



Pensions  
Institute

## DISCUSSION PAPER PI-0406

# Investment Decision-Making in Defined Contribution Pension Plans

Alistair Byrne

*June 2004*

ISSN 1367-580X

The Pensions Institute  
Cass Business School  
City University  
106 Bunhill Row London  
EC1Y 8TZ  
UNITED KINGDOM

<http://www.pensions-institute.org/>

---

# Investment decision making in defined contribution pension plans

Received (in revised form): 24th June, 2004

## Alistair Byrne

is a lecturer in finance at the University of Strathclyde and a consultant to pension funds and pension product providers. Prior to taking up these roles in September 2003, he spent ten years at AEGON Asset Management in a number of positions including Head of Investment Strategy and Head of Equity Research. He has published research in a variety of academic and professional journals.

**Abstract** In recent years there has been a significant shift in pension provision in the USA and the UK from the situation where employers offer defined benefit pensions to employees, to a 'self-directed' defined contribution basis where the individual employee bears the risk that the pension contributions — and the investment returns they earn — will be sufficient to fund a comfortable retirement. This paper discusses some of the behavioural economics research relevant to assessing how well placed most employees are to deal with this greater responsibility. It also discusses some of the suggestions that have been made for using these behavioural findings to improve the design of defined contribution pension plans.

**Keywords:** *defined contribution pensions; behavioural economics; investment education*

## Introduction

'Consumers face two challenges: making good decisions and sticking to them. Economists have adopted optimistic assumptions on both counts. The consumers in mainstream economic models are assumed to be both exceptionally good decision makers and to be able to carry out their plans. These economic assumptions are dubious, particularly in regards to saving for retirement.'<sup>1</sup>

Most occupational pension plans are either of a defined benefit (DB) or defined contribution (DC) nature. In a DB plan, an employee who qualifies for the pension will receive an income flow from the employer-sponsored pension scheme from retirement until death. The

annual benefit is typically a proportion of the employee's final, or average, salary, with the proportion depending on length of tenure in the pension scheme. In contrast, in a DC scheme contributions are paid into the plan and the employee can usually choose from a range of investment options. The funds, with accumulated investment returns, are then available to provide a retirement income, either directly or by purchasing an annuity.

In recent years there has been a significant shift in retirement income provision in the USA from the situation where employers offer these DB promises<sup>2</sup> to individuals, to a self-directed DC basis where the individual bears the risk that the pension contributions —

**Alistair Byrne**  
Department of Accounting  
and Finance,  
University of Strathclyde,  
100 Cathedral Street,  
Glasgow G4 0LN, UK.  
e-mail:  
alistair.byrne@strath.ac.uk

and the investment returns they earn — will be sufficient to fund a comfortable retirement.<sup>3</sup> Surveys by the National Association of Pension Funds (NAPF) show similar trends in place in the UK.<sup>4</sup>

The growing literature of ‘behavioural economics’<sup>5</sup> raises interesting questions about whether most individuals are well placed to make the strategic investment decisions this greater responsibility entails. There is evidence individual investors do not always make good decisions. For example, Barber and Odean document a variety of behavioural traits displayed by investors with retail brokerage accounts, including excessive trading and a tendency to sell winning stocks too early, which tend to depress the returns they enjoy.<sup>6</sup> In terms of pensions, a Watson Wyatt study found the returns of pension plans with employee-directed investments lagged professionally managed funds by some 2 per cent per year on average.<sup>7</sup> Bodie argues risk is being transferred ‘to those least able to manage it’.<sup>8</sup>

This paper provides a summary of the main US literature on individual investment decision making in DC pension plans, including proposals that have been made for using the insights of behavioural economics to improve pension plan design. The trend towards DC pensions is also evident in the UK, but relatively little research has been done looking at the situation here in the light of the US research. This paper also provides a brief overview of the available UK evidence against the background of the Department of Work and Pensions’ recent proposals for promoting ‘informed choice’ in retirement saving.<sup>9</sup>

### **Participant knowledge, confidence and investment choice**

Saving for retirement is a complex task and the stakes — ensuring an adequate income in retirement — are high. The

move from DB to DC pensions puts much more responsibility into the hands of the individual participants, particularly in terms of how much to save and how to invest the resulting funds. This does not appear to be something that comes easily to most people. The 2003 US Retirement Confidence Survey reports only 37 per cent of respondents had tried to calculate how much money they should save for retirement.<sup>10</sup> Of those reporting they had tried to calculate their retirement income needs, 36 per cent could not provide the results of the calculation and 3 per cent stated they had been unable to do it.

The John Hancock insurance company has conducted a regular survey of the attitudes and knowledge of investors in DC pension plans over the past ten years.<sup>11</sup> Only 20 per cent of the respondents to the 2002 survey regarded themselves as knowledgeable investors, while a further 38 per cent regarded stated they were ‘somewhat knowledgeable’. Forty-two per cent said they had little or no investment knowledge. While plan participants on average claimed to be ‘somewhat familiar’ with the main asset types typically available in retirement plans, there is evidence this claim is overstated. For example, 45 per cent of respondents correctly identified that money market funds contain short-term investments, but 40 per cent thought (or also thought) they contained stocks. Only 8 per cent of respondents correctly identified that the funds only contain short-term investments. Less than one participant in five was able to identify the correct relationship between long-term interest rates and bond fund returns.

The survey also asked plan participants for their expectations of future returns. The results — shown in Table 1 — look optimistic in the current environment of low inflation and low interest rates.

**Table 1:** 401(k) participant return expectations

|              | Five-year annual return % | 20-year annual return % |
|--------------|---------------------------|-------------------------|
| Stocks       | 10.9                      | 15.8                    |
| Bonds        | 8.1                       | 10.3                    |
| Money market | 7.7                       | 9.8                     |
| Stable value | 7.6                       | 9.9                     |

Source: John Hancock 2003

Survey evidence that many individuals struggle to understand and deal with the choices they face when saving for retirement sits readily with the field of behavioural economics, which suggests that most individuals do not make decisions in the rational, well-informed and unbiased manner assumed by standard economic theory. Mullainathan and Thaler argue the notion that individuals are calculating, unemotional maximisers (*'homo economicus'*) is incorrect and that more accurate descriptions of actual behaviour can yield better predictions of economic systems.<sup>5</sup> They claim there are 'bounds' to human rationality, self-control and self-interest.

Simon coined the term 'bounded rationality' to describe human problem solving abilities.<sup>12</sup> Limits on intelligence and time mean individuals cannot be expected to solve problems optimally. Experimental evidence suggests most people use rules of thumb (or 'heuristics') to cope with the limits of their abilities and these heuristics can — in certain contexts — lead to systematic errors in decision making.<sup>13</sup> Mullainathan and Thaler also argue many individuals have 'bounded self control'. Standard theory assumes once someone has worked out the optimal choice they will follow through with that course of action. Behavioural economics suggests even when the 'right thing to do' is apparent, people may fail to do it for reasons of self-control — 'most of us at some point have eaten, drunk or spent too much, and exercised, saved and worked too little'. Finally, most individuals are

'boundedly selfish' — and fail to pursue their own self-interest to the extent normally assumed of *homo economicus*.

These behavioural limitations have implications for the study of economic decision making and are relevant to the question of saving for retirement. Mitchell and Utkus note 'being good at retirement saving' requires accurate estimates of uncertain quantities such as lifetime earnings, asset returns, tax rates, health status and longevity.<sup>14</sup> Casual inspection of models designed to help with this problem such as those proposed by Blake *et al*<sup>15</sup> and Hibbert and Mowbray<sup>16</sup> shows the calculations are far from trivial and many of the parameters highly uncertain. As Bodie puts it:

'No one would imagine that you or I could perform surgery to remove our own appendix after reading an explanation in a brochure published by a surgical equipment company. Yet, we seem to expect people to choose an appropriate mix of stocks, bonds and cash after reading a brochure published by an investment company. Some people are likely to make serious mistakes.'<sup>8</sup>

Bernartzi and Thaler cite a 1999 Hewitt survey showing that 401(k) plans on average offer 11 investment choices and question whether this expanded investment choice provides net benefits.<sup>17</sup> Their own research found that when investors were shown the range of likely retirement income consequences of their own portfolio and that of the median investor's portfolio, most expressed a preference for the median portfolio. They argue the results suggest investor

autonomy is ‘not worth much’ and that most investors do not have well-defined preferences.

Samuelson and Zeckhauser discuss what they call the ‘status quo bias’ in decision making.<sup>18</sup> They note the standard rational choice model holds that only ‘preference-relevant’ features should affect decisions, but real world choices often have influential labels attached to them, such as the notion of the ‘status quo’ — ie the option to do nothing, or to endorse a previous choice. They find that despite an average tenure of 12 years, only 28 per cent of participants in the 850,000-member TIAA/CREF retirement scheme had ever changed their asset allocation. An important aspect of these findings is that new entrants to the plan tended to choose a somewhat different asset allocation to similar-aged incumbents who had ‘grown up’ within the scheme. Samuelson and Zeckhauser attribute the status quo bias to a number of well-documented behavioural traits including framing, loss aversion, anchoring, and regret avoidance.

The trend towards DC rather than DB pension provision gives individual employees increased choice in how they save for retirement. The conventional view in economics is that this increased choice is likely to enhance welfare. However, this is arguable if lack of interest or knowledge raises the risk of a significant number of investors making costly mistakes. The following section discusses some of the retirement planning ‘mistakes’ that have been documented in the USA.

### **Portfolio diversification and investor perceptions of risk**

There is significant evidence that investors in DC pension plans often display attitudes to risk and portfolio construction that are at odds with

accepted investment principles. For example, Bernartzi and Thaler document that DC pension plan investors seem to suffer from ‘myopic loss aversion’, seeking to avoid short-term losses, despite the long time horizon usually involved in planning for retirement.<sup>19</sup> Plan participants shown annual return data for equity and bond funds are found to adopt much more conservative — ie low equity — asset allocations than other participants shown 30-year compound returns. The 30-year data appear to draw attention to the low probability of making a loss over that period — a relevant period for retirement planning for many people — while the annual data highlight the prospect of short-term loss, even though short-term volatility should not matter much to these investors.

There is also evidence that the balance of funds on offer unduly influences individuals’ choice of asset allocation in DC plans. Bernartzi and Thaler find that where there is a high ratio of equity funds relative to bond funds, plan participants tend to have higher than average allocations to equities.<sup>20</sup> In an experimental setting they also find support for the existence of a ‘ $1/n$  diversification heuristic’ which leads participants to split their contributions equally amongst the ‘ $n$ ’ funds on offer, with little regard to the underlying asset composition of the funds.

One possible explanation for the shift in asset allocation as fund choice changes is that employees take the range on offer as implicit guidance from the employer as to the appropriate asset allocation strategy — a so-called ‘endorsement effect’. However, there is little evidence most employers have this outcome in mind when structuring the fund offering. Watson Wyatt argue that in expanding investment choice, many sponsors are reacting to a ‘vocal minority’ demanding

the option of investment in 'hot' specialist areas, and that these more 'speculative' funds have no place in a DC plan's basic investment structure.<sup>7</sup> Iyengar *et al.* provide evidence of another possible cost of offering 401(k) investors 'too much choice'.<sup>21</sup> They show there is a negative relationship between the level of employee participation in the pension plan and the number of funds on offer, suggesting complexity can dissuade employees from joining.

Perhaps one of the most worrying aspects of the US DC market is the high level of investment in own company stock amongst employees in larger plans. Portfolio theory teaches the benefits of diversification, but a significant number of employees have plans with unduly high concentrations in a single stock — that of their employer. Bernartzi notes about a third of assets in large DC retirement savings plans — and about a quarter of employees' discretionary contributions — are invested in company stock.<sup>22</sup> He describes the strategy as 'dubious', particularly because the stock is correlated with the employees' labour income and future employment prospects. The tendency to invest in own company stock is found to be strongest where the past returns on that stock are high, but Bernartzi finds no evidence that the future returns of these 'winner' stocks are strong enough to justify the high level of investment.

Employers' enthusiasm for company stock ownership in retirement plans may stem from a more general desire to promote shareholding amongst the workforce, believing this will raise productivity and morale and boost the value of the firm. However, this has to be balanced against potential detriments to the employees and US law gives rather mixed messages on the desirability of 'self-investment'. The 1974 Employee

Retirement Income Security Act (ERISA) sets a limit of 10 per cent on the extent to which a plan can invest in the stock of the sponsoring employer. At the time of ERISA's development, however, DB plans were the prominent form of retirement provision and Congress did not extend the provisions of the act to DC plans, allowing company stock allocations in DC plans to continue growing. Subsequent attempts to extend the provisions on company stock to DC plans have run into opposition from employers. Current legislation prevents employers from compelling workers to invest more than 10 per cent of their own contributions in company stock, but does not prohibit employees from choosing to do so.<sup>23</sup>

Holden and VanDerhei show the proportion of overall 401(k) assets invested in company stock at the end of 2002 was 16 per cent.<sup>24</sup> Some 35 per cent of participants in plans that offered company stock had more than 30 per cent of their assets invested in that option, and 23 per cent had over 50 per cent of their assets invested in company stock. VanDerhei<sup>25</sup> notes that the percentages invested in company stock are partly explained by the requirement in some schemes for employer contributions to be invested in company stock, but Bernartzi,<sup>22</sup> Liang and Weisbenner,<sup>26</sup> and Mitchell and Utkus<sup>23</sup> all find significant numbers of employees voluntarily holding high proportions of company stock in their 401(k) accounts.

It appears that employees do not view their employer's stock as risky. The John Hancock survey shows that DC plan participants perceive company stock to be less risky than diversified stock funds.<sup>11</sup> On a risk scale of 1–5, where 5 is 'very high risk', company stock was rated 3.1 compared to 3.6 for diversified stock funds. This result has been remarkably consistent through time,

based on the evidence of previous surveys. Bernartzi finds that only 16 per cent of plan participants realise that company stock is riskier than the overall stock market.<sup>22</sup>

The collapse of Enron provides a high-profile example of the possible pitfalls of investing retirement plan assets in your employer's stock. Almost 58 per cent of the employees' 401(k) assets were invested in Enron stock, which subsequently lost almost all of its value as the company was put into bankruptcy. A survey by VanDerhei<sup>25</sup> found 74 per cent of respondents thought most employees were aware of what had happened at Enron, but 43 per cent did not think the Enron example was relevant to their own situation. Only about a quarter of respondents thought the Enron example had caused employees to review their asset allocation or to question the right of employers to offer company stock as an investment option.

It may be that investors prefer to 'invest in the familiar' while ignoring the principles of portfolio theory. Huberman finds that the shareholders of US regional telephone companies tend to live in the area served by the company and argues a similar effect is at play when investors display 'home country bias' in their asset allocation and when employees invest large amounts in their employer's stock.<sup>27</sup> Bernartzi argues the observed tendency to invest more employee contributions in company stock where employer contributions must be invested in company stock is consistent with an 'endorsement effect' whereby employees take the allocation of the employer's contributions as an implicit form of investment advice.<sup>22</sup>

The studies discussed above provide significant evidence that the investment strategies employed in self-directed retirement plans are often at odds with standard investment theory and suggest

much of this can be explained by well-documented behavioural biases. While most of the evidence is based on experimental work, survey data, or relatively small samples, the consistency of the findings provides power in excess of the reliability of any single study. The question of what can be done to mitigate any harmful effects of these biases is discussed below.

### **Participant education and pension scheme design**

The obvious solution to dealing with significant behavioural barriers to the effective use of DC plans for retirement provision is to offer some form of education to participants. Indeed, this already takes place with the Employee Benefit Research Institute (EBRI) noting that nearly half of US workers with an employment-related pension plan have been provided with educational material or seminars about retirement planning and saving.<sup>10</sup> However, education will only work if it has an impact on behaviour, meaning raising issues of self-control need to be considered as well as issues of understanding.

MacFarland *et al.* note that while about half of the US adult population have the attitudinal characteristics to be 'planners' and take an active interest in providing for their own retirement, over a third are 'avoiders' who are either intimidated by financial matters or simply uninterested.<sup>28</sup> This has important implications for the provision of education on retirement planning, suggesting less attention can be given to the planners who will likely seek out the information they require. In order to have an impact on avoiders, investment education materials need to be short and simple, and emphasise present day benefits — such as employer contributions and tax deductions —

rather than long-term goals. Equally, the avoider group is more likely to respond to explicit and direct advice than to conceptual financial education.

However, there are limits to what education can achieve if a significant portion of the population is apathetic to the idea of planning for retirement. Choi *et al.* note that after attending pension seminars many participants say they plan to use the information to make changes to their pension arrangements, but very few actually do.<sup>29</sup> In the cases the authors study, all of the employees who were not already members of the pension plan and who attended education seminars stated they intended to join the plan, but only 14 per cent of them actually did so. EBRI data show only 18 per cent of those receiving educational material about their pension reported some change in their behaviour as a result.<sup>10</sup> These findings suggest scheme design may also need to be used to ensure participants in DC pensions adopt the savings rates and investment strategies most likely to ensure adequate income in retirement.

Thaler and Bernartzi argue that employees who fail to join their employer's pension plan, or who contribute at very low levels, appear to be saving less than would be predicted by rational life-cycle theories.<sup>30</sup> They suggest at least some of these low-saving households can be regarded as making a mistake and would benefit from help to increase their saving rate. To the extent these mistakes stem from consistent behavioural biases, it may be possible to use knowledge of these biases to improve the design of pension schemes and mitigate the effects of the biases.

The typical 401(k) plan requires an active decision to enrol and Choi *et al.* report that a move to automatic enrolment tends to increase participation rates.<sup>31</sup> Very few participants subsequently

decide to opt out of the plan, suggesting the employees do not object to saving for retirement, but left to their own devices tend to delay taking action. The potential downside of automatic enrolment is that many of those who are enrolled stick with the low default contribution rate and cautious default asset allocation. Choi *et al.* note that 76 per cent of plans with automatic enrolment have a default contribution rate of 2 or 3 per cent and 66 per cent have a stable value fund as the default investment option.<sup>32</sup> They show that under automatic enrolment 65 to 87 per cent of new employees in the companies studied adopt the default fund and the default contribution rate. These percentages decline with tenure, but remain at about 45 per cent after three years of employment. The authors question whether the net effect of automatic enrolment makes employees better off, given that earlier participation may be offset by lower contribution rates and more conservative investment choices. Employers may be reluctant to tackle this problem by offering riskier default funds, given the danger of lawsuits if a fund sustains significant losses. Equally, a move to higher default contribution rates may simply cause more employees to opt out of the scheme.

Thaler and Bernartzi propose a prescriptive savings plan called 'Save More Tomorrow' — or 'SMartT' — where employees commit in advance to allocate a portion of future salary rises towards retirement saving.<sup>30</sup> Laibson *et al.* discuss the 'hyperbolic discount rates' that can explain why future commitments are more effective than trying to secure immediate change.<sup>1</sup> They note a systematic conflict between long-term and short-term preferences. When rewards are far away in time, most individuals are relatively patient, for example preferring two apples in 101



days to one apple in 100 days. However, moving the reward closer to the present time produces a significant reversal in preferences: one apple today is generally preferred to two apples tomorrow. This structure of discount rates can explain why employees are willing to make future commitments to save more even when they refuse immediate action. Furthermore, the status quo bias identified by Samuelson and Zeckhauser means once the initial commitment is made, few people make the effort to change it.<sup>18</sup>

Thaler and Bernartzi's implementation of the SMarT plan at a mid-sized manufacturing firm showed considerable success. The company's employees were offered the chance to see an investment consultant and discuss their retirement provision and most agreed to do so. In many cases the employees were told their current savings rate was inadequate, but only 28 per cent were willing to accept the advice and make an immediate increase in contributions. The rest of the participants were offered the chance to join the 'SMarT' plan, which would increase their saving rate by 3 per cent a year starting from their next pay rise. Of the participants who were unwilling to accept the contribution rate advice of the investment consultant, 78 per cent agreed to join SMarT, with 80 per cent of these participants remaining in the plan through four pay rises. The average savings rate for these participants rose from 3.5 to 13.6 per cent over the course of 40 months.

In addition to evidence that scheme design can affect pension plan participation and contribution rates, the evidence reviewed in section 3 suggests plan design can have a significant impact on investment choice. Whether investors are using simple  $1/n$  heuristics to allocate between funds, or taking implicit guidance from the range of funds on

offer, the simple process of the employer choosing the range of funds can significantly influence the asset allocation chosen by many plan participants. Employers with paternalistic instincts may choose to structure their pension plan to maximise the chances of employees choosing what the employer regards as the most appropriate options.<sup>33</sup> The main issues relate to the arrangements for joining the plan (opt-in or opt-out), default contribution rates, default fund options and the range and nature of the fund choice on offer. There are also issues about the nature of the information and advice that is provided to employees.

### UK comparisons

The UK, like the USA, is seeing a move from employer provision of DB pensions to a situation where DC is more common. Different types of DC pension are available in the UK, all of which are relevant to consideration of increased individual responsibility for investment choice.<sup>34</sup> Occupational money purchase (OMP) schemes are the main form of DC scheme where the employer provides sponsorship. Alternatively, an employer may offer a group personal pension (GPP), which is essentially a collection of individual pensions grouped together to provide savings on marketing and administration costs. Finally, a stakeholder pension is a relatively new, low-cost version of a personal pension scheme, governed by detailed rules, including a requirement that total charges do not exceed 1 per cent per annum.<sup>35</sup> It is worth noting that in the case of an OMP scheme, the trustees have responsibility for the investment choice offered within the plan — and are charged with acting in members' best interests — while the choice in a GPP or stakeholder plan will be determined

by the product provider (an insurance company) in consultation with the employer.<sup>36</sup>

An NAPF survey<sup>37</sup> shows DC has become the most common form of occupational pension provision in the private sector with 62 per cent of employers offering money purchase, 14 per cent offering GPP and 24 per cent stakeholder. This compares to 46 per cent of companies that have DB schemes. The survey shows that 41 per cent of companies have closed their DB pension scheme to new members. For new employees, 51 per cent of employers offer money purchase schemes, while 18 per cent offer stakeholder, and 13 per cent GPP. Only 19 per cent offer a final salary scheme and 2 per cent offer no pension provision. It is worth noting that final salary schemes still tend to be the more common at larger employers, so the split by number of employees rather than number of schemes is less dramatic. The trend towards DC schemes may in part be explained by the proposed implementation of Financial Reporting Standard (FRS) 17 accounting standard — 86 per cent of respondents to the NAPF 2002 survey thought the standard made offering a DB pension scheme less attractive to employers.<sup>38</sup>

There is little to suggest UK employees are much better placed to manage their DC retirement investments than their counterparts in the US. The Office of Fair Trading's Inquiry into Pensions<sup>39</sup> commissioned a large-scale survey of consumer attitudes to pensions. The changing landscape for pensions was evident with 72 per cent of respondents agreeing or strongly agreeing with the statement, 'the responsibility for ensuring that my income in retirement is adequate for the lifestyle I wish to live is mainly mine'. However, the challenge of this responsibility is evident in that half of the respondents agreed or strongly agreed

that 'I have found all the information I have seen, and the advice I have received, on pensions very confusing.' Only 44 per cent of respondents had sought advice about retirement planning, mostly from financial services firms and most commonly by those who had personal rather than occupational pensions.

More recent research by the Association of British Insurers<sup>40</sup> provides little cause for comfort — 44 per cent of the population say they understand pensions 'very well' or 'fairly well', while 56 per cent understand them 'fairly badly' or 'very badly'. Some 66 per cent have never tried to calculate how much they need to save to fund a comfortable retirement. A total of 61 per cent of respondents were either 'not particularly' or 'not at all' confident that they would have enough money to live comfortably in retirement.

The recent weakness in the stock market — together with limited investment knowledge — appears to have coloured views on the appropriate assets for retirement savings. Sixty-six per cent of respondents state that property is the best long-term investment. Only 10 per cent favoured equities, less than the 14 per cent who thought a savings account was best. It is not clear whether the preference for property reflects use of property as a portfolio asset or whether it reflects an expectation of drawing income from the equity value of the respondents' own homes. A recent report from the Pensions Policy Institute<sup>41</sup> highlights potential problems with the latter approach, including the relatively limited proportion of the accumulated capital that can be accessed through equity release schemes.

While high levels of investment in own company stock are a significant feature of large US DC plans, this issue has little relevance in the context of UK

pensions. The 1990 Social Security Act placed a 5 per cent limit on 'self investment' by pension funds and unlike the US these rules apply to DC as well as DB pensions.<sup>42</sup> Investment consultants<sup>43</sup> note they have encountered few examples of companies offering their own stock as an option in UK DC plans. It remains to be seen whether UK plan participants would be interested in this option if it was available or be prepared to use it to the extent evident in the USA.

The 2001 NAPF survey<sup>44</sup> gives a good overview of the investment choice available in occupational DC plans in the UK showing that 41 per cent of schemes offer 1–3 investment options, while 38 per cent offer between four and ten options, and 21 per cent offer more than ten options. Some 70 per cent of schemes have a default option, of which 50 per cent are passively managed and 71 per cent are lifestyle-type funds with age dependent asset allocation. While it does not appear the investment choice offered by UK DC plans is as wide as that offered in the USA, many schemes offer enough choice to cause potential difficulties to members lacking in investment knowledge. On the other hand, a Watson Wyatt study cited in the Myners Report<sup>36</sup> shows 23 per cent of plans only offer one fund and it is possible to argue this might be restricting choice too much, with the single fund unlikely to meet the needs of different groups of employees.

One of the most significant examinations of pension provision in the UK in recent years came in the form of the HM Treasury-sponsored review of institutional investment by Paul Myners.<sup>36</sup> The review dwells mostly on the issues faced by trustees of DB pension schemes, but also identifies issues relevant to the trustees of occupational DC schemes. It notes it is unclear how

trustees should decide which and how many investment options to offer to members. If too few choices are offered members could argue that investment choice has been restricted, but more options may make the choice too complex and thus not in the members' best interests. Myners notes the danger trustees will fall back on standard industry practice in terms of the types of funds and defaults offered. In particular, he argues this will mean continued use of balanced managed funds where the asset allocation is set on the basis of an industry consensus which may not be consistent with the strategic asset allocation requirements of any particular group of employees.

Myners' outlines a set of principles he thinks the trustees of DC pension schemes should follow. In particular, he argues that trustees should have sufficient investment knowledge for effective decision making and that the funds offered to members should have clear investment objectives and be chosen to take members' strategic asset allocation requirements into account. He also argues there should be a wide enough choice to satisfy the risk/return combinations appropriate for most members.

In a similar vein, Altmann suggests the UK could benefit from introducing measures based on US 'safe harbour' guidelines, which specify schemes must offer a minimum of three investment choices, that the investment choices must allow for creation of an appropriate, diversified portfolio, that members must be able to change their investment choices, and that they must receive good information upon which to base their decisions.<sup>45</sup>

Richards notes that in most cases literature provided to DC plan members has been supplied by insurance companies, investment firms or actuaries

as the trustees are concerned not to breach the restrictions under the Financial Services and Markets Act 2000 on them giving investment advice or issuing investment advertisements.<sup>46</sup>

There is obviously a need for good information for members to base their decisions on, but a key group with an interest and potential to provide this — the trustees — is hampered by current financial services legislation.

Overall, it appears the growing use of DC pensions in the UK presents many of the same issues as in the USA, particularly in relation to low levels of investment knowledge and interest. There is probably less of an issue with giving participants too much choice — although this may be the case for some schemes — and more risk that some schemes offer too little choice to take account of the differing needs of different sections of the workforce. The UK has no problem with inadequate diversification due to excessive investment in own company stock, but potentially faces a similar problem stemming from conviction that residential property provides the most attractive investment prospects. DC pensions in the UK have also been criticised for low levels of contributions and high charges, with questions raised about whether participants are aware of the effects of these factors.<sup>34,47</sup> Against this background it is encouraging to note the recently-published Department for Work and Pensions agenda for promoting informed choice in retirement saving.<sup>9</sup> The proposals call for enhanced financial education and the review of regulatory barriers to employers providing advice on retirement saving to their employees and suggest schemes consider automatic enrolment and future commitment devices along the lines of ‘save more tomorrow’ to raise savings rates. This represents an encouraging step towards practical measures based on our

knowledge of retirement saving behaviour.

## **Conclusion**

The trend shifting occupational pension provision from a DB to a DC basis looks well entrenched in both the USA and the UK. There is nothing to suggest DC pensions are not an appropriate vehicle for providing employees with retirement income, but there remain significant questions about how to use them effectively. The results of the John Hancock survey<sup>11</sup> — amongst others — challenge the notion that individuals are well placed to manage their own retirement accounts and the limited UK evidence we have does not suggest a much better situation here. While any shortfall in retirement income under DC schemes will fall on the individual participants in the first instance, at the extreme it becomes a more general problem for the state, which will have to provide for retirees who lack adequate alternative sources of income.<sup>45</sup>

Improved financial education can benefit many DC plan participants, but intelligent plan design will also be required when many employees show little interest in financial matters and readily accept default options — taking the ‘path of least resistance’. It is clear that employers are well placed to be able to improve both education and scheme design, but could probably receive more regulatory and tax incentives to encourage them to do so.<sup>48</sup>

It is not clear that current plan design in the UK and the USA reflects the behavioural economics findings discussed in this paper and there is scope for research on this issue. Some of the work that has been done in the USA reflects collaboration between academics and plan sponsors and consultants, raising the prospect that the insights from the

research will find their way into concrete practical measures. In the UK, the government's 'informed choice' agenda raises a similar prospect. While this is at an early stage, it seems appropriate to end with a positive note acknowledging this movement towards providing employees with better support for their retirement saving decisions.

## References

- 1 Laibson, D., Repetto, A. and Tobacman, J. (1998) 'Self-Control and Saving for Retirement', *Brookings Papers on Economic Activity*, 1998:1.
- 2 The extent to which the employee is likely to receive the promised benefits will depend on the funding level of the pension scheme, the solvency of the employer, and the existence of any external guarantees. In the USA the Pension Benefit Guarantee Corporation provides support in the case of insolvency and in the UK the 2004 Pensions Bill contains provisions for the inception of a similar Pensions Protection Fund.
- 3 See for example Friedberg, L. and Owyang, M. (2002) 'Not Your Father's Pension: The Rise of 401(k) and Other Defined Contribution Plans', *Federal Reserve Bank of St Louis Review*, Vol. 84, No. 1, pp. 23–34. US DC pensions are often known as '401(k)' plans after the relevant section of the tax code.
- 4 NAPF (2003) 'Pension Scheme Changes — A Snapshot', National Association of Pension Funds, London.
- 5 See for example, Mullainathan, S. and Thaler, R. (2000) 'Behavioural Economics', NBER Working Paper 7948, National Bureau of Economic Research, Cambridge MA.
- 6 Barber, B. and Odean, T. (1999) 'The Courage of Misguided Convictions', *Financial Analysts Journal*, Vol. 55, No. 6, pp. 41–55.
- 7 Watson Wyatt (2001) 'Rethinking the 401(k) Market', *Global Investment Review*, 2001 Issue; Watson Wyatt Worldwide.
- 8 Bodie, Z. (2003) 'Thoughts on the Future: Lifecycle Investing in Theory and Practice', *Financial Analysts Journal*, Jan/Feb, pp. 24–29.
- 9 DWP (2004) 'Simplicity, Security and Choice: Informed Choices for Working and Saving' Cm 6111, Department for Work and Pensions, London.
- 10 EBRI (2003) '2003 Retirement Confidence Survey Summary of Findings', Employee Benefit Research Institute, Washington DC, September 2003.
- 11 Hancock, J. (2003) 'Eighth Defined Contribution Plan Survey', John Hancock Financial Services, Boston MA.
- 12 Simon, H. (1955) 'A Behavioural Model of Rational Choice', *Quarterly Journal of Economics*, Vol. 69, pp. 99–118.
- 13 Kahneman, D. and Tversky, A. (1974) 'Judgement Under Uncertainty: Heuristics and Biases', *Science*, Vol. 185, pp. 1124–31.
- 14 Mitchell, O. and Utkus, S. (2003) 'Lessons From Behavioural Finance for Retirement Plan Design', Pensions Research Council Working Paper 2003–6, University of Pennsylvania.
- 15 Blake, D., Cairns, A. and Dowd, K. (2001) 'Pensionmetrics: Stochastic Pension Plan Design and Value at Risk During the Accumulation Phase', *Insurance, Mathematics and Economics*, Vol. 29, pp. 187–215.
- 16 Hibbert, J. and Mowbray, P. (2002) 'Understanding Investment Policy Choices for Individual Pension Plans', *Pensions*, Vol. 8, No. 1, pp. 41–62.
- 17 Bernartzi, S. and Thaler, R. (2002) 'How Much is Investor Autonomy Worth?', *Journal of Finance*, Vol. 57, No. 4, pp. 1593–1616.
- 18 Samuelson, W. and Zeckhauser, R. (1988) 'Status Quo Bias in Decision Making', *Journal of Risk and Uncertainty*, Vol. 1, pp. 7–59.
- 19 Bernartzi, S. and Thaler, R. (1999) 'Risk Aversion or Myopia? Choices in Repeated Gambles and Retirement Investments', *Management Science*, Vol. 45, No. 3, pp. 364–381.
- 20 Bernartzi, S. and Thaler, R. (2001) 'Naïve Diversification Strategies in Defined Contribution Saving Plans', *American Economic Review*, Vol. 91, pp. 7–98.
- 21 Iyengar, S., Jiang, W. and Huberman, G. (2003) 'How Much Choice is Too Much: Contributions to 401(k) Retirement Plans', Pensions Research Council Working Paper 2003–10, University of Pennsylvania.
- 22 Bernartzi, S. (2001) 'Excessive Extrapolation and the Allocation of 401(k) Accounts to Company Stock', *Journal of Finance*, Vol. 56, No. 5, pp. 1747–1764.
- 23 Mitchell, O. and Utkus, S. (2002) 'Company Stock and Retirement Plan Diversification', Pensions Research Council Working Paper 2002–4, University of Pennsylvania.
- 24 Holden, S. and VanDerhei, J. (2003) '401(k) Plan Asset Allocation, Account Balances, and Loan Activity in 2002', *EBRI Issue Brief*, Vol. 261, September 2003, Employee Benefit Research Institute, Washington DC.
- 25 VanDerhei, J. (2002) 'Company Stock in 401(k) Plans: Results of a Survey of ISCEBS Members', EBRI Special Report, Employee Benefits Research Institute, Washington DC.
- 26 Liang, N. and Weisbenner, S. (2002) 'Investor Behaviour and the Purchase of Company Stock in 401(k) Plans — The Importance of Plan Design', Working Paper — University of Illinois.
- 27 Huberman, G. (2001) 'Familiarity Breeds Investment', *Review of Financial Studies*, Vol. 14, No. 3, pp. 659–680.
- 28 MacFarland, D., Marconi, C. and Utkus, S. (2003) 'Money Attitudes and Retirement Plan Design: One Size Does Not Fit All', Pensions Research Council Working Paper 2003–11, University of Pennsylvania.
- 29 Choi, J., Laibson, D., Madrian, B. and Metrick, A.

- (2002) 'Defined Contribution Pensions: Plan Rules, Participant Decisions, and the Path of Least Resistance', in Poterba, J. (ed) 'Tax Policy and the Economy', Vol. 16, MIT Press, Cambridge MA.
- 30 Thaler, R. and Bernartzi, S. (2004) 'Save More Tomorrow: Using Behavioural Economics to Increase Employee Saving', *Journal of Political Economy*, Vol. 112, No. 1, pp. 164–186. Save More Tomorrow is a registered trademark.
- 31 Choi, J., Laibson, D., Madrian, B. and Metrick, A. (2002) 'Defined Contribution Pensions: Plan Rules, Participant Decisions, and the Path of Least Resistance', in Poterba, J. (ed) 'Tax Policy and the Economy', Vol. 16, MIT Press Cambridge MA. The IRS has only endorsed this 'negative election' approach since 1998 according to EBRI 2003.
- 32 Choi, J., Laibson, D., Madrian, B. and Metrick, A. (2003) 'For Better or Worse: Default Effects and 401(k) Savings Behaviour', in Wise, D. (ed) 'Perspectives on the Economics of Aging', University of Chicago Press, Chicago IL.
- 33 Thaler, R. and Sunstein, C. (2003) 'Libertarian Paternalism', *American Economic Review*, Vol. 93, No. 2, pp. 175–179.
- 34 Blake, D. (2003) 'The UK Pension System: Key Issues', *Pensions*, Vol. 8, No. 4, pp. 330–375. Provides a detailed review of the arrangements that apply to the different types of arrangements.
- 35 Employers with more than five employees are now required to make available a stakeholder pension to their employees if they do not offer any other form of retirement provision. They are not, however, required to make any contributions to the plan and employees do not need to join. The government has recently announced plans to raise the price cap to 1.5 per cent starting from April 2005.
- 36 Myners, P. (2001) 'Institutional Investment in the United Kingdom: A Review', HM Treasury, London.
- 37 NAPF (2003) 'Pension Scheme Changes — A Snapshot', National Association of Pension Funds, London.
- 38 NAPF (2002) 'Twenty-eighth Annual Survey of Occupational Pension Funds 2002', National Association of Pension Funds, London.
- 39 Office of Fair Trading (1997) 'Report of the Director General's Inquiry into Pensions', Office of Fair Trading, London.
- 40 Association of British Assurers (2003) 'The State of the Nation's Savings', Association of British Insurers, London.
- 41 PPI (2004) 'Property or pensions?' Discussion Paper, Pensions Policy Institute, London.
- 42 Blake, D. (1995) 'Pension Schemes and Pension Funds in the United Kingdom', Clarendon Press, Oxford.
- 43 In private correspondence.
- 44 NAPF (2001) 'Twenty-seventh Annual Survey of Occupational Pension Funds 2001', National Association of Pension Funds, London.
- 45 Altmann, R. (2001) 'Let's Get DC Right Before It's Too Late', *Journal of Pensions Management*, Vol. 7, No. 1, pp. 38–45.
- 46 Richards, K. (2002) 'The Evolving Role of the Pension Fund Trustee', *Pensions*, Vol. 8, No. 1, pp. 17–31.
- 47 Blake, D. (2000) 'Does it Matter What Type of Pension Scheme You Have?', *Economic Journal*, Vol. 110, pp. 46–81.
- 48 Strattan, D. (2002) 'Designing Pension Solutions in the New Defined Contribution World', *Pensions*, Vol. 8, No. 2, pp. 162–166.