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## ARC Programme - Behavioural Aspects of Institutional Investment Decision-Making

# Extraneous menu-effects influence financial decisions made by pension trustees

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© Dr Leonardo Weiss-Cohen, Professor Peter Ayton and Professor Iain Clacher, ARC Programme – Behavioural Aspects of Institutional Investment Decision Making, Extraneous Menu-Effects Influence Financial Decisions Made by Pension Trustees.

# Extraneous menu-effects influence financial decisions made by pension trustees<sup>1</sup>

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## Abstract

Institutional investors, such as pension scheme trustees, control significant amounts of investment assets globally. However, research on behavioural finance biases has mostly focussed on retail investors. While institutional investors are relatively sophisticated, they are not immune from biases. Across three experiments, we tested 252 pension scheme trustees for the influence of extraneous manipulations to the menu of options (menu-effects) on investment decisions. Trustees were influenced by the item mix, the context of options, and the layout of information presentation. We discuss the negative impact that such non-financial criteria can have on financial decisions and pension outcomes.

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## 1. Introduction

Trustees are the true custodians of future generations' retirement incomes, controlling US\$27.6 trillion in pension fund assets in the OECD countries in 2018, equivalent to 57% of their GDP.<sup>3</sup> The ubiquity of behavioural finance biases with individual investors is well-established (for a comprehensive review, see Barberis and Thaler, 2003), but its extension into institutional investors such as pension trustees remains relatively unexplored. This is a surprising oversight, given that the influence of pension trustees is concentrated, systemic and overarching: Investment decisions made by a few trustees can move markets, influence the real economy, and ultimately impact global financial well-being.

It is reasonable to expect that trustees are more financially sophisticated than individual investors (Menkhoff et al., 2009). Pension trustees have access to information and training, have more direct experience in financial markets, and are in constant receipt of advice (Myners, 2001). However, sophistication does not inoculate an individual against behavioural biases (West et al., 2012).

Ideally, the financial decisions made by investors should be based on principled underlying financial fundamentals. In our current research, we explore the influence that extraneous nonfinancial information can have on the financial decisions of trustees, by manipulating the presentation of choice menus. Research has shown that menu design, or "subtle variations in the presentation of options," can influence decisions across many domains (Fox et al., 2005, p.547), which DellaVigna (2009) has called "menu effects." For example, choices can be influenced by adding irrelevant decoys (Simonson, 1989); by changing the menu size (Sela et al., 2009); by framing the same alternative as an extreme or middle choice (Benartzi and Thaler, 2002); and by changing the menu layout (Dayan and Bar-Hillel, 2011).

### 1.1 Participants

We captured data from 252 pension scheme trustees ( $M_{age}=59.35$  years, Males=210). Access to trustees was provided by Aon UK, an investment consultant. Trustees completed three experiments,<sup>4</sup> with some trustees participating in multiple experiments.

Our sample included 133 member-nominated and 119 employer-nominated trustees. Member-nominated trustees are less sophisticated than their employer-nominated counterparts: the former have less experience working as trustees (8.6 years vs. 11.4 years,  $p=.004$ ), fewer have professional accreditations (25% vs. 51%,  $p<.001$ ), fewer have work experience in a financial role (22% vs. 53%,  $p<.001$ ), fewer have personal investments (70% vs. 85%,  $p=.008$ ), and answered fewer correct questions in a 14-question financial literacy test (11.95 vs. 12.67,  $p=.006$ ). Age, gender, and differences in expertise match those in Clark et al. (2007, and references therein) and Myners (2001).

## 2. Experiment 1: Menu items

Benartzi and Thaler (2001) have shown that lay individuals will allocate their own assets evenly across the alternatives provided, regardless of the underlying intrinsic nature of each option. When there were more bond funds than equity funds in the menu of alternatives, participants' allocations were more bond-heavy, and vice-versa – a phenomenon they called "naïve diversification". We tested

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<sup>3</sup> OECD Pension Funds in Figures 2018. [www.oecd.org/daf/pensions/gps](http://www.oecd.org/daf/pensions/gps).

<sup>4</sup> Full methods, instructions, screenshots, and data are available online at <https://osf.io/jbmtq/>

if trustees also diversified naïvely when distributing assets across different mixes of investment alternatives.

## 2.1 Design

Trustees (N=119) were asked how they would allocate the assets of a pension scheme across a selection of mutual funds. Our experiment employed a 2 x 3 between-subjects design: there were either two or four fund options in total; and the options were either balanced (half bonds and half equities), equity-heavy (3/4 equities and 1/4 bonds), or bond-heavy. In the two-fund condition the unbalance was achieved by introducing a mixed fund, which itself was half bonds and half equities.

## 2.2 Results

The investment balance across bonds and equities was influenced by the mix of options available ( $F(2,114)=23.75, p<.001$ ). Participants in the bond-heavy condition allocated 69.7% into bonds, while participants in the equity-heavy condition allocated 43.9% into bonds, and in the balanced condition, the bond allocation was 61.3%. Participants displayed naïve diversification, changing allocations according to the mix of options provided, seemingly without basing it on informed principles. This pattern was not different between two and four options ( $p=.24$ ), and not different between member-nominated and employer-nominated trustees ( $p=.42$ ), with both types showing the same bias.

## 3. Experiment 2: Menu context

Sela et al. (2009) shows that choice is influenced when the same options are labelled differently, changing the context in which the options are evaluated. We tested if a similar extraneous labelling of fund options would affect investment decisions (see also Benartzi and Thaler, 2002). We labelled different funds as the "moderate" option in different conditions, therefore putting different options within different contexts.

### 3.1 Design

Trustees (N=111) were asked to choose a single asset mix across bonds and equities for their pension scheme, amongst 11 options. Each mix was associated with a predicted range of incomes at retirement. Both income and risk increased with higher allocations into equities, which ranged from 0% to 100%, in steps of 10%, the remainder in bonds (Vlaev et al., 2007).

There were three between-subjects conditions, which manipulated the labelling of some of the options. In the Label 30% condition, the option with 30% in bonds was labelled as "moderate," while in the Label 70% condition the moderate option allocated 70% into bonds. Two further options were labelled in relation to the moderate: The option with 20% more bonds than the moderate was labelled as "conservative," and the one with 20% less bonds was "aggressive." In the Control condition, options were not labelled.

### 3.2 Results

The proportion of assets allocated to bonds was influenced by the labelling (Kruskal Wallis  $\chi^2(2)=6.89, p=.032$ ). In the Label 30% condition, the mean proportion of assets allocated to bonds was lower than in the Label 70% condition (Table 1). This effect was moderated by the type of trustee, with the member-nominated trustees choosing differently according to the labels ( $p=.033$ ), while employer-nominated trustees chose more consistently across conditions ( $p=.73$ ).

Allocation into bonds	Label 30%	Control	Label 70%
Member-nominated	34.4%	37.1%	48.2%
Employer-nominated	26.3%	32.1%	26.3%
Average	29.8%	34.8%	38.9%

*Table 1. Means of data captured in Experiment 2.*

#### **4. Experiment 3: Menu layout**

We tested how the layout of information and restrictions on search influenced behaviour, using a variation of the "Mouselab" paradigm, which tracks how information is searched (Payne et al., 1993). Participants were presented with tables containing initially hidden information about mutual funds, in cells they could click to reveal. The search patterns can be used to determine the relevance of different information items.

##### **4.1 Design**

Trustees (N=122) were asked to choose between two mutual funds, across ten different asset classes. The information was presented as a 9 x 2 table, with the nine information items across rows (see Figure 1 for the items and their ordering), and the two funds across columns. Each cell was initially hidden, and participants could click to reveal them in any order they chose.

The maximum number of clicks was manipulated according to experimental condition. In the Control condition, they could click and reveal as many items as they wished. In the Restricted 10 and Restricted 6 conditions, participants were limited to 10 and 6 clicks for each asset class.

After each fund selection, the process started again for the next asset class.

##### **4.2 Results**

We calculated an index of deviation from uninformed behaviour, which we defined as following the menu layout by clicking each item sequentially along the list, from top to bottom, for each fund. The index was zero for participants who followed this pattern precisely, and higher for participants who deviated from the presented order by targeting specific information, with a maximum value of 16.

There was a significant influence of the search restriction on the deviation index ( $\chi^2(2)=74.91$ ,  $p<.001$ ). The deviation was significantly lower in the control condition ( $M=2.75$ ) than in the two restricted conditions (Restricted 10:  $M=4.76$ , Restricted 6:  $M=5.43$ , both  $ps<.001$ ). Participants followed the layout of choices very closely when there was no limit to the number of clicks, but appear to have considered their search pattern more carefully when their number of clicks was restricted (Figure 1). In the restricted conditions, they also prioritized what could arguably be considered the most important information for a pension scheme in the restricted condition: long-term returns, fees, and risk. There was no difference between types of trustees ( $p=.09$ ).

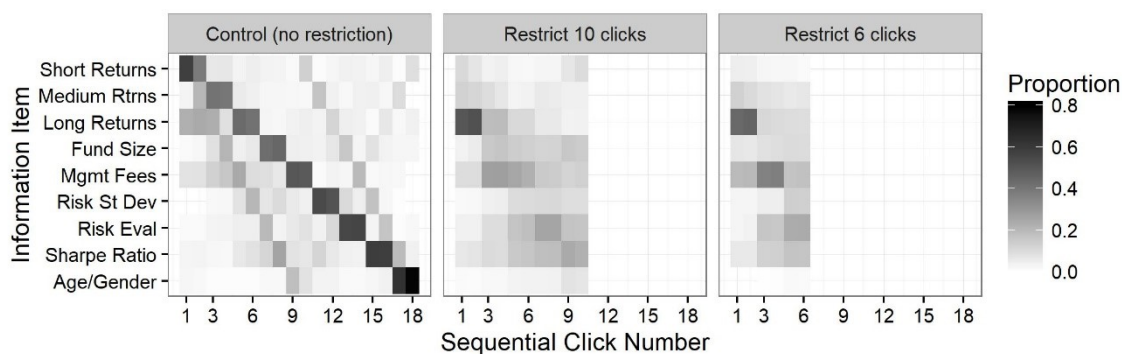


Figure 1. Proportion that each information was revealed at each click number in Experiment 3. The items are listed in the same order as shown to participants. The diagonal represents following the provided layout sequentially.

## 5. Discussion

Our experiments show that the financial decisions made by pension trustees are influenced by extraneous menu-effects, instead of following underlying financial principles such as choosing an optimal allocation between bonds and equities, or focusing on long-term returns, fees and risks.

While all trustees were influenced by the mix of choices and the layout of information (experiments 1 and 3), only the less sophisticated member-nominated trustees were influenced by framing (experiment 2). Shapira and Venezia (2001) also found that professional experience can help reduce biases, but cannot eliminate them and this is something we observe here. We observed that restricting information search, a type of environmental nudge, helped participants focus on more relevant information (see Smith et al., 2013, for the ethical and policy implications).

Fox et al. (2005) suggested that the method of describing the possible alternatives is perceived by the decision-maker as communicating relevant information, even when it is determined by arbitrary factors. If menu manipulations can influence behaviour as shown here, then care must be given when preparing information to be used by trustees, to try to reduce biases in decision-making, which is likely to be detrimental to the pension outcome for members due to inappropriate asset allocation and/or risk-taking. This issue is particularly relevant as the ageing population puts additional pressure on well-managed private pensions to provide retirement income. Policy makers need to understand the influence of choice menus on pension trustees' financial decision-making when designing training for trustees, and we encourage further research in this area.

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