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Financial Product Disclosure: Insights from Behavioural Economics

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Abstract

In this paper, we outline the main findings of behavioural economics research that are relevant to disclosure in both the financial sector and other sectors. We then use these insights to identify key issues for the development of policy for financial product disclosure.

Findings include:

- prescriptions on the length and content of disclosures help to mitigate choice and information overload and assist investors to understand complex and technical information
- where possible, financial product disclosures should be standardised and investment risks and benefits appropriately disclosed
- the information in disclosures should be presented in a way that is balanced but still meaningful for investors, so as to address other limitations and biases in decision making.

The implication is that information disclosure can influence both what people know and what they pay attention to.

Keywords: disclosure, financial products, behavioural economics

Executive Summary

Effective regulation of the financial sector facilitates the development of an efficient capital market by helping investors to be confident and informed and assisting firms to access capital. One way that securities law aims to do this is by placing requirements on issuers to make certain information disclosures to investors.

Traditionally, the role of disclosure in securities law is based on the theory that investors are rational agents who will make welfare maximising decisions if provided with full information about financial products. However, there has long been an awareness of the limitations of rational-choice theory.

Increasingly, policy makers, regulators and academics are applying the insights from behavioural economics to the ways in which people use information in the real world to make decisions. It is important to understand how personal limitations, biases and heuristics influence the decisions that people make. In New Zealand, Professor Morris Altman has studied the implications of behavioural economics in the context of public policy.

Disclosure plays a central role in the regulation of financial markets but, if we are to have an effective disclosure regime, it needs to be designed with the insights of how people use information. We also need to recognise that disclosure is just one policy lever that can be used to help investors make better financial decisions. Work complementary to the role of disclosure includes financial literacy and the regulation of financial adviser services.

In this paper, we review research on behavioural economics and identify the main implications of this work for the development of policy for financial product disclosure. We conclude that financial product disclosures are most effective at aiding investor decision making when they are:

- short and simple – research highlights the importance of keeping disclosure documents brief and straightforward to address issues of choice and information overload and the difficulties that many investors can have with complex and technical information

- standardised – many biases, limitations and heuristics can be mitigated through standardising the content of disclosures. Standardisation also aids the comparability of information
- clear about risks and benefits – disclosure of risk is necessary to address potential issues of overconfidence and appropriate disclosure of benefits is necessary to overcome status quo bias and loss aversion
- meaningful – information needs to be put in context and presented in a way that is meaningful for investors. The more that information can be put in a form that people relate to, the more likely they are to understand it
- well presented – information needs to be presented in a way that makes people want to read disclosure documents and that aids decision making. How options or prospects are framed in disclosure documents can elicit emotional responses and influence the decisions made. The use of graphs and other visual representations can assist in the understanding of complex information, but need to be designed with care
- tested on investors – research indicates that people can act in unexpected ways. Even small changes to the way that information is presented can influence how people perceive or interpret information.

It is important that key behavioural insights are seen in the broader context of what a disclosure regime seeks to achieve (for example, a short and succinct document is not an end in itself if it fails to convey the necessary information). Investors' needs vary and there are trade-offs in information disclosure. The aim is to develop a disclosure regime that effectively aids investor understanding and decision making.

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1. Introduction

New Zealand securities law aims to facilitate capital market activity, in order to help businesses to grow and to provide individuals with opportunities to develop their personal wealth. For this to occur, investors need to be satisfied that they have the information required to make confident and informed decisions. One way securities law seeks to achieve this is through disclosure requirements that are placed on issuers of financial products.

Disclosure regulations, in New Zealand and more generally, reflect the idea that information is critical in aiding informed decision making. Traditionally, this was based on the assumption that individuals are rational decision makers - if people are given full information about financial products, they will consistently make decisions that maximise their welfare. However, when disclosure requirements were first designed in New Zealand, little thought was given to how people actually made decisions.

There is a growing awareness of the role of behavioural economics in helping to understand the investor decision-making process and how financial product disclosure fits within this process. While there is a general acceptance that disclosure is important in financial product markets it is also important to understand how cognitive capacities, personal biases and heuristics influence investor choice. New regulations for financial product disclosure in New Zealand under the Financial Markets Conduct Act 2013 have been designed with the insights of how people use information to make complex financial decisions.

Designing disclosure policy is not easy. Investments are risky and investors will make a range of decisions. With the new disclosure regulations[1] our aim was to develop a regime that provides investors with information that they can more easily use to help them make the best financial decisions for them.

However, with these new disclosure rules it is important to still be mindful of the broader environment within which disclosure sits. Disclosure is just one policy lever that can be used to help investors make better financial decisions. Improving financial literacy and the service provided by financial advisers are important complementary measures. While the objective

[1] New regulations for financial product disclosure are contained within The Financial Markets Conduct Regulations 2014, which came into force on 1 December 2014. Refer to http://www.legislation.govt.nz/regulation/public/2014/0326/latest/DLM6292901.html#DLM6292905.

of disclosure is to aid decision making, information disclosure, by itself, cannot cater for the needs of all investors. This is where education and advice can play a role.

It is important to also consider disclosure from the perspective of issuers. The disclosure regime needs to allow companies and directors to be held accountable for any wrongs, without creating a regime that is so punitive so as to disincentivise meaningful disclosure. (While this issue is part of the development of policy, it is not considered as part of this paper - rather, we focus more on disclosure as a tool for investor decision making.)

We are mindful of the complex trade-offs involved in information disclosure. For example, the importance of keeping disclosures short and using simple language needs to be balanced against the importance of ensuring that the investor receives all the information required to make a properly informed decision.

The purpose of this paper is to review behavioural economics literature and research to provide a theoretical and evidential basis for policy on financial product disclosure in New Zealand. We do not intend to directly apply findings from specific pieces of research to our work as we recognise that many findings are unique to specific situations. However, the overall findings provide us with some useful high-level principles, insights and a framework for thinking about decision making in the context of financial product disclosure.

The remainder of this paper is divided into four chapters. In Chapter 2, we outline the traditional theory underpinning human decision making and disclosure policy. We then discuss behavioural economics as an alternative and descriptive theory of human action.

In Chapter 3, we review the behavioural research on decision making in the context of the financial sector and also in other areas. We have chosen to group the research in the following way (however, it is important to note that how people make decisions is complex and the impacts on decision making are not mutually exclusive):

- impediments to effectively using information– a discussion of the matters that hinder a person's ability or desire to make a decision
- influences on behaviour and perceptions – for example, inconsistent preferences, non-standard beliefs and emotions and trust that can have an impact on how a decision is made

- presentational factors – matters relating to the presentation and framing of information that can influence how information is interpreted or used.

In Chapter 4, we draw some implications for the design of disclosures for offers of financial products in New Zealand. We conclude in Chapter 5.

2. Traditional consumer choice theory and behavioural economics

The traditional approach used for modelling decision making assumes that people use available information to make 'rational' choices that maximise their own welfare or utility, subject to constraints. People logically and objectively analyse the available information and consistently rank alternative choices. They then make a decision which provides them with the greatest satisfaction. According to Thaler and Sustein (2008) the 'economic man':

> *"…can think like Albert Einstein, store as much memory as IBM's Big Blue, and exercise the willpower of Mahatma Gandhi."*

On the basis of traditional consumer choice theory, disclosure regimes for many products and services were designed on the premise that, provided investors had full information, they made optimal decisions. However, such policies did not necessarily recognise the limits on peoples' cognitive abilities, or the influence that emotions have on decision making.

Prior to the new disclosure regulations, there was no restriction on what information issuers could disclose. Prospectuses were required to contain "all material matters". This was interpreted very broadly, creating significant liability risks which lawyers sought to avoid. The purpose of disclosure shifted from being a mechanism to convey information to investors to being an exercise in risk avoidance. The needs of investors were often forgotten. Consequently, at times disclosure documents for financial products provided little or no value in assisting investors to make informed decisions. There was significant anecdotal evidence that prospectuses were seldom requested. Therefore, it can be presumed that many people did not read these documents before making a decision.

There has been a growing recognition of behavioural economics and its role in public policy. In the United States Cass Sunstein, a leading author in behavioural economics, helped drive regulatory reform through his work at the Office of Information and Regulatory Affairs. In 2010, the Behavioural Insights Team was established in the United Kingdom – the first organisation of its kind in the world. The team helps organisations in the United Kingdom and overseas to apply behavioural insights to public policy issues.

Behavioural economics draws on psychology, sociology and neurology, as well as economics. It builds on rational-choice theory by providing us with an understanding of how people make decisions in the real world. According to observations from behavioural economics

peoples' preferences and the choices that they make are influenced by psychological, cognitive, social and emotional factors.[2] For example, people have limited capacity and time for processing information, use various heuristics[3] (rules of thumb) when making decisions and, due to psychological biases, interpret information in biased ways.

The dominant behavioural economics paradigm is attributed to Daniel Kahneman and Amos Tversky, who developed prospect theory. The theory emphasised the role of emotions and intuition in how individuals evaluate potential losses and gains.[4] As noted by Altman (2011) the Kahneman-Tversky approach maintains that individuals make systematic errors and biases in their decision making and are easily fooled by how questions and options are framed. Such behaviour is considered, by many scholars, to be 'irrational'.[5]

Economics has always recognised the limitations of pure rationality[6] but some behavioural economists provide a clearer articulation of its limits. Herbert Simon, a Nobel-laureate economist, developed the concept of bounded rationality to describe when decision making is constrained by imperfect information, cognitive processing and time. To cope with the complexity of real-world decision making, individuals use shortcuts or 'satisficing' rules to simplify choices and help them arrive at a suitable decision.

In Simon's approach a decision maker searches through available options until some type of criteria is met or exceeded. The decision they make is seen to be satisfactory and in their best interests,[7] given their limited choices and lack of awareness of alternatives. However, as discussed in Altman (2011) errors in decision making are possible with such a strategy if

[2] In rational-choice theory assumptions are made about people's preferences (for example, preferences can be ranked and are internally consistent) but little is otherwise known about how preferences are formed.

[3] Heuristics are mental shortcuts to help solve problems, learn and make decisions. Basic examples include common sense and intuition.

[4] According to prospect theory, people make decisions based on the perceived value of losses and gains rather than final outcomes (as in traditional consumer choice theory) and they evaluate their losses and gains using heuristics. Kahneman and Tversky demonstrated that people are willing to engage in risk-seeking behaviour to limit losses but are less willing to gamble to ensure gains.

[5] In this context the benchmark for 'rationality' is based on traditional consumer choice theory. In the Kahneman-Tversky approach errors and biases in decision making are persistent and eventually regretted. In traditional consumer choice theory individuals can make mistakes but such mistakes are random and are corrected over time.

[6] As noted by Egidi (2005) "The challenge against the theory of rational behaviour began at the height of its success and culminated with the publication of Theory of Games and Economic Behaviour by von Newmann and Morghenstern in 1944. The first experimental results questioning the validity of the standard model of rational action date from the 1950s."

[7] What is in a person's best interest is something that only an individual can define.

information is too complex, framed in a misleading fashion, or the quality of information used is poor.

Gerd Gigerenzer, a psychologist, studied bounded rationality and the use of heuristics in decision making. He found that people adopt fast and frugal heuristics[8] to help them make inferences with limited information and computation. In the real world, the use of such simple heuristics is rational and can lead to more efficient and effective decisions than suggested by traditional consumer choice theory.

Based on the insights of behavioural economics a set of common limitations, heuristics and biases have been identified that provide a framework for understanding how real people make decisions. Some of these are set out below.

- Status quo bias: people tend to stick to their current situations. Mostly this is caused by people not getting around to changing their situation. One should not assume that people will make changes just because new information has become available.

- Present bias: people tend to value their current utility more than the utility of their future self (for example, some people would rather have a dollar today than two dollars tomorrow). This concept is not unique to behavioural economics. Federick et al (2002) note that the traditional discounted utility model of intertemporal choice,[9] in which the discount rate is assumed to be constant, has little empirical support. Rather, empirically observed discount rates appear to decline (hyperbolic discounting) over time. Also, discount rates vary across different types of goods and intertemporal categories of choices. For example, gains are discounted at a higher rate than losses, suggesting that people tend to prefer to incur a loss immediately rather than delay it.

- Loss aversion: in general, people do not like losses. Empirical studies have found that losses are felt more deeply than gains of the same value.[10]

[8] Gigerenzer found that individuals rely on such heuristics in an adaptive way - an individual is able to choose the best heuristic for the task at hand. Fast and frugal heuristics are said to be ecologically rational in that they exploit the structure of the environment.

[9] The discounted utility model of behaviour was proposed by Samuelson in 1937. A central assumption of the model is that all of the disparate motives underlying intertemporal choices can be condensed into a single parameter – the discount rate.

[10] See, for example, Tversky and Kahneman (1991).

- Endowment effect: the endowment effect describes the idea that people value goods more when they own them than when they do not. Experiments show that people demand a higher price to give up a good then they would be willing to pay to acquire it.[11]

- Overconfidence and optimism bias: people can be overconfident in their own abilities and unrealistically optimistic. For example, people think that they are more skilful and less risky than average drivers [12] and individuals have idealistic expectations about the longevity of their marriages, despite high divorce rates.[13]

- Anchoring: some people rely too heavily on one piece of information when making a decision or interpret information through the lens of information that was received immediately prior. In other words, the initial information is a reference point. For example, investors may hold on to falling equities because they are anchored to the initial purchase price.

- Herd behaviour: describes the situation where people 'follow the crowd' or act in a similar way to a large group. This type of behaviour tends to increase with uncertainty and is often cited as a cause of share market bubbles.

- Recognition heuristic: people are more likely to choose objects, products, or brands that they recognise. Hence, major brands can be an important source of value and can influence decisions.

- Framing effects: the context and presentation of information affects how people interpret information. Framing is used extensively in marketing – how information is framed can influence decisions. This means that decisions will be influenced by whether information is framed in terms of gains or losses.

- Confirmation bias: in some situations, people search for and interpret information in a way that confirms their pre-conceptions. For example, a person may invest more money in a bad asset to affirm their initial selection of the asset.

[11] See, for example, Kahneman et al (1990) and Knetsch and Sinden (1984). Examples of the endowment effect also illustrate a status quo bias among individuals.
[12] Refer to Svensen (1981).
[13] See Baker and Emery (1993).

- Underestimation of the importance of time: many people underestimate the power of exponential growth or cumulative returns and therefore the rate of debt and saving accumulation. This helps to explain why decisions on long-term savings are often avoided and the value of the present is overemphasised.
- Availability heuristic: this explains the situation where people assess the likelihood of a particular risk based on how readily examples come to mind rather than the actual probability of the risk. This can lead people to overreact to risks that are not as likely as they are perceived to be and underreact to likely but less obvious risks. For example, people may worry about events that have occurred recently or that are reported more in the media even though the probability of these events occurring may be lower than for other events.
- Representativeness heuristic: describes when individuals see patterns in randomness and assign similarities to things that are different. For example, a person playing roulette may think the table is "due for red" because the previous ten spins were all black.

The impact of such limitations and biases on the effectiveness of disclosure regimes are visible in a number of areas. Examples of these impacts and other real-world decision making behaviour are discussed in the following section.

3. Behavioural research and decision making

Many sectors and industries are mandated to provide information to assist people to make decisions about whether to purchase a product or service. The information can reveal risk, explain procedures, or describe a product or service. Usually, this disclosure is prescribed because an information asymmetry has been identified.

There are numerous behavioural studies and experiments relevant to investor and consumer decision making, including in the context of retirement, insurance, consumer credit, health, food labelling, product safety, and marketing.

In the discussion that follows we look at some of the key findings of behavioural research that are relevant to product disclosure. We have divided the discussion into three parts:

i matters that impede effectively using information to make a decision

ii matters that influence peoples' behaviour or perceptions and therefore how they make decisions

iii presentational effects that can affect the way in which information is interpreted.

While we focus on research specific to the financial sector we also draw insights from behavioural research in other areas.

3.1 Impediments to effectively using information

Choice overload

In rational-choice theory it is assumed that more choice is a good thing. However, greater choice can lead to 'choice overload'. This can result in decision makers procrastinating, failing to make a decision, or being less satisfied with the option that they choose.

Iyengar and Lepper (2000) found that the very act of making a choice from an excessive number of options might lessen both the motivation to choose and the subsequent motivation to commit to a choice. According to Schwartz (2004), for people who want to make the absolute best decision, the cumulative effect of added choices can contribute to anxiety, stress, and dissatisfaction. 'Maximisers' need to know that information is reliable and they need to have enough time to get through all the information available. Simon (1955) developed the idea that individuals often examine alternative choices sequentially and choose the first option that surpasses some absolute threshold of acceptability.

The Australia Institute conducted research in 2008 into how people cope with complicated financial decisions. From their nationally representative survey of 1002 people they found that 42 per cent of respondents agreed (and 18 per cent disagreed) that they often find there is too much choice when they need to make a financial decision.[14] In their United States study of employee data Iyengar et al (2003) found that, where fewer options (less than ten plans) were given to employees, participation in 401(k) pension plans was significantly higher.

In New Zealand there are many different KiwiSaver schemes available and most schemes offer a range of investment funds. In November 2013 the Commission for Financial Capability[15] launched the Sorted KiwiSaver Fund Finder Tool to help individuals compare and choose the right KiwiSaver scheme and fund for them.[16]

Choice provides people with autonomy and can lead to better informed and more confident decision making. However, *greater* choice is not always a good thing.[17] To be fully informed, investors need to gather and analyse a variety of information, which can cost time and money. In some cases it is possible to limit the amount of choices available. But a trade-off exists, as limiting choice also limits potential competition and innovation, both of which are critical for economic growth.

Information overload

Related to choice overload, information overload occurs because individuals simply do not have the ability to process unlimited amounts of information.

In their behavioural study of financial markets Hirshleifer et al (2009) analysed the impact of extraneous information on trading and market prices. They found that the immediate stock price and volume reaction to a firm's earnings surprise was weaker, and post announcement drift was stronger, on "high-news" days, or when a greater number of earnings announcements by other firms were made on the same day.[18]

[14] See Fear (2008).
[15] Formerly known as the Commission for Financial Literacy and Retirement Income.
[16] The Fund Finder can be accessed at www.sorted.org.nz/fundfinder
[17] Researchers find that the negative effects of choice overload depend on certain necessary preconditions. These include a lack of familiarity with, or prior preferences for, items in a choice assortment. Refer to Scheibehenne et al (2010).
[18] The results show evidence of investor distraction. Distracting news had a stronger effect on firms that received positive earnings than negative earnings news.

Research suggests that large amounts of information contained in lengthy financial product disclosure documents impedes the ability of investors to process relevant information. This may be particularly important if people allocate little time to making complex decisions in the first place.

Not all investors read financial disclosure documents when making an investment decision and not all investors read them cover to cover. According to a study conducted on behalf of the Financial Services Authority in the United Kingdom in 2010, 64 per cent of people who had recently purchased a retail investment product read the 'Key Features Document' in full, or the parts that they felt were important.[19] A more recent New Zealand investor survey showed that, of those investors who reviewed an offer document, only 15 per cent read the document all the way through, while 52 per cent said they read most of it.[20]

Researchers also find that consumers often do not read product and service disclosures. In particular, point of sale terms and conditions for online sales are often ignored.[21]

Studies on the effect of large amounts of information find that people from all backgrounds are discouraged by a high volume of written information:

> *"I find that the more choices and the more things I read it just blows my brain… it's scary because I think I can't deal with this and then I push it all away."* (person with low literacy)
>
> *"Obviously it's informative but I really can't be bothered to read it"* (21-34 year old with high income)[22]

Jurisdictions around the world have recognised the issue of information overload and have sought (or are seeking) to limit the length of disclosure documents. In New Zealand the investment statement was introduced in 1997 in response to concerns about long prospectuses. The investment statement was intended to provide clear and concise information about the key features of a financial product in a way that would allow

[19] Refer to the Financial Services Authority Consumer purchasing and outcomes survey 2010.

[20] The survey entitled 'Investor experience of IPOs February 2014' was conducted from 7 November to 2nd December 2013. The survey was targeted at investors who had seriously considered investing in IPOs and people who considered investing, and then did invest in an IPO, in the preceeding 12 months. 85 per cent of investors surveyed reviewed an offer document in some way.

[21] See Falkenberg (2010).

[22] Refer to Better Regulation Executive and National Consumer Council (2007)

comparisons with other products.[23] However, while investment statements were shorter than prospectuses, there was no restriction on length. As a result they were still regarded as generally quite long, partly due to duplication of information and the inclusion of marketing material.

While information can empower individuals it is important to understand how much information a target audience is capable of, and likely to, absorb. Reducing the length of disclosure documents[24] has the benefit of increasing the likelihood that the document will be read but it is not the only factor that contributes to the ability of investors to make good decisions.

Complexity of information

Complex information can also adversely affect the way people use information to make a decision. The nature of the financial sector and the legal requirements for disclosure has meant that disclosure documents are often complex, containing technical language and legal jargon.

In the Undertakings for Collective Investments in Transferable Securities (UCITS) disclosure testing conducted for the European Commission it was found that technical language has the potential to impede comprehension of information. Further, it was found that an inability to understand certain terms can reduce an investor's confidence and lead them to doubt their understanding of an entire section or document.

Reducing the complexity of information is an important consideration in New Zealand as a large portion of the population continues to have poor literacy skills and low financial literacy. According to the 2013 Financial Knowledge and Behaviour Survey 29 per cent of New Zealanders have "low financial knowledge".[25] Data from the 2006 Adult Literacy and

[23] Similarly, for example, the European Union's Undertakings for Collective Investments in Transferable Securities (UCITS) simplified prospectus was replaced with a Key Investor Information document (KIID).

[24] To be useful, any summarised disclosure document should accurately reflect what is contained in the parent disclosure document.

[25] The 2013 Financial Knowledge and Behaviour Survey measures financial knowledge and financial behaviour of New Zealanders aged 18 years and over. Financial literacy is defined as "the ability to make informed judgements and make effective decisions regarding the use and management of money".

Life Skills (ALL) Survey indicated that, at the time of the survey, 43 per cent of the New Zealand population had low or very low document literacy skills.[26]

Individuals are being encouraged to take greater responsibility for their financial wellbeing in retirement. However, this often involves making highly sophisticated decisions about complex financial products. The Australia Institute's research in 2008 showed that 46 per cent and 44 per cent of respondents felt that financial investments and superannuation, respectively, were too complicated to understand properly. According to the 2013 Financial Knowledge and Behaviour Survey only 31 per cent of New Zealanders have worked out how much they will need for their retirement even though most understand that they will need to save for their retirement.

Even well-educated people may struggle to make decisions about financial products that are deemed to be in their best interests. Choi et al (2006) conducted an experiment whereby they gave a group of 'financially literate' subjects a hypothetical $10,000 to allocate across four S&P 500 index funds. Participants received a modest fee up-front and were eligible for an additional delayed payment depending on how their chosen portfolio performed after the experiment. Subjects overwhelmingly failed to minimise index fund fees, even when search costs for fees were eliminated. Instead they placed heavy weight on irrelevant attributes. Research such as this raises questions around what and how information is disclosed and the role of financial education as a complementary measure to aid investor decision making.

The Better Regulation Executive and National Consumer Council in the United Kingdom researched which type of information is an efficient and effective regulatory tool. According to their focus group research many consumers perceive much regulated information to be written in "official" or "legal-speak" and are often confused by disclosed information.[27] The fact that such information was generally presented in a dense text format and in small print did not help.

[26] The survey measures the distribution of particular abilities throughout New Zealanders aged 16 to 65 years living in a private household. Document literacy is defined to be the ability to read and understand discontinuous text (for example, charts, maps, tables, job applications, payroll forms, timetables).

[27] For example, consumers had the feeling that consumer credit agreements were for the benefit of the lender, not for them, and they would be disadvantaged as a result.

Regardless of background and skills, individuals want, and are more likely to read, a document that is succinct, simple and written in plain English.[28] The United States Securities and Exchange Commission has stated that:

> *"Investors have consistently been telling us that disclosures should contain language that the average investor, not the average lawyer, can read and understand."*[29]

The risk profile of financial products is an area where disclosure can be particularly complex and difficult for investors to assess. It is, therefore, not surprising that some investors hold incorrect beliefs about the riskiness of their portfolios.[30] In the study to test understanding of disclosure documents for schemes regulated under the UCITS regime it was found that, for less experienced investors, any comment suggesting 'risk' is automatically taken to mean extreme or high risk. If this result held, the effect of loss aversion could be exaggerated and some investors would under-invest in risky assets.

Many people do not understand the relationship between risk and return – they believe the two are inversely related (ie high returns mean lower risk and vice versa),[31] or they cannot accurately judge the riskiness of an asset based on rates of return.[32] This means that investors may find it difficult to make an assessment of the suitability of an investment by looking at the information as a whole.

Numbers also present a significant barrier to investor comprehension of financial product information. Data from the 2006 ALL Survey indicated that approximately 50 per cent of the adult New Zealand population had low numeracy scores. More recently, results from the OECD's 2012 Programme for International Student Assessment (PISA) indicate that, on average, 23 per cent of New Zealanders aged 15 years old did not reach the baseline of level 2 in PISA maths assessment.

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[28] For example, Holmes-Rovner et al (2005) found that even highly educated patients who are worried and stressed by a difficult health decision prefer simple, every-day language that is easy to read quickly.

[29] Refer to Schock (2007).

[30] Dorn and Huberman (2005) assert that in a mean-variance framework of portfolio theory a portfolio's aggregate volatility is the only measure of risk that an investor should be concerned with. However, from a survey of clients of a German retail broker they found that self-reported risk aversion was strongly negatively correlated with portfolio variability.

[31] See Alhakami and Slovic (1994).

[32] In Fear (2008) estimates from a series of focus groups of rates of return of 'safe' investments ranged from 5 to 15 per cent, and for 'risky' investments from 10 to 25 per cent.

Investors tend to find percentages (such as a rate of return or an interest rate) more difficult to understand than dollar figures.[33] This can result in inaccurate perceptions of investment performance and risk.

Ultimately, people compensate for complexity and a lack of understanding by simplifying the decision or dividing it into more manageable parts. This means that the more complex a decision, the more likely it is that heuristics will be used and that biases will play a role in the decision making. This is a natural and, in many cases, useful tool and we could not make the number of decisions we do in a day without it. However, in some circumstances it can inhibit peoples' ability to make 'optimal' decisions. For example, instead of assessing the riskiness of a debt product by gaining an understanding of its structure and lending policies, investors will often rely on a credit rating.

Similarly, investors often place too much emphasis on easily accessible or obvious information and make incorrect assumptions about the extent to which that information represents the reality. One of the most common examples of this is overinference about past performance of investments. In other words, investors are overly influenced by strong or poor recent performance.[34] This can mean that other critical information about the investment, such as fees, is ignored.

Decision makers in other areas also tend to deal with complexity by focusing on one salient and easily understood aspect of information. For example, in the food-retailing sector, consumers wanting to choose a healthy option often do not read more detailed information on a nutritional label if they see a 'low fat' label on the front of the packaging. Of course, low fat does not tell the full story, and there are other nutritional factors that contribute to whether a product is healthy.

[33] See, for example, Federal Reserve Bank of Dallas (2010).
[34] Benartzi and Thaler (1993) found that investors plausibly compute returns for their investments on an annual basis.

3.2 Influences on behaviour and perceptions

Inconsistent preferences

It is well acknowledged that peoples' preferences are not always consistent. In particular, people suffer from present bias, in that they value their current utility more than the utility of their future self. This has broad-ranging consequences for behaviours from addiction and weight loss to saving for retirement. For example, the willpower to start a diet today can, at times, be overcome by the strength of the present satisfaction of eating a piece of cake.[35]

People also exaggerate the degree to which their future preferences will resemble their current tastes. Loewenstein et al (2003) present evidence of such a projection bias. They observe that, while people tend to qualitatively understand the directions in which their tastes will change, they systematically underestimate the magnitudes of these changes. In their survey of employees at a United States corporation Choi et al (2002) found that even though most respondents described themselves as undersavers and many reported that they planned to rectify this situation in the next few months, few followed through on this plan. Rather, at any point in time, employees are likely to do whatever requires the least current effort, which is almost always to do nothing.

The design of KiwiSaver recognises such 'passive decision-making' and seeks to overcome it. Employees are automatically enrolled in KiwiSaver and are required to actively 'opt out' if they do not wish to be a member of the scheme. Also, if a KiwiSaver member does not actively choose a fund they are enrolled in a default KiwiSaver fund. Status quo bias may explain why many people remain in a KiwiSaver fund they defaulted into, even though the fund may not be the most appropriate for them and they have a desire to change.

People are loss averse. Not surprisingly, behavioural finance studies have shown that loss aversion is one of the main factors that influence investors' behaviour.[36] Loss aversion, and fear of regret if losses occur, can lead investors to allocate less of their portfolio to risky

[35] While it may appear that food, in itself, can defeat a dieter's resolve Herman and Polivy (2003) note that the behaviour of dieters is controlled by cognitive decision making. Thus, dieting outcomes are determined by how food is construed rather than the mere presence of food.

[36] In DALBAR Inc (2007) it is noted that the imprudent response to risk is very often based on the fear of catastrophic loss.

assets than is optimal. It can also result in individuals sticking with the status quo and not changing their asset allocations.

Furthermore, investors are overly concerned with short-term losses. Benartzi and Thaler (1999) labelled this behaviour 'myopic loss aversion'. This means that even when the investment time frame is long, for example, saving for retirement, investors have a tendency to focus on short-term results. Some behavioural economists contend that providing individuals with feedback about the outcome of their decisions helps them to learn from their mistakes and overcome their biases. However, when it comes to myopic loss aversion, frequent evaluation of investment performance may mean investors experience many days of losses, which can prompt them to make a decision to sell their investment. Frequent buying and selling is not usually an optimal investment strategy and can lead to greater losses than otherwise.

Non-standard beliefs

Incorrect beliefs regarding their own ability, or a situation, can also influence an individual's decision making. In this regard much of the behavioural finance research has focused on overconfidence.

Overconfidence on the part of investors can mean that information contained in disclosure documents is ignored, dismissed, or not given proper weight in the decision-making process. In a retirement savings context, this may be because investors underestimate their need to save based on overinflated future earnings expectations. For example, when surveyed, British teenagers expected to earn almost double the average salary at the age of 25 than was usual for that age group.[37]

The fact that many people end up paying high amounts of interest on outstanding credit card debt may reflect overconfidence in their ability to pay their monthly credit card bill or overconfidence in their ability to exercise self-control with respect to spending.[38] Of the $5,987 million daily personal credit card advances outstanding in New Zealand for the month

[37] Refer to Natwest (2008).

[38] According to Altman (2011) personal credit card debt may also relate to how credit cards are packaged or framed. For example, people may misunderstand the interest rate charged on their credit card or not know, because of misleading or hidden information, what the interest rate will be in the future. Also, individuals are not always aware that upper limits to credit card expenditures automatically increase with expenditures.

of November 2014, $3,889 million was interest bearing at a weighted average interest rate of 17.4 per cent.[39]

In other circumstances, behavioural biases such as overconfidence result in individuals taking investment decisions without proper consideration of all key matters relating to an investment. During the 'Dotcom' bubble of the 1990s, large amounts of people and money were invested in internet companies, even though many companies arguably had weak business models. Avgouleas (2009) notes that empirical research has shown that individuals frequently exhibit a deep-seated bias towards optimism in predicting future events. For example, in a rising stock market or any other asset market (including housing), individuals embrace unsustainable beliefs that price rises will continue indefinitely.

Fuelled by confidence and optimism, investors can be encouraged by the actions of others and adopt herding behaviour, justified by the belief that 'if they are doing it then it must be okay'. However, such biases affect the processing of information with the result that risks and conflicts of interest are downplayed or ignored in the decision-making process.

In some situations investors may be aware of, and even understand, disclosed information such as the risks or fees associated with a product but due to overconfidence and optimism may choose to discount this information. For example, there was much media coverage about the collapse of Enron, Worldcom and Global Crossing which wiped out much of their employees 401(k) retirement savings. Yet, Choi et al (2005) found that the media barrage had a surprisingly small impact on employee pension savings held in employer stocks in other 401(k) plans. Employees did not show evidence of learning the lesson of putting all their retirement savings in employer stock.

Employees' preference for their company's stock could also be attributed to a bias for the familiar, or the recognition heuristic. This would explain why funds that are large and that spend a higher amount of resource on marketing are, on average, able to attract greater fund inflows.[40]

Through exploring the role of excessive extrapolation of past returns in holdings of company stock Bernatzi (2001) examines the existence of the representativeness heuristic. He finds evidence that past returns of company stock has a substantial effect on subsequent

[39] Data is seasonally adjusted and sourced from The Reserve Bank of New Zealand's Credit Card Survey.
[40] See, for example, Kozup et al (2008).

investment decisions of employees, with most believing that their company stock is safer than the market. The extrapolative behaviour is enhanced by familiarity with a company.[41]

French and Poterba (1991) provide evidence of imperfect investment diversification in an international context. In their estimates of international equity portfolio holdings of investors in the United States, Japan and the United Kingdom they found that investors allocated between 82 and 98 per cent of their equity portfolios to domestic equities. The tendency for investors to overweight their wealth in domestic assets may suggest that investors impute extra 'risk' to foreign investments because they know less about foreign markets, institutions and firms.

Behavioural biases also affect decisions about whether or not to trade stocks. Theoretical models predict that overconfidence causes equity investors to trade too much, thereby making lower returns than they would if they held on to stocks. Related to this is the disposition effect which is the tendency for investors to sell shares whose price has increased and hold onto shares whose price has fallen. This is probably because people are both loss averse and anchor gains and losses to the purchase price of a share.

The availability heuristic helps to explain peoples' overestimation of the probability of rare events. Media coverage can help fuel this bias as the widespread and extensive coverage of unusual events makes them seem more likely than they actually are.[42] As noted by Cappelen et al (2010) this may sometimes increase the demand for vaccination, but it may also work in the opposite direction. For example, negative side effects of vaccination, because they are rare, may get more attention than positive effects of vaccination and this may contribute to overestimation of the likelihood of such events.[43]

In the insurance industry Michel-Kerjan et al (2012) note that, besides media coverage of flood events, knowing someone who has suffered a loss through flooding can change one's

[41] Bernatzi (2001) observes that the tendency for employees to put their own contributions into company stock are stronger when an employer's contributions to a 401(k) plan are invested in company stock. He finds that this result is consistent with an endorsement effect: employees interpret the allocation of employer's contributions as implicit investment advice.

[42] See, for example, Combs and Slovic (1979).

[43] According to Cappelen et al (2010) another potential explanation of the overestimation of small probabilities is the 'law of small numbers', which refers to the observation that people often believe that small samples exhibit large-sample statistical properties.

risk perception, even though statistically there may not be a change in the probability of future flooding.[44]

Emotions and trust

Emotions play an important role in decision making by triggering automatic responses. The United Kingdom Cabinet Office and Institute for Government found that people can have emotional responses to words, images, events and people. For example, people may irrationally discard advice from someone that they do not like.

Emotions can influence subconscious judgements about risk. In their field study conducted in South Africa Bertrand et al (2010) found that men were more likely to take up an offer for a short-term loan (and take on more risk) if the advertisement included a photo of a woman.

Trust can also influence how people view and act on information. People are heavily influenced by who communicates information[45] and often place a lot of trust and reliance on information provided by perceived 'experts' such as an adviser. People are also more likely to listen to messages from peers and from people who they can relate to or perceive to be like themselves.

Cain et al (2005) assert that:

> *"…there is at least suggestive evidence that people tend to be naturally trusting and credulous toward their own advisors. In the domain of medicine, for example, research shows that while many people are ready to acknowledge that doctors generally might be affected by conflicts of interest, few can imagine that their own doctors would be affected."*

The subjective nature of verbal communication, including the communication of risk presents a challenge. Face-to-face advice can have the effect of undermining mandatory disclosure documents.

On the upside, trust is a useful tool where there exists an effective system to ensure that trust is not misplaced For example, where there exists an effective system of accreditation, compliance, monitoring, and enforcement to ensure the quality of advice given.

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[44] Bettman et al (1986) refer to evidence that when individuals forecast certain natural hazards, for example, floods, they are strongly conditioned by their immediate past. Michel-Kerjan et al (2012) find that, even if someone has suffered from flooding the impact of the disaster fades over time.

[45] Refer to MINDSPACE: Influencing behaviour through public policy, 2010.

The role of emotional reactions and trust in people's decision making was highlighted in New Zealand by the influence of celebrity endorsements in finance companies.

3.3 Presentational factors that affect decision making

How to best present information is a key consideration in designing financial product disclosures. The way that information is presented including how it is framed, how it is formatted, its order, use of numbers, and use of visual illustrations all contribute to readability and understanding. This, in turn, can either increase or diminish the effect of behavioural biases and can help overcome cognitive limitations.

Framing

According to behavioural economists individuals are susceptible to a framing effect. This means that the way information is presented or phrased can influence how investors react to information and therefore the decisions they make.

Bettman et al (1986) note that there is extensive evidence from both basic and applied research that the same information presented in different formats can result in different decisions by consumers. For example, in the case of consumer choices among supermarket products very simple changes in the organisation of unit price information at the point of purchase results in shifts in purchasing patterns. Similarly, people are more likely to purchase potato chips labelled 75 per cent fat free than the same chips labelled 25 per cent fat.

In an investment context framing effects mean that investors' perceptions of risk can be manipulated. For example, related to the fact that people are loss averse, risks presented in terms of potential reduced 'gains' may not be considered as ominous as the same risk described as a potential 'loss'.

Ordering

The order in which information is presented is also important. Information at the beginning and at the end of a sequence has a stronger effect on judgement than the information in between. However, for a given situation, it can be difficult to predict whether information appearing earlier on has a stronger impact on judgement than subsequent information (a

primary effect) or whether later information will dominate earlier information (a recency effect).[46]

Form of presentation

As noted earlier, people often find numbers difficult to interpret. In financial disclosure documents this is particularly relevant for the presentation of risk. Risk is often evaluated numerically and involves assessment of probabilities and the comparison of returns.

Studies have shown that graphs and other visual representations can be beneficial in assisting comprehension, including risk.[47] In their review of visuals to communicate risk Lipkus and Hollands (1999) note that graphics reveal patterns in data that may otherwise go undetected, they allow individuals to process information more effectively than when numbers are represented alone, and they attract and hold attention because they display information in concrete, visual terms.[48]

If well designed, graphs and other visuals can convey information more effectively than text or numerics. However, the most appropriate design of graph or other visual representation will depend on the circumstances. Careful consideration needs to be given to behavioural biases and heuristics if graphs and other visual representations are not to be misleading in other ways.

For example, Benartzi and Thaler (1999) show that risk preferences can be influenced by whether a graph depicting past returns shows the return over a long period or a short one.[49] In their experiment involving the presentation of fund performance on investor decisions, Terry and West (2012) found that participants more frequently chose the fund whose performance data was presented last. However, this recency effect disappeared when performance results were displayed vertically, rather than horizontally.

Gigerenzer and Hoffrage (1995) present evidence to suggest that people find information presented in frequency formats easier to understand than information presented in

[46] Refer to Kardes and Herr (1990).

[47] Results from research conducted by Stone et al (1997) suggest that depicting risk information graphically as opposed to numerically is a potentially useful technique for decreasing risk-taking behaviour.

[48] To be useful Lipkus and Hollands (1999) state that graphs must communicate different risk characteristics such as risk magnitude, relative risk, cumulative risk and uncertainty.

[49] Benartzi and Thaler (1999) asked workers to make an asset allocation between a high risk (stocks) and a low risk (bonds) fund for a 30-year investment horizon. Workers invested significantly more in stocks when they were shown graphs of annualised 30-year returns versus historic one returns for the investment alternatives.

probability formats. Gigerenzer (1998) contends that this is because of ease of computation and the fact that frequencies are how humans naturally encountered information throughout evolution.

In the health sector, the frequency or probability of certain events is often expressed in numeric format. However, Lipkus (2007) notes that a single number may not be enough to convey sufficient meaning in terms of health outcomes.[50] It can also be easy for people to misinterpret numerical information. For example, some health researchers believe that expressing a ratio as two smaller numbers (ie one out of 10) leads to lower perceptions of event likelihood, than the same ratio using large numbers (ie 10 out of 100).

In a speech in January 2007 Lori Schock of the United States Securities and Exchange Commission (SEC) said that one way to create useful disclosure is to put information in context. During investor testing the SEC observed that investors not only liked disclosures that contained fee information but also showed how those fees compared with fees of similar funds.

Context conveys meaning and enables information to be more easily processed. In a field experiment at payday stores Bertrand and Morse (2009) found that presenting borrowers with the dollar cost of their loans (rather than the annual percentage rate) resulted in a reduction of future payday loans by about 10 per cent in the subsequent four months. Lipkus (2007) notes that specifying the relative risk as well as the baseline value can achieve a more accurate assessment of risk.[51]

In an effort to introduce simplicity and reduce large blocks of narrative about risk, the European Union requires disclosure statements of UCITS collective investment schemes to contain a visual 'synthetic risk and reward indicator'. The indicator shows the risk and reward profile of a fund on a visual scale ranging from 1 to 7 based on volatility of returns. The European Commission tested this approach before introducing it. They found that most consumers preferred the indicator over a purely narrative description of risk and that, on balance, there was a slight improvement in the understanding of the risk and reward profile,

[50] For example, how clearly can a single number convey magnitude of risk? And how does the same number possess the same meaning across different disease states?

[51] For example, the chance of non smokers getting a disease is one per cent while the chance of smokers is 10 per cent; therefore smokers have a 10 times greater chance of getting a disease than non smokers.

particularly for funds at the high and low ends of the risk scale. However, the scale of the indicator could be interpreted as being linear and certain fund risks could be underestimated.

Not all commentators agree with such an approach. Burn (2010) notes that the use of such an indicator implies an assumption that risks can be reduced to numbers. When multiple assets, liabilities and risks are involved, it can be difficult to reduce risk to a single number of a scale. Also, if investors are not given relevant information mispricing of risk can occur. Clearly, in this case, a trade-off exists between simplicity and adequate disclosure.

How best to disclose risk is also a source of debate in other sectors. For example, restaurant inspection schemes are common throughout developed countries. In their review of restaurant inspection disclosure schemes Filion and Powell (2009) highlight a number of different approaches used to present inspection scores: numerical scores; written statements; the use of star ratings or smiley faces; letter or colour grades; and categories such as a simple pass, conditional pass or fail.

In terms of household chemicals, research indicates that hazard statements or risk warnings are made easier to understand when a combination of logos, symbols, and text is used to convey the message. Bettman et al (1986) suggest that both a common format and common set of concepts in labelling hazardous chemicals across products would facilitate a consumer's ability to successfully encode hazard information. This should include collecting benefits and risk information in one place so that consumers can more easily make trade-offs between risks and benefits.

According to Bettman et al (1986) empirical evidence indicates that consumers will ignore information which they feel has little benefit. Consequently if consumers perceive little risk (cost) associated with using a product, they are unlikely to seek out and process information about a product's potential risk. The implication is that different types of risks need to be disclosed and explained.

4. Implications for the design of disclosure rules for financial products

Behavioural research into human decision making reveals that, due to heuristics used in making complex decisions and behavioural biases, people make decisions that differ from what is predicted by rational-choice theory. No-one is immune; behavioural biases affect everyone from those with little education through to academics. As regulators, the challenge is to be aware of the insights gained from behavioural economics when developing policy. We need to ask: *is this policy really justified or are we just responding to a recent salient event?* And, *how would this policy impact on the way that the people affected make decisions?*

We know that financial products are becoming increasingly complex and the choice of products is extensive. As a result, product disclosure documents are longer and more complicated, making it extremely difficult for retail investors to make informed and optimal decisions. Most investors simply do not have the time or the inclination to become experts in financial investment and they should not have to be.

Our research does not suggest that disclosure is redundant; on the contrary it is still very important in helping investors to make informed decisions and promoting fair and efficient markets (and advisors can assist people to make decisions). However, disclosure regimes need to work for investors.

Policy makers need to consider the role of disclosure as a part of the overall regulation of financial markets and other interventions such as financial education. In designing requirements for financial product disclosure we are potentially influencing how investors make decisions – we are 'choice architects'. The aim is that, to the extent possible, financial product disclosures should be meaningful and understandable.

A number of implications can be drawn from the various examples identified by behavioural economics research. Key implications are:

- ***Keep it short and simple***

  Behavioural economics highlights the importance of keeping documents brief and straightforward. Choice and information overload, combined with low financial literacy and the difficulties that many investors can have with complex and technical

information, make it extremely difficult for investors to take in information and make decisions. This means that, where possible, disclosures should be succinct and use everyday language. In terms of policy, information overload could be partly addressed through prescribing content and maximum lengths for disclosure documents. In a managed fund context this might mean that a disclosure document focuses on the main investment portfolio options, with worked examples of key information in respect of those options.

- ***Standardise***

  As much as possible, disclosures should be standardised. Many of the principal biases, limitations and heuristics identified by behavioural economics can be mitigated through standardisation of the content of disclosure documents. For example, standardisation will reduce the impact of emotional responses or the recognition heuristic by minimising presentational differences in disclosure documents. It can also help to influence the type of information that the investor processes and the order in which this happens. Standardisation will also aid the ability of investors to compare information between various investments and investment classes.

- ***Appropriate disclosure of risks and benefits***

  Disclosures should indicate the risk associated with an investment in a way that investors can understand and that impartially highlights the risks and benefits of investing in a particular product. Status quo bias, loss aversion, and overconfidence all make it vitally important that the risks and benefits of investing in a product are clearly explained in disclosure documentation without prejudice.

- ***Meaningful***

  There will always be difficulties associated with a 'one size fits all' approach. However, to the extent possible, information should be presented in a way that is meaningful to investors. One way to do this is to provide context or present information in a form that investors can easily relate to their own circumstances. Providing context removes some of the need to work out how different information affects different investors. There are a variety of ways that information can be

presented in a meaningful way. For example, worked examples of fees and returns in a managed fund context can better illustrate the impact of fees and returns for an investor than standard fees and returns information. This approach also helps investors overcome the difficulties associated with percentages.

- ***Presentation***

  Information needs to be presented in a way that makes people want to read disclosures and that aids decision making. How information is framed and how people respond emotionally to it can influence the decisions made. For example, the way in which something is described (ie as a 'reduced gain' rather than 'loss'), or the order in which matters are presented can influence how information is perceived and processed. While in some policy contexts it may be desirable to play up these biases (for example, to emphasise the risks associated with smoking), in a financial sector environment disclosures should generally aim to provide information in a neutral manner. Careful consideration also needs to be given to the extent to which an issuer is able to use product disclosure documents to advertise, as this can elicit an emotional response which may not benefit investors. The use of graphs and other visual representations have been shown to assist in the understanding of complex information. However, numerical representations are likely to be off-putting to some investors. Graphs and other visual representations need to be designed with care as they can over-simplify information or mislead if used inappropriately.

- ***Investor testing***

  While findings from research are helpful in helping us to think about how people make decisions, they are often specific to a situation. Responses of investors to disclosure can sometimes be complex or unpredictable. Even small changes to the way that information is presented can affect the way that investors perceive or interpret information. Before making changes to disclosure documents it is important to actively test potential ways of presenting information with investors.

5. Conclusion

It is important to take account of the insights accorded by behavioural economics when designing financial product disclosures. Policy makers need to recognise that the needs of investors differ. Various biases and heuristics can be at play as well as cognitive and time limits. Therefore, a 'one size fits all' approach can never perfectly cater for the needs of every potential investor. Investments are risky and investors will make decisions that are not necessarily optimal. However, a well-designed disclosure regime can significantly increase the likelihood of retail investors reading and understanding key disclosures.

There are complex trade-offs involved. Many of the key implications of behavioural economics for financial sector disclosure need to be balanced against the overall objectives of the disclosure regime. For example, issuers' desire to advertise products needs to be balanced with the aim of ensuring that disclosures are meaningful and succinct.

The existence of such trade-offs does not invalidate the insights of behavioural economics. But they highlight the need to consider behavioural insights in the broader context of what the disclosure regime aims to achieve. The role of disclosure in investor decisions can be enhanced by developing disclosure requirements that aid rather than hinder decision making.

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