



CONSUMER CHOICE OF DEFAULT OPTIONS  
UNDER ACCOUNTABILITY  
AND DISCLOSURE

**Matthew Morris**

Marketing Discipline Group, UTS Business School

*A thesis submitted in partial fulfilment of the requirements for the degree of  
Bachelor of Business (Honours) in Marketing at the University of Technology, Sydney*

December 2017

## ACKNOWLEDGEMENT

Undertaking an Honours degree is an intense, immersive experience. To faithfully meet the intellectual and personal challenges comprising an Honours year, an individual must invest significant time, be immensely dedicated and maintain sharp focus. For an individual to have any hope of displaying these qualities, they must draw on the help of others. This research was made possible by my family's support and sacrifices. They adopted the burning, singular vision I harboured and worked tirelessly all year to help fulfil this vision. Thank you.

I gratefully acknowledge the considerable financial support I received via the Brian Gray Scholarship program of 2017. The Brian Gray Scholarship program is jointly funded by the Australian Prudential Regulation Authority and the Reserve Bank of Australia in memory of Brian Gray, who was formerly Executive General Manager at APRA. As one of four recipients in 2017, it has been an honour to be part of the program.

My gratitude is also extended to UTS Business School and UTS Marketing Discipline Group. My research benefited from the financial scholarship and was assisted immeasurably through the provision of a desk and computer in a warm, sunny office space with an incredible view over Sydney. Being adopted by the Marketing Discipline as one of their own during the year was an enriching experience, especially as it allowed me plentiful opportunities to discuss ideas with whomever ventured to the coffee machine.

## ABSTRACT

Default options are an extremely powerful tool used by marketers and public policy administrators to influence the choices of consumers in areas such as healthcare, environment and finance. Although the default option is chosen to Previous research on defaults has neglected to consider the influence of an individual's social context on choice. Accountability is one element of an individual's social context that can both amplify and attenuate decision-making biases. We investigate whether the likelihood of choosing the default option is influenced by a consumer's level of accountability and the presence of a disclosure about the default. Further, accountability and disclosure will be examined for their effect on two mechanisms that drive the default effect (effort and endorsement). 458 undergraduate students participated in a web-based experiment where participants were asked to adopt a default superannuation investment strategy or shift to an alternative with a different risk profile. We found that the choice of investment strategy was not influenced by the default under high accountability, irrespective of the amount of disclosure provided. Participants were more likely to choose an investment strategy in alignment with their risk preference when participants were accountable. The evidence was mixed on how accountability and disclosure impacted the effort and endorsement drivers of the default effect. There was partial support suggesting that high accountability increased effort. When participants received disclosure, they perceived greater implied endorsement from the choice architect for the default. Overall, the results suggest that accountability can reduce bias towards the default option and can help consumers move away from a default that does not best reflect their preferences. Finally, disclosures can be usefully employed without making defaults less effective at guiding choice.

# TABLE OF CONTENTS

<b>List of Tables .....</b>	<b>vi</b>
<b>List of Figures .....</b>	<b>vii</b>
<b>Introduction.....</b>	<b>1</b>
<b>Literature Review.....</b>	<b>4</b>
Default Options.....	4
Using Defaults to Influence Consumer Choice .....	6
Defaults in Consumer Financial Decisions .....	10
How Defaults Influence Choice.....	11
Disclosures in Consumer Finance .....	14
The Concept of Accountability.....	15
The Effects of Accountability on Consumer Motivations to Choose .....	16
Decision-Making Strategies Under Accountability .....	18
<b>Hypotheses .....</b>	<b>20</b>
<b>Method.....</b>	<b>21</b>
Participants .....	21
Procedure.....	23
Independent Variables.....	24
Dependent Variables .....	30
Other Measures .....	34
Covariates .....	36
<b>Results and Discussion .....</b>	<b>39</b>
Pilot Test .....	39
Main Study .....	40
<b>Implications .....</b>	<b>53</b>
<b>Contributions to Literature.....</b>	<b>55</b>

<b>Limitations .....</b>	<b>56</b>
<b>Future Research .....</b>	<b>58</b>
<b>Conclusion .....</b>	<b>60</b>
<b>References .....</b>	<b>61</b>

## LIST OF TABLES

**Table 1.** Data sample sizes per treatment

pp 39

## LIST OF FIGURES

- Figure 1.** The graph of choice of superannuation investment strategy with a low-risk default pp 31
- Figure 2.** Low-risk choice share for participants with an indifferent risk preference pp 42
- Figure 3.** High-risk choice share for participants with a risk-seeking preference pp 42

## INTRODUCTION

*"It is not only what we do, but also what we do not do, for which we are accountable."*

Moliere (French playwright)

Marketers and public policy administrators regularly attempt to influence consumer choice towards their products or products that are believed to best promote consumer or society's welfare. While consumers may be aware that they are subject to persuasion attempts, they may be less aware of some of the methods employed to achieve this goal. Nudging is one technique used to guide consumer choice that is highly popular among marketers and public policy administrators currently (Sunstein and Thaler, 2008). A nudge is defined as any element in a choice setting (otherwise known as choice architecture) that has a predictable influence on choice through means other than materially changing consumers' economic incentives (Sunstein and Thaler, 2008). Nudging is often compared viewed favourably to other mechanisms used to shape consumer choice (like prohibition) as it does not place any restrictions on choice (Sunstein and Thaler, 2008).

In practice, a choice architect can seek to nudge consumers by changing myriad features of a choice environment. A common feature used by choice architects to nudge choice is to alter the default option. The default option is the choice that will apply to a consumer unless the consumer in the absence of an explicit choice (Brown and Krishna, 2004). Often the default option has been assigned by pre-filling one of the choices listed on page. Defaults are appealing to choice architects because of the phenomenon known as the default effect.



Whether a decision is minor or significant in consequence, choice architects can increase the frequency of an alternative being chosen by making that alternative the default option.

Previous studies of defaults have typically examined a consumer's choice of a default option without considering the social influences that may bear on the consumer. This approach neglects the fact that consumers are guided by social influences in making choices as they are socially oriented and may be concerned about the effect their choice will have upon others in their network (Lerner and Tetlock, 1999). The prolific, potent effect of social media and social norms by marketing practitioners and public administrators is testament to the influence of social context upon consumer choice.

Accountability, or the expectation that an individual will have to justify his or her behaviour to another person or group, is one component of an individual's social context that has been shown to have a powerful effect on consumer decision making and choice (Lerner et al., 1998, Lerner and Tetlock, 1999, Tetlock, 1992, Tetlock, 1985). Indeed, accountability is often touted as a remedy to failures in decision-making by individuals and groups (Lerner and Tetlock, 1999). A significant body of research has examined accountability's effect on decision-making biases such as the status quo, dilution, and primacy biases, though the default bias has not been examined to date (Lerner and Tetlock, 1999). Accountability can have a debiasing effect, but only occurs under specific forms of accountability (Lerner and Tetlock, 1999). Accountability helps debias decision making in circumstances where a decision-maker has under-utilised their existing skills or information available (Soll et al., 2014). For accountability to have a debiasing effect, the skills and information available to an individual must be relevant to the decision context otherwise accountability may enhance a decision bias (Lerner and Tetlock, 1999).

The present research sets out to investigate two questions through an experimental design. First, is consumer choice of a default option influenced by the consumer's level of accountability? Secondly, is consumer choice of a default option influenced by disclosing to the consumer to highlight the presence and purpose of the default? These questions will be investigated within the domain of consumer financial decision-making ('CFDM') with a specific focus on superannuation. A significant volume of nudging research has investigated the choices made by consumers about financial matters (Johnson and Goldstein, 2003, Johnson et al., 1993). Within the marketing literature, CFDM is an area that has over the last decade attracted significant attention as there is a growing recognition that consumer welfare is heavily influenced by the quality of financial decisions, especially over the long-term (Lynch Jr, 2011, Madrian et al., 2017). There is a growing recognition that the financial decisions of consumers may be influenced by their social context (Madrian et al., 2017).

In the following section, we commence a review of the literature by detailing how choice architects employ default options and the effect defaults have on consumer choice. After establishing the definition of defaults and their various forms, the primary reasons that lead to the default effect will be discussed. From here, there will be an introduction to the debate among scholars about the use of defaults and whether defaults are successful because they rely upon consumer shortcomings. The second half of the literature review will detail influence of accountability on consumer decision-making and judgment. Specifically, the second section will identify the conditions that impact the type of cognitive strategy adopted by consumers in response to accountability demands. The review will conclude by parsing the various outcomes that accountability has on increasing cognitive and physical effort by decision-makers.

## LITERATURE REVIEW

### DEFAULT OPTIONS

There has been a long-held awareness among researchers that humans are boundedly rational decision makers (Simon, 1955, Simon, 1956). Consumers with limited resources, both cognitive and time, are required to make decisions that are often trivial in nature or highly complex due to a large number of alternatives or difficulties in making trade-offs among attributes. Marketers are aware of the importance of choice presentation and are discovering the limits of choice architecture as consumer preferences are 'constructed' at the time of a choice and are accordingly influenced by the context in which the choices are presented (Bettman et al., 1998).

The presence of a default option in a choice set is known to influence consumer choice across domains as significant as organ donation (Johnson and Goldstein, 2003), retirement savings (Madrian and Shea, 2001), and insurance (Johnson et al., 1993), as well as less significant domains such as permission marketing (Johnson et al., 2002) and consumer products (Levav et al., 2010, Park et al., 2000). When one option from a selection of alternatives is assigned as the default option, the likelihood of that option being selected by the consumer is greater compared with the situation where there is no default option – this phenomenon is known as the default effect (Brown and Krishna, 2004).

Although the default effect is often used interchangeably with the status quo bias, the two terms identify similar but separate concepts. More explicitly, the status quo bias refers to the tendency of individuals to remain with the current state of affairs (Samuelson and

Zeckhauser, 1988) In practice, the default option usually reflects the status quo, though this relationship may not always be the case (Schweitzer, 1994). For example, consider the scenario where the default option results in a move to a new service given the obsolescence of the existing service. In this case, preference for the default effect reflects the omission bias – that is, the preference for inaction over action (Ritov and Baron, 1992). Inaction is preferable to action as it minimises regret and feelings of responsibility in the event of an adverse choice, as well as allowing greater flexibility in exercising choice in the future (Ritov and Baron, 1992). The omission bias has a powerful influence on choice; in a study where status quo would be maintained by choosing the non-default option, individuals preferred the default rather than maintaining the status quo by choosing the non-default option (Ritov and Baron, 1992). Loss aversion, or the tendency for losses to loom larger than gains, underpins both the status quo bias and omission bias (Zamir, 2015, Moshinsky and Bar-Hillel, 2010). Once a decision has been made, the combination of the status quo bias and omission bias contribute to the stickiness of defaults (Willis, 2013).

Default options have been operationalised within the literature in a variety of forms that reflect how choices are presented to consumers. One of these is the opt-in/opt-out default policy used by marketers and policymakers alike (Johnson et al., 2012). In a situation regarding organ donation, for example, under an opt-in default policy the consumer is presumed to not donate unless they explicitly consent by changing the preference in the paperwork to donate. The opt-out policy operates via ‘presumed’ consent by assuming the citizen will donate their organs unless they state a preference on the paperwork to decline donation. A default can also take the form of a single-choice option default, where a box has already been selected by the choice architect. Alternatively, a consumer may encounter a default in

the form of a default configuration, where a collection of choices has been pre-selected. An example of this is the purchase of a new computer, which has pre-selected software and software features such as internet homepage. The examples of defaults above relate to one-off choices. However, defaults can also be used for repeat choices; defaults can be designed in which the decision-maker is asked to recall their most recent choice or is offered a default based on their previous choices (Johnson et al., 2012).

## USING DEFAULTS TO INFLUENCE CONSUMER CHOICE

The size and robustness of the power that a default option has on choice makes it appealing for marketers and policymakers to frequently embed a default option within a choice context. A choice architect can design a choice in one of two ways; either a consumer is forced to make an explicit choice, or a choice can be exercised without an explicit choice through the presence of a default. In a forced choice context, if the consumer does not actively make a choice the product or service is withheld from the consumer. Some researchers suggest that withholding a product until an active choice is made is a default option which necessarily implies that a default option exists in every choice context (Sunstein, 2013).

There are a variety of circumstances where a default is considered preferable for the consumer to a forced choice. The most obvious of these is when consumer preferences are homogeneous or are shared by a significant segment of the market. In this case, the default choice design efficiently reduces consumer effort. Defaults may also be used where there is information asymmetry between a manufacturer and the customer. For example, the settings of a new computer contain default configuration due to the number and complexity of

the choices needed to make the computer ready for use. Consumers generally do not have the requisite product knowledge, or time, to effectively setup a computer for use. Defaults can also be employed by choice architects to drive consumers towards a choice viewed as socially optimal – making organ donation an opt-out policy is one such example (Johnson and Goldstein, 2003).

The previous discussion centred on defaults that benefit consumers. While nudging is conceptualised by its popularisers as guiding consumers towards choices beneficial for them, there is nothing preventing marketing managers or policy makers from using defaults to guide consumers towards a product, service, or choice that maximises the company or administrator interests, such as profit, revenue, or market share, while reducing consumer welfare. For example, a car company may present all extra features on a base model car, such as leather seats or low-rim tyres, as ‘opt-out’ in the documentation provided to consumers during the sale process. Such a policy could help drive sales targets. Default settings have at times been subject to legislation by governments to protect consumers. One notable example is the EU Consumer Rights Directive, which prevents retailers from pre-populating choices for online purchases (Kusev et al., 2017).

Alternatively, default options set by well-intentioned choice architects may sometimes fail consumers. One of the advantages commonly cited about defaults is that they can guide consumers towards choices that are best for them. Evidently, choice architects must know what is in the best interests of consumers or what is perceived to be the best choice by consumers.

Defaults are widely considered a type of behavioural influence known as a nudge, which is the practice of modifying consumer choice by changing the choice architecture without limiting choice or changing economic incentives (Sunstein and Thaler, 2008). In fact, defaults are the most effective (Sunstein, 2014), pervasive (Johnson et al., 2012), widely discussed (Goswami and Urminsky, 2016), and paradigmatic (Grüne-Yanoff and Hertwig, 2016) member of the nudge family. Nudging is considered superior to other alternatives of behavioural control such as taxation, mandates, and bans primarily because it maintains freedom of choice (Sunstein and Thaler, 2008). That is, deploying a nudge does not involve the removal of any alternatives from the choice set. Rather, a nudge seeks to guide a consumer towards an alternative by using knowledge of cognitive processes and biases to create a choice context in a manner that maximises the likelihood of a designated choice.

Given that nudges, including defaults, have been shown to successfully influence choice primarily by harnessing cognitive biases, researchers have noted concerns about the potentially manipulative impact of defaults on choice (Bovens, 2009, Rebonato, 2014, Felsen et al., 2013). It is only in recent times that researchers have focused on the potential downsides of defaults and examined methods of addressing these issues, as early studies focused almost exclusively on their potential welfare-enhancing applications (Smith et al., 2013). The major argument against defaults is that they influence consumer choice covertly. Consumers do not appear to notice the presence of a default (Dhingra et al., 2012, Sunstein, 2016), which may indicate a loss of autonomy in the consumer (Bovens, 2009). Evidence suggests that people prefer nudges that are more overt and rely on their deliberate, conscious thought process over automatic processing (Jung and Mellers, 2016, Sunstein, 2016).

The argument that defaults work covertly in shifting consumer choices has lead researchers to investigate the effect of enhanced transparency on consumer choice within a default option context, including the robustness of the default effect (Smith et al., 2013, Schmidt, 2017). At this stage, more extensive research needs to occur to determine if nudges are effective by influencing consumer subconsciously (Marchiori et al., 2017) . Current evidence suggests that while disclosure of the default influences consumer attitudes, disclosure has no influence on the default effect (Kroese et al., 2015, Steffel et al., 2016, Loewenstein et al., 2015, Bruns et al., 2016). In one instance, researchers informed subjects within a health-care context that the default option they received had been randomly assigned and that the default option provided to other subjects was probably different to their default (Loewenstein et al., 2015). The default effect persisted, suggesting that the disclosure of a default did not matter and that implied endorsement had a minor role in the default effect in circumstances relating to health policy. Another laboratory-based study found that neither disclosing individually or collectively the potential influence or the purpose of the default significantly debiased the default effect (Bruns et al., 2016). Similar results were found in field studies (Kroese et al., 2015). One approach that has attenuated the default effect was asking participants to undertake a preference articulation task while deciding with disclosure (Steffel et al., 2016). The preference articulation task encouraged subjects to consider the merits of both the default and non-default option. Certain forms of accountability may also function like the preference articulation task by inducing consumers to consider the merits of all options in a more balanced manner (Steffel et al., 2016).



## DEFAULTS IN CONSUMER FINANCIAL DECISIONS

Considerable attention has been directed towards the influence of defaults within the context of consumer financial decisions, with most attention devoted to the role of defaults within decisions about retirement savings (Madrian and Shea, 2001, Carroll et al., 2009, Beshears et al., 2009, Choi et al., 2004). Consumer finance is a topic that has traditionally received fleeting attention from marketing scholars but is witnessing a significant growth in research in recent years (Lynch Jr, 2011). This growth reflects the sizeable impact that consumer financial decisions have on domestic and international economies (Campbell, 2006, Tufano, 2009, Campbell et al., 2011), as well as the observation that financial decisions are a substantial contributor to consumer welfare (Lynch Jr, 2011). In the superannuation domain, there has been substantial growth in the number of Australians with defined contribution superannuation plans that require decisions about growing and maintaining their balance and the amount required to live off in retirement (Dobrescu et al., 2016).

While consumer finance encompasses a variety of domains, such as saving, borrowing, spending, and the purchase of financial products, there are a number of features that characterise decision-making in all of these areas. These features stem from both individual factors and the inherent nature of consumer financial decisions (Agarwal et al., 2017). Most prominently, individuals are often inadequately equipped to make appropriate decisions; low levels of financial literacy are common among wide segments of populations both domestically and internationally. In particular, factors such as age (young) and gender (female) are strongly associated with poor financial literacy (Ali et al., 2014). Numeracy is another factor that contributes to poor financial decisions by consumers (Lusardi, 2012). Consumer

financial decisions also incorporate features not commonly found in other consumer decision-making contexts. Nonlinear reasoning (compound interest) is one feature. Although choice overload applies to other consumer domains, it is especially apparent in many financial decisions including superannuation in Australia (Fear, 2008).

## HOW DEFAULTS INFLUENCE CHOICE

The default effect is believed to eventuate from three main drivers: effort, implied endorsement, and cognitive bias (Smith et al., 2013). While all three drivers have been tested to varying degrees empirically, the relative importance of each driver remains unclear (Marchiori et al., 2017) and may change depending on the situation and/or the individual (Smith et al., 2013).

Choosing the default option can be the optimal response by a consumer under certain circumstances. The most pertinent reason is where the default represents the optimal choice for the consumer. Secondly, there are times where the costs of making the decision (including information search, assessment of the relative attributes of each product) and/or the costs associated with switching exceed the benefit gained by choosing a non-default option (Zamir, 2015).

The first, most evident reason for the default effect is effort (both physical and cognitive). The default option is the choice received by a consumer in the absence of any active choice, which implies that choosing a non-default option requires at least greater physical effort than going with the default. For example, citizens living in a jurisdiction with a default

policy to donate organs are required to obtain, complete, and mail a form if they wish to opt-out (Johnson et al., 2012). Nevertheless, a default effect can exist in a choice scenario where the physical effort required to choose the non-default option is negligible, thereby suggesting that effort may have a limited role in explaining default effects. In a set of experiments examining default effects, subjects were asked to make a choice online and needed to click their mouse to change the default. Despite the negligible physical effort involved, not only did a default effect occur in these experiments, but the size of the default effect was substantially similar to that found when the same question was examined in a natural experiment where the physical effort required to change was far greater (Johnson and Goldstein, 2003). Of course, people can also expend cognitive effort (Johnson and Goldstein, 2003, McKenzie et al., 2006). In situations where a person is unwilling to invest cognitive effort with their decision or has difficulty deciding between two or more options, it is likely that the person will remain with the default option (Sunstein and Thaler, 2008).

A second cause of the default effect is implied endorsement. Consumers may choose the default option in the belief that it is recommended by the choice architect (Beshears et al., 2009). In the case of choices related to public policy, like organ donation, consumers may view the default as the recommendation from policymakers (McKenzie et al., 2006, Tannenbaum and Ditto, 2011). However, under certain conditions consumers may not uncritically adopt a default as an implicit recommendation. Within a marketplace context, consumers may use their social intelligence (marketplace metacognition) to assess the value of a default (Wright, 2002, Brown and Krishna, 2004). Where a seller is perceived to be of low credibility, consumers may interpret the default as an attempt to manipulate and consequently divert their choice away from the default (Brown and Krishna, 2004). Additionally,

some consumers may react negatively to the presence of a default and its implicit recommendation. Reactance theory suggests that when freedom of choice is perceived to be infringed by another, the individual may resist these attempts by asserting their choice more strongly (Brehm, 1966). It is suggested that reactance from consumers to a default option is strongly related to the level of trust in the choice architect (Sunstein, 2015). It is possible that consumers may infer that the default contains informational value about the choice architect's beliefs, although there is an asymmetry in informational value based on the nature of the default (Dinner et al., 2011). Alternatively, the default may be inferred to be the most popular choice (Sunstein and Thaler, 2008).

Cognitive biases are the third driver of the default effect. Most biases relating to the default effect are underpinned by loss aversion (Smith et al., 2013, Zamir, 2015). Loss aversion is the mind-set where losses resulting from a reference point are weighted more heavily than a gain of equivalent size to the loss (Kahneman and Tversky, 1984). The endowment effect is where the consumer imagines they already possess the default option – that is, the default becomes the reference point (Kahneman et al., 1991). The combination of the endowment effect and loss aversion means that potential loss incurred by moving away from the default option is weighted more heavily than the benefits of choosing an alternate option, which ultimately reduces a consumer's likelihood of changing from the default.

## DISCLOSURES IN CONSUMER FINANCE

Disclosures are a very common feature of the financial decision-making environment (Kozup and Hogarth, 2008). Consumers are presented with disclosure statements when they purchase financial products, whether they are straightforward or complex. A primary reason to provide consumers with disclosures is that consumers do not have the relevant information to make an informed choice (Johnson and Leary, 2017, Kozup and Hogarth, 2008, Loewenstein et al., 2014).

Providing disclosure to consumers does not guarantee that the information will be used or correctly interpreted. Given the scarce attention and cognitive effort that consumers possess, any disclosure will come at a cost to consumers (Loewenstein et al., 2014). Significantly, consumers may be worse off in the face of enhanced disclosure. Additional disclosure may be ineffective where there are numerous disclosures or an overload of competing information (Ben-Shahar and Schneider, 2011). Current research indicates that the proposed benefits of disclosure do not materialise in part because of psychological limitations of consumers (Loewenstein et al., 2014).

Beyond the content of the disclosure, attention must also be devoted to the form of the disclosure and the environment in which it is delivered. Disclosures are often misused or neglected as a result of the form of the disclosure (Loewenstein et al., 2014). It has been hypothesised that consumer use of disclosures can be improved if information is communicated using social comparisons (Loewenstein et al., 2014, Beshears et al., 2015). The importance of disclosure is such that the efficacy of disclosure under different environments is

a research priority for the United States Consumer Financial Protection Bureau (Johnson and Leary, 2017).

Previous research on the disclosure of information about default options to consumers has not occurred within a CFDM context. The findings on default option disclosures in other domains (like environmental and health) may not prove robust when applied to consumer financial decisions given the unique range of factors associated with consumer financial decisions and decision-makers. Furthermore, the prevalence of disclosures within CFDM may be more recognisable to consumers and consequently have a greater impact on consumers.

## **THE CONCEPT OF ACCOUNTABILITY**

The concept of accountability has been the subject of research by scholars across a wide range of disciplines. It has been examined in three forms: (1) formal accountability – the nature of accountability is specified formally through mechanisms such as rules, legislation and regulation; (2) informal accountability – accountability may be expected but is not bound by formal mechanisms; and (3) interpersonal accountability – an individual's expectation of personal accountability for their actions. The focus of this study is on informal accountability as studied primarily by social psychologists.

The informal version of accountability is commonly defined as the implicit or explicit expectation that one may be called on to justify one's beliefs, feelings and actions to others (Lerner and Tetlock, 1999). This definition takes a phenomenological perspective of accountability. In other words, there is not a strict relationship between the level of accountability

imposed on an individual and the level of accountability felt by the individual. Accountability is ultimately a matter of the individual's perception. In general, the level of felt accountability is derived from within rather than being the result of an explicit demand from another individual.

Accountability is often seen as a panacea for decision-making and judgment errors (Lerner and Tetlock, 1999). This view is not entirely unfounded either; many studies have provided evidence of accountability's ability to improve decision-making and judgment (see Lerner and Tetlock 1999 for a full review of accountability's influence on decision-making biases). However, while accountability has been shown to attenuate biases under certain conditions, it is not a universal debiasing mechanism as accountability can also have no impact on or even accentuate cognitive biases (Lerner and Tetlock, 1999, Lerner et al., 1998). This divergence in outcomes can result from the impact of accountability on two parts of the decision-making process, namely by changing the amount of cognitive effort involved in making a decision and influencing how individuals think.

## **THE EFFECTS OF ACCOUNTABILITY ON CONSUMER MOTIVATIONS TO CHOOSE**

There is a strong association between increased accountability demands and cognitive effort. Typically, a decision-maker will respond to accountability by increasing the amount of cognitive effort expended on a decision making or judgment task (Tetlock et al., 1989). Consumers adopt a 'cognitive miser' approach by using mental shortcuts, or heuristics, in order to reduce the time and effort spent in searching for information and making a decision

(Simon, 1956, Samuelson and Zeckhauser, 1988). There is intuitive appeal behind the idea that increased cognitive effort equates to improved decision making, but the evidence suggests that increased effort directed towards pre-emptive, self-critical thinking can both improve and impair decision making (Lerner and Tetlock, 1999). Accountability can attenuate biases where the bias exists due to a lack of attention and there is no special training required (Arkes, 1991, Larrick, 2004). This occurs in circumstances where a consumer has a reserve of effort that they are enticed to use by the increase in accountability demand. However, increased effort can also exacerbate biases because it can induce an excessive search for meaning. One bias that accountability heightens is the dilution bias, where the increased effort results in subjects reading, encoding, and utilising non-diagnostic information as well as diagnostic information in order to make a judgment (Tetlock and Boettger, 1989).

Within the marketing literature, involvement is known to moderate the amount of effort that an individual will invest in a decision-making process. When a product has high personal relevance to an individual, they are more likely to expend significant effort in the decision-making process (Lerner and Tetlock, 2003). The difference between accountability and involvement is not the impact on effort but the direction in which it is applied (Lerner and Tetlock, 2003). The effort invested by a highly-involved consumer is towards seeking information. The focus of a consumer under high accountability is that of making a decision that has the best chance of satisfying his or her audience.



## DECISION-MAKING STRATEGIES UNDER ACCOUNTABILITY

Decision-makers can adopt a variety of strategies to cope with a demand for accountability, although only one strategy results in improvements in cognition. The most studied form of cognition in response to accountability demands is pre-emptive, self-critical thinking, and this form of cognition has been employed to attenuate a number of cognitive biases (see Lerner and Tetlock 1999 for a complete list of biases). A consumer who responds in a pre-emptive, self-critical manner to accountability is willing to spend cognitive resources thinking about an issue in a flexible, multidimensional way (Lerner and Tetlock, 1994). The consumer will likely think about the sorts of arguments that others might make for and against a decision.

A number of conditions must occur to induce pre-emptive, self-critical thinking. The timing of an accountability manipulation is highly consequential (Lerner and Tetlock, 1994). Accountability results in integratively complex thinking when a person is aware of the accountability requirement prior to the decision-making process. If a choice has been made prior becoming aware of an accountability demand, a consumer generally remains with their choice and will justifying their choice in a process known as defensive bolstering (Lerner and Tetlock, 1994).

Timing, however, is not sufficient to induce pre-emptive, self-critical thinking. Audience characteristics also influence the way that a decision-maker will respond under accountability. In order to induce pre-emptive, self-critical thinking, the views of the audience must be unknown (Lerner and Tetlock, 1994). When the view of the audience is known prior to the decision, people typically respond by making the choice that conforms to the audience's

view (Cialdini and Goldstein, 2004). Even if the audience has not communicated a view to the decision-maker, a perceived view is enough to result in conformity. The legitimacy of the audience is a relevant boundary condition on the impact of accountability. Where a decision maker infers that their decision is being influenced by an audience who they deem illegitimate, decision-makers either withdraw from the task or assert their views with greater force (Lerner and Tetlock, 2003).

## HYPOTHESES

The hypotheses for the study are:

H1: The default effect will remain in the presence of disclosure under low accountability but will be attenuated by high accountability.

a) When preferences are indifferent, the default effect will persist except under high accountability.

b) When clear preferences exist, the default effect will remain under both accountability and disclosure.

H2: Only accountability will improve the normative quality of investment choice.

H3: Only accountability will improve the subjective quality of investment choice.

H4: Time spent on making a decision will increase under accountability but be unchanged by disclosure.

H5: Cognitive effort will increase under accountability but be unchanged by disclosure.

H6: Internal implied endorsement will increase under disclosure but not under accountability.

## METHOD

The effect of accountability (high, low) and disclosure (yes, no) on consumer choice involving default options (high risk investment strategy, low risk investment strategy) was examined using a  $2 \times 2 \times 2$  full-factorial experimental design. The experiment was conducted as a web-based non-laboratory study, using participants drawn from the student pool at the University of Technology, Sydney (UTS). Participants were directed to the experiment webpage from a link in their UTS SONA account. The webpage containing the experiment was hosted by Qualtrics. Participants were randomly assigned to one of the four conditions via the randomisation tool within the survey flow feature of the Qualtrics website. Approval to conduct the experimental research was sought from and granted by UTS Human Research Ethics Committee.

## PARTICIPANTS

Participants for this study were sourced entirely from the UTS Business student subjects' pool. The UTS Business student subject pool was comprised of students undertaking either Marketing Foundations (a first-year course) or Marketing Research (a second-year course). Students undertaking either course are automatically enrolled into the subject pool and receive course credit (one mark) in exchange for their participation in a study (with a maximum of three marks). In 2017, the size of the subject pool was approximately 1,500 students. Participation of students in the subject pool was not compulsory, with prospective participants given the opportunity to opt-in.

The characteristics of individuals in the subject pool were highly suitable for the purposes of this study. In particular, the average age of members in the student pool typically lies between 18 to 20 years. This segment of the Australian population is worth study because young adults have been found to exhibit low financial literacy, as well as low engagement with respect to their superannuation (Anderson et al., 2017).

Participants completed the study online using any device with internet access at any time or location. The study was listed on the UTS SONA system (where all studies are advertised to members of the subject pool) and emails were sent to subject-pool members advertising the study. Participants needed to login to their SONA account then click on the study link. This link directed them to the study page created in Qualtrics. All experimental stimuli were presented to participants online and all dependent variables were measured and stored in Qualtrics.

Participants were instructed to complete the experiment on their own. A time limit to complete the experiment was not imposed on the participants. The participant information statement stated an estimated completion time of 15 minutes. A participant's progress, measured as a percentage of the total number of pages completed, was presented at the bottom of each screen in order to provide regular feedback to participants.

The intention from the outset of this research project was to conduct the experiment as a computer-based exercise within the UTS Behavioural Lab. Conducting an experiment within a laboratory setting would afford greater control over the decision-making setting in two ways. Firstly, a laboratory-based experiment would have provided an additional, highly effective mechanism to induce accountability, namely physical proximity (Lerner and

Tetlock, 1994). Secondly, a laboratory-based experiment would have granted greater scope to control the conditions under which the experiment would occur. Due to time constraints and a limited access to the Behavioural Lab, however, a decision was made to conduct the experiment online rather than in the laboratory. The non-laboratory web-based conditions meant that participants may have had reduced attention, participated at different times of the day, or discussed their answers with others.

Although using an online platform was not the preferred method of conducting the experiment, there were benefits associated with this approach. Most significantly, the study benefitted with respect to enhancing the ecological validity. Indeed, financial decisions, like most other consumer decisions, are frequently made online.

Anecdotal evidence from other researchers suggested that the respondents from the designated sample pool are sensitive to study length. Students are required to provide up to 60 minutes of their time towards a study to earn one credit point towards a current marketing course. The response quality and mortality rate from studies in recent semesters suggested that student motivation is relatively low. Accordingly, the study length was restricted to a fraction of the 60-minute limit. Furthermore, the cover story for the experiment was designed to appeal to a wide range of students about a topic that was of moderate to high personal interest (graduate jobs).

## PROCEDURE

A cover story was used in this study. Participants were told to imagine they were starting their first day of a graduate job for a large marketing consultancy firm (a fictional company named 'Frontier Markets International'). Participants were then instructed to answer a set of administrative questions for the Human Resources team before they commenced work. Accountability was manipulated at this stage by informing participants that their responses to the administrative questions would be either anonymous and confidential (low accountability) or traceable and potentially subject to a discussion with the researchers within two days (high accountability). Disclosure was then manipulated. Participants in the disclosure condition read a statement identifying the default effect and highlighting that their employer assigned the default options in the administrative questions. The first question answered by all participants was to choose an investment strategy where the default option was either low or high risk. Participants were then asked to respond to a series of questions relating about their choice of investment strategy, such as effort, implied endorsement, and intention to recommend. In the final section of the survey, participants answered demographic questions, as well as a set of personality statements indicating their maximising tendency. All respondents were instructed to complete all questions in a single uninterrupted period, answer the questions individually without the assistance of others, and were asked to not discuss the experiment with others.

## INDEPENDENT VARIABLES

### ACCOUNTABILITY

Researchers have identified a number of methods that can be used to invoke accountability in an individual. Indeed, an accountability manipulation may incorporate two or more forms of accountability for even the most seemingly straightforward manipulations (Lerner and Tetlock, 1999). Most commonly, accountability is induced via one or more of the following four mechanisms: (1) physical proximity – the potential for a person within close physical proximity to observe performance; (2) identifiability – a person's actions will be linked to them; (3) evaluation – a person's performance will be judged with potential consequences; or (4) reason-giving – an explanation is required for what a person says or does.

Accountability studies are typically hypothetical in nature and take place within a laboratory setting in order to provide the requisite control over accountability. In these experiments, subjects are told they may need to explain their decision to someone who they have not met before and may not meet again. This accountability manipulation appears weak on face value because the consequence (actual or perceived) from accounting to an unknown person is approval or disapproval. However, research has repeatedly found that accountability manipulations of this form do have a significant impact on decision making, both in terms of self-reported accountability measures, as well as the impact of the manipulation on the dependent variable (Lerner and Tetlock, 1999). The fact that this manipulation induces accountability from subjects suggests that accountability may be more influential on decision making under real-world conditions.



In this study, accountability was manipulated between the two accountability treatments by providing a statement to participants. The manipulation was presented on a separate page in order to heighten the subject's attention towards the message. The accountability manipulations were modelled off manipulations used in prior research (Simonson and Nye, 1992, Quinn and Schlenker, 2002). The written instructions were designed to inform participants whether they may be asked to have a discussion with the research team. The discussion would cover not only their choice but their decision-making process as well – this covers the process and outcome accountability, which has been covered in detail in the literature (Hall et al., 2017, Patil et al., 2014).

Both high and low accountability statements included a sentence about the identifiability of participant response. This sentence was varied in each condition using the modal verbs *are/are not* and *can/cannot*. In both conditions, participants were instructed to remember this information while they were answering the administrative questions.

The high accountability treatment was three sentences (one paragraph) longer than the low accountability treatment. These sentences, which were the first sentences in the high accountability statement, informed participants about the possibility of being invited to explain their choices and decision-making processes to the research team, when they would be invited, and why they would be invited. The wording of the manipulations was created carefully as participants can convey micro-signals between principal and agent under accountability that impacts the response of the subject of accountability (Patil et al., 2014). Detailing the reason why the research team would seek a discussion was important to establish the legitimacy of the request. Individuals subjected to perceived illegitimate accountability demands respond typically by resisting or disengaging from the task (Lerner and

Tetlock, 1999). Further, the rationale for the request was to help the researchers heighten their understanding – this was chosen as the rationale because we sought to avoid giving participants the impression of our views or convey that the questions involved a right/wrong answer. When participants know or believe they can accurately predict the view of their accountability audience, participants typically respond through conforming with the audience's view (Cialdini and Goldstein, 2004).

Participants were told that they may be invited to explain their choices and decision-making processes within two days following participation. Construal level theory suggests that an individual thinks about an event or object in a more concrete manner as the individual's perception of the distance of the object or event decreases (Trope and Liberman, 2010). A short temporal period of two days was chosen to maximise concrete thinking without creating a time period that would seem unachievable for the research team to undertake.

Shown below are the two statements provided to participants in the relevant accountability conditions. Both accountability manipulations below were based on prior accountability manipulations (Simonson and Nye, 1992, Quinn and Schlenker, 2002, Siegel-Jacobs and Yates, 1996, Mark-man and Tetlock, 2000, Kivetz and Zheng, 2016):

#### *HIGH ACCOUNTABILITY TREATMENT*

*“The Research Team may invite you in the next two (2) days for a discussion. During the discussion, you will be asked to explain the decisions and decision-making processes you used for the administrative questions. This will help the Research Team to develop a more detailed understanding of your response to the survey.*

*Accordingly, your responses to the administrative questions are not anonymous and can be traced back to you. Please bear this information in mind while you answer the administrative questions.”*

#### *LOW ACCOUNTABILITY TREATMENT*

*“Your responses to the administrative questions are anonymous and cannot be traced back to you. Please bear this information in mind while you answer the administrative questions.”*

The wording of the accountability manipulation statement was chosen carefully to ensure that the manipulation would induce an increase in felt accountability while ensuring that the felt accountability was not so high as to encourage participants to withdraw from the study (participants could discontinue the study at any time). Felt accountability in the high accountability treatment could have been heightened by increasing the likelihood of receiving an invitation to account from “may” to “will”. Another method of strengthening felt accountability was to provide stronger rewards or sanctions in response to the participant’s efforts to justify their choices and processes used in the study. For example, by doubling or removing their credit point in exchange for sufficiently or insufficiently accounting for their decision. No reward or sanction was explicitly mentioned or implied in the accountability statement. Prior studies have indicated that in such circumstances the disapproval or lack of approval from another person is a meaningful sanction (Lerner and Tetlock, 1994). An accountability manipulation that involved rewards and sanctions contingent on participant justification was ultimately not pursued due to the potential risk of reducing participation

and the significant administrative requirements involved. It should be noted that while participants were told that they may be selected to account to the research team, there was no intention of asking any participant within the high accountability treatment to actually justify for decision and decision-making process.

### DISCLOSURE

Prior studies have manipulated disclosure about defaults in a handful of ways. Subjects have been told that the default they and other participants received was randomly assigned (Loewenstein et al., 2015). Participants have also been told the intended effect of the default (“...help you make healthier choices” (Kroese et al., 2015)). Other research has tested the role of providing information about the default’s effect on choice (“the preselected default value might have an influence on your decision”), the purpose of the default (“the preselected default value is meant to encourage higher contributions...” ) or both (Bruns et al., 2016). In summary, this collection of studies found little to no evidence that making the default transparent to consumers influences their choice.

The form of disclosure adopted in this study was modelled off the form used by (Steffel et al., 2016). The primary difference between the disclosure statement used by Steffel and the version used in this study is the inclusion of further information about the term ‘default option’. The definition by Brown and Krishna (2004) for a default was provided in the disclosure, as was the phrase ‘preselected option’ as used by (Bruns et al., 2016). This additional information about the meaning of a default option was provided to facilitate understanding

of a default option by a broader range of participants and reflected the nature of the default option in this study (that is, the radio button had been preselected for the default option).

The following paragraph was the disclosure statement provided to participants in the disclosure treatment:

*“As you may or may not know, research suggests that you are more likely to choose an option when the option is the default option (the preselected option, or the option that you will receive if you do not make a choice). Frontier chose the default option in the questions below. This means you are being ‘nudged’ toward the option chosen by Frontier.”*

## DEPENDENT VARIABLES

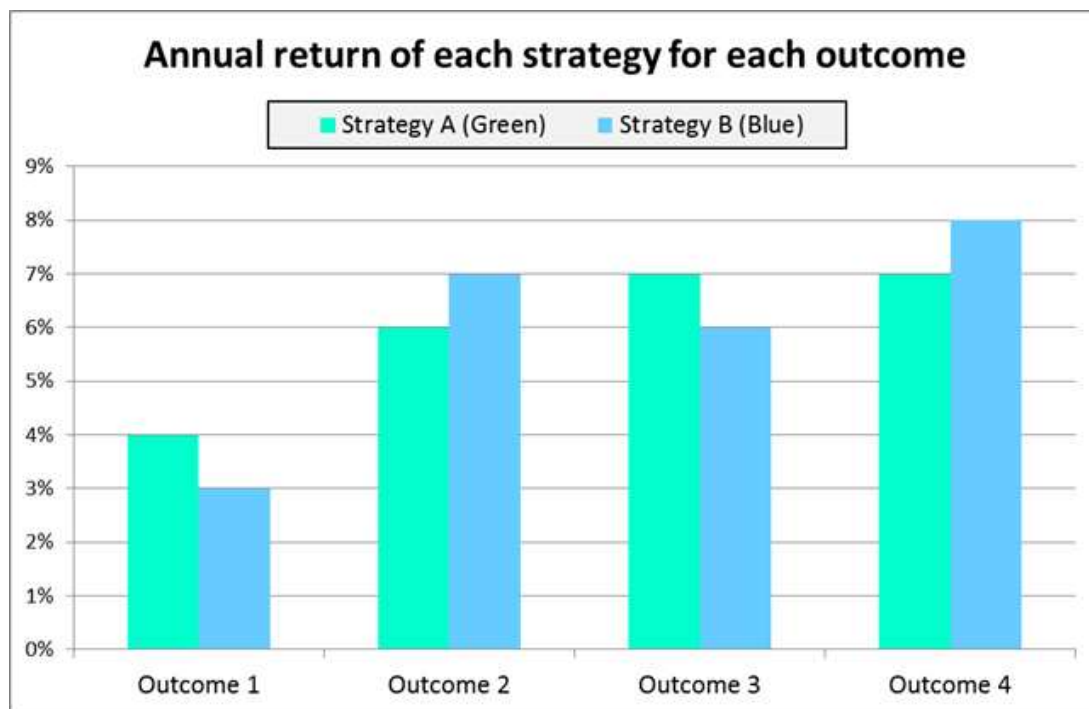
Participants were asked to nominate an investment strategy that would be employed for their superannuation balance. The question commenced by providing some introductory information about the Australian superannuation system. The information was basic in nature and covered the type of information that may be presented to an employee when making their choice of superannuation investment fund. Participants were then informed that they could choose from one of two options – Strategy A (low risk) or Strategy B (high risk) – and that a preselected option would apply if they did not elect to make nominate a fund. The radio button next to either Strategy A or B was pre-populated when the participant opened the webpage. Further information was then provided about the risk and return expectation of each strategy over the next five years. All supporting information was diagnostic in nature.

The superannuation question posed to the participants was based on the types of questions asked in introductory finance textbooks (Bodie et al., 2012). The question deals with one of the most fundamental concepts in finance, namely that the higher the risk of an investment, the higher its return should be. This tenet is predicated on the basis of risk-aversion among investors (that is, investors prefer a return that is guaranteed rather than an expected return of equal amount that is subject to variation). In our specific scenario, the expected return of both strategies is equal to 6%. However, the two strategies have different levels of variance. Strategy A has a variance of 6%, whereas Strategy B has a variance of 14%. Thus, the normatively optimal decision can be determined through a visual inspection of the graph provided the participant understands the concept of risk and return and can calculate a simple average involving four single-digit integers.

A number of factors that are known to impact choice were considered in developing the question on the choice of superannuation strategy:

1. Positive and negative returns: The scenario was developed with only positive outcomes. Negative outcomes were not incorporated into the scenario to minimise complexity. Negative outcomes are processed differently than positive returns (Kahneman and Tversky, 1984).
2. Recency and primacy effects: Consumer attention and recall is enhanced due to recency and primacy effects (Murdock Jr, 1962). In our study, the strategy with the comparatively lower return in Outcome 1 was also assigned the higher return in Outcome 4. If the same strategy had the more attractive return in the first and last outcomes, individuals may have been biased towards this strategy.

3. Choice overload: In this instance, choice overload was limited as there were only two options (Scheibehenne et al., 2010). Previous studies of defaults have typically considered defaults with only two options, although many of these options have been binary.
4. Choice complexity (Iyengar and Lepper, 2000): A small amount of choice complexity was present. To obtain the normatively correct answer, the participant would have had to obtain an arithmetic average of the four outcomes (arithmetic because each outcome was equally likely), and then assess the level of risk pertaining to each strategy, where risk is operationalised as variance. The return was equal but variance unequal between the two strategies. Using the Sharpe ratio to compute a risk-adjusted return suggests the strategy with smaller variance is the preferred outcome (Sharpe, 1994).
5. Completeness of information/Preference Uncertainty (Botti and Iyengar, 2006): The scenario presented to the participant is almost entirely self-contained in terms of information required to solve the problem. If respondents had an understanding of the concept of risk and return then they would have a framework to solve the problem and all the relevant risk and return information at hand. It is suggested that almost all subjects would have been exposed the concept of risk and return in the subject Fundamentals of Business Finance, which is taught in the first and second years at UTS. Moreover, the risk of each strategy could be obtained simply by inspection of the graph; the riskier strategy had the highest and lowest returns (see Figure 1 below).



**Figure 1.** The graph of choice of superannuation investment strategy with a low-risk default.

The focus of the present study was on defaults rather than comparing the choice of the investment option in an active choice setting. Active choice settings are generally not used in the superannuation space. The popularity of defaults within consumer financial choices also provides a reason to support the use of a non-default as the baseline to compare choice when it is the default option.



## OTHER MEASURES

### MANIPULATION CHECK

The accountability manipulation check employed in this study was based on the form used by Zhang and Mittal (2005) . Participants were asked to respond on a scale of 1 (*strongly disagree*) to 7 (*strongly agree*) to the following statement:

*“I believe that I may have to explain my choices and decision-making process to the Research Team”.*

### EFFORT

The amount of effort expended by participants in choosing their superannuation strategy was measured in two ways. The first measure was a self-reported measure of cognitive effort expended to make their decision. Participants completed a three-item scale measured on a scale of 0 (*very low*) to 10 (*very high*) (Shiv et al., 2004, Ferraro et al., 2005). The three items were:

1. Time you spent thinking
2. Extent to which you thought
3. Amount of attention you paid

Furthermore, the time that each participant took to make their decision and move to the next webpage was measured (Lee et al., 1999, Dinner et al., 2011). All the information relating to the choice of superannuation question was on a single webpage. Time was measured on this webpage from the time the page loaded until the participant clicked the button to proceed to the next webpage. Using an objective measure of effort was expected to help offset issues associated with the use of a self-reported measure.

### IMPLIED ENDORSEMENT

Two sources of implied endorsement were measured using 7-point Likert scales. Participants were asked to indicate their level of agreement, from 1 (*strongly disagree*) to 7 (*strongly agree*), to two items regarding the implied endorsement from the employer and from the participant's expectation of the choices made by others, respectively:

*"It appeared that Frontier (the employer) wanted me to choose Strategy A as my superannuation strategy."*

*"I made my choice of superannuation strategy because I thought about what most Frontier employees would do."*

## COVARIATES

### RISK AVERSION

The risk tendency of participants was measured using a question about their personal savings or investment decisions. This question is the risk tolerance item from the Survey of Consumer Finances (SCF) (Grable, 2016):

*“When you save or invest your money, how much financial risk are you willing to take?”*

Typically, researchers use a series of lotteries to determine an individual’s degree of risk aversion or risk seeking tendency. In this instance, the time required to answer these questions was considered too lengthy and inconsistent with the cover story given to participants. Accordingly, the single item measure was used. Risk tolerance was measured on the continuum of risk aversion to risk seeking (Grable, 2016, Gilliam et al., 2010).

### FAMILIARITY WITH FINANCIAL CONCEPTS

Participants were asked to rate their familiarity on a scale from 1 (*not familiar at all*) to 5 (*extremely familiar*), to a mix of concepts relating to the choice of investment strategy and graduate jobs:

- Internships

- Psychometric testing
- Behavioural interviews
- Hot desking
- Investment choice
- Risk and return
- Superannuation
- Weighted averages
- Nudging theory

Given the large number of items asked, the order of presentation was counterbalanced to prevent participant fatigue. The data collected was expected to provide an indication of a participant's decision-making ability regarding the superannuation question. For a respondent to undertake a complete assessment of the two superannuation investment options, a participant would need to calculate the average return (a simplified version of a weighted average) and understand the concept of risk and return (the higher the risk, the higher the return).

#### PERSONAL FINANCE KNOWLEDGE

Participants were asked to respond on a scale from 1 (*not knowledgeable at all*) to 5 (*extremely knowledgeable*) to a question requiring a self-assessment of their personal finance knowledge which was taken from the SCF:

*“How knowledgeable are you about personal finance?”*

The SCF has been conducted over the last 25 years by the US Federal Reserve. The data collected in the SCF has been used regularly to measure a variety of consumer characteristics, including financial literacy, and has been found to serve as a reliable proxy for more detailed and lengthy measurements of financial knowledge.

#### PRIOR KNOWLEDGE

Some subjects may have no interest in the topic of superannuation. Others may have been involved and considered these issues previously, most likely because they have had a superannuation account. Participants were subsequently asked to list the number of superannuation accounts they currently have as a measure of whether they have prior experience with this scenario.

## RESULTS AND DISCUSSION

### PILOT TEST

Before implementing a more extensive study, a pilot test was conducted using 87 participants from the UTS Business student subjects' pool to: (a) test the manipulation used to induce varying levels of accountability in participants, and (b) seek evidence that a default effect would arise from the stimuli.

### ACCOUNTABILITY MANIPULATION CHECK

Our initial attempt to manipulate participant accountability consisted of a minor change in wording – changing “will” to “will not” in the statement “you will be required to explain your decision to the research team”. This manipulation represented a departure from literature, where high accountability statements are generally much longer than their low accountability counterparts.

The accountability manipulation check did not support the notion that participants in the high accountability treatment felt a significantly greater level of accountability than participants under low accountability ( $M_{\text{low}} = 5.07$ ,  $M_{\text{high}} = 4.81$ ,  $F(1, 85) = .713$ ,  $p = .401$ ). Furthermore, the data did not suggest that the accountability manipulations achieved the desired effect on decision time ( $M_{\text{low}} = 76$  sec,  $M_{\text{high}} = 68$  sec,  $F(1, 85) = .481$ ,  $p = .490$ ) nor self-reported cognitive effort ( $M_{\text{high}} = 6.0$ ,  $M_{\text{low}} = 6.0$ ,  $F(1, 85) = .008$ ,  $p = .927$ ). A possible explana-

tion for these results is that the mention of accountability in the low accountability statement (that is, participants were told they would not be required to account) had the effect of creating salient accountability. Accountability may have been invoked as participants may have spent time during the experiment ruminating why they were not invited to account.

The results of the pilot test led us to modify the low accountability treatment by removing the section informing them they were not chosen to account. Instead, a simple sentence provided in prior manipulations was used to convey low accountability. To heighten participant attention on the accountability instructions the statements were also modified by changing the font size and colour.

### DEFAULT EFFECT

The pilot test provided evidence that the default effect would occur in the investment strategy question. When responses from all conditions were aggregated, the low-risk investment strategy was chosen by 58% of participants when it was assigned the default position and by 48% of participants when it was not the default. Although there was no significant difference with this small sample size ( $F(1, 85) = .888, p = .349$ ), if a similar percentage was attained with a larger and balanced sample (thereby raising the power of the test and thus minimising the chance of a type-2 error) the default effect would prove significant.

## MAIN STUDY

### SAMPLE

A total of 458 participant responses were analysed following data cleansing. Data cleansing was performed by first excluding any responses where the participant had not completed the entire study. Responses in the top 5% in terms of time taken to complete the study were then removed, to mitigate concerns about participants not feeling the manipulation appropriately, seeking help, or being distracted. Participants were not removed based on their time at the low end of the spectrum as the nature of the default is that it may encourage people to choose to undertake the easiest choice route. Participants were also excluded from analysis based on self-reported English language proficiency. Finally, participants were excluded on the basis of evidence of two parties conducting the experiment simultaneously at the same location (measured via the IP used to login to the study). The resulting sample sizes, distributed according to conditions, are shown in Table 1. The minor imbalance in sample size across conditions that results from the data cleansing did not impede the use of statistical tests for the purposes of analysing the dataset.

**Table 1.** Data sample sizes, distributed according to conditions.

Accountability	Disclosure	Default Type	Sample Size
Low	Undisclosed	High Risk	55
Low	Undisclosed	Low Risk	55
Low	Disclosed	High Risk	59
Low	Disclosed	Low Risk	60



---

High	Undisclosed	High Risk	57
High	Undisclosed	Low Risk	56
High	Disclosed	High Risk	57
High	Disclosed	Low Risk	59

---

Several useful observations relating to the experimental design emerged from the data cleansing process. The small attrition rate (96% of respondents finished the study), combined with the small number of participants excluded for taking excessive time to complete the study, does not indicate that mortality provided a serious threat to the study's internal validity. The mortality rate does not necessarily rule out the possibility that participants found the study too lengthy and dealt with fatigue by answering randomly, although with an average completion time of 10 minutes it is not likely that participants were fatigued during the latter stages of the study.

#### ACCOUNTABILITY MANIPULATION CHECK

The accountability manipulation check suggested the accountability manipulation produced the desired outcome. A greater sense of accountability was observed in the high accountability treatment relative to the low accountability treatment ( $M_{\text{low}} = 4.53$ ,  $SD = 1.40$  vs  $M_{\text{high}} = 4.87$ ,  $SD = 1.26$ ,  $F(1, 456) = 7.449$ ,  $p = .007$ ,  $\eta^2_p = .016$ ). Based on this evidence, participant responses will be analysed based on the accountability treatment they were assigned to.

Further analysis of the accountability manipulation check was done on the groups involved in the examination of the default effect (that is, low and high accountability groups

were further distinguished on the disclosure condition). Under disclosure, there was a significant difference between the low and high accountability groups. ( $M_{\text{low}} = 4.43$ ,  $SD = 1.42$  vs  $M_{\text{high}} = 4.78$ ,  $SD = 1.14$ ,  $F(1, 233) = 4.262$ ,  $p = .040$ ,  $\eta_p^2 = .018$ ). There was only marginal evidence to suggest the high accountability group felt greater accountability than the low accountability treatment. ( $M_{\text{low}} = 4.64$ ,  $SD = 1.39$  vs  $M_{\text{high}} = 4.96$ ,  $SD = 1.38$ ,  $F(1, 221) = 3.150$ ,  $p = .077$ ,  $\eta_p^2 = .014$ ).

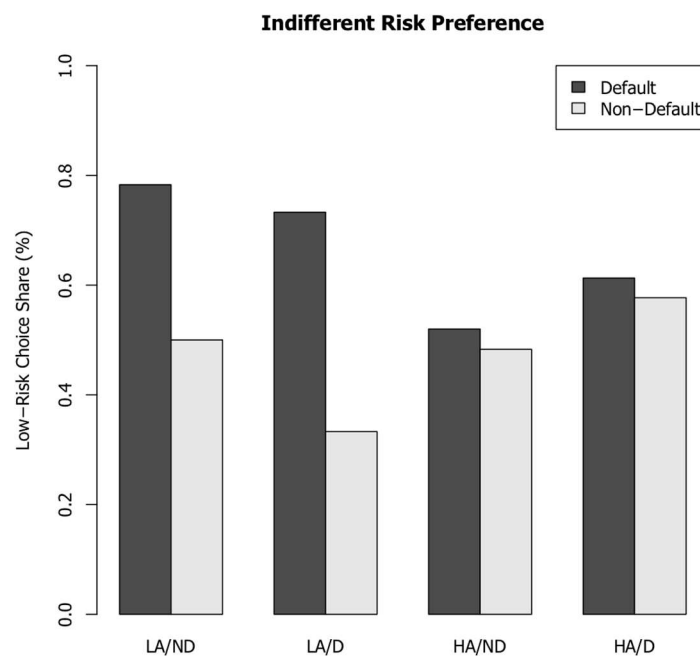
## CHOICE OF INVESTMENT STRATEGY AND DEFAULT TYPE

The pilot test results suggested a default effect may occur in the absence of accountability, although the pilot test sample size was insufficiently large to conclude with any significance. These findings were strengthened in the main study, with the frequencies of the two investment strategies being heavily dependent on the position of the default option. Note that for simplicity only the choice share of the low-risk investment strategy will be analysed; as there are just two strategies, the relative choice shares are complementary and hence the results are the same if the high-risk investment strategy was the choice share examined.

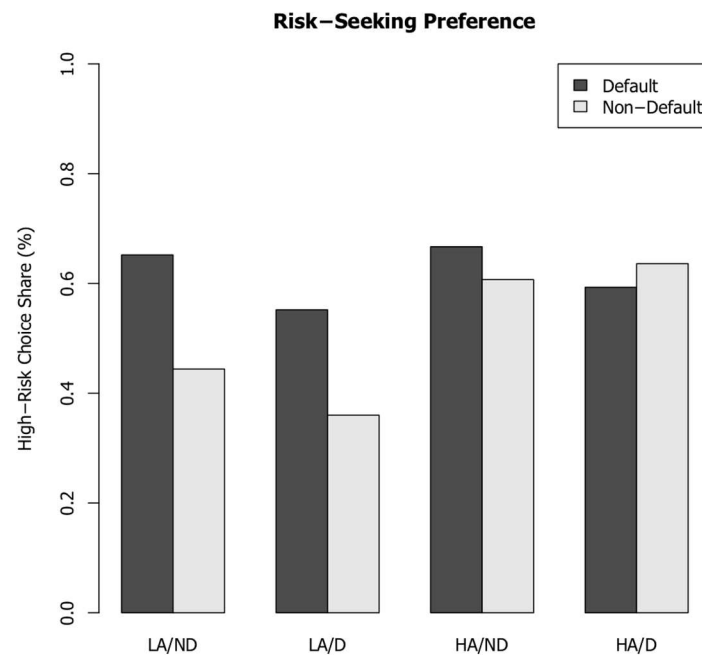
Under low accountability with no disclosure, participants chose the low-risk investment strategy 55.6% of the time when it was the default, but only 34.8% of the time when it was the non-default option ( $\chi^2(1) = 6.514$ ,  $p = .013$ ). The default position also influenced participants under low accountability with disclosure, with choice shares of 64.0% as the default and 44.8% as the non-default ( $\chi^2(1) = 10.309$ ,  $p = .001$ ). However, no default effect was observed for the investment strategies under both high accountability conditions. Under the no disclosure condition, highly accountable participants chose the low-risk option 39.3% of

the time as the default option and 33.3% of the time as the non-default option ( $\chi^2(1) = 1.064, p = .302$ ), while there was almost no difference in choice share (36.4% as the default compared with 40.7% as the non-default,  $\chi^2(1) = .318, p = .573$ ) when disclosure was presented to the high accountability treatment.

This analysis was extended to subsetting the sample data by risk preference given its potential as a confound. The results are illustrated in Figures 2 and 3. Participants with an indifferent risk preference reported results consistent with the results obtained for the entire sample. While the low-risk investment strategy had a larger choice share in each of the four conditions when it occupied the default position, a default effect existed in all conditions with low accountability but did not exist whenever participants felt high accountability.



**Figure 2.** Low-risk choice share for participants with an indifferent risk preference.



**Figure 3.** High-risk choice share for participants with a risk-seeking preference.

When the choices of risk-seekers were analysed, no default effect was observed under any of the four conditions. In fact, under high accountability with disclosure, the choice share was slightly higher (but not significantly different) than when it was the non-default option. These results demonstrate the robustness of the finding that defaults do not influence choice where clear preferences exist. Note that Figure 3 depicts preferences for the high-risk investment strategy.

Overall, the default effect persisted under disclosure but was attenuated by accountability (Hypothesis 1). However, felt accountability influenced the choice of investment strategy only for participants with indifferent preferences (Hypotheses 1a – 1b). Under low accountability, the choice of an investment strategy was guided towards the default. Under

high accountability, the choice of investment strategy was consistent between different default options. Overall, the default effect was attenuated by an increase in accountability.

Conversely, there is little evidence to support the notion that making a default transparent influences the choice of a default option (Hypothesis 1). The default effect was debiased under high accountability irrespective of the disclosure provided. This finding complements the emerging research on default disclosure that has consistently found that disclosure fails to debias the default effect (Bruns et al., 2016, Steffel et al., 2016, Loewenstein et al., 2015, Kroese et al., 2015).

Accountability has been suggested as a mechanism that may protect consumers because of its potential debiasing properties (Steffel et al., 2016). However, the fact that high accountability debiased choice does not necessarily mean that consumer decisions were improved and welfare-enhancing. Rather, the value of high accountability can only be determined by assessing the overall quality of decisions made under high accountability. To determine whether the debiasing outcome of high accountability translated into higher quality decisions, we now assess the quality of the choices made against normative standards and consumer preferences.

## DECISION QUALITY

Against a normative evaluation of decision quality, neither accountability ( $\chi^2(1) = 2.236, p = .135$ ) nor disclosure ( $\chi^2(1) = .570, p = .450$ ) had a main effect on the quality of participant's choice of investment strategy. We then examined the choice of investment strategy for risk-seeking participants for alignment with a high-risk investment strategy. Note that the choices of risk-averse participants were not analysed as they constituted a small percentage of the sample. A marginally significant main effect was found for accountability such that high accountability resulted in greater decision quality relative to low accountability ( $M_{\text{low}} = 50.0\%$ ,  $M_{\text{high}} = 62.2\%$ ,  $\chi^2(1) = 3.069, p = .080$ , odds ratio - low acc/high acc for high-risk strategy = .607). No main effect was observed for disclosure ( $\chi^2(1) = .551, p = .458$ ).

Finally, we examined the choice of risk-seekers under accountability when presented with varying defaults. When presented with a suboptimal default (low-risk strategy), participants chose the high-risk investment strategy more frequently under high accountability compared with low accountability ( $M_{\text{low}} = 40.4\%$ ,  $M_{\text{high}} = 62.0\%$ ,  $\chi^2(1) = 4.766, p = .029$ , odds ratio – low acc/high acc for low-risk strategy = 2.409). Under an optimal (high-risk) default, accountability did not have a main effect on investment strategy choice ( $\chi^2(1) = .087, p = .768$ ).

Defaults are often employed to guide consumers towards the choice that is deemed by the choice architect to be in the consumers best interests (Sunstein, 2013). If the choice architect has been able to accurately assign the optimal choice to the default, the tendency of accountable consumers to choose without influence by the default option is not necessarily desirable and may even result in welfare-reducing results. Some researchers contend that

defaults have typically been created with little consideration given to the potential decision quality that would result (Caplin and Martin, 2017).

While enhanced accountability levels debiased the default effect, its ability to improve the quality of choice made was limited. Higher accountability did not improve decision quality when judged against normative standards (Hypothesis 2). When decision quality was assessed as the alignment between an individual's choice and their subjective elicited risk preference, higher accountability enhanced decision quality (Hypotheses 3 – 3b) even when participants were forced to switch from the default to reach their optimal strategy. Higher accountability did not increase the alignment between choice and risk preference when a participant had strong preferences. Participants who were informed about the default were no more likely to choose the normatively optimal strategy or strategy that aligned with their risk preference than those who did not receive disclosure.

Accountability is unable to improve the ability to make normatively optimal choices and judgments when the decision-maker does not possess the technical skills or does not have access to all the information needed (Arkes, 1991). Decision-making can only be improved by accountability when the biased decision-making is driven through low effort (Johnson et al., 2012). Participants in this study had all the information required to make a normatively optimal choice (the risk and return of both investment strategies and the likelihood of each return occurring). The financial literacy level of young adults in Australia is relatively low (Ali et al., 2014). Yet all participants had taken a finance course within the last year that covered the concept of risk and return. Research has found that taking a course in finance contributes to financial literacy. The information provided in the disclosure did not aid high ac-

countability in making better normative decisions as the information provided did not provide any technical information. Rather, at best the disclosure may have prompted participants to closely examine their decision-making approach.

When decision quality was judged in accordance with coherence between choice and stated risk preference, accountability resulted in choices that more frequently aligned with preferences. Whether accountability improves consumer welfare within the domain of financial decision-making is unclear. Risk preferences are a significant factor that explain the financial choices made by consumers (Grable, 2016). One of the many factors that contribute to suboptimal financial decision by consumers is inter-temporal preference where consumers prioritise the present over the future by heavily discounting future outcomes relative to the present (Lusardi, 2008). This present-based bias contributes to suboptimal saving rates in consumers. To the extent that suboptimal financial decisions arise through biases in consumer preference, accountability pressures may reduce consumer welfare.

The next step is to determine the influence of accountability and disclosure on the drivers of the default effect. This analysis may suggest why choices were biased by the default under low accountability and disclosure but not high accountability. The effect of the drivers will be examined on the whole population as well as by risk preference.



## DEFAULT DRIVERS

All data for default drivers was continuous and therefore analysed via one-way ANOVA for main effects, two-way ANOVA for interactions, and simple means to determine the influence of accountability and disclosure. More time was spent deciding between investment strategies under high accountability compared with low accountability ( $M_{\text{low}} = 60.8$ ,  $M_{\text{high}} = 77.5$ ,  $F(1, 456) = 9.243$ ,  $p = .002$ ,  $\eta_p^2 = .020$ ). Disclosure did not have a main effect on decision time ( $F(1, 456) = 1.782$ ,  $p = .183$ ), nor was there an interaction between accountability and disclosure ( $F(1, 454) = .220$ ,  $p = .639$ ). Highly accountable participants did not report any difference in cognitive effort exerted compared with low accountability participants ( $F(1, 456) = .065$ ,  $p = .799$ ). Disclosure did not have a main effect on self-assessed cognitive effort ( $F(1, 456) = .379$ ,  $p = .538$ ). There was no interaction between accountability and disclosure ( $F(1, 454) = 2.010$ ,  $p = .157$ ).

Providing participants with disclosure had the effect of increasing the level of perceived internal implied endorsement from the employer ( $M_{\text{no}} = 4.71$ ,  $M_{\text{yes}} = 4.94$ ,  $F(1, 456) = 3.878$ ,  $p = .050$ ,  $\eta_p^2 = .008$ ). The internal implied endorsement scores were not significantly different by accountability ( $F(1, 456) = .021$ ,  $p = .885$ ). While there was no significant interaction between disclosure and accountability ( $F(1, 454) = .255$ ,  $p = .635$ ), a marginally significant finding was found between the simple means only under high accountability where internal implied endorsement was higher under disclosure ( $M_{\text{no}} = 4.67$ ,  $M_{\text{yes}} = 4.97$ ,  $F(1, 454) = 2.974$ ,  $p = .085$ ,  $\eta_p^2 = .007$ ).

The results presented provided no clear evidence to suggest why the default effect was debiased under increased accountability. Specifically, greater effort in the form of time was recorded under high accountability while disclosure had no effect (Hypothesis 4). However, contrary to expectations, highly accountable participants did not report any greater cognitive effort (Hypothesis 5). There were no differences in implied endorsement between accountability levels.

Within the accountability literature there is robust evidence that pre-decisional accountability to an audience with unknown views leads to pre-emptive self-critical thinking (Lerner and Tetlock, 1994). We expected participants to report higher decision time and cognitive effort under high accountability. As the thoughts of participants were not recorded during the experiment, the results suggest the possibility that participants did not think in an integratively complex manner under high accountability. These studies have, however, been conducted primarily within a laboratory setting and incorporate physical presence as a form of accountability mechanism, whether it is through the presence of fellow participants, confederates or researchers.

Informing consumers about the default effect, identifying the choice architect, and the intention of the default partially influenced implied endorsement. Internal implied endorsement was greater when the default was disclosed, while accountability had no influence (Hypothesis 6). The results are the first among the studies on default disclosure to provide evidence that disclosure may influence choice. Previous studies have found that the influence of disclosure in the context of defaults is on consumer attitudes, such as fairness. We found that when participants were highly accountable, disclosure heightened the level of perceived implied endorsement from the employer to the consumer. It is unclear whether

this increase in perceived implied endorsement arose because participants felt a need to conform in a new work environment. Further, disclosure induced highly accountable participants with strong risk preferences to spend less cognitive effort. These results would suggest that while disclosure had a partial impact on default drivers, these effects were not significant enough to influence choice.

Finally, the observation that the influence of disclosure required accountability potentially recasts the conclusions reached from prior research on default disclosure. The degree of cognitive elaboration by study participants may not have been sufficient to adequately encode and consider the information contained with the default. Accountability is known to amplify biases which result from the use of plausibly relevant but non-diagnostic information in decision making (Tetlock et al., 1989).

Prior research finds that the decision-maker assumes all provided information to be relevant to the decision but only if the source of the information is considered knowledgeable. That includes the relationship between researchers and participants under experimental conditions (Grice et al., 1975). Taken together, the findings suggest that the ineffectiveness of disclosure was not due to the information not being utilised by participants.

## COVARIATES

An analysis of the financial covariates was performed via ANOVA. No significant differences were found between conditions for any of the covariates.

## IMPLICATIONS

Consumer choice was decoupled from the influence of the default option under high accountability where consumers had uncertain preferences. This freedom from the default effect did not diminish decision quality either – rather, choice was more aligned with an individual's risk preference under high accountability. Taken together, accountability may serve as a consumer protection device for consumers (Steffel et al., 2016). It may even prove something that consumers respond to positively – after all, accountability is a desirable feature, although people are known to react negatively to calls for accountability particularly when they seem onerous or unjustified to the decision maker. Using accountability to induce pre-emptive, self-critical thinking may be constrained in practice. Firstly, it may be difficult to find an audience that can justifiably impose accountability demands whose views on the issue under consideration are unknown. Secondly, repeat choices can be presented in the form of a default option that reflects the previous choice. Accountable decision-makers are known to make choices that are consistent with previous choices or existing attitudes (Lerner and Tetlock, 1994).

Any claim that informing consumers about defaults is advisable because it does not influence choice should be tempered by the lack of familiarity that participants have with nudging. Participants reported a low level of familiarity with nudging even though they would come across nudges frequently and in various forms in their daily lives (Sunstein, 2014). It is possible that disclosure may impact choice more powerfully if the decision maker or audience had a more sophisticated understanding of nudges. Accountability theory suggests

that decision-makers may shift away from a default if they were held accountable to an audience informed about defaults and who took an unfavourable view of defaulting due to low effort. The influence of disclosure on implied endorsement is relevant for choice architects and marketers who heed the call to provide transparency to consumers. In considering whether to implement transparency, consideration should be given to the role of implied endorsement in consumer choice. Further, if the consumer is unlikely to process the information heuristically because of expertise or high involvement, then the impact of transparency upon choice may be wholly ineffective.

Overall, the findings of the study have immediate, practical implications for public policy administrators and professionals in the Australian superannuation industry. Currently, the Commonwealth Government is considering changes to the superannuation funds available to new employees. In certain industries, the superannuation fund is chosen by the employer or dictated under the industrial award. Consequently, employees are generally provided with options from industry funds. A proposal is being considered to allow retail funds access to this market. Many superannuation members may not realise that their choice is being restricted and that the default is chosen by the employer or union. Disclosing this fact may influence the choices of superannuation members. A second issue is that marketers and administrators have significant trouble in engaging young adults on superannuation issues. A widely cited manifestation of this is that four of every five people in Australia choose the default superannuation fund and investment strategy (Ali et al., 2014). Accountability may prove to be a device that could be employed to drive engagement in superannuation fund members. The social networks of superannuation fund members could be used to increase accountability through platforms like Facebook.

## CONTRIBUTIONS TO THE LITERATURE

Accountability, disclosure, and their relationship with decision-making biases, are topics of considerable current interest. The present work adds to the existing literature in these fields in a number of ways. Most significantly, this study provides evidence that suggests accountability as a potential intervention for young adults to combat the default effect, particularly in the context of CFDM. It also suggests a way that consumers may be able to protect themselves against defaults that may be otherwise be accepted due to low effort.

The current study adds to literature on decision-making biases by providing evidence to the emerging stream of literature investigating the impact of transparency on defaults. The study aligns with previous research by showing that choice remains resilient to disclosures about the default. Further, evidence is provided to show that disclosure may impact the default effect through attenuating implied endorsement.

With respect to accountability, the present study contributes by extending the range of cognitive and strategy-based biases examined under variations of accountability. The study also contributes to the knowledge of accountability's effect on choice that involves the status quo bias. Prior research has examined accountability and the status quo bias within the context of maintaining or rejecting a status quo option where choices involve adverse effects on the audience (Tetlock and Boettger, 1994). This research shows that accountability can attenuate biases involving a status quo in the form of a default where the decision does not create adverse outcomes for the accountability audience.

## LIMITATIONS

As with most efforts to examine consumer behaviour, the present study suffers from a number of limitations. This is in part due to methodological constraints. For example, previous studies on accountability have typically taken place in a laboratory setting. It is speculated that the laboratory environment, where the researchers and participants are in close physical proximity, increases transmission of accountability. The web-based environment used in our study did not endow these advantages. A possible remedy to this issue could have been to invite prior participants to account within view of current and future participants, thus increasing the belief of accountability.

A related limitation was that it was unclear whether the level of accountability felt by participants in the high accountability treatment was strong enough to induce integratively complex thinking. Where greater time was available, this question could be answered by asking all participants to provide a detailed account of their thoughts up until making the choice (including the order and number of thoughts, and whether the thoughts were for or against accepting the default option). Participant thoughts could also be collected and analysed to assess the effect of accountability on the endowment effect default driver.

Outside of methodological issues, the study was limited by the lack of incentive compatibility. It is widely accepted within the CFDM literature that it is difficult to provide incentives to participants that accurately generate the sort of pressures they may experience with major financial decisions like saving and investing (Trautmann and Vieider, 2012). Nevertheless,

even a modest financial incentive may help improve participant effort, although financial incentives may present a confound when studying process versus outcome accountability (whether the financial incentive is tied to the successful process, outcome, or both).

The present study was also limited in terms of the type of nudge implemented. Nudges can be characterised according to the audience the nudge seeks to benefit. The nudge in this study was pro-self – that is, the outcome of the nudge was restricted to the decision-maker. Nudges can also be pro-social, which are nudges that seek to promote society goals in areas such as environmental or health-related issues (Jung and Mellers, 2016, Sunstein, 2016, Vetter and Kutzner, 2016). Disclosure may have potentially had a larger influence on choice for a pro-social nudge, especially if the outcome of the decision resulted in an adverse outcome to the decision-maker or society.



## FUTURE RESEARCH

The rich stream of literature on accountability provides fertile ground for further research on the use and choices made with default options. Future research should examine defaults where accountability felt by consumers is transmitted through physical proximity (that is, there are other individuals in physically close to the consumer). This research could outline the practical limits of accountability in a world where consumer choice is exercised online (and to a less extent via phone) rather than face-to-face. Additionally, the ability of accountability to act as a debiasing agent could examine its impact on the endowment driver of default via queue theory. The number and order of thoughts in favour of the default option may be reduced relative to the non-default option under pre-decisional accountability to an unknown audience.

Choice size is known to influence the size of the default effect. The pull of a default option on choice is stronger as the number of alternatives presented to a consumer increases (Samuelson and Zeckhauser, 1988, Kempf and Ruenzi, 2006). A larger set of alternative choices has the effect of heightening both inertia and preference uncertainty (Scheibehenne et al., 2010). A simple binary choice set was examined in this study. Therefore, accountability's claim to debias the default effect can be extended if future research examine accountability's effect on larger choice sets to determine if accountability continues to debias defaults, the size of the effect and potentially isolate the choice set size where accountability fails to debias defaults. Little research to date within the nudging literature has examined choice set size (Marchiori et al., 2017).

While prior studies found no evidence to that making defaults transparent to consumers had any effect on their choices, there are several unexplored elements of disclosure that makes it premature to assert this conclusively. Disclosure can influence consumer attitudes about the fairness of a default (Steffel et al 2016). It is suggested that disclosure may have an influence on consumers where there are particularly strong, polarising attitudes about either the choice domain, product or choice architect. Consumers may have different reactions to disclosure depending on their perception of the source of the disclosure (Loewenstein et al., 2014). A recent study in the public policy literature found that a consumer's perception of a nudge depended on whether the political party in government matched the consumer's political affiliation (Tannenbaum, Fox and Rogers 2014). Future studies should consider the influence of disclosure on consumer choice of default options under varied levels of consumer trust in a company or product, particularly for a company or decision domain that has historically or presently attracted significant controversy or public attention in the media.

A final area yet to be examined relates to the effect of nudges over longer time periods. Nudging research to date has almost exclusively been limited to determining a consumer's choice when presented with a default option. Whether the consumer would remain with their initial choice makes without the long-term effect has been scarcely examined. The choices that consumers make about their retirement savings, like many other financial choices, can have both significant and long-term effects on consumer welfare. Research is just emerging that examines defaults over time (Fowlie et al., 2017, Caplin and Martin, 2017, Ghesla et al., 2017).

## CONCLUSION

The present study set out to determine, within the context of consumer financial decision-making, the influence of accountability on the choice of default options under varying levels of information disclosure about the default. Increasing the level of consumer accountability resulted in the default option having no influence on choice of an investment strategy for their superannuation account. This phenomenon persisted irrespective of whether the consumer received or did not receive disclosure from the choice architect about the presence of the default and its potential influence on their choice. Higher levels of accountability in consumers resulted in a choice that was more in alignment with their risk preference, although choice was no better on a normative standards (risk-return basis) compared to consumers with lower accountability. The results of the study suggested that the debiasing property of accountability was driven through its ability to induce consumers to incur greater cognitive effort and time spent making the decision. Although highly accountable consumers perceived a great level of implied endorsement from default options when presented with disclosure, ultimately their choices were no different to those of consumers under lower accountability. This result provides further evidence to the emergent claim that disclosure may influence consumer attitudes and perceptions but cannot influence choices in the presence of a default option. This study also contributes to the considerable evidence that defaults remain one of, if not the most, potent influences on consumer choice. When combined with its strong replicability, default options will likely remain a popular instrument of managers and policy professionals to exercise influence on the choices of consumers in an environment of boundless information and demands on attention.

## REFERENCES

- AGARWAL, S., CHOMSISENGPHET, S. & LIM, C. 2017. What Shapes Consumer Choice and Financial Products? A Review. *Annual Review of Financial Economics*, 9.
- ALI, P., ANDERSON, M. E., CLARK, M., RAMSAY, I. & SHEKHAR, C. 2014. Superannuation Knowledge, Behaviour and Attitudes in Young Adults in Australia.
- ANDERSON, M. E., CLARK, M., RAMSAY, I. & SHEKHAR, C. 2017. Super behaviour: a note on young Australian adults' engagement with their superannuation accounts.
- ARKES, H. R. 1991. Costs and benefits of judgment errors: Implications for debiasing. *Psychological bulletin*, 110, 486-98.
- BEN-SHAHAR, O. & SCHNEIDER, C. E. 2011. The failure of mandated disclosure. *University of Pennsylvania Law Review*, 647-749.
- BESHEARS, J., CHOI, J. J., LAIBSON, D. & MADRIAN, B. C. 2009. The importance of default options for retirement saving outcomes: Evidence from the United States. *Social security policy in a changing environment*. University of Chicago Press.
- BESHEARS, J., CHOI, J. J., LAIBSON, D., MADRIAN, B. C. & MILKMAN, K. L. 2015. The effect of providing peer information on retirement savings decisions. *The Journal of finance*, 70, 1161-1201.
- BETTMAN, J. R., LUCE, M. F. & PAYNE, J. W. 1998. Constructive consumer choice processes. *Journal of consumer research*, 25, 187-217.
- BODIE, Z., KANE, A. & MARCUS, A. J. 2012. *Essentials of Investments* 9th Edition, McGraw-Hill.
- BOTTI, S. & IYENGAR, S. S. 2006. The dark side of choice: When choice impairs social welfare. *Journal of Public Policy & Marketing*, 25, 24-38.
- BOVENS, L. 2009. *The ethics of nudge*. Preference change. Springer.
- BREHM, J. W. 1966. *A theory of psychological reactance*, Oxford, England, Academic Press.
- BROWN, C. L. & KRISHNA, A. 2004. The skeptical shopper: A metacognitive account for the effects of default options on choice. *Journal of Consumer Research*, 31, 529-539.
- BRUNS, H., KANTOROWICZ-REZNICHENKO, E., KLEMENT, K., LUISTRO JONSSON, M. & RAHALI, B. 2016. Can Nudges Be Transparent and Yet Effective?
- CAMPBELL, J. Y. 2006. Household finance. *The journal of finance*, 61, 1553-1604.
- CAMPBELL, J. Y., JACKSON, H. E., MADRIAN, B. C. & TUFANO, P. 2011. Consumer financial protection. *The Journal of Economic Perspectives*, 25, 91-113.
- CAPLIN, A. & MARTIN, D. 2017. Defaults and Attention: The Drop Out Effect. *Revue économique*, 45-54.
- CARROLL, G. D., CHOI, J. J., LAIBSON, D., MADRIAN, B. C. & METRICK, A. 2009. Optimal defaults and active decisions. *The quarterly journal of economics*, 124, 1639-1674.
- CHOI, J. J., LAIBSON, D., MADRIAN, B. C. & METRICK, A. 2004. For better or for worse: Default effects and 401 (k) savings behavior. *Perspectives on the Economics of Aging*. University of Chicago Press.
- CIALDINI, R. B. & GOLDSTEIN, N. J. 2004. Social influence: Compliance and conformity. *Annu. Rev. Psychol.*, 55, 591-621.
- DHINGRA, N., GORN, Z., KENER, A. & DANA, J. 2012. The default pull: An experimental demonstration of subtle default effects on preferences. *Judgment and Decision Making*, 7, 69.

- DINNER, I., JOHNSON, E. J., GOLDSTEIN, D. G. & LIU, K. 2011. Partitioning default effects: why people choose not to choose. *Journal of Experimental Psychology: Applied*, 17, 332.
- DOBRESCU, L. I., FAN, X., BATEMAN, H., NEWELL, B. R., ORTMANN, A. & THORP, S. 2016. Retirement savings: A tale of decisions and defaults. *The Economic Journal*.
- FEAR, J. 2008. Choice overload: Australians coping with financial decisions.
- FELSEN, G., CASTELO, N. & REINER, P. B. 2013. Decisional enhancement and autonomy: public attitudes towards overt and covert nudges. *Judgment and Decision Making*, 8, 202.
- FERRARO, R., SHIV, B. & BETTMAN, J. R. 2005. Let us eat and drink, for tomorrow we shall die: Effects of mortality salience and self-esteem on self-regulation in consumer choice. *Journal of Consumer Research*, 32, 65-75.
- FOWLIE, M., WOLFRAM, C., SPURLOCK, C. A., TODD, A., BAYLIS, P. & CAPPERS, P. 2017. Default effects and follow-on behavior: evidence from an electricity pricing program. *National Bureau of Economic Research*.
- GHESLA, C., GRIEDER, M. & SCHMITZ, J. 2017. Nudge for Good? Choice Defaults and Spillover Effects.
- GILLIAM, J., CHATTERJEE, S. & GRABLE, J. E. 2010. Measuring the perception of financial risk tolerance: A tale of two measures.
- GOSWAMI, I. & URMINSKY, O. 2016. When Should the Ask Be a Nudge? The Effect of Default Amounts on Charitable Donations. *Journal of Marketing Research*, 53, 829-846.
- GRABLE, J. E. 2016. Financial Risk Tolerance. *Handbook of Consumer Finance Research*. Springer.
- GRICE, H. P., COLE, P. & MORGAN, J. 1975. Logic and conversation. 1975, 41-58.
- GRÜNE-YANOFF, T. & HERTWIG, R. 2016. Nudge versus boost: how coherent are policy and theory? *Minds and Machines*, 26, 149-183.
- HALL, A. T., FRINK, D. D. & BUCKLEY, M. R. 2017. An accountability account: A review and synthesis of the theoretical and empirical research on felt accountability. *Journal of Organizational Behavior*, 38, 204-224.
- IYENGAR, S. S. & LEPPER, M. R. 2000. When choice is demotivating: Can one desire too much of a good thing? *Journal of personality and social psychology*, 79, 995.
- JOHNSON, E. J., BELLMAN, S. & LOHSE, G. L. 2002. Defaults, Framing and Privacy: Why Opting In-Opting Out. *Marketing Letters*, 13, 5-15.
- JOHNSON, E. J. & GOLDSTEIN, D. 2003. Do Defaults Save Lives? *Science*, 302, 1338-39.
- JOHNSON, E. J., HERSHEY, J., MESZAROS, J. & KUNREUTHER, H. 1993. Framing, probability distortions, and insurance decisions. *Journal of risk and uncertainty*, 7, 35-51.
- JOHNSON, E. J., SHU, S. B., DELLAERT, B. G., FOX, C., GOLDSTEIN, D. G., HÄUBL, G., LARRICK, R. P., PAYNE, J. W., PETERS, E. & SCHKADE, D. 2012. Beyond nudges: Tools of a choice architecture. *Marketing Letters*, 23, 487-504.
- JOHNSON, H. & LEARY, J. 2017. Policy Watch: Research Priorities on Disclosure at the Consumer Financial Protection Bureau. *Journal of Public Policy & Marketing*, 36, 184-191.
- JUNG, J. Y. & MELLERS, B. A. 2016. American attitudes toward nudges. 11 (1). *Journal of Judgment and Decision Making*, 62.
- KAHNEMAN, D., KNETSCH, J. L. & THALER, R. H. 1991. Anomalies: The endowment effect, loss aversion, and status quo bias. *The journal of economic perspectives*, 5, 193-206.

- KAHNEMAN, D. & TVERSKY, A. 1984. Choices, values, and frames. *American psychologist*, 39, 341.
- KEMPF, A. & RUENZI, S. 2006. Status quo bias and the number of alternatives: An empirical illustration from the mutual fund industry. *The journal of behavioral finance*, 7, 204-213.
- KIVETZ, R. & ZHENG, Y. 2016. The effects of promotions on hedonic versus utilitarian purchases. *Journal of Consumer Psychology* (in press). Retrieved from [http://dx. doi. org/10.1016/j. jcps, 5](http://dx.doi.org/10.1016/j.jcps.5).
- KOZUP, J. & HOGARTH, J. M. 2008. Financial literacy, public policy, and consumers' self-protection—More questions, fewer answers. *Journal of Consumer Affairs*, 42, 127-136.
- KROESE, F. M., MARCHIORI, D. R. & DE RIDDER, D. T. 2015. Nudging healthy food choices: a field experiment at the train station. *Journal of Public Health*, 38, e133-e137.
- KUSEV, P., PURSER, H., HEILMAN, R., COOKE, A. J., VAN SCHAIK, P., BARANOVA, V., MARTIN, R. & AYTON, P. 2017. Understanding risky behavior: the influence of cognitive, emotional and hormonal factors on decision-making under risk. *Frontiers in psychology*, 8.
- LARRICK, R. P. 2004. Debiasing. In: KOEHLER, D. & HARVEY, N. (eds.) *Blackwell Handbook of Judgment and Decision Making*. Malden, NJ: Blackwell.
- LEE, H., HERR, P. M., KARDES, F. R. & KIM, C. 1999. Motivated search: Effects of choice accountability, issue involvement, and prior knowledge on information acquisition and use. *Journal of Business Research*, 45, 75-88.
- LERNER, J. S., GOLDBERG, J. H. & TETLOCK, P. E. 1998. Sober second thought: The effects of accountability, anger, and authoritarianism on attributions of responsibility. *Personality and Social Psychology Bulletin*, 24, 563-574.
- LERNER, J. S. & TETLOCK, P. E. 1994. Accountability and social cognition. *Encyclopedia of human behavior*, 1, 3098-3121.
- LERNER, J. S. & TETLOCK, P. E. 1999. Accounting for the effects of accountability. *Psychological bulletin*, 125, 255.
- LERNER, J. S. & TETLOCK, P. E. 2003. 13 Bridging Individual, Interpersonal, and Institutional Approaches to Judgment and Decision Making: The Impact of Accountability on Cognitive Bias. *Emerging perspectives on judgment and decision research*, 431.
- LEVAV, J., HEITMANN, M., HERRMANN, A. & IYENGAR, S. S. 2010. Order in product customization decisions: Evidence from field experiments. *Journal of Political Economy*, 118, 274-299.
- LOEWENSTEIN, G., BRYCE, C., HAGMANN, D. & RAJPAL, S. 2015. Warning: You Are About to Be Nudged. *Behavioural Science and Policy*, 1, 35-42.
- LOEWENSTEIN, G., SUNSTEIN, C. R. & GOLMAN, R. 2014. Disclosure: Psychology changes everything.
- LUSARDI, A. 2008. Household saving behavior: The role of financial literacy, information, and financial education programs. National Bureau of Economic Research.
- LUSARDI, A. 2012. Numeracy, financial literacy, and financial decision-making. National Bureau of Economic Research.
- LYNCH JR, J. G. 2011. Introduction to the journal of marketing research special interdisciplinary issue on consumer financial decision making. *Journal of Marketing Research*, 48, Siv-Sviii.

- MADRIAN, B. C., HERSHFELD, H. E., SUSSMAN, A. B., BHARGAVA, S., BURKE, J., HUETTEL, S. A., JAMISON, J., JOHNSON, E. J., LYNCH, J. G. & MEIER, S. 2017. Behaviorally informed policies for household financial decisionmaking. *Behavioral Science & Policy*, 3, 26-40.
- MADRIAN, B. C. & SHEA, D. F. 2001. The power of suggestion: Inertia in 401 (k) participation and savings behavior. *The Quarterly Journal of Economics*, 116, 1149-1187.
- MARCHIORI, D. R., ADRIAANSE, M. A. & DE RIDDER, D. T. 2017. Unresolved questions in nudging research: Putting the psychology back in nudging. *Social and Personality Psychology Compass*, 11.
- MARKMAN, K. D. & TETLOCK, P. E. 2000. Accountability and close-call counterfactuals: The loser who nearly won and the winner who nearly lost. *Personality and Social Psychology Bulletin*, 26, 1213-1224.
- MCKENZIE, C. R. M., LIERSCH, M. J. & FINKELSTEIN, S. J. 2006. Recommendations Implicit in Policy Defaults. *Psychological Science*, 17, 414-20.
- MOSHINSKY, A. & BAR-HILLEL, M. 2010. Loss aversion and status quo label bias. *Social Cognition*, 28, 191-204.
- MURDOCK JR, B. B. 1962. The serial position effect of free recall. *Journal of experimental psychology*, 64, 482.
- PARK, C. W., JUN, S. Y. & MACINNIS, D. J. 2000. Choosing what I want versus rejecting what I do not want: An application of decision framing to product option choice decisions. *Journal of Marketing Research*, 37, 187-202.
- PATIL, S. V., VIEIDER, F. & TETLOCK, P. E. 2014. Process versus outcome accountability. *Oxford handbook of public accountability*. Oxford University Press, Oxford.
- QUINN, A. & SCHLENKER, B. R. 2002. Can accountability produce independence? Goals as determinants of the impact of accountability on conformity. *Personality and Social Psychology Bulletin*, 28, 472-483.
- REBONATO, R. 2014. A critical assessment of libertarian paternalism. *Journal of consumer policy*, 37, 357-396.
- RITOV, I. & BARON, J. 1992. Status-quo and omission biases. *Journal of risk and uncertainty*, 5, 49-61.
- SAMUELSON, W. & ZECKHAUSER, R. 1988. Status quo bias in decision making. *Journal of risk and uncertainty*, 1, 7-59.
- SCHEIBEHENNE, B., GREIFENEDER, R. & TODD, P. M. 2010. Can there ever be too many options? A meta-analytic review of choice overload. *Journal of Consumer Research*, 37, 409-425.
- SCHMIDT, A. T. 2017. The Power to Nudge. *American Political Science Review*, 111, 404-417.
- SCHWEITZER, M. 1994. Disentangling status quo and omission effects: An experimental analysis. *Organizational Behavior and Human Decision Processes*, 58, 457-476.
- SHARPE, W. F. 1994. The sharpe ratio. *The journal of portfolio management*, 21, 49-58.
- SHIV, B., EDELL BRITTON, J. A. & PAYNE, J. W. 2004. Does elaboration increase or decrease the effectiveness of negatively versus positively framed messages? *Journal of Consumer Research*, 31, 199-208.
- SIEGEL-JACOBS, K. & YATES, J. F. 1996. Effects of procedural and outcome accountability on judgment quality. *Organizational Behavior and Human Decision Processes*, 65, 1-17.
- SIMON, H. A. 1955. A behavioral model of rational choice. *The quarterly journal of economics*, 69, 99-118.

- SIMON, H. A. 1956. Rational choice and the structure of the environment. *Psychological review*, 63, 129.
- SIMONSON, I. & NYE, P. 1992. The effect of accountability on susceptibility to decision errors. *Organizational Behavior and Human Decision Processes*, 51, 416-446.
- SMITH, N. C., GOLDSTEIN, E. J. & JOHNSON, E. J. 2013. Choice Without Awareness: Ethical and Policy Implications of Defaults. *Journal of Public Policy & Marketing*, 32, 159-72.
- SOLL, J. B., MILKMAN, K. L. & PAYNE, J. W. 2014. A user's guide to debiasing.
- STEFFEL, M., WILLIAMS, E. F. & POGACAR, R. 2016. Ethically Deployed Defaults: Transparency and Consumer Protection Through Disclosure and Preference Articulation. *Journal of Marketing Research*, 53, 865-880.
- SUNSTEIN, C. & THALER, R. 2008. *Nudge: Improving decisions about health, wealth, and happiness*. New Haven: Yale University Press.
- SUNSTEIN, C. R. 2013. Deciding by default. *U. Pa. L. Rev.*, 162, 1.
- SUNSTEIN, C. R. 2014. Nudging: A very short guide. *Journal of Consumer Policy*, 37, 583-588.
- SUNSTEIN, C. R. 2015. *Choosing not to choose: Understanding the value of choice*, Oxford University Press, USA.
- SUNSTEIN, C. R. 2016. People prefer system 2 nudges (kind of). *Duke LJ*, 66, 121.
- TANNENBAUM, D. & DITTO, P. H. 2011. Information asymmetries in default options. (Unpublished Working Paper). Retrieved from [http://home.uchicago.edu/davetannenbaum/documents/default% 20information](http://home.uchicago.edu/davetannenbaum/documents/default%20information).
- TETLOCK, P. E. 1985. Accountability: The neglected social context of judgment and choice. *Research in organizational behavior*, 7, 297-332.
- TETLOCK, P. E. 1992. The impact of accountability on judgment and choice: Toward a social contingency model. *Advances in experimental social psychology*, 25, 331-376.
- TETLOCK, P. E. & BOETTGER, R. 1989. Accountability: a social magnifier of the dilution effect. *Journal of personality and social psychology*, 57, 388.
- TETLOCK, P. E. & BOETTGER, R. 1994. Accountability amplifies the status quo effect when change creates victims. *Journal of Behavioral Decision Making*, 7, 1-23.
- TETLOCK, P. E., SKITKA, L. & BOETTGER, R. 1989. Social and cognitive strategies for coping with accountability: Conformity, complexity, and bolstering. *Journal of personality and social psychology*, 57, 632.
- TRAUTMANN, S. T. & VIEIDER, F. M. 2012. Social influences on risk attitudes: Applications in economics. *Handbook of risk theory*. Springer.
- TROPE, Y. & LIBERMAN, N. 2010. Construal-level theory of psychological distance. *Psychological review*, 117, 440.
- TUFANO, P. 2009. Consumer finance. *Annu. Rev. Financ. Econ.*, 1, 227-247.
- VETTER, M. & KUTZNER, F. 2016. Nudge me if you can-how defaults and attitude strength interact to change behavior. *Comprehensive Results in Social Psychology*, 1-27.
- WILLIS, L. E. 2013. When nudges fail: Slippery defaults. *The University of Chicago Law Review*, 1155-1229.
- WRIGHT, P. 2002. Marketplace metacognition and social intelligence. *Journal of Consumer Research*, 28, 677-682.
- ZAMIR, E. 2015. *Law, Psychology, and Morality: The Role of Loss Aversion*, OUP Us.
- ZHANG, Y. & MITTAL, V. 2005. Decision difficulty: Effects of procedural and outcome accountability. *Journal of Consumer Research*, 32, 465-472.