

Economics, Finance and Accounting

Applied Research Working Paper Series

BEHAVIOURAL DETERMINANTS OF CLIENT SAVING FOR RETIREMENT

by

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Abstract

Many people are reluctant to contribute to private pension schemes. To a considerable extent the responsibility for encouraging saving for retirement falls upon personal financial advisers. This article provides a guide to the perspectives, provided by behavioural finance, on retirement saving with particular regard to the role of financial advisers.

The article considers research on the relationship between personality and saving for retirement. There is evidence that high self-control and an internal locus of control contribute to the likelihood of saving for retirement; and further evidence that these factors may be influenced by social mood. The illusion of control and the illusion of knowledge may reinforce an internal locus of control. A high level of materialism has been shown to be detrimental to personal financial management.

Poor self-control is related to procrastination, hyperbolic discounting and little inclination to plan. The relevance of several behavioural finance theories to the exercise of self-control is explained; those theories include prospect theory, mental accounting, goals-based investing, and the comparative ignorance hypothesis. Much research has been carried out on the importance of the propensity to plan, and the role of perceptions of old age. The theory of planned behaviour and the transtheoretical model of change are seen as informing financial advisers who wish to encourage financial planning for retirement. Risk tolerance, risk perception, and the related issue of trust are seen to be important. Trust encompasses trust in advisers, financial products, and financial markets; financial inhibition, the availability bias, and the familiarity bias are relevant in this context. Financial education has a role in relation to risk tolerance, risk perception, the familiarity bias, and the detrimental effects of the exponential growth bias. The article concludes with a consideration of the SMarT approach and some recommendations for personal financial advisers.

Introduction

According to the first report of The Pensions Commission (Turner 2004), the UK is faced with an increasing proportion of the population aged over 65. In consequence, according to the report, society and individuals must choose between four options. Either:

- (i) pensioners will become poorer relative to the rest of society; or
- (ii) taxes/National Insurance contributions devoted to pensions must rise; or
- (iii) savings must rise; or
- (iv) average retirement ages must rise.

Most countries in the developed world face a similar situation, and similar choices. Part of the solution is an increase in saving for retirement, and personal financial advisers play a crucial role in encouraging increases in saving for retirement.

Advice in relation to retirement planning concerns both how much to save and how to allocate the saving. Many people find saving difficult and may be prone to save too little. An adviser concerned with the long-term well-being of a client needs to nudge the client towards an adequate rate of saving. The purpose of this paper is to consider behavioural influences on saving with a view to helping advisers to encourage higher rates of saving.

The methodology is to survey the academic literature on behavioural finance with respect to its relevance to retirement saving, and to distil the implications for personal financial advisers. Factors such as self-control, orientation towards the future, ability to plan, optimism, financial knowledge, and trust are seen to be crucial. Advisers who wish to nudge clients towards higher rates of saving should look towards developing their clients along these dimensions.

Saving and Personality

A UK financial services company, Scottish Widows, published a survey which identified a number of characteristics that appeared to distinguish habitual non-savers from savers (Scottish Widows 2005). Non-savers were more likely to take a negative view of other people. Non-savers saw themselves as relatively less happy, less healthy, less emotionally secure, and as having a worse romantic and social life. Non-savers were more likely to want a complete change in their lives. They were more likely to feel that they were unable to control, and cope with, their situation in life. They were less able to plan ahead. Non-savers were much more likely to be smokers. The main reason given for not saving was that they could not afford it (even though many had high incomes), and many said that they could not reduce their spending without significantly affecting their life styles. Somewhat paradoxically, non-savers were more likely to believe that they would be able to live comfortably on a low income in retirement. These findings are consistent with research that suggests that happy people save more (Guyen 2008). Happy people also expect long lives. Expecting long lives, happy people prepare for their futures.

Non-savers were more likely to have non-mortgage debts; they were less likely to see themselves as responsible in their borrowing and in their use of the borrowed money. The Scottish Widows survey found that non-savers were less likely to own their own homes, and those who did own their homes tended to have less valuable properties than savers (note that the survey was constructed so as to control for income and age as explanatory factors). The point about non-savers having a greater likelihood, than savers, to rent rather than own their homes is consistent with the findings of James and Sharpe (2007). They found that homeowners had larger pension funds and invested for retirement at a higher rate. Renters did not make the same long-term decisions, regarding saving and home buying, that homeowners made.

Personality Types

Arguably the most prominent classification of personality types is the five factor model (Olson 2006). The five factors are extraversion versus introversion, agreeableness versus antagonism, conscientiousness versus heedlessness, emotional stability versus neuroticism, and openness-to-experience versus closed-to-experience. Some researchers have concluded that the five factors can be divided into two groups, thus making a two-factor model. Olson posited engagement and self-control as the two factors. Engagement encompasses extraversion and openness to experience, whereas self-control covers emotional stability, agreeableness and conscientiousness. Research has found that

deficiencies in self-control are linked to addiction, crime, domestic violence, bankruptcy and academic failure; and negative emotions appear to impair self-control (Tice, Bratslavsky and Baumeister 2001).

A number of researchers have found relationships between saving behaviour and personality traits, particularly conscientiousness. As reported by Nyhus and Webley (2001), Schmolders (1966) found that conscientious, self-disciplined, people were much more likely to save than easy-going carefree people; Brandstatter (1996) found that emotional stability, introversion and conscientiousness were positively related to saving; and Warneryd (1996) presented evidence that conscientiousness was the most important personality dimension linked with the financial self-control required for saving (and the avoidance of debt). Webley and Nyhus (2001) found that conscientious people were less likely to experience debt problems. Since conscientious people are likely to monitor their finances, they are less likely to be forced into borrowing.

Personality traits are not immutably fixed, and can be influenced by external factors. One such factor is social mood, which is mood that is pervasive within society (Prechter 1999, Nofsinger 2005). People transmit moods to one another when interacting socially. People not only receive information and opinions in the process of social interaction, they also receive moods and emotions. Moods and emotions interact with cognitive processes when people make decisions. There are times when such feelings can be particularly important, such as in periods of uncertainty and when the decision is very complex. The moods and emotions may be unrelated to a decision, but nonetheless affect the decision. The general level of optimism or pessimism in society will influence individuals and their decisions, including their financial decisions.

Prechter posited that, during periods of negative social mood, people are more likely to display the characteristics of low self-control. Negative social mood appears to be associated with distress, anxiety, antagonism, conflict, and reduced interest in work and achievement. For those who do save, social mood could influence the way in which the savings are invested. Negative social mood is likely to be associated with caution and risk-aversion, and hence the avoidance of stock market investments. Positive social mood is thought to engender engagement, including engagement with the high-return high-risk investments associated with stock markets.

Illusion of Control, Illusion of Knowledge, and Locus of Control

The illusion of control is a cognitive bias. In some circumstances people behave as if they were able to exert control where this is impossible or unlikely. According to Langer (1975), people often find it difficult to accept that outcomes may be random. Langer distinguishes between chance events and skill events. Skill events entail a causal link between behaviour and the outcome. In the case of chance events, the outcome is random. People often see chance events as skill events. When faced with randomness, people frequently behave as if the event were controllable (or predictable). If people engage in skill behaviour, such as making choices, their belief in the controllability of a random event appears to become stronger. The illusion of control may provide an argument for providing clients with some skill behaviour (e.g. choice) since skill behaviour appears to strengthen the illusion of control. This may cause the locus of control to become more internal. In consequence there may be an enhanced inclination to save.

Perry (2008) suggested that locus of control was an important determinant of saving behaviour. People who have an internal locus of control believe that they have control over their lives, whereas those with an external locus of control take the view that they are subject to chance events and the actions of others. A person with an internal locus of control is more likely to acquire knowledge that enhances decision-making than a person with an external locus of control. Internal locus of control is associated with academic achievement, career success and saving. Perry and Morris (2005) found that individuals with an external locus of control were less inclined towards financial planning, budgeting and saving. One implication of the findings of Perry and of Perry and Morris is that the illusion of control, and the illusion of knowledge, may have beneficial effects on personal financial behaviour in so far as they reinforce an internal locus of control.

The illusion of knowledge is the tendency for people to believe that additional information always increases the accuracy of their forecasts. It is the belief that more information increases the person's knowledge and hence improves decisions (Peterson and Pitz 1988). For example people often believe that knowledge of previous drawings of lottery numbers improves their ability to predict future lottery numbers. Some information is irrelevant, or may be beyond a person's ability to interpret, but the person may still regard the information as improving their ability to forecast. Tumarkin and Whitelaw (2001) found that, despite providing no useful information, website message board postings increased trading volume in the respective stocks. Despite the absence of useful information from the messages, as indicated by subsequent price movements, it appeared that some investors believed that it added to their knowledge and expertise (and traded as a result).

The illusion of knowledge can be used by financial advisers as a means of encouraging clients to invest. King (2009) found that client trust was enhanced if an adviser provided educational materials, market information, and information about financial products. There was increased client satisfaction, increased likelihood of the client recommending the adviser, and greater loyalty as measured by the time that the client remained with the adviser. Higher trust is associated with lower perceived risk (Ryan and Buchholtz, 2001). If the provision of information enhances trust, it will simultaneously reduce perceived risk. Lower perceived risk of investing is likely to encourage investing. To the extent that perceptions of risk relating to investments discourages saving, the reduction of perceived risk should encourage saving (in so far as saving and the allocation of savings between investments are not independent decisions such that investment concerns affect the level of saving).

Saving and Materialism

Watson (2003) investigated the relationship between materialism and saving behaviour. It was found that highly materialistic people were more likely to see themselves as spenders, and were more inclined to borrow. In particular they were favourably disposed towards borrowing for non-essential purposes and luxury items. People with low levels of materialism were more likely to save, and were more likely to own financial investments such as stocks and mutual funds.

The findings by Watson of a negative relationship between materialism and saving may indicate another factor. Some people have little desire to spend beyond a particular level; so an increase in their incomes does not lead to much increase in spending. For such people an increase in income would entail a rise in the proportion of income saved because there is little on which they want to spend the extra income. Economists are inclined to treat saving as the result of a decision to save. It may be the case that many savers do not make a decision to save; their saving arises because they have no desire to spend beyond a particular level. For such people an increase in income causes a corresponding increase in saving simply because there is nothing on which they want to spend the extra income. For such people saving is residual, or surplus, income.

Procrastination and Self Control

Akerlof (1991) concluded that most people succumb to the desire of current expenditure during their peak earning years and delay saving for retirement. Thaler and Shefrin (1981) describe the self-control problem as the interaction between a person's two selves: the planner and the doer. The doer wants to spend now rather than later, and delays unpleasant tasks. The planner is inclined to save for the future and get unpleasant tasks dealt with quickly. There is a conflict between desire and

willpower as a result of the influence of both short-term emotion and long-term rational concerns. Neurological research has indicated that immediate rewards activate mostly the limbic system of the brain whereas delayed rewards activate the cortex (McClure, Laibson, Loewenstein and Cohen 2004). The limbic system is a primitive part of the brain where feeling and emotion are important, whereas the cortex is a more advanced part of the brain where analytical thought occurs. Howlett, Kees, and Kemp (2008) used the concept of self-regulation, which they defined as ‘the process through which people exert control over their thoughts, feelings, and behavioral impulses’ (p. 225). In order to achieve long-term well-being, it is necessary to override or regulate the impulses to select options with short-term benefits but long-term costs.

Hyperbolic Discounting

Immediate costs and benefits appear to be much more salient and vivid in comparison to future costs and benefits. For example most people would rather receive £50 now than £100 in two years (foregoing a 41% p.a. return) whereas £100 in six years is preferred to £50 in four years. From a finance perspective the two choices are the same, except one is deferred (Ainslie 1991). People seem to view the present very differently to how they view the future. The attitude to the present appears to be characterised by strong desire and weak willpower. The emphasis on immediate satisfaction has been referred to as hyperbolic discounting. It provides an explanation for the tendency to overspend using credit cards. The ability to satisfy immediate spending desires provided by credit cards is possibly one factor behind the low saving rates in many countries.

Conventional (exponential) discounting is expressed by an equation of the type:

$V = 1/(1 + r)^T$ where V is current valuation, r is the discount rate, and T the number of time periods. Hyperbolic discounting might be expressed by an equation such as:

$$V = 1/(1 + T) \quad [\text{or, more generally, } V = 1/(1 + \beta T)].$$

Consider the choice between £50 now and £100 in two years and someone with a rate of time preference of 10% p.a. (the rate of time preference is the rate of return required to persuade the person to delay current expenditure in order to obtain more in the future). Conventional discounting suggests that £100 in two years would be valued at: $V = £100 \times [1/(1.1)^2] = £82.64$. This is preferable to £50.

Based on $V = 1/(1+T)$, hyperbolic discounting suggests that £100 in two years would be valued at: $£100 \times [1/3] = £33.33$. This is not preferable to £50. In the case of £50 in four years hyperbolic discounting would provide a value of $£50 \times [1/5] = £10$ against $£100 \times [1/7] = £14.29$ for the six-year receipt of £100. The more distant sum is preferred. Credit card borrowing is attractive to a hyperbolic discounter. At 20% p.a. interest, borrowing £100 now entails a debt of £120 in a year, which is valued at $£120 \times [1/2] = £60$. Psychologically, the current asset is greater than the future liability.

Consider an investment of £100 that yields 10% p.a. and a person with a rate of time preference of 5% p.a. The investment would be attractive on the basis of conventional discounting. A hyperbolic discounter would value the £110 expected at the end of the first year at $£110 \times [1/2] = £55$. The $£100 \times [1.1]^{10} = £259.37$ expected after 10 years would be valued at $£259.37/11 = £23.58$. It would take an investment horizon of at least 39 years for the investment to have a present value greater than £100: $£100 \times [1.1]^{39} = £4114.48$, and $£4114.48/40 = £102.86$. Unless the hyperbolic discounter has a very long investment horizon, there would be no investment.

Procrastination

Choi, Laibson, Madrian and Metrick (2001) found that many low savers actually wanted to save more. They found that two-thirds of their sample recognized that they were saving too little. The problem was one of willpower. They also found that whereas a third of the people surveyed intended to increase their savings rates in the near future, most of those well-intentioned people (86%) did not do so. Procrastination was present; the intended increase in saving was postponed.

Procrastination also entails postponing unpleasant tasks. Procrastination entails the inclination to delay action if any form of immediate cost is involved (the cost could be the effort of making a decision). It may be the case that many people dislike the process of making financial decisions, possibly because they find such decisions to be complicated and difficult (and boring). Benartzi and Thaler (2007) found that in a sample of occupational defined-contribution pension schemes, where the employer paid the entire contribution, only half of the employees enrolled. Procrastination about joining meant that half the employees refused free money.

Procrastination is one form of narrow framing (Stracca 2004). Procrastination entails excessively short time horizons. A person may behave rationally but within an irrationally short interval of time.

Decisions may be optimal with respect to short-term perspectives, but sub-optimal in relation to more appropriate time horizons. For example saving to fund retirement pensions entails using a lifetime as the planning horizon. If a person focuses just one year ahead, there will be no pension provision. The benefits of the pension do not accrue within the planning horizon of one year whereas the costs are experienced within the year. From the short-term perspective, a person maximizes satisfaction (utility) by spending rather than by saving for retirement. The result is a dramatic fall in standard of living at retirement. From the perspective of a lifetime, the person's income is not used optimally.

Failure to save in the past can reinforce a disinclination to save in the present. Procrastination is subject to a cumulative effect. People may be reluctant to take actions, which if taken earlier would have been very beneficial. The realisation that it would have been advantageous to save and invest in the past reinforces the reluctance to save in the present. The feelings of regret do not cause the person to start saving; they cause the person to believe that the lost wealth was not wanted. Rather than experience feelings of regret people may redefine their objectives and values. The realization that an error has been made can cause cognitive dissonance (mental discomfort) and the perception of self may be changed in order to reduce cognitive dissonance (Andreou 2007). Someone who has persistently failed to save may decide that they do not really want to accumulate wealth.

Exercising Self-Control

Pension plan administrators often find that the most difficult step is to get people to start contributing. People tend to procrastinate. If saving were based on a regular saving scheme the self-control need only be used at one point in time, which is the beginning. The status quo bias would tend to keep the client in the scheme. The status quo bias is the tendency for people to choose no change when presented with a choice. Thaler found that most people, who invested in a pension plan one year, contributed again the following year (Thaler 1994). They form a habit to help their willpower.

To help with willpower people employ rules-of-thumb and environmental controls (Thaler and Shefrin 1981, Hoch and Loewenstein 1991, Nofsinger 2002). Environmental controls include automatic deductions from salary and monthly automatic transfers from bank accounts into savings or pension plans.

Madrian and Shea (2000) concluded that automatic enrolment plans are successful in increasing participation rates. In studying a plan that was changed to automatic enrolment, they found an increase in the participation rate from 49% to 86%. However most participants chose the minimum contribution level; the analysis of Madrian and Shea indicated that many participants would have chosen a higher contribution rate if they had explicitly chosen to opt into the scheme. Choi, Laibson, Madrian and Metrick (2001) found that people who would otherwise have contributed more into a pension scheme accept the default contribution rate when enrolment is automatic. So whilst automatic enrolment increases the number of members, those who would have joined anyway contribute less than they would have done in the absence of automatic enrolment.

Prospect Theory

Prospect theory is arguably the most developed theory in behavioural finance (Kahneman and Tversky 1972, 1973, 1982). Figure 1 illustrates a value function. It depicts subjective values assigned to gains and losses relative to a reference point. The reference point is subjective and may, for example, be the purchase price of an investment. The reference point divides the region where someone feels that they are making gains from the region in which they feel that they are making losses.

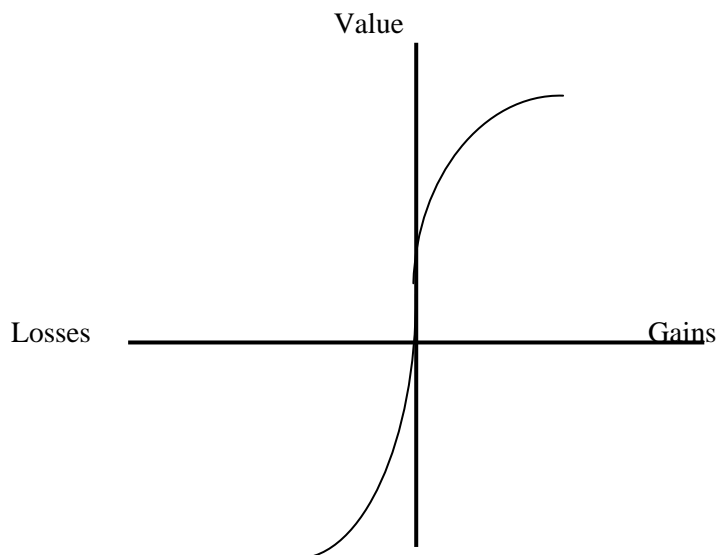


Figure 1

It is to be noted that the slope of the function for losses is steeper than the slope for gains. This is because, on average, people find the pain of losses to be about 2.25 times as intense as the pleasure from gains. Given an evens chance of winning or losing, people on average require the prospect of a £225 win to balance the prospect of a £100 loss. This relatively large fear of loss is known as loss aversion.

Automatic deduction of pension contributions from salary can avoid feelings of loss by changing the reference level of salary. The reference level of salary is likely to be the sum that is paid into the employee's bank account each month. In the absence of automatic deduction, the reference level of salary is higher and the sum removed for retirement saving produces a feeling of loss. When the saving is automatically removed from salary, there is a smaller sum paid into the bank account but there is no loss from that sum. The smaller sum becomes the reference level, and there is no feeling of loss arising from the monthly saving. Automatic deduction of savings from salary reduces the pain of loss.

Mental Accounting and Goals-Based Investing

Use of mental accounting can also facilitate the implementation of saving intentions. Mental accounting is a process of separating financial decisions rather than seeing them in aggregate (Thaler 1985). Finances are separated into a number of distinct accounts and each account is managed in isolation from other accounts, and money in one account is regarded differently to money in other accounts. If money to be saved were transferred to a separate account, psychology would give it a different status. The account containing savings is perceived differently to an account for expenditure, and the designation of a separate mental account for savings reduces the likelihood of spending from that account. However mental accounting could cause overspending, and hence reduce saving. Charupat and Deaves (2004) argued that many people give little value to money that is available through use of credit cards possibly to the point that some people do not feel that they are really spending money when using credit cards. Credit card money is put into a mental account that separates it from other money, and which treats it as freely spendable. Excessive spending with credit cards is detrimental to saving.

Mental accounting could also be used to enhance the processes of saving and investing if people feel more comfortable with goals-based investing than with traditional (mean-variance) portfolios. The approach of conventional portfolio management is to treat the investor's portfolio as a single entity, and to measure attitude to risk in relation to the whole portfolio. A behavioural finance alternative is to allow for multiple investment strategies, each relating to a separate mental account (Shefrin and Statman, 2000; Brunel, 2003; Nevins, 2004). Each strategy is linked to the goal encompassed by a mental account, on the basis that there would be a separate mental account for each goal. Mental accounting may be a useful technique for organising personal finances, and for achieving self-control in financial matters. Mental accounting may also be necessary for pension saving. If an investor reacts to a £1,000 loss in a pension fund in the same way as to a £1,000 loss from one month's salary, the investor could be overwhelmed by short-term pension fund losses. Without mental accounting no risk would be taken when accumulating long-term savings.

There are alternative ways of describing goals. One approach is to link them to life-cycle factors such as saving for a deposit on a home, saving for children's education, and saving for a retirement pension. Shefrin and Statman suggest that mental accounts might be differentiated in terms of risk; for example between low-risk funds that are intended to ensure that poverty is avoided through to funds that can be risked in the hope of very large gains. Chhabra (2005) took the view that investors divide their portfolios according to three types of risk; specifically a personal risk concerned with the avoidance of loss, the market risk of conventional theory, and aspirational risk concerned with the prospect of falling behind other people in terms of wealth. Correspondingly there may be a holding of risk-free assets to satisfy safety risk, a balanced portfolio for the market risk, and an aggressive portfolio aimed at high growth to satisfy aspirational risk. Chhabra suggests that risk allocation precedes asset allocation. It could be the case that an individual separates mental accounts in terms of their investment horizons; for example long-term, medium-term, and short-term pools of assets.

It may be that an investor would feel more comfortable with a goals-based investment strategy than with a single-portfolio strategy. One problem in the financial services industry has been the tendency for many people to terminate savings plans early (such as pension plans). If goals-based investing makes them feel more comfortable with their savings plans, they may be more likely to persist with them. For an asset allocation to be useful, the investor must adhere to it even in falling markets. Feelings of regret may cause an investor to abandon a strategy in adverse conditions. Brunel refers to this as 'decision risk'.

Brunel (2003) suggested that there are four fundamental goals: liquidity, income, capital preservation, and growth. The goals-based investing proposed by Brunel would entail a separate sub-portfolio to meet each of the four fundamental goals. For example, liquidity may be achieved with a bank deposit; income by a mixture of value stocks and corporate bonds; capital preservation by government bonds; and growth by a portfolio of value and growth stocks. The proportions of the four sub-portfolios in the total portfolio would reflect the goals and risk attitude of the investor. Brunel's argument implies that a portfolio comprising such a set of sub-portfolios could be more resilient and robust to decision risk in the face of adverse developments. The investor might remain more committed to it than to a traditional portfolio, which does not have goals based sub-portfolios.

A problem with goals-based investing is its complexity. From the perspective of a financial adviser, several measurements of risk aversion may need to be made and several investment strategies devised and implemented; one for each mental account. The task could be simplified by the creation of a variety of institutional investment products suited to different goals. Structured products can be created to meet investment goals that cannot be otherwise achieved. The adviser can then customise an investment portfolio for an individual by choosing the institutional investments that best match the investment goals of the individual.

Information Overload and the Comparative Ignorance Hypothesis

In principle the decision to save, and the investment allocation of saved funds, are independent decisions. However it is likely that indecision about the investment allocation can deter saving. For example a failure to decide on the investment allocation of saving for retirement may entail an absence of such saving.

Information overload can deter retirement saving (Turner 2006). If the choice between investment alternatives is too large and too complex, many employees take a default option. The default option may be to do nothing. However there is evidence that the reverse is true for investors who have good financial knowledge; they are deterred by too little choice rather than by too much choice (Kida, Moreno, and Smith 2010). An inappropriate level of choice (such as too much choice) could cause procrastination.

The comparative ignorance hypothesis suggests that a feeling of relative ignorance can undermine confidence about financial decision-making, and thereby inhibit such decision-making and cause procrastination (Fox and Tversky 1995). When someone contrasts their financial knowledge with

their knowledge in other domains, or with the financial knowledge of someone else, a feeling of comparative ignorance may result. The feeling of comparative ignorance could reduce a person's confidence in financial decision-making and induce a reluctance to make financial decisions.

According to Heath and Tversky (1991) the feeling of competence in financial decision-making is determined by the difference between what one knows and what one could know. If a person becomes aware of information that is beyond their understanding, or should have been known, that person may feel less confident about financial decision-making. The realisation that there is a substantial amount of information which one does not understand, or of which one was not aware, can prevent decision-making and cause procrastination.

Planning and Orientation Towards the Future

Lusardi and Mitchell (2007) measured planning in terms of whether, and how much, people had thought about retirement. They found that those who had thought about retirement, the planners, had accumulated much more wealth than those who had not. Generally most wealth was accumulated by those who had thought most about retirement. Ameriks, Caplin and Leahy (2003) ascertained the strength of a planning mindset using questions related to financial planning and questions about the extent of planning in other aspects of people's lives. They found that people with an inclination to plan their finances also tended to plan other matters, for example holiday itineraries. Those with an inclination to plan were found, on average, to have higher levels of wealth. One explanation of the relationship between planning and wealth accumulation was in terms of self-control; planning might help people to control their spending. Lusardi and Mitchell also found a positive correlation between planning and knowledge of finance (financial literacy).

Deaves, Veit, Bhandari and Cheney (2007) identified a propensity to plan. They found that pension contributions were positively correlated with the propensity to plan. They also found that those with a high propensity to plan had high tolerance of risk. They interpreted this relationship in terms of planners acquiring financial expertise, and hence learning that acceptance of risk is part of financial planning.

Strathman, Gleicher, Boninger, and Edwards (1994) found that people differ in terms of the emphasis they attach to long-term versus short-term outcomes of their behaviour. They concluded that time

horizon, the inclination to think ahead, has a positive effect on both the intention to save and the implementation of the intention. A number of other studies also found that future time perspective (the inclination to think ahead) is positively related to the tendency to save for retirement (Burtless 1999, Fisher and Montalto 2010, Hershey and Mowen 2000, Lusardi 1999). Howlett, Kees, and Kemp (2008) pointed out that the extent to which people are willing to sacrifice pleasure from immediate spending for long-term financial security is related to the extent to which they consider the future consequences of their behaviour.

Rabinovich and Webley (2007) focused their study on people who had expressed an intention to save. In this way they separated the implementation of an intention from the formation of the intention (arguably the two behavioural processes behind intentional saving). The factors that increase the likelihood that saving intentions are implemented may be different to the factors that lead to the formation of intentions to save. The study identified those who succeeded in implementing their saving intentions as the “plan-and-do” group and those who failed to implement their saving intentions as the “plan-in-vain” group. Time horizon (the inclination to think long-term) and expenditure control techniques were found to be important factors in the successful implementation of saving intentions. Rabinovich and Webley found significant differences in time horizon between plan-and-do and plan-in-vain groups. The tendency to think ahead is associated with the successful implementation of saving intentions.

According to the theory of planned behaviour (Ajzen 1991) the formation of an intention to do something, such as save, is determined by three factors. First there is the person’s attitude towards the behaviour: in other words the person’s feelings, either positive or negative, about the behaviour. Second the subjective norms that influence the person. This means that a person is influenced by the attitudes of family and friends towards the behaviour. Third there is the person’s perception of control in relation to the behaviour. So someone with a positive attitude to saving, interacting with others who have a positive attitude to saving, will have the intention to save if that person also believes it is possible to save. The actual implementation of the intention to save depends upon whether it is actually possible to implement the intention (as distinct from believing that it is possible). The likelihood of saving reflects the strength of the intention to save, and the feasibility of saving.

Croy, Gerrans, and Speelman (2010) mentioned a set of what they termed ‘kindred constructs’. These were ‘planning importance’, ‘future time perspective’, ‘future orientation’, ‘propensity to plan’, and

‘planner mindset’. They used the term ‘planning importance’. They found planning importance to be a personal characteristic that was associated with the intention to save for retirement. Its positive effect was both direct and indirect through increased financial knowledge. Both planning importance and financial knowledge were seen as having their effect through the medium of improving the perceived ability to save for retirement. Non-savers may fail to save for retirement because they do not see such saving as possible.

The belief in the possibility of saving can be influenced by the way that the saving behaviour is framed. Knoll (2010) suggested means of encouraging retirement saving based on behavioural finance principles. One suggestion entailed choice bracketing. If an adviser tells a client to aim for a fund of £500,000 at retirement, the client is presented with a frame based on broad bracketing. The client may see such a target as impossible. It may be that the weekly saving required for that target is £50. Expressing the target as £50 per week constitutes narrow bracketing. A target of £50 a week may feel achievable whereas a terminal sum of £500,000 may feel impossible. Belief in the possibility of saving could be positively influenced by an internal locus of control, the illusion of control, and the perceived availability of environmental controls.

The Transtheoretical Model of Change

It is typically the case that people are classified as savers or non-savers. The transtheoretical model of change does not treat non-savers as a homogeneous group, but uses categories that reflect their different stages of thinking about saving (Prochaska, DiClemente and Norcross 1992).

People in the precontemplation stage are not even aware of the need to save. Those in the contemplation stage are aware of the need to save but have no plans to do so. People in the preparation stage are intending to start saving. The action stage is the one during which saving occurs.

Non-savers can be in any of three stages. A financial adviser attempting to encourage the commencement of regular investment, such as investment in a pension scheme, needs to know the client’s current stage. Gutter, Hayhoe and Wang (2007) applied the transtheoretical model to the examination of determinants of (defined contribution) pension plan participation. They found that single people were more likely to be in the precontemplation stage than married people. Wealth was positively related to the likelihood of being in the action stage. Financial incentives from an employer, such as the employer matching pension contributions, increased the probability that someone would

be in the action stage. People with high risk-tolerance were more likely to invest in a pension scheme. Those with longer planning horizons, the forward thinkers, were the most likely to be in the action stage.

Optimism and Perceptions of Old Age

Puri and Robinson (2007) found that people who exhibited optimism were more likely to save than pessimistic people, so long as the optimism was not extreme. Their research indicated that optimists saved more and exerted greater self-control. Moderately optimistic people appear to have a heightened appreciation of the future and hence are more inclined to save for the future. However extreme optimism is associated with the feeling that the future will take care of itself ('something will turn up') and a low inclination to save. Arabsheibani, de Meza, Maloney and Pearson (2000) found that overestimation of future employment income led to inadequate saving and excessive borrowing, since people were over-optimistic about their future ability to save and to repay debt.

Harrison, Waite and White (2006) investigated attitudes to retirement saving by the use of focus groups. One finding was that positive or negative feelings about ageing and retirement have effects on saving. Some people dislike the thought of growing old whereas others relish the prospect of being free of the need to work. It is possible that the fear of old age is dealt with by putting the future out of mind; and that is likely to put preparation for the future out of mind. Those looking forward to retirement may be more inclined to prepare for it.

Neukam and Hershey (2003) suggested that 'financial inhibition' and 'financial activation' were important determinants of retirement saving. Financial inhibition encompasses fear-based factors that deter saving. Such factors include negative thoughts about growing old, as identified in the Harrison, Waite and White study. If old age is associated with images of poor health and faded looks, people may be reluctant to prepare for it. Thoughts of old age would evoke feelings of fear and anxiety. Little thought would be given to retirement since such thought would have unpleasant connotations. The result might be an absence of saving for retirement. Financial activation relates to goal-based motives that encourage saving. If old age were associated with leisure and freedom to choose how to use time, there would be a greater incentive to save for retirement.

Risk Tolerance and Trust

Jacobs-Lawson and Hershey (2005) investigated psychological determinants of retirement saving behaviour. They found that the existence, and extent, of saving for retirement was related to three

psychological characteristics. One of those characteristics was 'future time perspective', which is a measure of the extent to which people focus on the future.

Another characteristic that Jacobs-Lawson and Hershey found to be related to saving for retirement was knowledge of financial planning for retirement. The third characteristic investigated by Jacobs-Lawson and Hershey was risk tolerance. Grable and Joo (1997), and Yuh and DeVaney (1996), also found that risk tolerance was positively related to the level of retirement saving. However Croy, Gerrans, and Speelman (2010) found that risk tolerance had little effect on intentions to save for retirement.

Financial inhibition is fear-based and financial activation is goal-based (Neukam and Hershey 2003). They are two distinct characteristics rather than two ends of the same dimension. Neukam and Hershey found that the people who saved most were those with the strongest financial goals and the lowest level of fear. The goals and fears were not only related to visions of old age, but also to the planning process. The personal characteristics interact. For example a strong drive towards saving (planning) for retirement could be offset by a high level of fear about the planning process; a strong desire to accumulate wealth for retirement could be offset by a fear of stock market risk or a distrust of the financial services industry. This latter point is close to the Harrison, Waite and White (2006) observation that mistrust of financial advisers can deter retirement saving. The importance of fears concerning the saving (retirement planning) process relates to the Jacobs-Lawson and Hershey (2005) findings that financial knowledge and risk tolerance are positively related to retirement saving (financial knowledge and risk tolerance would be expected to reduce the fears).

The availability bias has significance for financial inhibition. If a situation comes to mind easily investors are likely to exaggerate its likelihood, and the likelihood that it will affect themselves. Coverage in the media can enhance availability. Media coverage of failed, or defrauded, pension schemes can increase financial inhibition, particularly if the coverage is repeated or vivid. Furthermore the media has a bias towards reporting bad news, and exaggerating it (Combs and Slovic 1979).

If action requires operating through an agent, there is inhibition if the agent is not trusted. Such agents could include financial advisers and financial organizations that provide financial products for retail investors. Trust can be an important factor in determining whether action is taken (Olsen 2008). For example, a person may decide to start a pension plan. However if that person does not trust financial advisers, the result could be an absence of action. Mistrust inhibits action. The lack of trust might relate to the competence of financial advisers, or to the ability of advisers to put clients' interests

ahead of their own. Trust entails the acceptance of vulnerability to the decisions of others. If the investor cannot trust the competence or integrity of an adviser, the pension plan will not be implemented. There also needs to be trust in the organization that provides the pension plan. There needs to be trust in regulators and in the markets in which the underlying investments are made. Although an investor may wish to invest in a pension plan, distrust of the stock and bond markets in which the provider invests could deter the investor from pursuing the pension plan.

Trust is important to the perception of risk. If advisers, fund managers, and markets are not trusted perceived risk would be high. Ryan and Buchholtz (2001) divide trust into generalized trust and situational trust. Generalized trust is a person's general trust in people, institutions and markets. This reflects personality and is seen as fairly constant. Situational trust is generalized trust amended in the light of information about specific circumstances or investment products. Situational trust has a close relationship to perceived risk. Low situational trust is associated with high perceived risk.

An exchange between contracting parties, such as that between client and financial adviser, requires trust. Clients must be confident that advisers will not exploit the relative ignorance of the clients (the asymmetric information). Trust requires that the client has confidence in the competence and benevolence of the adviser. Risk perception is magnified when clients feel that they cannot trust advisers and providers. Clients find many products difficult to understand, and are therefore dependent upon the advice of an expert. Clients will perceive high levels of risk if advisers or providers are not trusted. Viklund (2003) and Olsen (2004) found a strong inverse relationship between personal trust and perceived risk. Siegrist and Earle (2003) noted that as decisions become more complicated trust becomes a more important measure of risk than statistical distributions (feelings become more important than numbers).

Johnson and Grayson (2005) concluded that investors' trust in their financial advisers was influenced by both cognitive and affective factors. Cognitive trust is based on perceptions of technical competence and reliability of service whereas affective trust is based upon care, concern and familiarity. The client wants the adviser to be competent and efficient technically but also to be concerned about the client as a person; to have the client's best interests at heart.

Bejou, Ennew and Palmer (1998) suggested that developing satisfactory customer relationships can help to reduce the client's perceived risk. From the perspective of the client the determinants of a

satisfactory relationship include customer orientation, trust and technical expertise. Customer orientation contrasts with sales orientation. A customer orientated adviser focuses on the needs of the client rather than focusing on selling financial products to the client.

Among non-experts risk is perceived as greater if the person lacks information about, or control over, outcomes. Lack of information and control in regard to investment outcomes leads to mistrust of providers of financial services and mistrust of financial advisers (Sjöberg 2001). The mistrust of financial advisers may be based on a perceived affiliation bias whereby advisers are seen as being too trusting of the providers of financial services.

Redhead (2011) addressed the issue of client trust and how advisers can improve trust.

Recommendations included: provision of information, increases in familiarity with financial planning, attempts to develop a long-term perspective, emphasis on the positive aspects of financial planning, and financial education.

Financial Education

A number of studies have indicated that financial knowledge is positively related to levels of retirement saving (Hershey and Mowen 2000, Yuh and DeVaney 1996, Grable and Lytton 1997, Ekerdt, Hackney, Kosloski, and DeVaney 2001, Mitchell and Moore 1998). Since a number of studies have indicated an association between knowledge of finance and saving for retirement the question arises as to whether increases in the level of financial education would increase the propensity to save.

Bernheim, Garrett and Maki (2001) examined the long-term effects of school financial education on saving behaviour in the US. Some states had compulsory financial education and some did not. It was found that average savings rates were 1.5% higher in the states in which financial education had been compulsory. Mandell and Klein (2009), in a study of school leavers, found that a course in personal financial management had no lasting impact. In subsequent years (1 to 4 years after taking the course) those who had taken the course were no more financially literate, and had no better financial behaviour, than those who had not taken the course.

Peng, Bartholeme, Fox and Cravener (2007) found that education in finance and investments appeared to increase saving rates but only when the education was delivered at university, and not when it was delivered at school. However there may be a self-selection issue in that university students choose whether to attend a course in finance and investments. It could be that people with an interest in finance are more likely to choose a finance course, and are more likely to save. The higher saving might result from the greater level of interest in finance and investment, rather than from the finance education.

Duflo and Saez (2003) investigated the effects of financial education provided by an employer. The methodology entailed a procedure that attempted to eliminate the bias introduced by self-selection. The findings were that financial education affected decisions about enrolment in pension plans. There also seemed to be spill-over effects in that the direct recipients of financial education appeared to influence the decisions of their colleagues.

It is useful to distinguish between different types of financial education. For example education about debt management is likely to have little impact on retirement saving. Collins and O'Rourke (2010) separated their review of the evidence of the effects of financial education into categories. Some categories were explicitly about debt management. Unfortunately no category was explicitly about saving. However one category was 'Workplace-Based Financial Education Programs' (which might be expected to cover retirement saving), and the literature review of this category concluded that all the studies indicated positive outcomes. The positive outcomes were in terms of both retained knowledge and financial behaviour. It is noteworthy that Howlett, Kees, and Kemp (2008) found that in the absence of financial knowledge consumers' orientation towards the future did not affect their likelihood of participation in pension schemes.

A review for the Financial Services Authority in the UK by de Meza, Irlenbusch and Reyniers (2008) surveyed research on the relationship between financial education and personal finance. They suggested that although there was considerable evidence for an association between financial education and the quality of personal financial planning, it was not clear that the provision of additional financial education would significantly improve personal finance decisions. It may be that the association arises because people who are interested in personal finance choose to learn about personal finance and choose to save. Rather than financial education improving the management of personal finances in all cases it may be that an interest in personal finance motivates a person towards

both good financial management and the acquisition of financial knowledge. The provision of financial education to people with no interest in personal finance may have little or no effect on their financial behaviour. The presence of financial education may improve financial management only when the person is interested in personal finance.

Mandell and Klein (2007) found that the acquisition and retention of financial expertise depended heavily on motivation. Deaves, Veit, Bhandari and Cheney (2007) cited studies indicating that financial training could enhance motivation, in the sense of the propensity to plan (Bernheim, Garrett and Maki 2001; Mann, Beswick, Allouache and Ivey 1989).

Exponential Growth Bias

One specific issue that financial education could address is a common misunderstanding about the effects of compounding, known as exponential growth bias. Exponential growth bias is a behavioural error related to compounding (Stango and Zinman 2009). It is a tendency to see compounding in linear, rather than exponential, terms. It includes a failure to appreciate the effect of compound interest, and an inclination to think in terms of simple interest.

For someone prone to the exponential growth bias the formula for expected growth might be:

$$P = A \times (1 + rT)$$

as opposed to the correct version:

$$P = A \times (1 + r)^T$$

where P is the expected future value, A is the sum invested, r is the rate of return (interest), and T is the investment horizon (period of the investment, e.g. number of years).

One implication of the exponential growth bias is the underestimation of the rate of growth of debt, thereby inclining people to borrow more. Another implication is that the rate of accumulation of investments is underestimated, resulting in reduced saving and insufficient allocation of assets to potentially high-return investments such as stocks.

Clients could be shown examples of compound growth, perhaps using the endowment equation and a pocket calculator. If a client does such calculations the illusion of control could be enhanced and hence the perception of risk reduced. It is a skill behaviour that can reinforce the illusion of control (Langer, 1975). Performing the calculations can reinforce familiarity, with corresponding reductions in the perception of risk. According to the familiarity bias, people tend to prefer things that seem familiar to them (Huberman, 2001). Correspondingly investors prefer investments with which they feel familiar. Familiarity appears to reduce the perceived risk.

The endowment equation can be written as:

$$M = p[(1+y)^T - 1] / y$$

where M = sum to be accumulated, p = periodic investment, y = rate of return on the fund (per period), and T = number of periods (e.g. months). A pocket calculator with a power function can be used to work through hypothetical examples of the outcome of regular saving.

Save More Tomorrow (SMarT) – An Application of Behavioural Principles to Retirement

Saving

Benartzi and Thaler (2004) used the principles of behavioural finance to develop a practical programme for increasing the level of saving into pension schemes. The programme was called Save More Tomorrow (SMarT). The programme was designed to help employees who want to save more for retirement but find that their willpower is lacking.

One feature of SMarT is that there is a time lag between commitment to the scheme and the date on which payments begin. This overcomes the problem that people tend to value immediate money very highly (hyperbolic discounting). People find it easier to commit to future saving than to immediate saving.

A second feature is that increases in payments to the scheme coincide with pay rises. By using part of a pay rise, contributors do not feel that they are reducing their disposable income (take-home pay). They do not feel a sense of loss, and the pain of loss created by loss aversion. It does not seem to matter whether the pay rise is a real one, or simply matches inflation, since people seem to suffer from money illusion (Kahneman, Knetsch and Thaler 1986, Shafir, Diamond and Tversky 1997). The real

rise is the increase in the purchasing power of the wage; if prices are rising, the real rise is less than the rise in money terms. Money illusion causes people to see money rises as real ones.

The effect of the status quo bias is that, when faced with a choice, people tend to make no change (they maintain the status quo). If the decision has already been made to increase contributions to the scheme, maintenance of the status quo entails proceeding with the existing arrangement to increase contributions. Employees can opt out of the plan if they wish to. This makes commitment to the scheme less binding, and hence makes the commitment more likely. The status quo bias tends to keep people in the scheme.

Benartzi and Thaler applied SMarT in a company and found that it was successful in raising rates of saving into a pension fund. They found that the average saving rate for participants in the programme increased from 3.5% to 13.6% over 40 months. They also found that 78% of the employees joined the programme, and that 80% of the joiners were still in the scheme after 40 months.

Benartzi and Thaler estimated that implementation of SMarT throughout the United States could increase personal saving by \$125 billion per year. Investment of such additional sums in stock and bond markets would put substantial upward pressure on stock prices and bond prices. Successful plans to increase saving into pension funds could cause large rises in stock (and bond) prices. The new savers would be rewarded with capital gains, and that might further encourage saving. There could be positive feedback investing whereby rising stock prices lead to increased investment, which in turn raises stock prices (and hence investment) (Nofsinger and Sias 1999). Behavioural biases would tend to reinforce this upward cycle.

The upward momentum of stock prices could be reinforced by the representativeness bias (Tversky and Kahneman 1974) and information cascades (Alevy, Haigh and List, 2007). One interpretation of the representativeness bias is that investments that have shown recent price rises are seen as representative of longer term successes (and conversely for those showing recent price falls). Another way of looking at representativeness views it as suggesting that people see patterns and trends where they do not exist. Recent upward price movements are interpreted as an upward trend that will continue into the future (conversely with price falls). Many people seem to believe that recent price rises will continue into the future, likewise recent price falls. As a result they buy when they see that

prices have been rising, causing prices to rise further, and sell when they see that prices have been falling, accentuating the price falls. DeBondt (1993) reported a study of 38,000 forecasts of stock prices and exchange rates. He found that non-experts expected the continuation of apparent past trends in prices. They were optimistic in bull markets and pessimistic in bear markets.

In an information cascade people see the actions of others as indicating information and act on that information. Investors buy because they know that others are buying, and in buying indicate information to other investors who buy in their turn. Rising prices indicate that investors are buying. The buying (or selling) by others is interpreted as indicating that those others have information about investments. Their trading is seen as being based on information.

Recommendations

What does the foregoing discussion suggest about strategies for increasing savings? One salient point is that getting started is a major problem for many people. Once the process of saving has begun behavioural influences (the status quo bias) will tend to keep it going. The status quo bias will cause the person to see regular saving as the new normal, which will be maintained unless derailed by a conscious change.

Automatic mechanisms such as deduction from salary, or automatic monthly transfers from a bank account, could strengthen the tendency for mental accounting to assign a different status to money designated as saving. Advisers can help clients to develop useful mental accounting habits. If clients see money for saving to be distinct from money for spending, the process of saving will be enhanced. Mental accounting can facilitate self-control. The adoption of automatic mechanisms for transferring money into savings accounts would reinforce these effects of mental accounting. Once an automatic process, such as automatic deductions from salary, is established the status quo bias would tend to ensure its continuation. Deductions from salary would also lower the reference level of income, and thereby avert feelings of loss.

What do behavioural factors suggest about getting the saving process started? Delaying the commencement of saving would overcome the high weight on immediate expenditure (hyperbolic discounting), and if there is a commitment to the future commencement the status quo bias would tend to ensure that it takes place. One lesson that advisers can take from the experience with SMarT is that

starting with small regular sums and raising saving by small increments could be successful. Timing increases in saving rates to coincide with strong market performance would utilize the positive sentiment generated by strong market performance. Evidence for a positive effect of strong market performance on willingness to invest comes from Clarke and Statman (1998), Grable, Lytton and O'Neill (2004), Karceski (2002), MacKillop (2003), and Yao, Hanna and Lindamood (2004).

The exponential growth bias offers potential for the education of clients. If people do not intuitively grasp the power of compounding, an introduction to the use of the endowment equation in conjunction with a pocket calculator (or piece of computer software) would help to correct the exponential growth bias. If clients do the calculations themselves they could acquire a feeling of familiarity with investments, and develop the illusion of control (and perhaps an internal locus of control). These cognitive developments should strengthen positive attitudes to saving and investing.

Appreciation of the power of compounding could heighten optimism and orientation towards the future. A greater appreciation of prospective future values, together with clear and vivid illustrations of the lifestyles that could be achieved from those values, may increase interest in the future. Such an increase in focus on the future would make it more likely that the individual saves for the future. The endowment equation could also be used to illustrate the consequences of delaying the enrolment in a pension scheme.

Development of trust is important. Clients need to trust advisers, product providers, and asset markets. Advisers can enhance client trust by means of providing educational materials, market information, and information about financial products (King, 2009). The provision of financial education for clients could be expected to lower their perceptions of risk by raising their familiarity with personal finance strategies and products. Simultaneously excessive choice should be avoided since information overload can be a deterrent to saving and investing.

References

- Ainslie, G. (1991) Derivation of 'Rational' Economic Behavior from Hyperbolic Discount Curves, *American Economic Review*, 81: 134-140.
- Ajzen, I. (1991) The Theory of Planned Behavior, *Organizational Behavior and Human Decision Processes*, 50: 175-211.
- Akerlof, G. (1991) Procrastination and Obedience, *American Economic Review*, 81, 2: 1-19
- Alevy, J.E.; M.S. Haigh and J.A. List (2007) Information Cascades: Evidence from a Field Experiment with Financial Market Professionals, *Journal of Finance*, 62, 1: 151-180.
- Ameriks, J.; A. Caplin, and J. Leahy (2003) Wealth Accumulation and the Propensity to Plan, *Quarterly Journal of Economics*, 118: 1007-1047.
- Andreou, C. (2007) Understanding Procrastination, *Journal for the Theory of Social Behaviour*, 37: 183-93.
- Arabsheibani, G.; D. de Meza, J. Maloney, and B. Pearson (2000) And a Vision Appeared Unto Them of a Great Profit: Evidence of Self-Deception Among the Self-Employed, *Economic Letters*, 67: 35-41.
- Bejou, D.; C.T. Ennew, and A. Palmer (1998) Trust, Ethics and Relationship Satisfaction, *International Journal of Bank Marketing*, 16: 170-75.
- Benartzi, S. and R.H. Thaler (2004) Save More Tomorrow: Using Behavioral Economics to Increase Employee Saving, *Journal of Political Economy*, 112: 164-187
- Benartzi, S.; and R.H. Thaler (2007) Heuristics and Biases in Retirement Savings Behavior, *Journal of Economic Perspectives*, 21: 81-104.
- Bernheim, B.D., D.M. Garrett and D.M. Maki (2001) Education and Saving: The Long-Term Effects of High School Financial Curriculum Mandates, *Journal of Public Economics*, 80, 3: 435-65.
- Brunel, J. (2003) Revisiting the Asset Allocation Challenge Through a Behavioral Finance Lens, *Journal of Wealth Management*, 6, 2: 10-20.
- Burtless, G. (1999) An Economic View of Retirement, in H.J. Aaron (ed.) *Behavioral Dimensions of Retirement* (Brookings Institution Press)
- Charupat, N. and R. Deaves (2004) How Behavioral Finance Can Assist Financial Professionals, *Journal of Personal Finance*, 3: 41-52.

- Chhabra, A.B. (2005) Beyond Markowitz: A Comprehensive Wealth Allocation Framework for Individual Investors, *Journal of Wealth Management*, 7, 4: 8-34.
- Choi, J.; D. Laibson, B. Madrian, and A. Metrick (2001) For Better or for Worse: Default Effects and 401(k) Savings Behavior, in D. Wise (ed.) *Frontiers in the Economics of Aging*, (National Bureau of Economic Research)
- Clarke, R.G. and M. Statman (1998) Bullish or Bearish, *Financial Analysts Journal*, 54, 3: 63-72.
- Collins, J.M. and C. M. O'Rourke (2010) Financial Education and Counseling – Still Holding Promise, *Journal of Consumer Affairs*, 44: 483-498.
- Combs, B. and P. Slovic (1979) Causes of Death: Biased Newspaper Coverage and Biased Judgments, *Journalism Quarterly*, 56, 4: 837-843.
- Croy, G.; P. Gerrans, and C. Speelman (2010) The Role and Relevance of Domain Knowledge, Perceptions of Planning Importance, and Risk Tolerance in Predicting Savings Intentions, *Journal of Economic Psychology*, 31: 860-871.
- de Meza, D.; B. Irlenbusch, and D. Reyniers (2008) Financial Capability: A Behavioural Economics Perspective, *Financial Services Authority Consumer Research Paper* 69.
- Deaves, R.; E.T. Veit, G. Bhandari, and J. Cheney (2007) The Savings and Investment Decisions of Planners: a Cross-Sectional Study of College Employees, *Financial Services Review*, 16: 117-133.
- DeBondt, W.F.M. (1993) Betting on Trends: Intuitive Forecasts of Financial Risk and Return, *International Journal of Forecasting*, 9, 3: 355-371.
- Duflo, E. and E. Saez (2003) The Role of Information and Social Interactions in Retirement Plan Decisions: Evidence from a Randomized Experiment, *Quarterly Journal of Economics*, 118: 815-42.
- Ekerdt, D.J.; J. Hackney, K. Kosloski, and S. DeVaney (2001) Eddies in the Stream: the Prevalence of Uncertain Plans for Retirement, *Journals of Gerontology Social Sciences*, 56B: 162-170
- Fisher, P.J. and C. P. Montalto (2010) Effect of Saving Motives and Horizon on Saving Behaviors, *Journal of Economic Psychology*, 31: 92-105.
- Fox, C.R. and A. Tversky (1995) Ambiguity Aversion and Comparative Ignorance, *Quarterly Journal of Economics*, 110, 3: 585-603.
- Grable, J.E. and R.H. Lytton (1997) Determinants of Retirement Savings Plan Participation: a Discriminant Analysis, *Personal Finances and Worker Productivity*, 1

- Grable, J.E. and S. Joo (1997) Determinants of Risk Preference: Implications for Family and Consumer Services Professionals, *Family Economics and Resource Management Biennial*, 2
- Grable, J.; R. Lytton and B. O'Neill (2004) Projection Bias and Financial Risk Tolerance, *Journal of Behavioral Finance*, 5, 3: 142-7.
- Gutter, M.; C.R. Hayhoe and L. Wang (2007) Examining Participation Behavior in Defined Contribution Plans Using the Transtheoretical Model of Behavior Change, *Financial Counseling and Planning*, 18, 1: 46-60.
- Guven, C. (2008) Reversing the Question. Does Happiness Affect Consumption and Savings Behavior?, Deakin University, School of Accounting, Economics and Finance, Working Paper Series, 2008/20.
- Harrison, T.; K. Waite, and P. White (2006) Analysis by Paralysis: the Pension Purchase Decision Process, *International Journal of Bank Marketing*, 24: 5-23.
- Heath, C. and A. Tversky (1991) Preference and Belief: Ambiguity and Competence in Choice under Uncertainty, *Journal of Risk and Uncertainty*, 4, 1: 5-28.
- Hershey, D.A. and J.C. Mowen (2000) Psychological Determinants of Financial Preparedness for Retirement, *The Gerontologist*, 40: 687-697
- Hoch, S. and G. Loewenstein (1991) Time-Inconsistent Preferences and Consumer Self-Control, *Journal of Consumer Research*, 17: 492-507
- Howlett, E.; J. Kees, and E. Kemp (2008) The Role of Self-Regulation, Future Orientation, and Financial Knowledge in Long-Term Financial Decisions, *Journal of Consumer Affairs*, 42: 223-242.
- Huberman, G. (2001) Familiarity Breeds Investment, *Review of Financial Studies*, 14, 3: 659-680.
- Jacobs-Lawson, J.M. and D. A. Hershey (2005) Influence of Future Time Perspective, Financial Knowledge, and Financial Risk Tolerance on Retirement Saving Behaviors, *Financial Services Review*, 14: 331-44.
- James, R.N. and D.L. Sharpe (2007) Is Time Running Out? Savings and Investments of Renters Nearing Retirement Age, *Financial Counseling and Planning*, 18: 61-75.
- Johnson, D. and K. Grayson (2005) Cognitive and Affective Trust in Service Relationships, *Journal of Business Research*, 58: 500-507.

- Kahneman, D.; J.L. Knetsch, and R.H.Thaler (1986) Fairness as a Constraint on Profit Seeking, *American Economic Review*,76: 728-741
- Kahneman, D. and A. Tversky (1972) Subjective Probability: A Judgment of Representativeness, *Cognitive Psychology*, 3.
- Kahneman, D. and A.Tversky (1973) On the Psychology of Prediction, *Psychology Review*, 80.
- Kahneman, D. and A. Tversky (1982) The Psychology of Preferences, *Scientific American*, 246.
- Karceski, J. (2002) Returns-Chasing Behavior, Mutual Funds, and Beta's Death, *Journal of Financial and Quantitative Analysis*, 37, 4: 559-94.
- Kida,T. K.K. Moreno and J.F. Smith (2010) Investment Decision Making: Do Experienced Decision Makers Fall Prey to the Paradox of Choice?, *Journal of Behavioral Finance*, 11: 21-30
- King, R. (2009) Planner-Client Communication: Driving Satisfaction, Longevity, and Referrals Through Your Communications, *Research Spotlight (Financial Planning Association)*, Third Quarter: 1-5.
- Knoll, M.A.Z. (2010) The Role of Behavioral Economics and Behavioral Decision Making in Americans' Retirement Savings Decisions, *Social Security Bulletin*, 70, 4: 1-23.
- Langer, E.L. (1975) The Illusion of Control, *Journal of Personality and Social Psychology*, 32
- Lusardi, A. (1999) Information, Expectations, and Savings for Retirement, in H..J. Aaron (ed.) *Behavioral Dimensions of Retirement*, (Brookings Institution Press)
- Lusardi, A. and O.S. Mitchell, (2007) Baby Boomer Retirement Security: The Roles of Planning, Financial Literacy, and Housing Wealth, *Journal of Monetary Economics*
54: 205-224.
- MacKillop, S. (2003) Confidence Builder, *Investment Advisor*, (March): 62-4.
- Madrian, B.C. and D.F. Shea (2000) The Power of Suggestion: Inertia in 401(k) Participation and Savings Behavior, *Social Science Research Network*.
- Mandell, L. and L.S. Klein (2007) Motivation and Financial Literacy, *Financial Services Review*, 16, 2: 105-116.
- Mandell, L. and L.S. Klein (2009) The Impact of Financial Literacy Education on Subsequent Financial Behavior, *Journal of Financial Counseling and Planning*, 20, 1: 15-24.

Mann, L.; G. Beswick; P. Allouache and M. Ivey (1989) Decision Workshops for the Improvement of Decision Making Skills and Confidence, *Journal of Counseling and Development*, 67: 478-481.

McClure, S. M.; D. Laibson, G. Loewenstein, and J.D. Cohen (2004) Separate Neural Systems Value Immediate and Delayed Monetary Rewards, *Science*, 306 (5695): 503-7.

Mitchell, O.S. and J.F. Moore (1998) Can Americans Afford to Retire? New Evidence on Retirement Savings Adequacy, *The Journal of Risk & Insurance*, 65: 371-400.

Neukam, K.A. and D.A. Hershey (2003) Financial Inhibition, Financial Activation, and Saving for Retirement, *Financial Services Review*, 12: 19-37.

Nevins, D. (2004) Goals-Based Investing: Integrated Traditional and Behavioral Finance, *Journal of Wealth Management*, 6, 4: 8-23.

Nofsinger, J.R. (2002) *The Psychology of Investing* (1st ed.), (Pearson Education/Prentice Hall)

Nofsinger, J.R. (2005) Social Mood and Financial Economics, *Journal of Behavioral Finance*, 6, 3: 144-160.

Nofsinger, J.R. and R.W. Sias (1999) Herding and Feedback Trading by Institutional and Individual Investors, *Journal of Finance*, 54, 6: 2263-2295.

Nyhus, E.K. and P. Webley (2001) The Role of Personality in Household Saving and Borrowing Behaviour, *European Journal of Personality*, 15: 85-103.

Olsen, R.A. (2008) Trust as Risk and the Foundation of Investment Value, *Journal of Socio-Economics*, 37: 2189-2200.

Olsen, R.A. (2004) Trust, Complexity and the 1990s Market Bubble, *Journal of Behavioral Finance*, 5: 186-191.

Olson, K.R. (2006) A Literature Review of Social Mood, *Journal of Behavioral Finance*, 7: 193-203.

Peng, T.M.; S. Bartholeme, J.J. Fox and G. Cravener (2007) The Impact of Personal Finance Education Delivered in High School and College Courses, *Journal of Family Economic Issues*, 28: 265-84.

Perry, V. G. (2008) Giving Credit Where Credit is Due: The Psychology of Credit Ratings, *Journal of Behavioral Finance*, 9: 15-21.

Perry, V. G. and M.D. Morris (2005) Who is in Control: The Role of Self-Perception, Knowledge and Income in Explaining Consumer Financial Behavior, *Journal of Consumer Affairs*, 39: 299-313.

Peterson, D. and G. Pitz, (1988) Confidence, Uncertainty, and the Use of Information, *Journal of Experimental Psychology*, 14.

Prechter, R.R. (1999) *The Wave Principle of Human Social Behavior and the New Science of Socionomics*, New Classics Library.

Prochaska, J.O.; C.C. DiClemente and J.C. Norcross (1992) In Search of How People Change: Applications to Addictive Behaviors, *American Psychologist*, 47, 9: 1102-1114.

Puri, M. and D.T. Robinson (2007) Optimism and Economic Choice, *Journal of Financial Economics*, 86:71-99.

Rabinovich, A. and P. Webley (2007) Filling the Gap Between Planning and Doing: Psychological Factors Involved in the Successful Implementation of Saving Intention, *Journal of Economic Psychology*, 28: 444-461

Redhead, K. (2011) Behavioral Perspectives on Client Mistrust of Financial Services, *Journal of Financial Service Professionals*, (November)

Ryan, L.V. and A. K. Buchholtz (2001) Trust, Risk, and Shareholder Decision Making: An Investor Perspective on Corporate Governance, *Business Ethics Quarterly*, 11: 177-193.

Scottish Widows (2005) *A Major Assessment of Pension Savings Behaviour*.

Shafir, E.; P. Diamond, and A. Tversky (1997) Money Illusion, *Quarterly Journal of Economics*, 112: 341-374

Shefrin, H. and M. Statman (2000) Behavioral Portfolio Theory, *Journal of Financial and Quantitative Analysis*, 35, 2: 127-151.

Siegrist, M. and T. Earle (2003) Test of a Trust Confidence Model, *Risk Analysis*, 23: 705-16.

Sjöberg, L. (2001) Limits of Knowledge and the Limited Importance of Trust, *Risk Analysis*, 21: 189-98.

Stango, V. and J. Zinman (2009) Exponential Growth Bias and Household Finance, *Journal of Finance*, 64: 2807-2849.

Stracca, L. (2004) Behavioral Finance and Asset Prices: Where Do We Stand?, *Journal of Economic Psychology*, 25: 373-405.

- Strathman, A.; F. Gleicher, D. Boninger, and C. S. Edwards (1994) The Consideration of Future Consequences: Weighing Immediate and Distant Outcomes of Behavior, *Journal of Personality and Social Psychology*, 66: 742-766.
- Thaler, R. (1985) Mental Accounting and Consumer Choice, *Marketing Science*, 4, 3: 199-215.
- Thaler, R. (1994) Psychology and Savings Policies, *American Economic Review*, 84: 186-192
- Thaler, R. and H. Shefrin (1981) An Economic Theory of Self-Control, *Journal of Political Economy*, 89: 392-406
- Tice, T.; E. Bratslavsky, and R. Baumeister (2001) Emotional Distress Regulation Takes Precedence Over Impulse Control: If You Feel Bad, Do It!, *Journal of Personality and Social Psychology*, 80.
- Tumarkin, R. and R.F. Whitelaw (2001) News or Noise? Internet Postings and Stock Prices, *Financial Analysts Journal*, 57: 41-52.
- Turner, A. (2004) Pensions Commission.
- Turner, J. (2006) Designing 401(k) Plans That Encourage Retirement Savings: Lessons from Behavioral Finance, *Benefits Quarterly*, 22: 24-36.
- Tversky, A. and D. Kahneman (1974) Judgement Under Uncertainty: Heuristics and Biases, *Science*, 185, 4157: 1124-1131.
- Viklund, M. (2003) Trust and Risk Perception in Western Europe: A Cross National Study, *Risk Analysis*, 23: 727-38.
- Watson, J.J. (2003) The Relationship of Materialism to Spending Tendencies, Saving, and Debt, *Journal of Economic Psychology*, 24: 723-739
- Yao, R.; S.D. Hanna and S. Lindamood (2004) Changes in Financial Risk Tolerance, 1983-2001, *Financial Services Review*, 13, 4: 249-66.
- Webley, P. and E.K. Nyhus (2001) Life-Cycle and Dispositional Routes into Problem Debt, *British Journal of Psychology*, 92: 423-446.
- Yuh, Y. and S.A. DeVaney (1996) Determinants of Couples' Defined Contribution Retirement Funds, *Financial Counseling and Planning*, 7: 31-38

