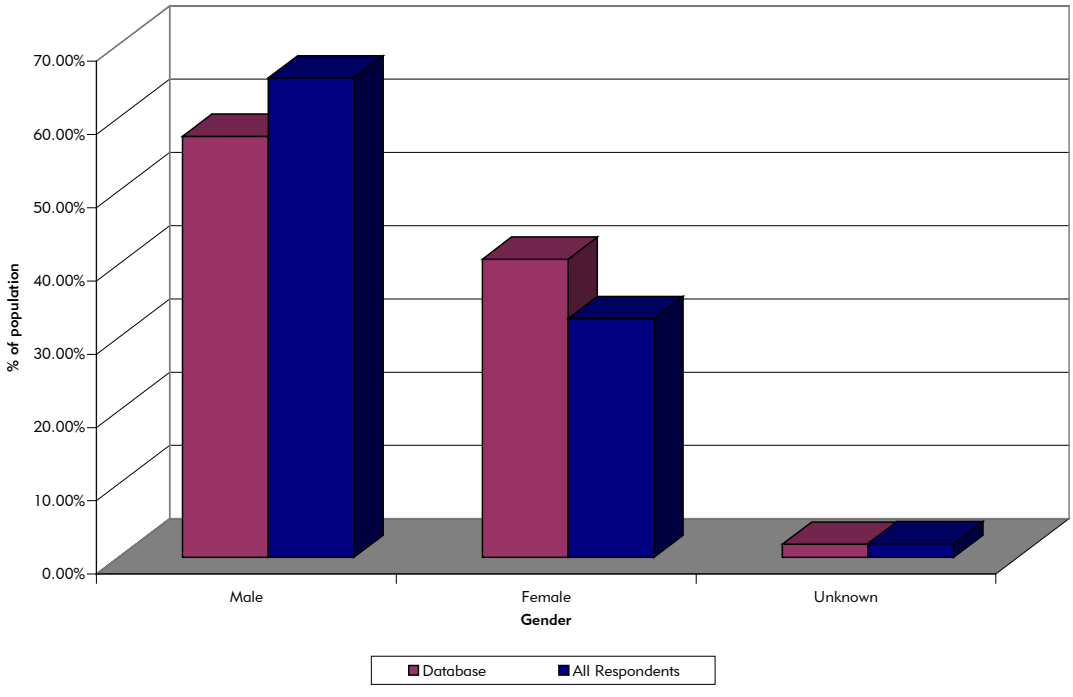
Figure 4 shows the age profile of the respondents compared with the age profile of the database that was mailed with the questionnaire. Age was not available in the Investor's club database, so comparisons are shown for the GIB and Premier database against GIB and Premier respondents and against all respondents. The old age profile of respondents reflects the age profile of the database.

Figure 4: Age Profiles



Gender information was available for both respondents and the full mailing database. Figure 5 shows a comparison between the database and respondents, which shows that males are over-represented in the sample and females are under-represented compared with the database population.

Figure 5: Gender Profile



4.1 Information Sources

The importance of various types of internal and external data to financial decision-making was investigated. Internal information includes own knowledge and past experience with investments, whilst external information includes a variety of personal and non-personal sources. Table 3 shows the data collected and Table 4 shows the observed frequencies and mean scores for each variable ordered by importance.

Table 3 Information Variables

Internal Information	External Information	
	Personal	Non personal
x1a Own knowledge	x1c Friend or relative	x1e Product Literature
x1b Past experience with investments	x1d IFA	x1g Advertisements
	x1f Product provider's staff	x1h Money pages of national press
		x1i Specialist magazines
		x1j Internet search engine
		x1k Provider's website
		x1l Independent website

Table 4 Information Sources – Frequencies and Means

	Mean	Not important	Somewhat important	Important	Very Important	Total Valid	Missing data	Total
Past Experience	3.34	4	32	155	158	349	22	371
Own Knowledge	3.32	6	40	143	167	356	15	371
Newspapers	2.83	21	88	173	70	352	19	371
Product Literature	2.77	22	105	150	68	345	26	371
IFA	2.20	119	102	73	59	353	18	371
Advertisements	2.15	84	151	90	24	349	22	371
Specialist Magazines	2.10	111	113	90	27	341	30	371
Provider's Staff	2.07	97	139	90	16	342	29	371
Independent Website	1.62	196	78	51	9	334	37	371
Provider Website	1.55	203	86	35	9	333	38	371
Internet Search Engine	1.54	207	83	36	8	334	37	371
Friend or Relative	1.53	203	95	25	11	334	37	371

The literature review suggests that there should be a difference in importance between internal and external information sources and between personal and non-personal sources of external information. These initial results seem to show that

internal information sources are most important. This result can be tested statistically.

An internal information score was calculated as the arithmetic mean of the internal information sources (x1a, x1b) and an external information score was calculated as the arithmetic mean of external information sources (x1c to x1l). Hypothesis 1 can be tested, which was:

> H1: External information sources are more important than internal information sources

In order to test this, a null hypothesis needs to be defined, which is:

> Null Hypothesis: There is no difference in importance in internal and external information sources

A paired sample t-test is used to test the null hypothesis and this shows there are significant differences at the 1% level, and so the null hypothesis is rejected. Therefore there is a difference in importance between internal and external information sources. However, the internal sources mean is higher than the external sources mean, which shows that internal information sources are more important. This is the opposite of what was expected from the literature review and postulated in Hypothesis 1.

Similarly, for external information, variables for personal and non-personal data sources were calculated as the arithmetic mean of the personal data sources (x1c,x1d,x1f, Cronbach's alpha=0.41) and non-personal data sources (x1e,x1g,x1h,x1i,x1j,x1k,x1l, Cronbach's alpha=0.71). Hypothesis 2 and the associated null hypothesis are:

H2: Personal sources of external information are more important than non-personal sources

Null Hypothesis: There is no difference in importance between personal and non-personal information sources

The t-test indicates that there is statistically significant difference in the means and the null hypothesis can be rejected. This means that non-personal sources of external information are more important than personal sources. However, Cronbach's alpha for the personal sources of information statistic is low and therefore this result may not be reliable.

The most important source of external information identified is the financial pages of national newspapers and subsequent questions identified which titles respondents used for financial decision-making (Table 5).

Table 5 Newspapers used for Financial Information

		Sun or Star	Mail or Mirror	Times, Telegraph, Independent or Guardian	Financial Times	Observer or Sunday Business	Specialist Magazines
N	Valid	366	366	366	366	366	366
	Missing	5	5	5	5	5	5
Frequency Yes		1	85	255	107	46	107
Frequency No		365	281	111	259	320	259

Broadsheets are more widely used than tabloids and the Financial Times is the single most important title. This information can be used to target press and PR activity appropriately.

4.2 Consumer Involvement

This question was based on the FCB grid and looked at the level of involvement against think/feel scales. There were three involvement questions, two thinking questions and two feeling questions. The following dependent variables were calculated:

INVOLVE = (x4a+x4b+x4c)/3 (Cronbach's alpha 0.62)

THINK = (x4d+x4e)/2 (Cronbach's alpha 0.60)

FEEL = (x4f+xx4g)/2 (Cronbach's alpha 0.71)

TFSCORE = FEEL - THINK

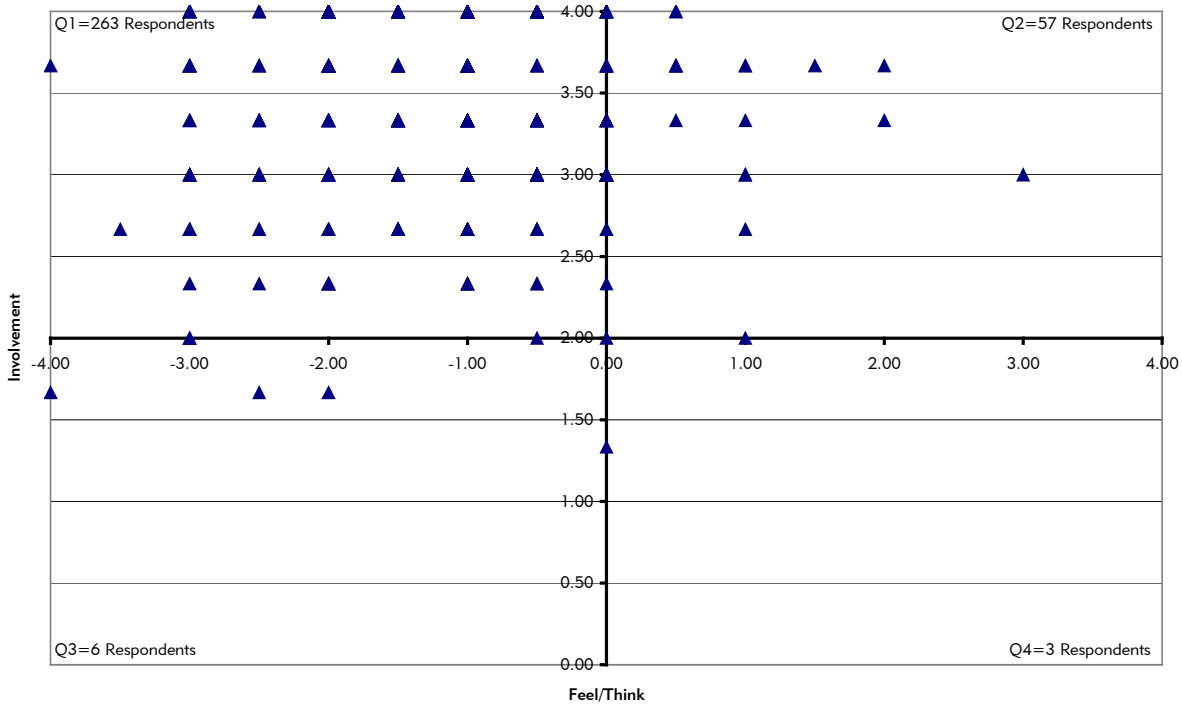
The FCB grid combines the think and feel scale by subtracting the think score from the feel score, hence the definition of TFSCORE. The FCB grid is defined by plotting the INVOLVE and TFSCORE variables to identify the quadrant of the FCB grid in which they appear. Respondents were allocated to one of four quadrants according to Table 6. A scatter diagram of scores was produced (Figure 6).

Table 6 FCB Grid Quadrants

Quadrant	Involvement	Think/Feel	Involve Score	TF Score	Number of Respondents
1	High	High thinking	2.01 to 4	-4 to -0.01	263
2	High	High feeling	2.01 to 4	0 to 4	57
3	Low	High thinking	0 to 2	-4 to -0.01	6
4	Low	High feeling	0 to 2	0 to 4	3

The upper left quadrant (quadrant 1, high involvement, high thinking) has the highest frequency (80%), which is as expected for financial services products. This result suggests that complex decision-making will be required.

Figure 6: Scatter Diagram FCB Grid



4.3 Investment Expertise

Respondents were asked to rate their knowledge and experience with investments and the responses to these two questions were used to calculate an expertise score as the arithmetic mean of the score for knowledge and experience questions.

The level of investment expertise was compared between the three customer groups. Direct customers have the highest expertise score (mean=2.8389), followed by GIB customers (mean=2.4821), with premier customers being the least expert (mean=2.2763). These differences were tested to see if they were statistically significant using a null hypothesis of no difference between customer groups and a one-way ANOVA test. This showed that the differences in means are statistically significant and the null hypothesis was therefore rejected. To determine which group means are statistically significantly different, the Scheffe procedure was used because it is the most conservative method of assessing significant differences between group means. This shows that the differences in means are significant between the Premier and Direct groups and between the GIB and Direct groups but that there is no difference between the Premier and GIB groups. From this analysis it is concluded that Direct customers have a higher level of expertise than the GIB and Premier customers but GIB and Premier customers have similar levels of expertise.

Differences in expertise were also explored according to age group, assuming a null hypothesis of no difference in expertise according to age. A one-way ANOVA test was run to test the hypothesis for age groups and this showed that there was no significant difference in expertise by age group at 5% significance.

A new grouping variable was set according to the overall expertise score, novices (group 1, 51% of sample) were defined to have scores below 3 and experts (group 2, 49% of sample) were defined to have scores of 3 or more. Table 7 shows the expertise groupings, which are used in later analysis.

Table 7 Expertise Groups

Customer group			Frequency	Percent	Valid Percent	Cumulative Percent
Direct	Valid	Novice	29	31.5	32.2	32.2
		Expert	61	66.3	67.8	100.0
		Total	90	97.8	100.0	
	Missing		2	2.2		
	Total		92	100.0		
GIB	Valid	Novice	58	49.6	51.8	51.8
		Expert	54	46.2	48.2	100.0
		Total	112	95.7	100.0	
	Missing		5	4.3		
	Total		117	100.0		
Premier	Valid	Novice	71	59.2	62.3	62.3
		Expert	43	35.8	37.7	100.0
		Total	114	95.0	100.0	
	Missing		6	5.0		
	Total		120	100.0		
Missing	Valid	Novice	22	52.4	56.4	56.4
		Expert	17	40.5	43.6	100.0
		Total	39	92.9	100.0	
	Missing		3	7.1		
	Total		42	100.0		
All Customers	Valid	Novice	180	48.5	50.7	50.7
		Expert	175	47.2	49.3	100.0
		Total	355	95.7	100.0	
	Missing		16	4.3		
			371	100.0		

4.4 Risk Profile

Question 5 looked at the financial products investors actually have in their portfolios both now and previously. This allowed the actual level of risk they have taken on to be measured for later comparison with risk perceptions and investment allocation choices. For each investor a current risk score and a past risk score was calculated by weighting their investment holdings according to the level of risk as defined by an expert (Table 8).

Table 8 Risk Weightings

Weight	Risk Level	Product Types
1	Low	Deposit Account
0	Risk free	Government Bonds (gilts)
1	Low	Guaranteed Insurance Bond
1	Low	ISA mini cash
3	High	ISA mini stocks and shares
2	Medium	ISA mini insurance
3	High	ISA maxi stocks and shares
3	High	Investment Trusts
0	Risk Free	National Savings
3	High	PEP
3	High	Property (excluding your own house)
3	High	Stocks and Shares
1	Low	Structured product (no risk to capital)
2	Medium	Structured product (capital at risk)
1	Low	TESSA
3	High	Unit trusts
2	Medium	With profits bond

For each investment type currently held, the weights were summed for each investment held and the resulting sum was divided by the total number of investments held to obtain an average risk score. This new variable was named CURRRISK. Theoretically the CURRRISK score could range from zero (only risk free assets held) to 3 (only high risk assets held). A limitation of this method is that the amount held in each type of investment is not known, so equal weighting for each holding may not be representative of actual portfolio holdings.

The same calculation was computed for the investments held in the past and this variable was named PASTRISK.

These two variables can be compared to see whether past risk propensity measured by PASTRISK is correlated with current risk propensity measured by CURRRISK. This enables hypothesis 3 to be tested:

> H3: Outcome history (past risk propensity) is positively correlated with (current) risk propensity

There was strong correlation between current and past risk scores (78%), which confirms hypothesis 3 and suggests that past risk behaviour could be a good indication of future risk behaviour.

A paired samples t test was used to test the null hypothesis that there is no difference in current and past investment risk scores. This showed that there was a statistically significant difference. The mean past risk score is lower than the mean current risk score, which suggests that the level of risk in investment portfolios is increasing compared with the past. This increase in risk propensity supports the proposition that successful risk taking leads to higher risk propensity.

To aid subsequent analysis, individuals were allocated to a risk group shown in Table 9 according to their risk score. Most customers fell into the middle (medium risk) group 2.

Table 9 Risk Groups

CURRRISK Score	Risk Group	Number of Respondents
0 to 1.49	1 (low)	44
1.50 to 2.49	2 (medium)	315
2.50 to 3.0	3 (high)	6
Missing Data		6

Premier customers had previously invested in a structured capital at risk (Scarp) product and GIB customers had invested in a Guaranteed Bond. Therefore a data check was carried out to see whether the Premier customers had identified a structured capital at risk product as a past or current investment and the GIB customers had identified a GIB as a past or current investment. 65% of Premier customers and 78% of GIB customers correctly identified these types of investment. This means that 35% of Premier customers and 22% of GIB customers failed to identify a product they held. This suggests that some customers may be confused about the type of products that they have actually invested in. Therefore this question measures the products customers perceive they have rather than what they actually hold.

The holdings of GIB and Premier customers were investigated according to expertise. Amongst Premier customers, 76% of experts and 57% novices made a correct identification of a structured capital at risk product holding and this difference between experts and novices is statistically significant. 85% of experts and 71% of novice GIB customers correctly identified a GIB holding, but this difference was not statistically significant.

4.5 Risk Perception and Propensity

These questions required a risk assessment and risk likelihood (likelihood of engaging in each activity) for a series of investment decisions and gambling decisions. The correlation between the risk likelihood and risk perception was calculated for each activity. In most cases there was negative correlation between risk likelihood and risk perception, which was significant at the 1% level (two tailed). There was one activity that did not show significant correlation between risk likelihood and risk perception and that was gambling a week's income at a casino. This means that generally the higher the level of perceived risk the less likely a respondent is to engage in it.

Combined risk perception scores for gambling (GRISKPER) and financial products (FRISKPER) were calculated by averaging the individual scores and defining new variables as follows:

GRISKPER = (x7a+x7c+x7e+x7h)/4, Cronbach's alpha .52

FRISKPER = (x7b+x7d+x7f+x7g)/4, Cronbach's alpha .59

For risk likelihood, a risk propensity score was calculated. Account was taken of the level of risk being taken on in calculating the score, as the level of risk varied for financial decisions whereas for gambling these activities might all be considered 'risky'. Therefore equal weights were given to all gambling likelihoods and a new variable for gambling risk likelihood (GRISKLIK) calculated:

GRISKLIK = (x6a+x6c+x6e+x6h)/4, Cronbach's alpha 0.80

For financial products, there were two low risk situations, one medium risk and one high risk. New variables (x6bnew, x6dnew, x6fnew, x6gnew) were defined by giving a score of 1 for low risk products (f and g) where customers were likely or

very likely to engage and a score of 2 where they were unlikely or very unlikely to engage. For medium (b) and high (d) risk products a score of 2 was given where customers were likely or very likely to engage and a score of 1 was given where they were unlikely or very unlikely to engage. These were translated into a new variable to measure financial risk likelihood (FRISKLIK), which was weighted by the level of risk, using a weight of 1 for low risk, 2 for medium and 3 for high:

FRISKLIK = (x6bnew*2+x6dnew*3+x6fnew*1+x6gnew*1)/4, Cronbach's alpha (unweighted) 0.67

The correlations between the risk perception and risk likelihood scores were then investigated for both gambling and investment. There was negative correlation between gambling risk perception and gambling risk likelihood, which was significant at the 1% level (two tailed).

There is negative correlation between risk perception and risk likelihood for financial products, which is significant at the 5% level (two tailed). This suggests that there is a small but definite association between risk perception and risk likelihood for financial products. Hypothesis 4 was:

H4: Risk propensity is negatively correlated with risk perception

These results support Hypothesis 4 for simple decisions.

The literature search suggested that risk likelihood varied according to the domain considered and therefore a high-risk propensity for gambling did not necessarily mean that there would also be a high-risk propensity for investment decisions. However, there is significant correlation between gambling and financial risk

propensity in the sample, which suggests a small but definite relationship between these two risk propensities.

The financial risk perception questions required respondents to assess how risky a 10% investment in gilts and a 5% investment in a building society deposit were. As the government backs gilts, this investment is risk free and should therefore be assessed as 'not at all risky' and is lower risk than a building society deposit. 64% of experts and 61% of novices correctly identified the gilt investment as being 'not at all risky'. This difference between novices and experts was not statistically significant, which suggests that some experts might be overconfident in their abilities. In addition, the mean risk assessment score for the deposit investment (1.23) was lower than that for the gilt investment (1.51), meaning that respondents think the deposit is less risky than the gilt, but this difference was not statistically significant.

4.6 Investment Risk Perception

This question required respondents to provide their perception of risk inherent in four investment products by answering a series of eight perception questions for each product. For each product an average risk perception score was calculated, with item h being reverse scored. Any 'don't know' responses were replaced by the mean of the remaining items in each individual score. The following variables were defined:

DEPRISK=(x81a+x81b+x81c+x81d+x81e+x81f+x81g+x81hrs)/NO81

Cronbach's alpha 0.61, 0.63 excluding item h

PROPRISK=(x82a+x82b+x82c+x82d+x82e+x82f+x82g+x82hrs)/NO82

Cronbach's alpha 0.75, 0.77 excluding item h

EQURISK=(x83a+x83b+x83c+x83d+x83e+x83f+x83g+x83hrs)/NO83,

Cronbach's alpha 0.60, 0.61 excluding item h

SCARRISK=(x84a+x84b+x84c+x84d+x84e+x84f+x84g+x84hrs)/NO84

Cronbach's alpha 0.81, 0.83 excluding item h

where NO81= number variables x81a to x81h with non zero responses,

NO82= number variables x82a to x82h with non zero responses,

NO83= number variables x83a to x83h with non zero responses,

NO84= number variables x84a to x84h with non zero responses,

Reliability could be improved by excluding item h, which was the strength of regulation. However this was retained, as it did not make a big difference to reliability.

The mean risk assessment scores between the different customer groups (GIB/Premier/Direct) were compared for statistically significant differences using a one-way ANOVA test. Significant differences at the 5% level were found for deposit risk assessments only. To determine which group means are statistically significantly different, the Scheffe procedure was used which showed that differences in means for deposit risk assessment are significant between the Premier and Direct groups and between GIB and Direct groups. The mean deposit risk assessment score for Direct customers was 1.7203, which was lower than the other two mean scores, which means that Direct customers perceive deposits as less risky than other customers.

4.7 Future Returns

Expected future returns under the four financial products assessed in Q8 were investigated. Two versions of the questionnaire were used, one which gave no information about past investment performance (questionnaire 1) and one which gave past returns over the last five years for each type of product (questionnaire 2). Hypothesis 7 and the associated null hypothesis are:

> H7: Return expectations will be driven by past performance information provided as an anchor
>
> Null Hypothesis: There is no difference in return expectations for questionnaire 1 and questionnaire 2.

Independent sample t tests were used to establish whether there was a difference in means between the two questionnaires groups. There was a significant difference for deposit accounts, property and Scarps but not for equity. This may be because the past performance for equities has been poor and produced negative returns and therefore performance information is discarded as it does not fit with respondent's perceptions about future returns. In all cases, the group given past performance data has a higher mean score than the group not provided with this information. This suggests that for some investments, providing past performance information leads to expectation of higher returns than if no past performance information was provided. Therefore Hypothesis 7 is proved for some but not all products tested.

Differences in means for future performance were tested between the three customer groups using a one-way ANOVA test. The null hypothesis was that there

is no difference in future performance expectations between customer groups. The ANOVA test showed no statistically significant differences at the 5% level between customer groups.

Correlations between risk perception (q8) and future return expectations (q9) were investigated. For all product types except property, there was correlation that was statistically significant. For deposits this was only significant at the 5% level but for equities and Scarps it was significant at the 1% level (two tailed). In order to test Hypotheses 5 and 6 further investigation was needed.

> H5: There is positive correlation between risk perception and expected returns for expert investors
>
> H6: There is negative correlation between risk perception and expected return for novice investors

These investigations showed that experts had significant positive correlation between risk assessment and future return expectations for all product types except property, whilst novices showed no correlation. These results support Hypothesis 5 for all product types except for property but do not support Hypothesis 6.

Individual investors lacking expertise in the property asset class may explain the lack of correlation for property. Property is the third least likely investment to be held after gilts and Insurance ISAs. Only 26% of respondents currently hold property investments whilst a further 10% have held this type of investment in the past. A chi-squared test shows that there is no difference in the propensity to hold property between novice and expert investors.

4.8 Investment Allocation Decision

This question required respondents to allocate a £10,000 investment between the four financial products used in questions 8 and 9. Figure 7 shows the frequency distribution and Table 10 shows the mean amount allocated between products.

Figure 7: Investment Allocation

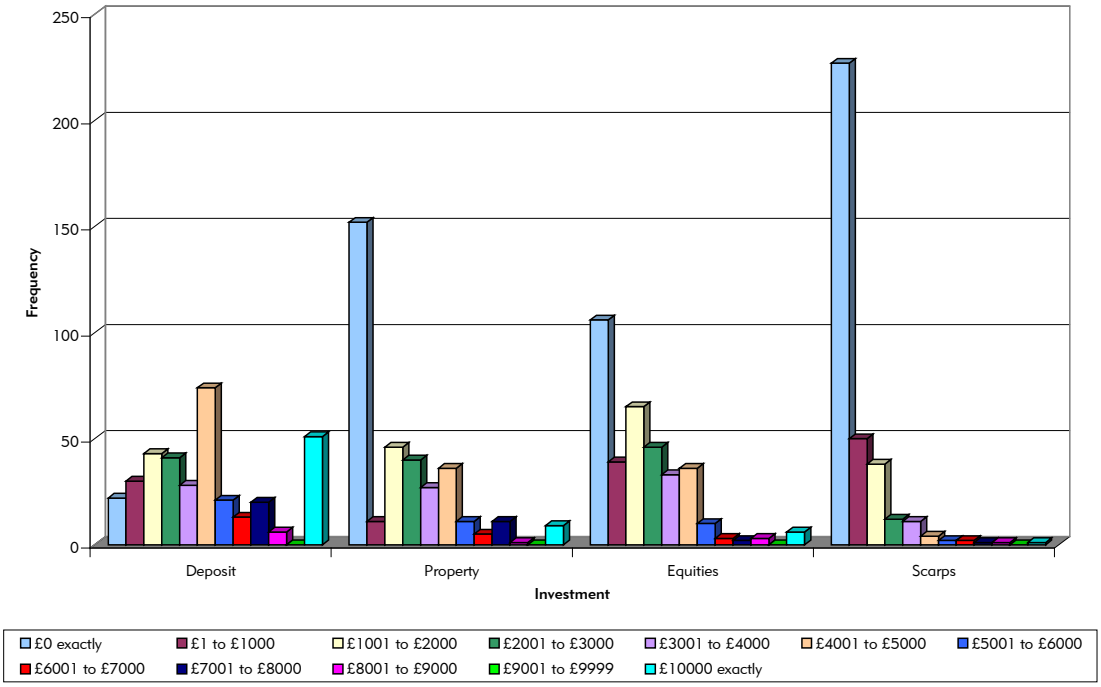


Table 10 Mean Investment Allocations

Product	Mean Amount Allocated
Deposits	£4,723.30
Property	£2,264.56
Equities	£2,259.55
Scarps	£781.23

The amount allocated differed between the three customer groups and so a one-way ANOVA test was carried out to see whether any of these differences were statistically significant. These differences were significant at the 5% level for deposit account allocation and Scarp allocation but were not significant for property or equity allocations. To determine which group means are statistically significantly different, the Scheffe procedure was used and showed that the

differences in means for deposit allocation are significant between the Premier and GIB groups for deposit allocation, with Premier customers allocating the least of the customer groups to this product type.

Interestingly the difference in allocation for Scarps was between Premier customers and Direct customers, with Premier customers allocating more than any other customer group to Scarps. These customers could be considered to have had bad previous experience with this product and might therefore have been expected to be less likely to invest than the other two customer groups. Conversely Premier customers, having invested in Scarps previously, are more likely to be familiar with this type of investment.

In order to be able to carry out comparisons with q8 and q9, it was necessary to group responses into four groups so that the responses were scored between 1 and 4 rather than 0 and 10,000. Allocations were ranked according to Table 11

Table 11 Investment Allocation Groups

Investment amount allocated	Rank
£0 to £2,499	1
£2,500 to £4,999	2
£5,000 to £7,499	3
£7,500 to £10,000	4

Relationships between investment allocation and risk perception and between expected returns and investment allocation were investigated. The relationship between risk perceptions and investment allocation (risk propensity) was used to test Hypothesis 4 for complex products:

H4: Risk propensity is negatively correlated with risk perception

Negative correlation between risk perception and investment allocation was significant (1% level for property and equity, 5% level for Scarps) for all investment types except for deposits. This means that investors allocate least to the assets they perceive as most risky. Hypothesis 4 is proved for all products except deposits.

Further investigation into deposits showed no significant differences amongst expert investors and novice investors. Individuals using deposit accounts for 'rainy day' money might explain this and therefore most investors allocate some money to a deposit account irrespective of their risk assessment. Looking at products held, 89% of respondents hold or have held deposits in their portfolios.

Correlation between future return expectations and investment allocation was significant at the 1% level (two tailed) for all investment types except for deposits. Therefore, the higher the expected return the higher the investment allocation. Further investigation showed no significant differences amongst expert investors and novice investors for deposits. Therefore the decision to invest in deposits does not appear to take account of future return expectations or level of perceived risk.

4.9 Brand Strength

Brand strength has never been measured before by Pinnacle. Five brand strength questions were included to set a benchmark against which future research could be compared. For many of the questions a large percentage of respondents had selected the 'don't know' response (Table 12).

Table 12 Don't Know responses to Brand Questions

Brand Image Construct	Don't Know Response
Superior performance	24.0%
Safe	14.0%
Fits my life concept	31.5%
Special	42.1%
Prestigious	40.8%

This highlights that even amongst Pinnacle's customers, brand values are not well understood. An overall brand strength score was calculated as the average score of the five questions, but excluding the don't know responses:

Brand Image Score = (x11a + x11b + x11c + x11d + x11e)/5,

Cronbach's alpha = 0.84

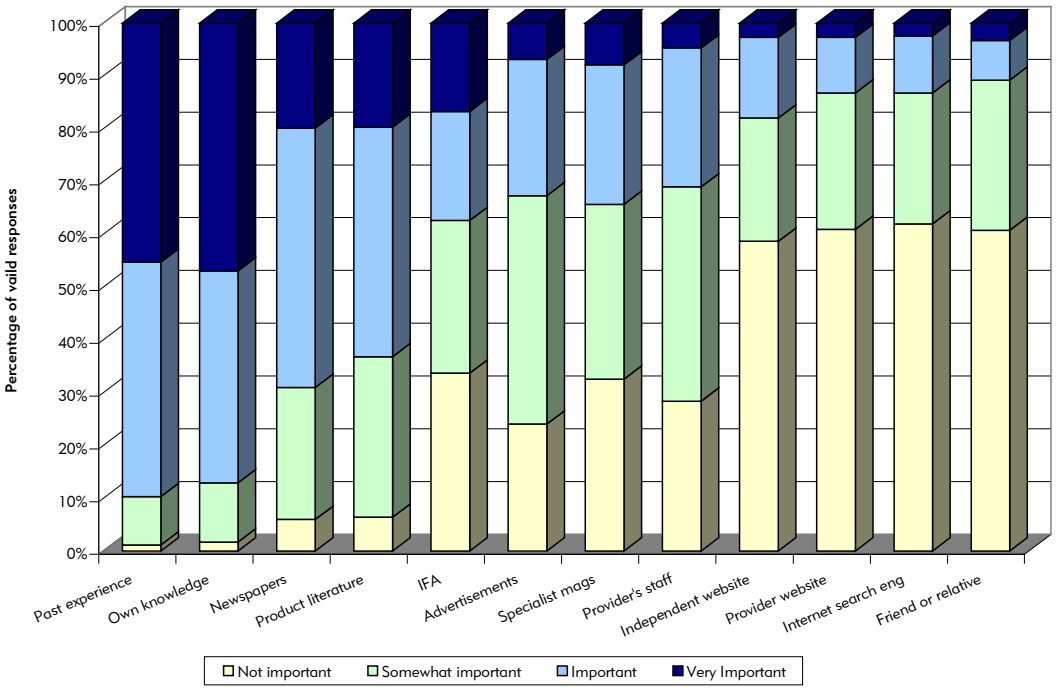
Brand scores differed between the three customer groups, with Premier customers having the lowest mean score. A one-way ANOVA test was carried out to see whether the differences between customer groups were significant. This showed that there were significant differences between groups. A Scheffe procedure was used to determine which of the means were significantly different. This showed significant differences in means at the 5% level between Premier customers and both other customer groups (GIB and Direct) but no difference between GIB and Direct groups. The overall brand score was lowest for Premier customers, which could indicate that the brand has been damaged by product performance that did not meet expectations.

5 Discussion

5.1 Information sources

Figure 8 shows the relative importance of each information source, ordered from the most important (left) to least important (right).

Figure 8: Value of Information Sources



This shows that internal information sources are considered most important by consumers and they place most weight on their own past experience with investments and their own knowledge. Infact 90% of respondents rated past experience as very important or important and 87% rated own knowledge this way. However, only approximately half of the respondents indicated that they rated themselves as experts in investments. Therefore it seems likely that internal information will be supplemented by information from external sources.

The next most important sources were the financial pages of newspapers and product provider's literature. This suggests that the personal finance press is extremely important as an influencer in investment decisions. Therefore product providers should ensure that accurate information is conveyed to journalists and a proactive approach to press and PR activity could be beneficial. Positive press coverage also has the advantage of effectively being 'free' advertising with a strong independent endorsement. Thus it is likely to be more cost effective to focus marketing efforts on Press and PR rather than advertising.

Product literature came fourth in overall importance, which suggests that this is still a very important information source for consumers. Literature is within the control of the product provider and so how the benefits and risks are presented will play a key role in consumer understanding. However, the content of product literature is subject to the Financial Services Authority (FSA) advertising and promotion rules, which control the information that can be presented.

Independent Financial Advisers were not considered as important as newspapers or product provider's literature. This is surprising as ninety percent of Pinnacle's business is introduced by IFAs who receive commission for introducing business and providing financial advice to consumers. It appears that whilst consumers use IFAs for sourcing investment products they do not value this advice. This may be because most consumers do not pay directly for advice as the commission is funded from the investment product rather than being paid by the consumer and so they do not value what they perceive as a 'free' service. Alternatively this could be because consumers do not trust IFAs.

Respondents did not see the Internet as an important information source. Some respondents added comments to their questionnaires to say they did not have a computer and/or an Internet connection. The age profile of the sample might be a factor in the lack of importance of the Internet as the majority of respondents will not have used computers at school and some will not even have used them at work.

5.2 Consumer Involvement

The results were as expected, with respondents rating financial products as high involvement, high thinking products. This suggests that advertising and promotional activity should focus on facts rather than appealing on an emotional level.

5.3 Investment Expertise

Expertise is important for consumer understanding of risk and the link between risk and return. In addition, experts in the Premier customer group were significantly more likely to correctly identify a past holding of Scarps in their portfolio than novices. However, there is evidence that respondents may have demonstrated overconfidence in their abilities since there were still 24% of expert premier customers and 15% of expert GIB customers that did not identify products they had held. Furthermore, only 62% of respondents correctly identified an investment of 10% of income in gilts as being not at all risky, with 38% classifying this risk free investment as having some risk attached to it. Whilst experts had a slightly higher success rate (64%) than novices (61%) the difference was not statistically significant.

Direct customers had a significantly higher expertise score than GIB and Premier customers. Direct customers might be expected to have higher levels of investment expertise as these customers have opted to receive information directly from Pinnacle and buy direct rather than using an IFA. In contrast, ninety percent of Premier and GIB customers are introduced to Pinnacle by an IFA and are therefore using an expert to advise them on investment decisions.

Improving investment expertise, measured by knowledge and experience, should enable consumers to make better investment decisions. Expert consumers can more accurately assess risk and have a better understanding of risk/return relationships. Therefore any initiatives to improve consumer knowledge, understanding and expertise should be welcomed. One of the FSA's remits is to educate consumers and this research highlights the importance of this.

5.4 Risk Model

The research results generally support the model of determinants of investment decisions presented in Figure 3. There were some exceptions but these differences can be explained.

The portfolio holdings of respondents showed that past behaviour was a good indication of future behaviour due to the high correlation between current and past levels of risk assumed. In addition, the level of risk assumed showed a significantly increasing trend. These findings support the link between a positive outcome history leading to a higher risk propensity. However, Premier bond customers, who could be considered as having had an unsuccessful risk taking experience, seem to

have a higher propensity to invest in a similarly risky product than the two other customer groups. The returns under Premier bond policies were not as good as less risky products such as deposits but were better than higher risk products such as equities. Therefore these customers could consider the experience to have been successful, but this is unlikely as these customers also rated the brand strength of Pinnacle lower than the two other customer groups.

In its assessment of mis-selling of precipice bonds, the FSA has looked at individual investment portfolios as an indication of a customer's risk propensity and therefore whether such an investment would be appropriate for the level of risk propensity they have previously demonstrated. These findings show that this approach has some merit, as there is strong correlation between past and current risk behaviour. However, there is a tendency to increase risk appetite if previous risk taking was successful.

Both the literature review and the research findings indicate the central role that risk perceptions play in financial decisions. This is important because perceptions can be influenced by how information is presented. As expected, risk propensity and risk perception were found to be negatively correlated with each other for both simple decisions and also more complex asset allocation. However, deposit accounts were selected for investment irrespective of how risky a respondent considered them to be. This suggests that this asset class is seen as a suitable investment by all investors, at least for part of their portfolio, and is an asset that features in 89% of respondent's portfolios.

Risk perceptions and expected return were positively correlated for all asset types apart from property. Further investigation revealed that experts exhibited positive correlation in risk return judgements but novices did not. However, novices showed no correlation rather than the negative correlation expected. There was no correlation between risk and return for either novices or experts for property. This could be due to all investors being relatively inexperienced in property investment as only 26% of respondents currently hold property investments and a further 10% have held property previously.

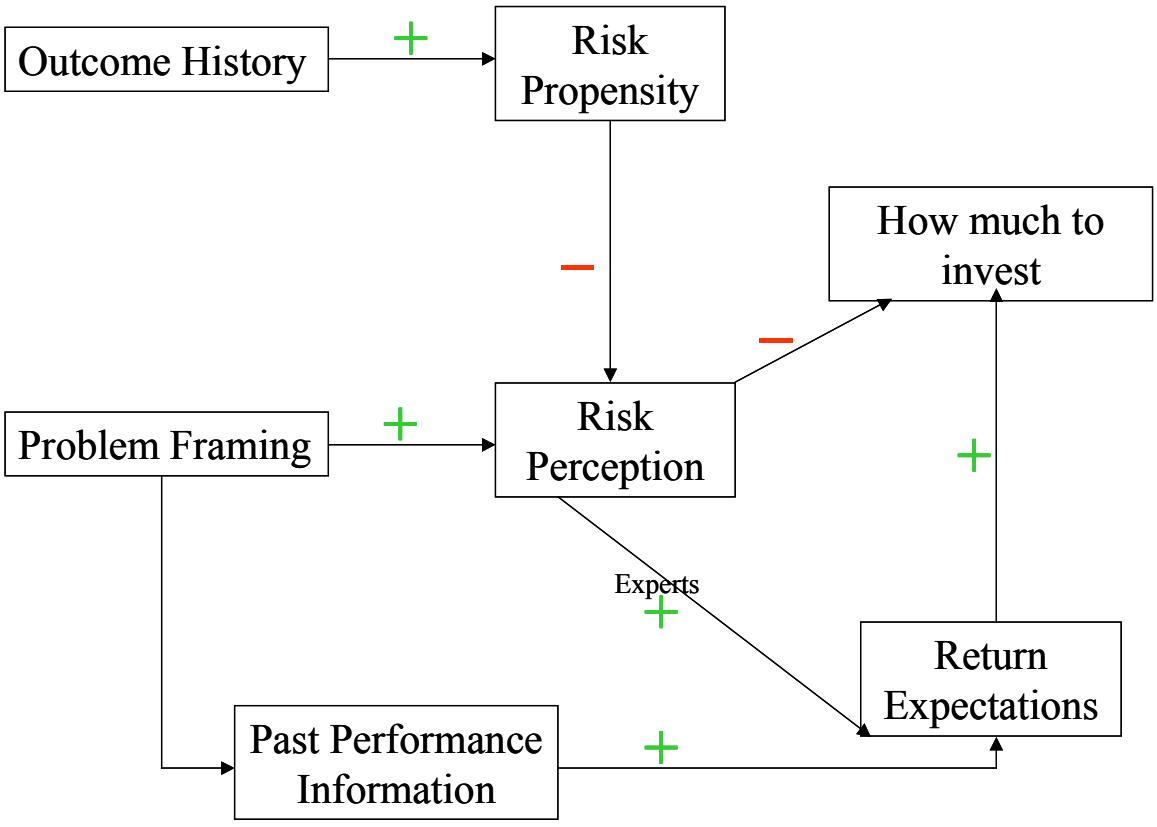
Return expectations are also influenced by past performance information provided. This demonstrates the bias introduced by anchoring since the group presented with past return information expected higher returns than the group given no past return information. The returns expected by the group presented with past performance information were close to the past returns for all asset types except for equities. The past returns for equities were negative, so these may have been discounted from the future return decision, as respondents did not consider past returns to be representative of future returns. Therefore providing past performance information appears to create an expectation for a future return around the same level as past returns.

The provision of past return information in product literature is subject to FSA regulation in terms of the recentness and comprehensiveness of the information given. It is interesting to note that many providers now do not include past performance information in their product literature as the FSA rules mean that these will show low or negative returns. This research suggests that this

information may well be discounted by consumers anyway. The possibility of negative returns was illustrated in product literature for structured capital at risk products but consumers seem to have ignored it.

Return expectations were positively correlated with investment allocation and this relationship could be added to the model proposed in Figure 3. A revised model (Figure 9) is proposed that takes account of this result and the lack of correlation between risk and return expectations for novices. The findings suggest that outcome history is a predictor variable. Literature research suggests that framing is also a predictor variable but only the role of past performance information was tested in this study. Risk propensity and risk perception are key mediating variables for investment decisions. An additional mediating variable, expected return, is itself mediated by risk perception for investment experts.

Figure 9: Updated Model of the Determinants of Investment Decisions



5.5 Limitations

The research sample, being drawn from Pinnacle's customer base, may not be representative of investment customers in general. This is because Pinnacle only offers a limited range of investment products. These are low to medium risk products and so the sample may be biased towards low risk investors. In addition, the age profile of the sample was skewed towards the older ages, which is unlikely to be representative of the age profile of investors in general.

5.6 Future Research

It would be interesting to test the risk model on a wider group of investment customers to see whether the results of this research were more generally applicable. The relationships between risk perceptions, risk propensity, return expectations and investment allocation decisions could usefully be tested over a wider set of financial products.

In this research it was only possible to test one aspect of framing, which was the use of past return information as an anchor for future return expectations. The literature review suggests that framing is very important in how consumers interpret information. Therefore it would be useful to test other aspects of framing, for example the presentation of risks and benefits or how consumers interpret the risk warnings that are required in Key Features documents.

The FSA are currently consulting on projections of future benefits and how the projections regime may be changed in the future. One aspect that is being considered is how to reflect the risk return relationship and the variability of possible outcomes in any projections given to consumers. Different presentation formats, rather than the current tables of numbers, are being considered. This is another aspect of framing where further research might be fruitful.

6 Conclusions

One of the key results from the investigation of information sources that customers use and value is the importance of the personal finance press. Consumers appear to place more weight on what journalists have to say about financial products than the advice provided by an IFA. Whilst the majority of consumers do still use an IFA they appear not to value the service that the IFA provides.

Product literature is still a very important information source. For a product provider it is probably more important to get the literature right, so that consumers gain an accurate perception of the product's benefits and risks, than promoting the product to IFAs. It appears that consumers will rely more on the literature than the advice they receive from an IFA. Consideration should be given to how risks and benefits are framed and the expectations that might be created by using past performance information.

The research has shown that the more expertise a consumer has, the more accurately they perceive risk and that they understand the link between risk and return. In addition, expertise appears to be important in consumers understanding the products they have purchased. In the UK there are number of trends that mean that more and more financial decisions will be placed in the hands of consumers who are likely to be inexperienced and novice investors. Two examples are pension schemes and the Child Trust Fund.

Many employers have moved from defined benefit pension schemes to defined contribution schemes and this trend is expected to continue in the future. This is important for consumers as under defined benefit schemes the pension scheme trustees make investment decisions, whereas under defined contribution schemes the investment decisions remain with the individual pension scheme member.

The Child Trust Fund, which is due to commence in 2005, provides an endowment from the state for each child born since 1st September 2002 of £250 or £500 and there will be a further contribution from the state at age 7. Parents will need to decide which product provider and which investment vehicle to select for their child's account.

In order for consumers to be properly equipped to make these types of financial decisions they need financial knowledge and experience. This means that financial education will only become more important in the future. The FSA, the media and product providers all potentially have roles to play. The possibilities of advisers mis-selling or consumers mis-buying products should be reduced if consumers are better informed and understand the risks they are taking on.