



YOU CAN SEE A LOT BY JUST LOOKING

Understanding human judgement in
financial decision-making

Ian McAuley

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YOU CAN SEE A LOT BY JUST LOOKING: UNDERSTANDING HUMAN JUDGEMENT IN FINANCIAL DECISION-MAKING

FOREWORD

Miriam Lyons and James Murray

The global financial crisis has exposed far more than just the number of bad risks on the books of our major financial institutions. As billionaire investment guru Warren Buffet has said “It’s only when the tide goes out that you learn who’s been swimming naked”. As market confidence continues to plunge some of modern economics’ most popular ideas are now looking a little under-dressed.

This paper deals with just one of those ideas - the myth that market participants are always rational decision-makers who act to maximise their own best interests. Behavioural economists - who study how humans actually behave in markets rather than how we should behave in theory - have long questioned this assumption, and provided evidence that we do not always act rationally. The past few years have provided a dramatic demonstration of their findings.

In ‘*You can see a lot by just looking*’, Centre for Policy Development fellow Ian McAuley sums up some of the main implications of behavioural economics for financial decision-making.

Perhaps the most important conclusion is that we are all subject to the biases McAuley describes - whether rich or poor, financially literate or not. Higher incomes provide more of a buffer against the impact of poor choices, rather than preventing us from making such choices in the first place. This point should be brought to the attention of those who argue that the current financial situation is all the fault of the high-risk borrowers who took out most of the sub-prime loans.

The credit bubble could have been deflated much earlier had we not built blindness to our own biases into the design and regulation of financial markets. It is in everyone’s long-term interests to help people make better decisions, and since economic theories built on the assumption of rationality have failed to explain or prevent our current predicament, we should heed the lessons learned from behavioural economics as we attempt to design a smarter system. We are delighted to publish Ian McAuley’s suggestions on how this might be done.

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YOU CAN SEE A LOT BY JUST LOOKING: UNDERSTANDING HUMAN JUDGEMENT IN FINANCIAL DECISION-MAKING

Main Points

The discipline known as behavioural economics has strengthened our knowledge of consumer decision-making. It explains why we make certain, consistent departures from what is generally described as “rational” decision-making. These departures result from our use of short-cuts (“heuristics”) in situations where more deliberation would result in more beneficial decisions, from short-sightedness, and from innate concerns for fairness in transactions.

Departures from rational decision-making - some examples:

- » **Overconfidence:** we have a tendency to overestimate our financial management and investing skills
- » **Consideration of sunk costs:** we find it very difficult to make decisions solely on the basis of future costs and benefits, particularly if it means implicitly admitting that we have made poor decisions in the past
- » **The ‘disjunctive bias’:** we display a poor grasp of statistics, underestimating the combined probability of disconnected events, which can, for example, leave us more exposed than we should be to events that would prevent us from meeting our financial obligations
- » **Mortgage stress and myopia:** we are likely to become over-committed in our borrowing because of short-sightedness, ‘hyperbolic discounting’ and a lack of understanding of the difference between real and nominal interest rates

Implications for financial institutions

Poor decision making, such as over-commitment on mortgages, is costly not only for consumers but also for financial institutions. Behavioural research reveals a strong bias to taking on more debt than would be prudent from a ‘rational’ perspective. This makes it all the more important that the suppliers of debt act responsibly and resist the temptation to exploit consumers’ biases to lead them towards decisions which they may later regret. In order to guard against this temptation lenders will need to shift away from performance pay based on simple sales volumes and reorient their business models towards long-term profitability rather than short-term growth or market share.

Policy implications

A deeper understanding of biases in our financial decision-making can inform more effective government policy. Financial literacy is necessary but not wholly sufficient for sound decision-making. The careful use of ‘default options’ can guide market decisions while still leaving room for individual choice. Behavioural research can point the way to simpler options for regulation (for example awareness of the costs of information overload can be used to shape shorter product disclosure statements). Awareness that people choose not to choose, or to choose from a constrained set of options in certain situations can alert governments that competition policy should be designed to improve outcomes for consumers rather than as an end in itself.

YOU CAN SEE A LOT BY JUST LOOKING

Understanding human judgement in financial decision-making

Introduction

In his invitation for me to contribute to the July 2008 Financial Literacy Summit, David Bell, CEO of the Australian Bankers' Association, posed the question "Why do people, even with the best information, still seem to make 'irrational' decisions?"

That is a perplexing question. Consider the following behaviours:

Why do people, even with the best information, still seem to make 'irrational' decisions?

- » running up credit card debt at 20 percent, when much lower cost sources of finance are available;
- » failing to invest for retirement, in spite of generous tax incentives;
- » failing to take up insurance against risks with ruinous consequences; conversely, over-insuring against easily-managed risks;
- » losing significant sums in poker machines and other gambles with negative expected values;
- » investing in 'too good to be true' scams; conversely managing finances by metaphorically putting life savings under the bed;
- » driving across town to save five cents a litre at a distant garage.

This paper does not address the behaviour of those who are desperate. If one's only options are a payday lender or increased credit card debt, then the credit card makes good sense in the short term. Nor does it refer to the behaviour of people who are mentally incapacitated. Those are legitimate concerns for public policy, but this paper focuses instead on general patterns of behaviour that we all exhibit.

All of us, even bankers, financial counsellors and finance lecturers, make poor financial (and other) decisions from time to time. Understanding the basis of our irrationality has always been important, but it has assumed greater importance over the last twenty to thirty years, which have seen the end of tight rationing of finance for housing, a relaxed attitude to debt, the widespread use of credit cards, government policies shifting some financial liabilities (such as higher education) to individuals, the phase-out of most defined-benefit superannuation schemes, the introduction of compulsory personal superannuation, and the introduction of many innovative investment products. Are we equipped to make sound financial decisions in this brave new world?

The discipline known as "behavioural economics" casts some light on our decision-making processes. For a long time the consensus among economists and finance experts was that poor decision-making is a random and unpredictable departure from rationality. Systematic observations of behaviour, however, reveal some distinct and consistent

patterns in our poor decision-making - patterns which emerge in laboratory studies and in real-world observations. Behavioural economists refer to these patterns as “behavioural biases”.

This paper begins with a brief outline of decision-making theory, leading to the emergence of behavioural economics as a tool in developing an enlarged and more practical understanding of market behaviour. It then looks at the findings of behavioural economics as they relate to financial decision-making. Where possible, simple exercises are used to illustrate these behavioural biases, for a key finding of behavioural economics is that we are all subject to these biases. While education and experience do sharpen our decision-making a little, we still make poor decisions; in fact many of the subjects in the studies cited are graduate business school students in America’s most prestigious universities. Even those who are well-educated in finance are not necessarily much better at decision-making than the general population, although they may have more resources to buffer the consequences of their poor judgement. For those living closer to the edge, the consequences of poor financial decisions may be far more serious.

This weak link between education and good decision-making may lead one to believe that financial literacy programs are largely futile, but that is not so. Financial literacy is important for sound decision-making, but, in itself, it is not adequate. Or, in terms of formal logic, it is a necessary but not sufficient condition. This confirms what the ANZ Bank found in its 2005 Financial Literacy Survey, which found that financial literacy was only one of many factors necessary for sound financial decision-making.¹

Behavioural economists would dearly like to be able to spell out a program for de-biasing consumers in their financial and other decision-making, but this is a difficult challenge. Some of the short cuts in our decision-making are hard-wired; they have served us well over most of the last million years, and they still serve us well in most of our day-to-day decisions.

I will conclude with some modest, and in some cases tentative, suggestions on how we can improve our financial decision-making.

A short history of decision-making

Mainstream theories

There is a model of “rational” decision-making, with which most of us are familiar, even if we do not spell it out. We approach market decisions with our needs and preferences already determined, we undertake a comprehensive search of *all* alternatives, we weigh up the costs and benefits of those alternatives, and we make decisions which maximize some objective function. In corporate life that may be the company’s profit, while in our private lives it is a notion of individual welfare.²

Financial literacy is important for sound decision-making, but, in itself, is not adequate.

The discipline of economics embodies this model of decision-making in a branch known as “rational expectations theory”. Provided all actors - buyers and sellers - are well-informed, and markets are efficient and competitive, in aggregate we will make wise decisions in markets. Our individual errors show no systematic bias.

That is a neat model for teaching equilibrium economics, because it dismisses any systematic departures from rationality, and it forms the basis for competition policies. We can see this theoretical background in the emphasis competition policy places on information (recently with *FuelWatch*) and on competitive structures in industries.

But in some markets, even if our departures from rationality are random, they do not cancel themselves out in their consequences. We may learn to hone our skills in supermarket shopping, for example, because we can learn from our mistakes with little cost, but in some of our financial decisions - investing in superannuation, borrowing for a house, taking a margin loan - the consequences of a poor decision are extremely costly and can take many years to become evident. In such markets it is cold comfort to those who make bad decisions to know that the costs of their poor decisions are offset by benefits to others who have made very good decisions.

The main shortcoming of the “rational” model, however, is that it ignores search and information costs. Indeed, it is sometimes known as the “rational-comprehensive” model. In reality we do not undertake comprehensive search and evaluation of *all* alternatives. In hiring staff, for example, we contain our search costs by limiting our outlays on advertisements. In our private lives we limit the time we spend shopping around.

A more realistic model of decision-making is known as “bounded rationality” - a term coined by Herbert Simon half a century ago, who suggested that decision-makers truncate their search behaviour. Information can be hard to obtain and processing information involves computational work. It is quite rational, in a more general sense, to cease searching when the costs of searching start to outweigh the benefits that result from searching.³

It is quite rational...to cease searching when the costs of searching start to outweigh the benefits.

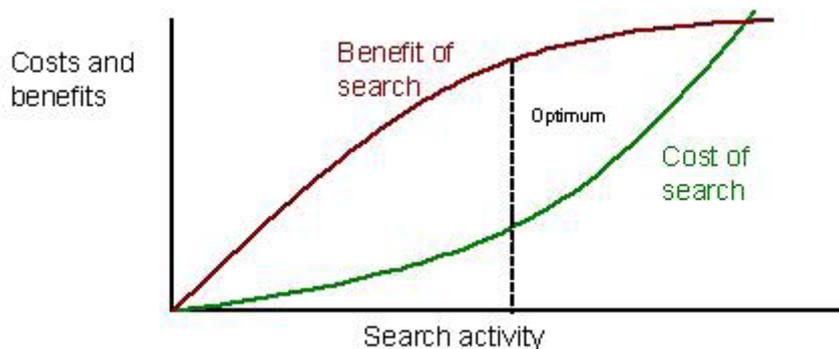


FIGURE 1. BOUNDED RATIONALITY SEARCH MODEL.

Another limitation of the rational comprehensive model is that it assumes we approach markets with our preferences already determined.

Anyone who has ever strayed from the confines of a shopping list knows this is not so. Empirical research, such as that done by Colin Camerer, not only tends to support the theory of bounded rationality; it also finds that preferences are not necessarily stable and well-defined.⁴ Our preferences chop and change as we participate in the market - a fact well-known to marketers when advertising moves from the function of information provision to the function of persuasion.

Behavioural research - a move to empiricism

The mainstream models provide reasonable predictive power in many situations, but they are based on assumptions of “rational” behaviour. They have not necessarily been subject to the tests of prediction and observation. That is where behavioural economics comes in, as a practical and empirical extension of these theories. (And it is the explanation for the Yogi Berra quotation which provides the title for this paper - “You can see a lot by just looking”).

Behavioural economics lacks the classification neatness of mainstream economics, in part because it is still in its infancy in many aspects. While there have been many empirical studies of decision-making, particularly over the last fifty years, there is yet to emerge a standard set of terminology or classifications. One early classification was by Daniel Kahneman and Amos Tversky, who published seminal articles in 1974 and 1979.⁵ A little later Thomas Schelling published his works on regulation and self-control, integrating game theory and economic behaviour;⁶ Schelling’s work on game theory has subsequently been expanded by Colin Camerer⁷ and his work on self-control has been developed into theories of discounting by David Laibson and others.⁸

Empirical studies of decision-making are most developed in financial markets, where traders study and apply the theories of behavioural economics in the branch of the discipline known as “behavioural finance”.⁹

In this paper, which is particularly concerned with the ways in which consumer decision-making departs from the “rational” model, I have used a broad classification developed by Douglas Bernheim and Antonio Rangel.¹⁰ Their classification is described below (in their terminology):

Individuals appeal to heuristics (rules of thumb) when making their decisions. They make biased probability judgments and are often overconfident.

Moreover, individuals tend to anchor to seemingly irrelevant information or to the status quo, and they are loss averse. In general, they do not maximize expected utility.

**Systemization
can help us
develop better
corporate and
public policies.**

Incomplete self control refers to the tendency of economic agents to make decisions that are in conflict with their long term interest. Self control problems may lead to addictive behaviour, undersaving, or procrastination. As opposed to the neoclassical view, restricting the choice set can be beneficial for an agent with bounded willpower.

Lack of self interest refers to the idea that preferences have a social dimension. Individuals care, or act as if they care, about other individuals' well being. They are also reciprocal: they care about being treated fairly and want to treat others fairly if those others are themselves behaving fairly. As a result, agents are both nicer and (when they are not treated fairly) more spiteful than postulated by the neoclassical theory.

These points are expanded and illustrated below, in the context of financial decision-making. One point applying to all these departures from the “rational” model is that research, both in laboratories and in actual markets, suggests that these departures are only partially dependent on individuals' general education.¹¹ One classic experiment, developed by Shane Frederick, is the “bat and ball test”:

A bat and ball cost \$1.10 in total. The bat costs \$1.00 more than the ball. How much does the ball cost?

If your quick answer is ten cents, you are in the majority - in fact in a well-educated majority - for “smarter” people (by measures such as IQ) tend to handle problems faster than others, and are more likely therefore to fall into the ten cent trap.¹² A more deliberative approach, using either trial and error or simultaneous equations, leads to the correct answer that the ball costs five cents.

Another general point is that, while behavioural economics is in its infancy as a formal academic discipline, its contribution is to try to systematize in a coherent way what we generally refer to as “folk wisdom”. Parents cajoling children to eat their greens, con-artists developing scams, and competent salespeople have all known about behavioural biases from time immemorial, but that knowledge is not formally disseminated. Systemization can help us develop better corporate and public policies, and to design more effective programs to improve our financial decision-making.

Behavioural findings - heuristics and biases

In making decisions we generally rely on heuristics, or simple rules of thumb.

Over a million years of evolution these have served us well. If we come across a shiny, long reptile in our path, a quick analysis (“snake or lizard?”) with an appropriate response (“if snake, get out of the way”) is more supportive of our chances of passing on our genes than a slow process of consideration of toxicology and construction of a probability tree modelling the reptile’s likely behaviour.

Even in our modern world heuristics help us to make sound decisions. We make hundreds of decisions every day - what lane will I choose when I turn into Victoria Road? What temperature will I set the thermostat? How often will I back-up my computer? We did not inherit heuristics to cope with these situations, but we develop them (e.g. “Use the lane with least traffic unless it has a heavy vehicle”).

For the most part these heuristics serve us well. They economize on our search costs and allow us to make sound and efficient decisions most of the time. Our departures from optimality are generally random and are often self-cancelling. In some markets, for example, we may sometimes pay too much because of inadequate search, and sometimes come across a bargain through good luck. Quite often, in the case of experience goods (low cost goods with repeat purchases) we refine and improve our decision-making over time.

It is probably because these heuristics serve us well that they are so entrenched. We can contemplate a life without these heuristics, and it is the life of the savant, the Raymond Babbitt character in the 1988 movie *Rain Man*.

Sometimes, however, our departures consistently lead us away from sound decision-making; those departures are biased one way or another. We are often hasty in our decision-making when we should use a more considered process. Kahneman suggests that we have two modes of decision-making, intuition and reasoning, and that our decision-making mistakes often result from use of the wrong mode.¹³ That thinking is now the subject of studies in an emerging field known as “neuroeconomics”, which posits the notion that parts of our brain devoted to planning and carefully considered problem-solving are relatively modern in the evolutionary time scale.



FIGURE 2. COSTLY BIASES

These departures from rationality are often of little material consequence. For example, in supermarket shopping we may consistently pass over opportunities to buy cheaper house brands of certain foods. But, for some transactions, they may have very significant and costly consequences, often delayed (as in the case of retirement saving products). These are what are known as *costly biases*, and are of most concern to policymakers.

The most common biases relevant to financial decision-making are summarized below, mainly using the terminology of Max Bazerman¹⁴, which, in turn, is drawn from the work of Tversky and Kahneman. Important biases subsequently identified have been added to the list. These include the default bias¹⁵, pseudocertainty¹⁶, choice overload^{17,18}, sunk costs¹⁹, mental accounts²⁰ and the money illusion²¹. As research progresses there are new findings; in a year's time there will almost certainly be additions. Also, some well-studied biases which have only limited relevance to financial decision-making have been omitted.

I have not separated them into consumer and provider classifications, as most market transactions take place between decision-makers who are both subject to behavioural biases.

The first set all relate to decision-making under uncertainty, and many tend to distort our judgements in financial decisions involving risk, such as purchasing insurance or taking on debt.

Important biases include the default bias, pseudocertainty, choice overload, sunk costs, mental accounts and the money illusion.

Availability bias - ease of recall

Exercise: Which of the following causes more deaths in Australia each year: Shark attack or bee sting?

We tend to overestimate the risk of events which we can imagine vividly. This bias has costly consequences. Dan Gardner estimates that in 2002, after the attacks in US, 1600 people lost their lives in road accidents because of a fear of flying heightened by the attacks.²²

In financial markets this bias can be manifest in the inappropriate allocation of insurance outlays. We may spend too much insuring against events with high visibility and high fear factors, while leaving ourselves exposed to less vivid risks.

It is possible that media coverage of the financial problems of the last year have heightened people's risk perception, particularly when they depict scenes of angry depositors at receivers' meetings and trashed repossessed houses in American suburbs. The risk of excessive investment conservatism (which may be a reaction to these crises) is manifest far less vividly.

Because we often make decisions based on what we recall, we can find decisions with consequences far into the future, of which we have no experience, very hard to make. It is hard for a young person to contemplate retirement, while it is easy for her to contemplate the immediate consequences of parting with \$1000 into a superannuation fund.

Representativeness bias - insensitivity to base rates

Exercise: *David is completing an MBA at Macquarie University and at one stage contemplated a career as a musician. Is he more likely to take a job in the management of the arts or with a bank?*

Most respondents are distracted by the “considered a career as a musician” information. But a moment’s reflection, comparing the number of jobs in a bank and in managing the arts, will steer us in the right direction. David is unlikely to be struggling in one of those poorly-paid and insecure jobs in arts management.

Representativeness - insensitivity to sample size

Exercise: *Road fatality rates are expressed as fatalities per 1000 population. In any one year where would you be most likely to find a rate significantly higher than the national average - New South Wales or Tasmania?*

Over an extended period all states have roughly similar fatality rates, but Tasmania has a much higher rate in some years and a much lower rate in some other years. Deviations from the mean are more likely with smaller sample sizes. But we can be misled by these deviations. This bias leads to inappropriate assessments of risk.

Representativeness - misperceptions of chance

Exercise: *The following sequences are found in five consecutive tosses of a coin. Rank them in order 1, 2, 3, from least probable to most probable.*

A) *H T H T H*

B) *H H T H T*

C) *H H H H H*

Of course, they are all equally probable ($1/32$), but where we see a pattern we tend to infer some force other than chance. When there is a sequence of burglaries in a particular suburb, for example, we (and insurance assessors) may come to see that suburb as high risk, even if that sequence follows a standard Gaussian distribution.

Another common misperception of chance is a failure to distinguish between low levels of risk. It is easy to distinguish between a risk of 1 in 2 and 1 in 200, but we have much more difficulty in distinguishing between a risk of 1 in 10 000 and 1 in 1 000 000. Such misperceptions may lead to apparent extreme risk aversion in decisions such as insurance or portfolio choice.

A related finding is that many people have difficulty in understanding percentages. For example, a representation of a risk as “85%” will often elicit a different response from a representation of “85 in 100”.²³ It is questionable whether people really understand what is meant by a “1.2% management fee”, or a “0.4% trailing commission”. If these were expressed in dollar terms, would they have more meaning? What would be their power if commissions were expressed in terms of their impact on a fund’s final balance?

Representativeness - regression to the mean

Exercise: *In a discussion of flight training, experienced instructors noted that praise for an exceptionally smooth landing is typically followed by a poorer landing on the next try, while harsh criticism after a rough landing is usually followed by an improvement on the next try.²⁴ How do we explain this departure from what we normally understand about education psychology?*

The phenomenon of *regression to the mean* refers to the tendency for a sequence of events to tend to revert to the mean. Outlier events are likely to be followed by more normal performance.

In many markets such as managed funds, extraordinarily good or bad performance in one period is likely to be followed by more normal performance in the subsequent period (regardless of the commentaries offered by investment analysts, to complete the analogy of the flight trainers). Notwithstanding consumer protection messages reminding consumers to consider long-term performance, people often misinterpret the significance of short-term performance.

Anchoring - insufficient adjustment

Exercise: *Consider one of the following questions. Then consider the other and contemplate whether you would have given a different answer.*

(A) *In May 2008, the 90 day bank interest rate in Turkey was 17.6%.*

What was it in India?

(B) *In May 2008, the 90 day bank interest rate in Japan was 0.8%.*

What was it in India?

In this construction those who start with (A) tend to overshoot the correct answer, while those who start with (B) undershoot. (The answer is 7.4%.²⁵) The initial given rate is an *anchor*, and although we know it is too high/low, we tend to be too conservative in our adjustment.

Salespeople are well aware of this bias (although they may not give it the same name as economists use), offering consumers an expensive product which they do not expect to sell, but which will help establish in the consumer the notion of a reasonable price for other products.

One direct application in finance is that when people are trying to understand the effects of compound interest, they tend to anchor on simple interest and adjust upwards, but not adequately.

An example of anchoring bias is illustrated by Eldar Shafir, who shows the results of surveys using different Likert scales relating to television viewing in the US.²⁶ Both use the question "Please estimate the average number of hours you watch television per week."

The first scale:

1 - 4 5 - 8 9 - 12 13 - 16 17 - 20 > 20

The second:

1 - 2 3 - 4 5 - 6 7 - 8 9 - 10 > 10

The first presentation results in a median response of 9 - 12, the second 5 - 6. The main point is that any question or statement with quantitative content provides an anchor. The question "how much do you think you need in retirement?" is difficult for the average consumer to answer, but the questioner who asks "how much do you think you need in retirement - \$40 000 a year for example?" is (usually unintentionally) constraining the response.

Some forms of anchoring carry more authority than others. When a consumer enquires about the expected sale value of a house, for example, a figure with many significant digits carries more authority than a rounded one, and therefore constrains the consumer from straying far from the anchor. A figure of \$483 906 appears to be more carefully calculated than a figure of \$480 000.²⁷

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Anchoring - conjunctive bias

Exercise: *Paula was very active in the feminist movement at Monash University. She took part in numerous demonstrations, has been arrested twice (without charge) at protests, and has written for a number of radical publications. She has no partner but has a child to support and HECS debts to pay off, so she has taken a job.*

Rank the following statements in order of probability.

- (A) *Paula will become less radical as she ages.*
- (B) *Paula works in an insurance company.*
- (C) *Paula is opposed to Australia's involvement in the Iraq War.*
- (D) *Paula has taken a base level office support job in an insurance company to accumulate some money.*

Statements (A) and (C) are irrelevant - put there to distract. It is hard to imagine Paula working in an insurance company (B), but statement (D), in providing supportive detail, adds verisimilitude by putting a credible yarn around her working in an insurance company, and therefore appears more credible, even though, logically, it has to be less likely because it is more specific.

We are story tellers, and we tend to believe good yarns which have a coherent structure. It is easier to sell insurance for the “fusion of electrical motors” than for “failure of electrical appliances”, even though the former is more specific than the latter. Dan Gardner found, in a 1995 study (well before 2001), that people were willing to pay more for airline travel insurance covering death from “terrorist acts” than for insurance covering death from “all possible causes”.²⁸ In these cases the bias of ease of recall (see above), overrides our basic logical capacity to know that the specific must be less likely than the general.

Anchoring - disjunctive bias

Conversely, we are apt to underestimate the probability of disjunctive events. Consider the following thought process:

“I will be able to repay this loan, provided I keep my job, provided I don’t get sick in the next three years, provided my spouse doesn’t quit work, and provided I don’t need major car repairs”.

If each event has a probability of only 20 percent, the probability of none of them occurring is only 41 percent.²⁹ But most people would guess a far higher probability of plain sailing.

The disjunctive bias may explain why we can be influenced by the way in which probabilities are presented. The jackpotting “Powerball” lottery may appear less attractive if the probability of winning were represented as 1 in 6 597 498 600, rather than as a combination of six numbers between 1 and 45.³⁰

Anchoring - overconfidence

Exercise: *Estimate the following quantities, such that you are 95 percent confident that you have bracketed the actual result within your upper and lower bounds.*

- (A) *Australia’s GDP in current prices, 2006-07.*
 - (B) *Fidel Castro’s age in years.*
 - (C) *ANZ’s profit after tax in the half year to March 2008.*
 - (D) *The elevation above sea level of Mt Kosciusko*
 - (E) *Cathy Freeman’s winning time in the Sydney Olympics 400 metre race.*
-

The correct answers are in the endnotes.³¹

Most of us fail this exercise dismally. And we often do worst on those questions where we perceive that there is an expectation that we should know the answer. But it would be easy for anyone to get all of these right, by placing wild upper and lower bounds (Fidel Castro looks older than 10, but he must be less than 200 ...).

The reason we fail to adopt such a simple approach is that we are generally overconfident in our (fallible) memories and powers of estimation. We can become overconfident in our ability to repay a loan, to accumulate an adequate superannuation balance because we are sure to get those two promotions, and so on. A survey by the Australian Financial Literacy Foundation found widespread overconfidence among consumers, manifest as large gap between people's self-assessment of their financial management skills and their revealed abilities.³²

University lecturers run surveys in their classes along these lines "Comparing yourself with others in this class, consider your skills in field X. Are yours below, at, or above the mean for the group?"³³ "X" is sometimes a generic skill, such as cooking or driving a car. In financial classes it is usually about investing. No matter what context is used, the vast majority are self-rated as above average - a phenomenon Garrison Keilor has dubbed "the Lake Woebegone Effect".

We are generally overconfident in our (fallible) memories and powers of estimation.

Anchoring - confirmation bias

Exercise: It is claimed that companies which have a low debt ratio (less than 40%) always sustain their dividend payout. You can obtain analysts' reports, giving balance sheet and dividend information but at a price, and you know a little about four companies. What reports would you need to obtain to test the above claim?

Report on company A - which you know has a low debt ratio

Report on company B - which you know has a high debt ratio

Report on company C - which you know has sustained its dividend payout

Report on company D - which you know has not sustained its dividend payout.

Everyone picks A, and that is correct, but that is not enough. Some pick C, but it reveals nothing about the hypothesis: it may have a high debt ratio, but the claim says nothing about companies with high debt ratios. The one we most often miss is D: if it has a low debt ratio the claim is falsified.

This is basic scientific method, but we miss it. We tend to latch on to a theory and then try to find evidence that supports our theory. Doctoral students testing a hypothesis spend great effort finding supporting evidence, but often fail to search for evidence that could falsify their hypothesis.

In financial markets, when we become attracted to a company share or a fund manager as an investment prospect, we tend to search for confirming evidence, particularly when we have already made at least a partial commitment (e.g. an initial small investment). We seek positive research reports from stockbrokers and we consult relatives and friends who have made investments in the same security, forgetting that people rarely lose face by admitting to an error.

In financial markets...we tend to search for confirming evidence.

Incidentally, the confirmation bias also has serious consequences in other areas of decision-making. Politicians and lobbyists with a strong point of view only seek information which supports their hunches or early scraps of evidence. The confirmation bias probably contributed significantly to decisions to become involved in the Iraq war.

Default bias

Countries with assumed consent for organ donation (with allowance for opting out) have much higher rates of organ donation than similar countries with “opt in” provisions, where one has to make a definite election to donate organs.³⁴ Consent rates in Denmark, Netherlands, UK and Germany - all “opt in” countries - are all below 30 percent, while in Austria, Belgium, France and Hungary they are all above 90 percent.

The most clear financial application in Australia relates to choice of superannuation fund. Most people go along with the fund offered by their employer. Many superannuation policies come bundled with life insurance, and the uptake of insurance is likely to be influenced by the presentation of the insurance option as “opt in” or “opt out”.

In Australia there is recurrent discussion of increasing the compulsory superannuation contribution from 9 percent to 12 percent or even 15 percent. For some people, however, such higher contributions may unduly skew lifetime income towards their retirement years. An “opt out” scheme would give them a choice. New Zealand has the “Kiwisaver” scheme, in which workers are automatically enrolled in a pension scheme when they start a new job and have six weeks to opt out.

Conscious use of defaults is sometimes referred to as “soft compulsion”. The freedom to choose is preserved, but the presence of a default implies the existence of a strong social norm (to donate organs or to contribute to superannuation), and the default choice is reinforced by our natural tendency to procrastinate.

Pseudocertainty

Exercise: Consider one of the two questions below and then consider the other:

(A) There are two strains of flu coming in the next few months. Each can strike with equal probability and each is similar in its effects. A vaccine is available for \$20, with a side effect of possible slight nausea. It gives 100 percent protection against one strain but none against the other. Do you get vaccinated?

(B) A strain of flu is coming in the next few months. A vaccine is available for \$20, with a side effect of possible slight nausea. It gives 50 percent protection against the flu. Do you get vaccinated?

More people opt for the vaccine in situation (A) than in (B). Rather than taking a portfolio approach to risk reduction, we tend to seek complete protection in some domains (hence the term *pseudocertainty*) while leaving ourselves exposed in others. This is evident in some insurance markets, where people often seek “first dollar” cover for risks with minor consequences, while leaving themselves heavily exposed in other areas.

Choice overload - choosing not to choose

In an experiment on choice, Sheena Iyengar and Mark Lepper set up a commercial display table in an upmarket grocery store, offering different jams, which shoppers were given the opportunity to taste.

When only 6 jams were displayed, 30 percent of those who sampled jams went on to purchase, but when 24 jams were displayed, only 3 percent purchased.³⁵

Choice overload resulting in walking away from a jam purchase can hardly be classified as a costly bias, but Iyengar found similar results when she studied choice of America’s 401K pension plans.³⁶ Joshua Gans of the University of Melbourne uses the term *confusopoly* (borrowed from Scott Adams’ Dilbert character) to describe situations in which consumers are so overloaded with options or information that they choose not to choose - either walking away without selection or, if they have to select, taking a random pick or a default.³⁷

In a recent survey of how people cope with complicated financial decisions, Josh Fear of The Australia Institute found that 42 percent of respondents agreed with the statement “When I need to make a financial decision, I often find there is too much choice”, while only 18 percent disagreed.³⁸

Consideration of sunk costs

How often do we find ourselves “flogging a dead horse”, guided by a logic that we have too much invested in a venture to allow us to quit? Have we ever had an old car that we kept simply because we had spent so much on keeping it going? And how many bankers have come across businesspeople who persist with a losing venture?

Rationally, in our decision-making, we should ignore sunk costs; we should be guided only by future costs. But we find this difficult, particularly when there is a loss of face involved in implicitly admitting that we have made poor decisions in the past. This issue is re-visited in the section on *prospect theory*.

Mental accounts

Exercise: Consider the two following situations

(A) You have gone to a theatre and discovered that you have lost your ticket, costing \$50. There are plenty of seats available, and because you have a credit card you can buy another. Do you buy one?

(B) You have gone to a theatre to buy a \$50 seat for a play and discover that you have lost \$50 from your wallet. You can use your credit card, however, to buy a seat. Do you buy one?

Many more people choose to buy a ticket in situation (B) than (A). In situation (A) it's as if the loss is from an account called “entertainment”, while in (B) it's from an account called “consolidated revenue”.

We tend to compartmentalize some areas of income and expenditure, which means economic notions such as the “marginal propensity to save” are of limited use in predicting individual behaviour. Our behaviour in relation to bonus payments, tax refunds, lottery winnings and inheritances may be quite different from our behaviour in relation to our “normal” income. We may choose to spend our windfalls much more carelessly than we spend other money, or, on the other hand, may place them entirely into our superannuation accounts.

Money illusion

We often fail to incorporate inflation into our financial planning. More generally, many people are entirely unfamiliar with the concepts of real and nominal interest rates, and what inflation (or its absence) means for their assets and liabilities.

It is puzzling that in its excellent research on Australians' understanding of money, the Financial Literacy Foundation did not address this shortcoming. In the 1980s, when nominal interest rates were very high, but real interest rates were only slightly above long-

term trends, many retirees were essentially living off their capital, which rapidly eroded in an inflationary environment.

In long-term investment products, high nominal returns tend to mask the effect of asset-based fees. For example, a fund with a 9 percent nominal return and 2 percent fee, gives a nominal return after fees of 7 percent. If inflation is 3 percent, the real return is only 4 percent; the fee has taken one third of the 6 percent return. That presentation of the fee is very different from “2 percent from a 9 percent return” and even more strikingly different from the presentation “just 2 percent”.

There are other consequences of the money illusion which will be considered in the section on self-control.

We feel a loss more painfully than the enjoyment of an equivalent material gain.

Behavioural findings - prospect theory

Most of us are familiar, at least intuitively, with the concept of diminishing marginal utility. The more cans of beer, square metres of house or BMWs we have, the less is our utility (enjoyment) from each additional can, square metre, or car.

Similarly, though slightly harder to imagine, the more we lose, the less painful is each additional increment of loss. We may be upset when we lose \$10 or \$1000, but we will not be doubly upset when we lose \$20 or \$2000.

Also, as a general proposition, we feel a loss more painfully than the enjoyment of an equivalent material gain.

These properties can be represented graphically. See Figure 3 below, which shows positive and negative utilities associated with gains and losses.

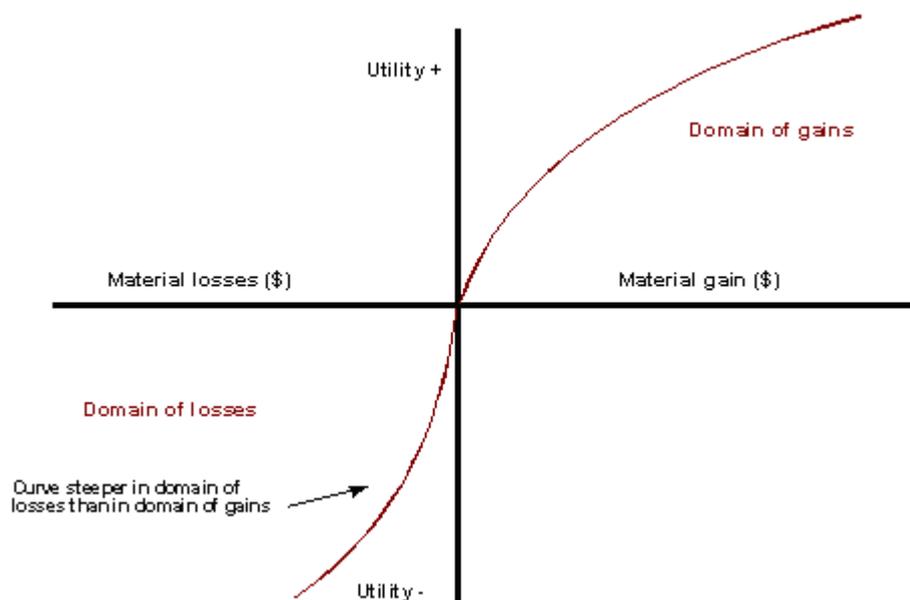


FIGURE 3. PROSPECT THEORY UTILITY CURVES

Those simple propositions, which align with most people's experiences and preferences, form the basis of *prospect theory*, a framework developed by Kahneman and Tversky to explain how we behave in tradeoff situations, particularly where uncertainty is involved.

Our financial decisions are often determined by the way choices are framed - either by salespeople or ourselves in envisaging our choices. These frames can be understood by example.

Cashback offers and gifts

Rather than posting a single price, some companies offer a "cashback" to customers. Prospect theory helps explain its attraction. The difference between a price reduction and a cashback is shown in Figure 4.

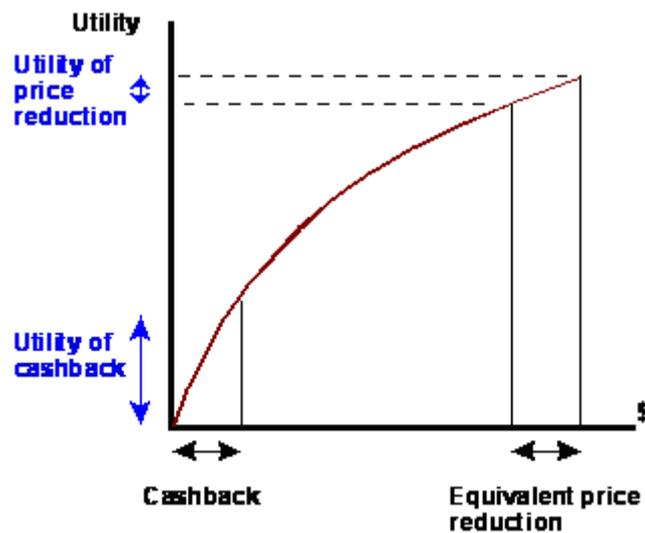


FIGURE 4. UTILITY OF CASHBACK OFFER

The price reduction occurs in the higher, flatter, part of the utility curve, while the cashback occurs down at the origin, where the curve is steeper. A "gift" of \$100 feels more beneficial than a price reduction from \$900 to \$800.

Similarly, as most parents understand, a series of small gifts will have more utility than one large gift of equivalent monetary outlay, because the small gifts have their influence at the steep part of the utility curve. (Politicians also know this. In spite of the high administrative costs it is much more politically attractive to keep many small programs running than to consolidate them.)

Gambling

Exercise: Consider the following situations. What would you do in these situations?

(A) There is a lottery with a single prize of \$1.0 million. There are 1 000 000 tickets to be sold for \$1.00 each. Would you buy a ticket?

(B) There is a lottery with a single prize of \$0.8 million. There are 1 000 000 tickets to be sold for \$1.00 each. Would you buy a ticket?

(C) You are a guest in a TV show. The compere offers you the choice of a certain prize of \$9 000, or, on the roll of a dice (standard six sided), the chance to win \$60 000. Do you take the roll of the dice?

(D) You are at a roulette table, and have lost \$400. You have another \$400, and can put it on odd/even, or black/red. If you lose you are down \$800, and cleaned out; if you win you can go home no better or worse off than when you started. Do you make the bet?

Typical behaviour for most people is to accept the gambles in (A) and (B). Even though the expected value of the gamble (B) is a small loss (the weighted probability of outcomes is a loss of 20 cents), many people, including statisticians and economists, get some enjoyment out of the game.

Situations (C) and (D) are more relevant to financial decision-making. Note that in while (C) the expected value of the gamble is \$10 000 (= 60 000/6), most people opt for the sure \$9 000. That is typical risk-aversion. See Figure 5: in terms of utility the cost of a loss of \$9 000 (below the axis) is far greater than the benefit of a gain of \$10 000 (above the axis).

In situation (D), however, many people prefer the gamble. Given the odds against winning in roulette (as the house has a small bias), the general rule of risk aversion would tend to suggest we will avoid the gamble, but the attraction of the gamble lies in the shape of the utility curve in the domain of losses.

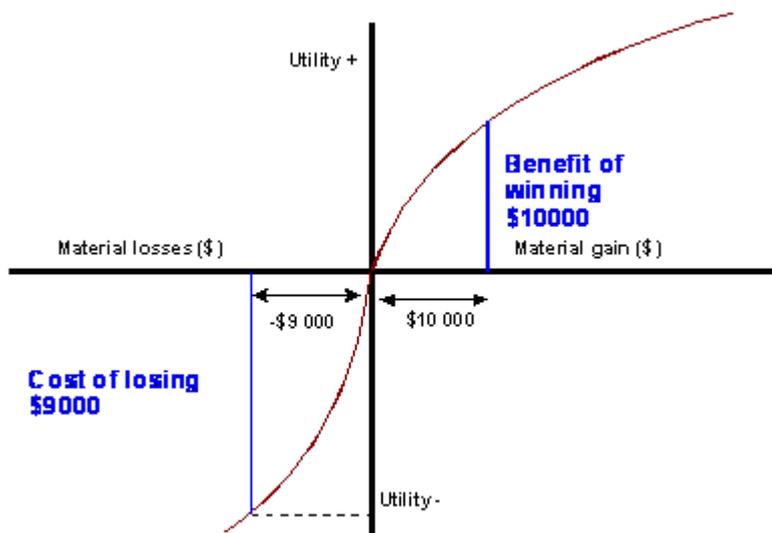


FIGURE 5. EXPLANATION OF RISK AVERSION

The reason is that there has already been pain in losing \$400, and, because of the shape of the utility curve (or, rather, because of human nature represented by the curve), the additional pain of losing another \$400 is much less than the alleviation of pain (the gain) of getting back to a zero balance for the evening.

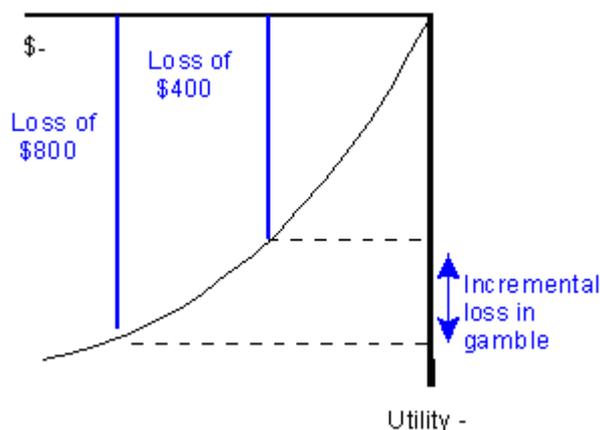


FIGURE 6. RISK SEEKING BEHAVIOUR IN DOMAIN OF LOSSES

As our convict forebears may have said before they came to Australia, “as well be hang’d for a sheep as for a lamb”.

This helps explain the phenomenon of “throwing good money after bad”. Note, however, that if the gambler is not keeping a careful tab, or is insouciant about the loss so far, the gambler’s viewpoint shifts to a position of - \$400 to the axis. In effect this is a sensible re-framing to ignore the sunk cost.

Framing - shifting viewpoint on utility curve

Exercise: *Would you accept this gamble? You have a 50 percent chance of losing \$6000, a 50 percent chance of winning \$9000. Now make a crude estimate of your wealth W . (E.g. Bank accounts, shares, equity in your house.) Which situation is more attractive to you?*

(A) *Your own wealth W or*

(B) *A 50/50 chance of you owning either $W - \$6000$, or $W + 9000$.*

These two gambles are identical, but many people who initially show risk aversion in the first instance change their mind when they are pushed into a different frame once they bring their wealth to account.

In the first instance the frame is around the origin of the axes, and the logic of risk aversion to avoid a loss holds (the quiz show scenario above), even though the gamble has an expected value of \$3000.

When the point of reference is shifted, however, the gamble looks more attractive, because it is centred on a flat portion of the utility curve (assuming $W \gg \$9\,000$).

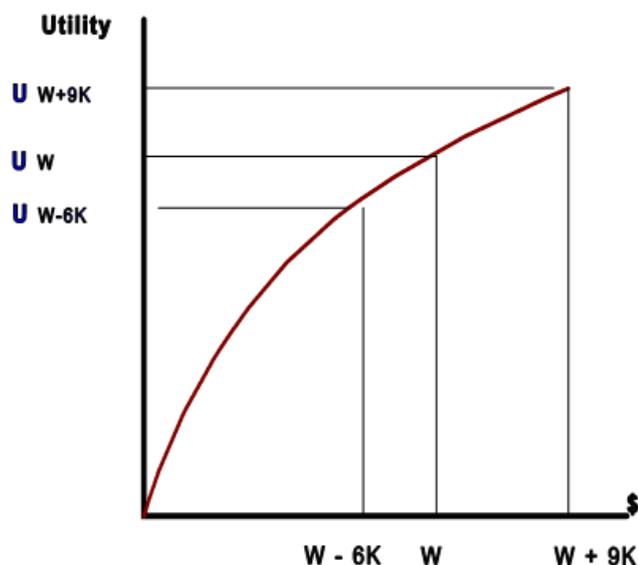


FIGURE 7. RE-FRAMING TO DOMAIN OF GAINS

This tendency to frame gambles around the origin has implications for insurance markets. It helps explain why insurance, in economists' terms, is a "superior" good; that is, the greater our means (income or wealth) the more insurance we take, even though, rationally, the greater our means the more we should be able to self-insure, thus saving transaction costs and the cost of moral hazard of being in a pool of people with little incentive to exercise care.

Justin Sydnor finds what he calls "abundant risk-aversion" among household insurance policy holders who could enjoy significantly cheaper insurance if they opted for policies with higher deductibles.³⁹ In Australia we find similar patterns in health insurance and with household and motor vehicle insurance companies who do not offer products with significant risk-sharing for retail customers. The highest retail deductibles are around \$1000, while, in the more "rational" commercial markets, insurers sensibly offer significant discounts for risk-sharing. Part of the problem in retail insurance may relate to commission-based selling, which encourages sales agents to maximize the value of policies rather than the profitability of policies.

The endowment bias (aka the "status quo" bias)

How often have we held on to an ornament or painting which we would not buy if we did not already own it?

Ornaments and paintings may be vested with some emotional value, but shares are not. Yet, even in the absence of tax considerations, people hold on to shares they would not consider buying if they did not already own them. We miss opportunities to revise our investment portfolios, sell small holdings of shares, or consolidate superannuation

accounts. We may hold on to shares which have come our way by demutualizations or takeovers, even though we would not choose to buy them in the first place.

Behavioural findings - self-control and myopia

Exercise: Consider the two situations below:

- (A) What is your preference between receiving: \$1600 now or \$1700 in a month's time?
- (B) What is your preference between receiving: \$1600 in twelve months time or \$1700 in thirteen month's time?

In (A), many people opt for immediate payment, even though the implicit discount rate in choosing immediate payment is greater than 100 percent a year. But in (B), we find more “rational” responses in line with the textbook model of “exponential discounting”. It is as if we say to ourselves “I’ll be impulsive today but rational tomorrow”, but, as the old song goes, tomorrow never comes. In its 2005 survey of the causes of financial difficulty, the ANZ identified “living for today” as a cause of financial stress.⁴⁰

There is nothing novel in the observation that we are short-sighted. In 1739 Hume wrote:

*There is no quality in human nature, which causes more fatal errors in our conduct, than that which leads us to prefer whatever is present to the distant and remote.*⁴¹

Some researchers say our observed discount function is “hyperbolic”. David Laibson uses a more precise model he calls “quasi hyperbolic discounting”.⁴² This places a very high discount rate on the very short term, but then reverts to a “rational” exponential function.

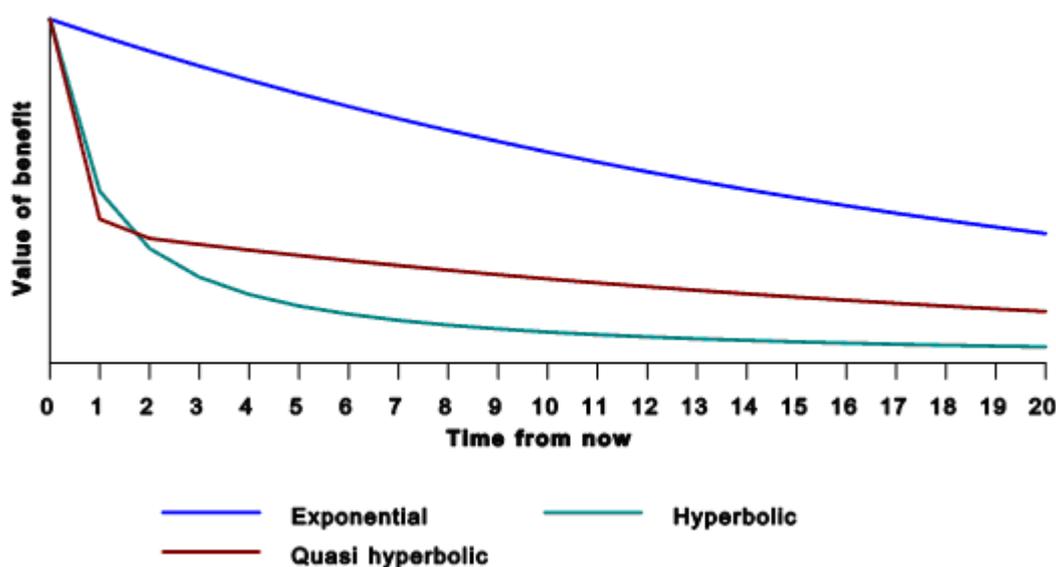


FIGURE 8. DISCOUNTING FUNCTIONS

Whatever the precise shape of the curve (which may not conform to any well-defined mathematical function), the point is that we are generally myopic in decision-making. We tend to under-invest in retirement savings and to incur high credit card debts even though our intention may have been to make that voluntary superannuation contribution before June 30 or to pay off our credit card.

There are two possible sources of myopic behaviour. One is that we may lack the mathematical sophistication to undertake projections of future costs and benefits. A store offer, for example, giving 60 months to pay, even when all payments are exposed, requires some basic knowledge of financial mathematics to allow the consumer to calculate an equivalent interest rate. (In reality the schedule of payments is not always clearly exposed.)

More commonly, however, the problem is one of self-control, or frailty of will. We know credit card interest rates are high and we have every intention of paying the balance in the interest-free period. We know hotel mini-bars are expensive, and do not intend using them when we check in. But we often break these contracts with ourselves.

This is not to suggest that impulsiveness, or frailty of will, reveals some weakness. For most of our evolutionary history short-term thinking has made a great deal of sense. Until we moved to higher latitudes with distinct seasons there was nothing to be gained from storing food, for example, and everything to be lost through hoarding. Another evolutionary inheritance relates to our behaviour when we are in a state of anxiety. Anxiety tends to focus our mind on the immediate, which means we defer thinking about the long term. Paradoxically, this means if we are anxious about our long-term financial situation, such as our income in retirement, that very anxiety is likely to reduce our capacity to do anything about it.⁴³

Neurological research suggests that our capacity to think beyond the immediate is limited. As pointed out earlier, Kahneman refers to separate “intuition” and “reasoning” functions. When our mental faculties are committed to moderately difficult tasks, our capacities for long-term thinking are diminished because our reasoning functions are fully committed.⁴⁴ This means, for example, that in a complex financial transaction involving many elements, such as a mortgage or superannuation plan, our thinking about important long-term options can be impaired by our need to attend to points of moderately complex detail. In such situations we are likely to make all decisions, including the important ones, on impulse. Unscrupulous salespeople can use this temporary impairment to trick us into making unconsidered choices.

Consumer education may have some benefits for those who lack mathematical skills to compare financial products with different streams of benefits and costs over time. What once required mastery of university level financial mathematics can now be done with spreadsheets using simple difference equations⁴⁵, and there are many web-based calculators for standard product choices, such as superannuation. But education does not overcome problems of frailty of will.

For most of our evolutionary history short-term thinking has made a great deal of sense.

There is some speculation, however, that early childhood education can help instil saving habits. (Some banks have children's savings accounts; the transaction costs of these accounts are probably very high, but, possibly, they lay down some patterns of behaviour). Some economists such as Avner Offer suggest prosperity itself and the fading memory of the hardship of the 1930s have diminished our capacity for self control.⁴⁶

Whatever the cause, we do know that discretionary household savings have diminished, and this has implications for many people living without any slack between income and expenditure, for they lack the financial autonomy enjoyed by those with modest liquid assets. One of the more startling findings on financial behaviour came not from universities or from the financial sector, but from the Wesley Mission, which found that four in ten Sydney households would be unable to draw on savings or their mortgages if faced with an unexpected once-off debt of \$2000.⁴⁷ Once people are cash-poor, either through frailty of will or force of circumstance, they have no option but to take out a loan for a car, to take out maximum insurance, and to rely on expensive credit such as credit cards for contingencies.

Xavier Gabaix and David Laibson point to some essential market failures resulting from frailty of will.⁴⁸ They use hotel mini-bars as an example. We know that mini-bars are an expensive source of drinks, and that disciplined consumers do not use them, enjoying the benefit of a lower room price cross-subsidized by mini-bar users. Why, they ask, in such a competitive market do these cross-subsidies not get eliminated with some hotels leading with slightly higher room prices and lower mini-bar prices? After all, in economic theory, competitive markets generally do not sustain cross-subsidies for very long.

Consider a hotel that adopts such a business model. It will lose business from the savvy, disciplined consumers. Will it make up business from others? It will not, because the undisciplined consumers will prefer the cheaper hotels with expensive mini-bars, because they do not expect to use the mini-bars. Their frailty of will comes into play later when they crave that 600 ml bottle of Evian. The more "rational" business model is never adopted, and the cross-subsidies remain in an equilibrium condition.

The same holds for credit card markets.⁴⁹ Many consumers, on taking out a credit card, expect to pay it off, but fail to do so when the time comes. There is no incentive for a bank to drop its credit card interest rate, presumably at the cost of raising some other fee or shortening the interest-free period, for the only new customers it will attract will be those who know they will not pay in time and are attracted by the cheaper rates; many such customers will probably finish up on the bad debtors' books. It will not attract those who believe they will pay off their card in the interest-free period but do not; these are generally very profitable customers. And it will lose disciplined customers who are turned off by higher fees. Hence, as Gabaix and Laibson explain, the cross-subsidies remain.

Sometimes, in response to our known lack of self-control, we choose binding mechanisms that overcome our impulsiveness. We may join a Christmas saving club, even though its interest rate is low. Some taxpayers subject to periodic deductions from their payroll opt

Our capacity to think beyond the immediate is limited.

for a high rate of deduction to avoid the risk of having a liability at the end of the year, even though that represents an interest-free loan to the tax authority. Many people opt for up-front gym membership over paying per session, in the hope that when the time comes to use the gym they will have to endure only the muscular pain rather than the combination of muscular and financial pain, thus easing the decision.

We often appoint external agents to operate binding mechanisms on our behalf. We elect governments which require us to contribute to our superannuation and to wear seat belts, and which prohibit us from consuming (some) addictive products. It is a domain of our lives in which we opt for regulation as a choice. It contrasts with any paternalistic notion of regulation, for paternalism, by definition, is imposed without the consent of the regulated. Note that in Australia no political party seriously competing for office proposes abolishing seat belt laws or compulsory superannuation, for these measures are reasonably popular across a large proportion of the population.

In some markets there are mandatory cooling-off periods, which provide a means for consumers to review their impulsive decisions. And often, without being required to do so, stores offer refunds for consumers who return goods. They figure that the cost of providing such opportunities is outweighed by the benefit of attracting customers who may otherwise be put off buying, in the fear that they may regret their purchase.

We choose binding mechanisms that overcome our impulsiveness.

Split decision-making

Is it reasonable to describe people as having one decision-making faculty, which can be modified or improved with conditioning and education? As suggested, neurological research suggests that there are different brain regions for short-term and long-term decision-making.

Thomas Schelling popularized an alarm clock model. When I go to bed the “rational I” sets an alarm clock for 6 am, intending to go for a run in the early morning. At 6 am, however, the “irrational I” is in control, and reaches out from the covers to turn off the alarm. To overcome this, at bed time the “rational I”, knowing the “irrational I” will be in control in the morning, puts the alarm clock on the other side of the room, far away from the bed.

Adam Smith pre-dated Schelling by 200 years, when in 1759 he referred to the tension between the “indifferent spectator”, cool and calculating, and the “fury of his desires”.⁵⁰ Behavioural economists have identified several more specific behavioural references in Smith’s writing, such as loss aversion (“we suffer more ... when we fall from a better to a worse situation, than we ever enjoy when we rise from a worse to a better”), overconfidence (“overweening conceit”), and a concern for fairness in transactions.⁵¹

If this model of split decision-making faculties is correct (the notion that we have “impulsive” and “rational” modes, or “intuition” and “reasoning” in Kahneman’s terminology) then the implication for financial literacy is that even if our rational faculties are in order - that is, we understand discounting, compounding etc - we still need to learn

how to recognize when we need to activate our rational facilities and how to keep them active against the background noise of confusion and other demands.

Mortgage stress and myopia

A combination of consumer biases provides some explanation for mortgage stress. People are likely to become over-committed in their borrowing because of myopia, overconfidence, and the money illusion, particularly in a time of low inflation.

Myopia leads to decision rules based on immediate affordability, rather than value-for-money and capacity to pay. Teaser rates play into this bias. Overconfidence and the disjunctive biases lead us to push out of our minds the possibilities of illness, unemployment and interest rate rises.

The money illusion is most iniquitous, particularly in a time of low inflation. In the 1980's in Australia, when inflation was running at about 8 to 10 percent, nominal housing interest rates were between 13 and 17 percent. These imposed a high burden in the early years of a loan, but, to the extent that nominal wages rose with inflation, the burden of debt repayment was quickly lifted, compensating in part for innate biases leading to excess borrowing. In more recent times, up to the present round of interest rises, borrowers have had the benefit of low nominal rates but have not had the benefit of income inflation to ease the burden of repayments.

This is not an argument for inflation, but it is reinforcement of the point that in consumer education it is vital that people come to understand the importance of real interest rates. An electorate so informed is less likely to be swayed by the rhetoric of politicians who, in boasting about low interest rates, unwittingly encourage people to take on more debt than they can handle.

Behavioural findings - fairness and social considerations

Exercise: Consider the following situations in which you lose \$500.

Write down on a scale - say 1 - 10, how annoyed you would be.

1. You spend \$5000 on Telstra shares and a month later they drop in value by 10 percent because of a general stock market downturn.
2. You spend \$5000 on Telstra shares and a month later they drop in value by 10 percent because of a change in government telecommunications policy not announced at the time of the float.
3. On an unsealed country road you put a stone through the muffler on your car, which will cost \$500 to repair.
4. At work you act in a higher position for four weeks, for which there is usually a \$125 a week extra pay, but you do not get the extra pay.

Myopia leads to decision rules based on immediate affordability...

5. At a crowded venue you discover your wallet/purse has been taken. It had \$500 cash in it; fortunately your driver's licence, credit cards etc were elsewhere.

6. You take an overseas trip, spending \$2500. On the plane you discover the person in the next seat has bought the same package for \$2000.

7. You have been trying to sell a used car for \$7500. Two buyers have inspected it and gone away. One has phoned you back with an offer of \$7000, which you have accepted. Ten minutes later the other buyer phones offering \$7500.

8. You have an operation which requires an anaesthetic. The schedule fee for an anaesthetic is \$800. The bill you get from the private anaesthetist is \$1300.

9. In a violent storm the roof of your house develops a leak and the damage costs \$500 to repair.

10. You make a donation of \$500 to a charity devoted to cyclone relief in Burma. A week later you read in the paper that the charity was a cover for the Burmese army, and that your donation has helped pay for luxury cars for Burmese generals.

We often make decisions based not only on our own interests, but also on our notions of fairness.

If you had the same score of annoyance for each of these events, you are probably a lecturer in economics. But if, for example, you felt much more annoyed by (10) than by (3), then you are like the vast majority of people who care about the legitimacy of transactions.

We often make decisions based not only on our own interests, but also on our notions of fairness. We can knowingly incur net costs to avoid a transaction we perceive to be unfair.⁵² People may incur high travel costs, for example, to avoid dealing with a merchant who they consider to be over-charging.

People are also not indifferent to the conditions of supply: they may avoid goods produced in what they consider to be unacceptable conditions, such as child labour.

There has been a great deal of experiment and study of the ultimatum and dictator games, in which people reject, to their immediate detriment, distributions which they consider to be unfair (see box below).⁵³

The "ultimatum" and "dictator" games

These games uncover the extent to which norms of fairness override individual self-interest. Both are one round, ideally played between strangers, and involve a divisible offer – \$10 for example.

In the ultimatum game person A holds the \$10, and makes an offer to B on a division. If B accepts the division the \$10 is divided in line with the offer, but if B refuses A loses the \$10 and both are left empty handed.

Rationally, A should make the lowest possible offer – ten cents, say, and B should accept. But typically offers range between 30-70 and 50-50 divisions. Face and fairness count.

In the dictator game, A makes the same type of offer, but gets to keep the division, regardless of B's preferences. Rationally A should offer nothing to B, but almost always does.

Such behaviour is generally rational from a society perspective, but it does not conform with the economists' individual utility-maximization model. We have not only evolved as individuals; we are also social creatures. Groups with norms of fairness and cooperation can devote resources to long-term collective ventures, and can avoid many of the costs of internal conflict (including the transaction costs of policing, auditing etc). By doing so these groups gain power and further resources at the expense of less cooperative groups – it is not just about being nice!⁵⁴

Therefore, while going out of our way to punish unfair traders may involve individual costs, such behaviour may result in net community benefits. From a collective sense, it is rational.

The \$500 exercise carries strong messages for all companies, including financial institutions, who want to improve customer relations. Consumers are likely to become much more annoyed by a charge they consider capricious or unfair than a charge they consider to have a legitimate basis. A cheque dishonour fee of \$30 may incur far more wrath than an increase in the interest rate seen to result from a change in official rates. (However if it is simply attributed to “the market”, blame may be sheeted back to the bank because there is no other party seen to be responsible. It is not easy to blame an “invisible hand”.)

A concern for fairness can lead consumers to incur proportionally higher search costs for small purchases than for large ones. People may believe that the higher the price of a good the more acceptable it is for there to be some dispersion around the “fair” price. Thus, they may put little search effort into high-priced purchases such as houses or cars, while putting proportionately higher effort into small purchases. Research suggests that the percentage of price dispersion may carry a greater weight in decision-making than the absolute amount of price dispersion.⁵⁵ We may consider a price dispersion of \$20 on a \$50 product (40 percent) to be unfair, while a dispersion of \$500 on a \$10 000 product (5 percent) to be reasonable. That explains why people might spend more time shopping around for a new car or washing machine than in comparing pension products.

Disclosure and trust

It is almost accepted wisdom that disclosure leads to improved decision-making. Disclosure not only provides more information to help consumers make rational decisions, but it also helps establish trust between the contracting parties.

Trust, however, can be misdirected. Con men (and women) know that a successful con requires a slow buildup of trust. The company operating a Ponzi scheme makes sure it pays its first few dividends (out of subscribers' capital) as promised.

Similarly, some partial disclosures by those selling financial products can lead consumers into a relaxation of vigilance. When agents disclose their commissions, there is an assumption of trustworthiness by the customer, and the agent can feel that such disclosure, even if it is in a form which may not be fully understood by the consumer,

discharges any moral obligation the agent has to the consumer.⁵⁶ This is not to suggest that disclosure is deliberate manipulation, but it is a warning that disclosure may contribute to passive behaviour by customers.

Also, disclosure of some information can distract consumers' attention from other information. An experiment conducted by the US Federal Trade Commission found that disclosure of mortgage brokers' commissions distracted consumers from attention to the total costs of loan packages (although it is possible that consumers believe that costs such as interest rates are set by markets, and therefore focus on those costs which they believe to be under control by financial institutions).⁵⁷

This is not to argue against disclosure. But it does suggest that disclosure has to be designed carefully, to avoid information overload, and to ensure that what is disclosed is in a form that is relevant to consumers.

The Federal Government's Financial Services Working Group recently took a step down this path when it drew on consumer testing to produce a Product Disclosure Statement for the First Home Saver Account scheme which is only four A4 pages long.⁵⁸

Disclosure may contribute to passive behaviour by customers.

Conclusion

The question we have been addressing is: "why do people, even with the best information, still seem to make 'irrational' decisions?"

Behavioural economics provides some answers on the question "why", but we also need to know how to improve people's financial decision-making. What do governments need to do? What are the implications for financial literacy programs and consumer education generally? And what do financial institutions need to do?

Governments - the role of public policy

Many people argue that governments have gone too far in shifting financial risk on to individuals. These arguments have merit, but the reality is that this shift has happened, and it would be hard to unwind it to any great extent. In any event, innovations in communication technologies and lower-cost travel mean that individuals, whose foreign transactions were once limited to tourism, can now make major financial decisions in foreign markets where they are beyond the reach of domestic authorities. Those same communication innovations have spawned the development of internet share trading, which means many small investors are reliant entirely on their own judgement.

Governments have seen problems emerging, but have tended to respond by using the same tools as they have used in the past – enforcing competition between suppliers and strengthening provisions for mandatory disclosure. Over the last three years however, partly in response to an Australian initiative, the OECD Committee on Consumer Policy has been examining whether the traditional focus on competitive structures and supplier

behaviour is adequate to ensure the full benefits of market liberalization are realized. What is the role of consumers in activating competition? Do consumers' responses to competitive reforms align with the economists' assumptions of "rational" behaviour? Should consumer policy shift its emphasis from "protection" to "empowerment"? In this examination the contributions of behavioural economics are particularly relevant.

For example, there has probably been too much emphasis on product disclosure, which carries the risk of information overload. Of even more concern is the notion that disclosure can serve an education function – as consumer researchers know, education and information are different. It is hard for people to understand even the clearly disclosed energy rating on a lightbulb without knowledge of some basic terminology and definitions. In financial markets the education needs are much greater.

Governments can become obsessed with competition, forgetting that competition is not an end in itself. In the UK, for example, there is a huge policy emphasis on enabling consumers to switch between suppliers, but in many markets it is possible that switching is a zero-sum activity – the savvy and time-rich are subsidized by the ignorant and time-poor. Governments may have to accept that in certain situations, people choose not to choose, or to choose from a constrained set of options.

In trying to achieve policy outcomes, governments can (and do) add layers of complexity to market regulations. Superannuation provides a case in point, where complexity steadily grew from the time of the Hawke Government's three percent compulsory levy in 1986 until 2006, when the Howard Government introduced a number of simplifications, but complexity is now creeping back.

Fundamental regulatory review is difficult, in part because the very term "regulatory review" has become a shorthand for deregulation, rather than re-design: the easy path for governments responding to market problems is usually to add layers of regulation, thus adding to transaction costs for companies and consumers alike.

Behavioural research can point the way to simpler and more effective regulation, and can suggest light-handed measures such as the use of defaults to guide market decisions while still leaving room for individual choice.

As an alternative to regulation, governments may wish to champion good practices, but it is naive for policymakers to expect that example alone will change every company's behaviour. What behavioural economics demonstrates, and what has been known to unscrupulous operators for generations, is that there are consumer biases available to be exploited. Ethical operators will naturally want to desist from taking advantage of these opportunities, but so long as they remain available to others, ethical behaviour is likely to be unrewarded or even punished. This is a classic prisoners' dilemma situation, requiring the strong hand of sanctions to ensure unethical behaviour does not confer a competitive advantage. Removal of rewards for unethical behaviour protects the interests of the vast majority of employees and agents of financial institutions who wish to sustain their own

Should consumer policy shift its emphasis from "protection" to "empowerment"?

high ethical standards.

Another way in which governments intervene in financial markets is in the broad arena of monetary and fiscal policy. While few would dispute the wisdom of using these macroeconomic mechanisms, the messages governments send are confusing to many people. In a short period governments can change their message from “go out and spend – you’ve never had it so good” to “tighten your belts or we will clobber you with higher interest rates”. Governments have made great technical strides in stabilizing economic activity, but their explicit and implicit messages to consumers reveal great swings in attitudes.

Governments do also have a clear role in providing education and information to help people make better decisions because these are the areas where there is clear market failure.

Education and information - the role of financial literacy

To draw a language analogy, literacy is vital for our survival, but it cannot guarantee wise decision-making. A diplomat fluent in the language of his or her host country can still be quite incompetent. So it is with financial literacy, for behavioural economics demonstrates that our propensity for making poor choices is largely independent of our education.

We have tended to take a technical view of financial literacy. One definition in common use has been “The ability to make informed judgements and to take effective decisions regarding the use and management of money”.⁵⁹ The Australia Institute, in its recent survey on financial choice overload, uses a broader definition, which includes the technical aspects of knowledge and skills, but which adds “using that knowledge and understanding to plan and implement financial decisions”.⁶⁰

That definition acknowledges the behavioural problem of recognizing those situations in which we need to apply those technical skills.

Even at a technical level there are some adjustments which can be made to financial literacy programs. One specific suggestion relates to improving people’s understanding of inflation and the related distinction between real and nominal interest rates. Another avenue to explore (one I have personally explored with students fearful of numbers) is the use of simple spreadsheet modelling. There are also suggestions that computer games, with randomized variations, can help people develop a feel for how markets behave.

There is unlikely to be one best way to improve financial skills, because different people have different learning pathways. The Australian Bureau of Statistics skills survey finds that people achieve competence through many different means. The ABS asked people how they acquired their skills and among those with the highest quintile rankings in mathematical and problem-solving skills, sources such as “manuals and reference books”, “computer or internet”, “watching, getting help or advice” and “trying things out or practice” all scored more highly than “undertook an education qualification and/or

course”.⁶¹ Any education campaign has to be multifaceted.

One particular but unsurprising finding of behavioural economics is that learning rapidly depreciates.⁶² The timing of education must be relevant. (As a case in point, most Australians have passed high school exams covering compound interest, but recall is difficult.) There is a need to seek out and make use of “teachable moments” – those times and contexts when learning is likely to be seen to be relevant.

The same ABS skills survey referred to above finds pockets of deficits in mathematics and problem-solving. In relation to age, our capabilities in these fields follow an inverted “U” shape: younger and older people are less skilled than people in their middle age. This aligns to an extent with UK research which shows that older and younger people are more likely to be victims of scams than middle-aged people.⁶³ Another finding of the Australian survey is that skills in mathematics and problem-solving vary strongly, even among graduates: surprisingly engineers, who we would expect to have developed these skills in their formal education, score quite poorly.

Financial literacy education, by definition, has specific content, but there are broad skills which help us make better financial (and other) decisions. For example, implicit in ASIC’s message “if it is too good to be true it probably is” is a need for healthy skepticism rather than any specific financial skill. Possibly the most valuable quality we can draw from education, particularly early education, is skepticism, not only of the claims of salespeople, but also of our own impulsiveness. Behavioural research shows that when we stop and think our decision-making generally improves. The exercises in this paper all involve simple problems: our errors arise not from ignorance, but, rather, from haste or more generally from using the wrong decision-making processes. Once financial and general education has laid down the basic skills, its next priority should be to help people identify situations in which they might need to apply those skills.

One shortcoming in Australia is that behavioural economics has had little penetration into our universities, where disciplines are rigidly compartmentalized. Behavioural economics cuts across discipline boundaries, bringing together findings from individual and group psychology, game theory, sociology, anthropology, philosophy and neurology. As a university discipline behavioural economics has had a much better run in the US, where there seems to be far less rigidity in disciplines. Although behavioural economics has made great strides and has been boosted to academic respectability with Nobel Prizes awarded to Kahneman and Schelling, it still has a difficult task in moving from the novel to the mainstream of thinking. Its progress has been in identifying departures from rational decision-making, but there is a long way to go in finding ways to adapt to or overcome these departures.

The “how” question, therefore, remains largely unanswered, but at least we are coming to learn that some things (such as ever more onerous disclosure requirements) do not

Any education reform has to be multifaceted.

work, we are learning more about how choices can be framed so as to help wise decision-making, and we are realizing that our actions in markets must be understood to be fair.

Apart from education there is a need for publicly available information from trusted sources on financial products, covering issues such as taxation, government incentives and eligibility for public pensions, and describing various financial innovations, such as CFDs, CDOs and other products which are not necessarily covered in standard texts. There have been some excellent publications – Noel Whittaker’s *Superannuation Made Easy* and Trish Power’s *Superannuation for Dummies* come to mind – but, given the high fixed costs in producing such information which might suddenly be overtaken by government or court decisions, it is unreasonable to expect the market to provide it. (Both those fine works are now seriously dated.) There are strong public good arguments for governments either to provide such information, or to fund consumer organizations and others to provide it in hard copy and electronic forms.

Financial institutions - where consumer and provider interests converge

A strong message to come out of the sub-prime financial crisis is that poor decision-making, such as over-commitment on mortgages, is costly not only for consumers, but also for financial institutions. It is generally in the long-term interest of financial institutions to help people make better decisions.

One contribution of behavioural economics has been to reveal, in a systematic way, some of the practices which sales staff can use to lead consumers into making decisions that may not be in their best interests and which they later come to regret.

For the financial sector, besides what should be self-evident about supporting ethical practices, I suggest there needs to be a reconsideration of some of the sector’s basic business models. In particular there is the general problem of overselling – of mortgages, credit card debt, insurance and high-cost investment products. It is probably fair to suggest that one of the main drivers of the sub-prime crisis has been an unmanageably high level of debt taken on by some groups of consumers, and behavioural research suggests that there are strong biases towards people going more heavily into debt than would be prudent from a “rational” perspective.

Behavioural research reveals the demand-side drivers of over-commitment. On the supply side there seem to be two main drivers – remuneration based on the dollar value of sales for staff and agents, and unrealistic accounting practices. It is quite reasonable for any business to provide incentives for its sales force, but structuring rewards around the dollar value of business, rather than the quality of that business, is bound to result in some poor quality assets coming on to bankers’ balance sheets and insurers’ statements of contingent liabilities. That leads to issues in accounting. In the short term it is very attractive for financial institutions reporting to stock markets to see borrowers’ accumulating credit card interest or mortgage interest in arrears as a profit, but at some

Poor decision-making...is costly not only for consumers, but also for financial institutions.

stage some of it has to be expensed as a bad debt. The longer that realization is delayed, the greater is the incentive for overselling to continue. After all, financial institutions are not immune from the bias of short-termism.

Louise Sylvan, when she was CEO of the Australian Consumers' Association, coined the term "structurally corrupt markets". These are markets in which competition is based not on long-term profit (the "rational" ideal), but on competition for growth or market share, and these are the markets where overselling is most likely to develop, to the detriment of both consumers and businesses.

These are the markets where overselling is most likely to develop.

While there have been some moves to cut commissions to mortgage brokers, there is little public evidence that there is any fundamental reconsideration of the practice of sales-based commissions for banking and insurance products. Indeed, it is hard to imagine any financial institution taking a unilateral lead, for it would lose market share, and if it became more conservative in realizing bad debts, the financial markets would exact severe punishments. Any reform to strike out crude sales volume commissions and to bring in more conservative accounting has to be collective, enforced with the backing of appropriate sanctions so that players in the market can be assured they are not about to be undercut by less scrupulous competitors. This is the sort of regulation that can help restore trust in the market, to the benefit of consumers and businesses alike.

Another area where financial institutions could review their practices is in product disclosure. I am not suggesting firms are being misleading or deceitful; rather, it is in trying to do the right thing that companies can unwittingly leave consumers confused. These statements are often heavy in legal terms and complex explanations, covering every imaginable contingency, and they are as likely to be absorbed by consumers as the licence conditions on software ("Check this box to acknowledge the conditions . . ."). Behavioural findings can help companies and regulators alike improve and simplify these documents in a way that retains their legal protection for suppliers while conveying relevant information which helps consumers in their decision-making.

The general task of improving financial literacy, in its broadest sense, cannot be handled by governments, financial institutions, educators or consumer groups alone. Governments have resources, but they are subject to political constraints. Financial institutions have a wealth of market knowledge, but in a competitive market individual companies need some encouragement to provide collective services which will benefit all the industry and the community generally. Consumer and welfare organizations have public credibility and often have contact with the most vulnerable and disadvantaged, but they are poorly resourced. Educators are in the front line, but few are expert in finance. There is a need for initiatives which bring together all these groups with their particular competencies.

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