Mind games:

How your brain undermines your performance and what to do about it

EFY REPORT PACK | PUBLISHED 10 JULY 2012

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A letter from the editor

Dear Intelligent Investor,

In many ways, writing about stocks is straightforward; A new management takes over, strategic changes are affecting the business, the price is cheap or expensive. The story writes itself.

But how the brain responds to the opportunities or threats in our research is infinitely more complex.

Although we live in a world with microwave ovens, electricity and mobile phones, our brains still behave as if we're still someone else's potential lunch.

In our thinking at least, evolution hasn't really caught up with the modern world. We're still wired to respond to challenging situations with emotional thinking, even when a more rational approach is more appropriate.

In investing at least, instinct doesn't serve us well.

If you doubt that, ask yourself if you're really happy to buy at the point of maximum pessimism? Or that it's easy for you to avoid booming areas of the market when ignorant investors are making a killing?

The biggest traps in investing aren't set by faulty analysis or mismanagement— they're set within our own heads.

Over the years, we've covered the issue of investing psychology in some detail. Indeed, just six months ago we published another special report on this very issue (see *The Investing Psychology Counsellor*). But we haven't covered the subject in quite the same way as we have here.

More than anything else, the human brain responds to stories, which is what this is; a case study of Alex, a man that lost his money, his house and his wife in the dotcom crash, and why.

The idea is to make what is essentially an academic subject far more accessible. So, if you find what follows a little out of character, please stick with it. We hope that, through the narrative themes, the lessons will be more easily absorbed.

The report is interspersed with descriptions of 12 cognitive bias experiments. Even for the extremely left brained, there's much to learn and benefit from. These examples, including from the widely acclaimed book *Thinking Fast, Thinking Slow* by Daniel Kahneman, validate and explain our innate behavioural flaws.

It can be extremely painful and expensive falling prey to our cognitive biases. We trust that this special report will significantly reduce the chances of that happening to you.

Yours sincerely,

John Addis
Editor, Intelligent Investor

Mind games: How your brain undermines your performance and what to do about it

The investing psychologist

After graduating from Melbourne University in philosophy, Karl Jungfreud eventually succumbed to his parents' wishes. To his surprise, the work in his father's printing business wasn't dull at all. There was something thrilling about the small perfections of the printed word, seeing ink strike paper as machines clattered and swung.

A few years later he surprised himself and developed an interest in shares. He had thought of investing as slightly arid, a place where greed was left untempered by more worthy emotions. After a visit to the stock exchange on Collins Street, he quickly changed his mind. Here was every human emotion, raw and unfettered.

Karl read as avidly about investing as he did in his youth about history. Keynes held a particular fascination, as did Benjamin Graham's *The Intelligent Investor*. The studious, considered nature of these works contrasted starkly with the behaviour of most investors he knew. There was something of the outsider to successful investors; an ability to strip back the layers of emotion around a decision until bare facts remained and reason could be imposed.

Karl pondered these issues constantly. He discussed them with friends, teasing out their rationale for buying one stock over another and unpacking their psychological motivations when they sold out. It was this that distinguished him from his contemporaries. Again and again, he saw people repeat their mistakes. Karl, a student of philosophy in his younger years and seared with a capacity for self-reflection, soaked it all up. It was inevitable that other investors would eventually seek his counsel.

> *"There is something of the outsider to successful investors; an ability to strip back the layers of emotion around a decision until bare facts remain and reason can be imposed."*

Alex: Engineer, day trader, divorcee

Although it had the feel of a library—books, magazines and papers were everywhere—there was also a warmth and homeliness to Karl's study. Two armchairs were casually arranged before an open fire; pictures of family members jostled for space on the walls; and the smell of coffee and burnt embers hung in the air.

By now, the weekly exchanges with his investing friends—Karl never referred to them as clients—had been going on for many years. Perhaps hundreds of people had visited him but one in particular stood out. Alex Popper wasn't exactly a broken man but there was a faint air of desperation about him.

Karl recalled the conversation in their first encounter, and how Alex had described his misfortune:

"I hadn't been investing for long, although perhaps that's not quite the right word. I thought I was investing. It was 1998. A few years previously my new wife and I had just bought our first house. We were happy enough; good jobs and a huge mortgage although the place needed a bit of an update. We saved a little each month, waiting for the time when we had enough to start.

Then, on a day off from work, I had a little trouble with my computer, so I paid a visit to the local repairer. Walking into his shop, I saw a rather frantic bloke running from one machine to the next, banging madly on each keyboard. Charles was an IT technician but he was also a day trader.

Of course, I'd seen all the ads—how could you miss them? Successful young people 'taking control of their financial futures', ditching their jobs and trading stocks for a living. I'd never actually met anyone that did it, let alone made any money from it. And that's how I got sucked in.

At first I was quite cautious. I would hang around with Charles in the evenings, watching him trade currencies. He had what he called a trading plan, a list of rules. He'd check charts,

drawing new lines on them. He watched CNBC and hung around on Hotcopper, swapping tips with other traders.

It seemed to work, too. He never got around to fixing my computer but he had enough money to give me a new one free of charge. That sort of impressed me.

As the weeks passed, I become more engrossed. It was impossible not to really. The Age *even started a special section called Biz.com, featuring news of all the latest new floats and deals—there was a thing called dealflow back then. It was exciting. I felt the world was changing, a new economy was emerging, to use the phrase.*

Even the language of the boom slipped into my speech. I found myself talking about 'mindshare' and 'bricks and mortar' businesses. Once, I even criticised a colleague for 'old economy' thinking. Then, in 1999, I laid my hands on a copy of Dow 36,000 *and that was it. The next day, I went into Charles' workshop, opened an E*trade account and bought my first stock."*

Alex was in his stride now, although his tone revealed a disbelief about how someone of his intelligence—an engineer!—could be so easily fooled. So Karl asked Alex about the stocks he purchased and why.

> *"So I waited for the stocks to return to the price I paid for them and of course, they never did."*

"The first dotcom stock I bought was Davnet. It was based in Melbourne and specialised in line-of-sight microwave services to corporates in CBDs. I thought that was smart, like providing shovels in a mining boom. The company wasn't really profitable but it had revenues and big plans. It was a real business.

In early 1999, Davnet was known as Golden Hills Mining, trading for just a few cents. By the time I bought in at 80 cents, it had already risen 3,100%. By late March, 2000 it was above $5.00. I started to feel pretty good. We started the kitchen renovation."

Davnet. There it was again. Perhaps the most famous of the dotcom stocks, named without a hint of irony. Did Alex know Saint Davnet was believed to be the patron saint of the mentally ill? Karl thought better of mentioning it, and asked him to continue.

"My next bet wasn't so much in a stock but in a person. Wayne Bos of Sausage Software was everywhere. Whenever a new deal was announced, Wayne was in on it. And I liked him. He didn't seem to be a slick, Gordon Gecko type. He had a goatee and spoke passionately about how the internet revolution was going to change everything.

Bos built Sausage from 35 staff and revenues of $5m to 1500 employees and revenues of $150m. He also sat on the board of Bourse Data, which had acquired Hotcopper, the chat site I used to hang around on, so I knew something about it. When St George Bank took a 40% interest in Bourse and struck an alliance with Sausage, it was like getting the seal of approval from the most conservative organisation in the country.

After that, I was just waiting to be hung out to dry. I bought them all: Solution 6, BMC Media, Pineapplehead, SecureNet, Spike Networks, BigShop.com, Melbourne IT, even LibertyOne. By the time I'd finished, I'd lost our savings on tech stocks and taken a good slice of the home equity loan.

Sure, there were signs to get out but each price fall only strengthened my resolve. If Wayne was in there, why not me? I was following the smart money. Even the share price wobbles around the new millennium I put down to fears about the Y2K bug.

Then came 17 April 2000. The local market fell 6% in a day. By this time, I was conditioned to buy the dips, just like the brokers and commentators suggested. In the past, the market had always recovered from a fall but this time, it didn't. All I wanted was my money back. So I waited for the stocks to return to the price I paid for them and of course, they never did.

I hung on to my job but we lost the house and ended up in a two-bedroom rental. I vowed never to buy another tech stock. At least I was going to learn that lesson. Then, a few months later, my marriage blew up …

Alex's voice trailed off. He had obviously and naturally lost confidence in himself. Karl knew that if he was to do anything for him, he had to start here.

"You may find this strange but I'm optimistic about you. I see no reason why you won't recover. You've made plenty of mistakes—and I'll explain those—but first, I want you to

understand why this failure may well be your making.

You may feel dejected but you are in impeccable company. John Maynard Keynes, perhaps the world's most famous economist and originally a 'top-down' investor, failed to anticipate the crash of 1929 and lost 75% of the value of his portfolio. He died a very rich man. Sir Isaac Newton also lost a fortune in the South Sea bubble.

So don't be too hard on yourself. You are young; you have time to recover. And remember that one cannot live without making mistakes; the quality of our lives is determined not by the mistakes we do *make but by the quality of our responses to them.*

Which brings me to the Dunning-Kruger effect. I am in no doubt that you do not suffer from it. The effect occurs when an incompetent person fails to recognise their incompetence, and thus repeats their errors. You have been incompetent; we must accept that. But the reason you're here is because you recognise it.

To the second reason for my optimism; Self-serving bias exists in us all. When we make good decisions, we ascribe our success to our cleverness. When we make mistakes, we look for others to blame. Self-serving bias prevents us from learning because it enables us to avoid taking responsibility. You do not suffer from this, either. You have accepted responsibility for your mistakes and are in a position to learn from them, so let's do that shall we?"

Alex shifted in his chair. As Karl finished speaking, the arc of his spine straightened a notch or two. The fog of failure hadn't lifted but for the first time in a while, he didn't feel foolish and alone. Karl continued with his analysis.

"The reasons for your poor judgments are many. But I suspect there was one overwhelming feature of your psychology that allowed you to make these mistakes. And that feature is overconfidence.

Even before you embarked on this speculative venture, had you stopped to think about it (a reasoned rather than instinctive decision) you probably would have accepted that most traders lose money. They are, after all, up against full-time, well-resourced professionals paid to take bets against naïve punters. But you thought you were smarter than the average person, as we all tend to do."

The research is conclusive. In a study at the University of Nebraska, 68% of the faculty rated themselves in the top 25% for teaching ability. At Stamford, 87% of students rated their academic performance as above average. In studies of a driver's assessment of their own competence, about 80% of respondents rated themselves as above average. Even smokers woefully underestimate their chances of contracting lung cancer. It turns out that we're all special and averages are for statisticians. They do not apply to us.

So, your brain assumed you were smarter than the average. Even if you thought the whole thing a scam, you may have assumed you'd be clever enough to get out before the party ended. That's a natural conclusion for all of us, but it's a flawed one."

Alex had never thought of himself as overconfident. But what Karl was talking about wasn't an egotistical display of skill, a showing of the feathers, but a more innate human trait. If we think of ourselves as exceptional, doesn't that encourage us to take exaggerated risks and fall into other traps, Alex wondered. Karl, now leaning forward, his speech gathering pace, was about to explain what some of them were.

"In psychology, there's something called the dual process theory. Daniel Kahneman's book, Thinking Fast and Slow, *explains how our*

CASE STUDY: DUNNING-KRUGER EFFECT

In a series of studies, Kruger and Dunning examined the subjects' self-assessment of logical reasoning skills, grammatical skills, and humour. After being shown their test scores, the subjects were again asked to estimate their own rank, whereupon the competent group accurately estimated their rank, while the incompetent group still overestimated their own rank. As Dunning and Kruger noted:

Across four studies, the authors found that participants scoring in the bottom quartile on tests of humour, grammar, and logic grossly overestimated their test performance and ability. Although test scores put them in the 12th percentile, they estimated themselves to be in the 62nd.

On the other hand, people with true ability tended to underestimate their relative competence. Roughly, participants who found tasks to be relatively easy erroneously assumed, to some extent, that the tasks must also be easy for others.

Source: Wikipedia (read more)

CASE STUDY: SELF-SERVING BIAS

Participants participated in a decision-making task in which they had to choose among pairs of geographic locations where the participant thought they were more likely to meet a friend. In one experiment, the participant performed the task in cooperation with another individual, and in the other in competition with the other individual.

Upon completion, feedback was given to the participant. In the cooperative case, the participants assumed more responsibility when they received positive feedback compared to participants who received neutral or negative feedback. The partner was assigned more responsibility in failure outcomes.

In the competitive condition, again the participant exhibited more self-attribution in the success condition, and in the failure conditions, situational factors were given the most responsibility by the participants (Wolosin et al., 1973).

Source: Psychwiki (read more)

WHY ARE WE OVER-CONFIDENT?

Some experts have suggested that overconfidence can be a good thing, perhaps by boosting ambition, resolve, and other traits, creating self-fulfilling prophecies. But positive self-delusion can also lead to faulty assessments, unrealistic expectations, and hazardous decisions, according to a study [by Dominic Johnson, an evolutionary biologist at the University of Edinburgh in Scotland]—making it a mystery why overconfidence remains a key human trait despite thousands of years of natural selection, which typically weeds out harmful traits over generations.

Computer simulations show that a false sense of optimism, whether when deciding to go to war or investing in a new stock, can often improve your chances of winning. The results, published in the journal *Nature*, show that overconfidence pays off only when there is uncertainty about opponents' real strengths, and when the benefits of the prize at stake is sufficiently larger than the costs.
"So let's say you and I are fighting over some resource," Johnson said. "As long as there is some uncertainty about the outcome and the resource is valuable compared with the costs incurred in fighting for it, then overconfidence is the best strategy."

For instance, if people are fighting over an island with oil reserves, the benefit of accessing the oil might be a hundred billion dollars, while the costs of the war might be ten billion. But "if the cost of conflict or competition is high, and all for a fairly worthless prize—you're much better off being cautious."

Source: National Geographic (read more)

CASE STUDY: OVERCONFIDENT CEOs

Economists Ulrike Malmendier and Geoffrey Tate identified optimistic chief executive officers by the amount of company stock that they owned personally and observed that highly optimistic leaders took excessive risks. They assumed debt rather than issue equity and were more likely to "overpay for target companies and undertake value-destroying mergers." Remarkably, the stock of the acquiring company suffered substantially more in mergers if the CEO was overly optimistic by the authors' measure. The market is apparently able to identify overconfident CEOs.

This observation exonerates the CEOs from one accusation even as it convicts them of another: The leaders of enterprises who make unsound bets don't do so because they are betting with other people's money. On the contrary, they take greater risks when they personally have more at stake. The damage caused by overconfident CEOs is compounded when the business press anoints them as celebrities; the evidence indicates that prestigious awards to the CEO are costly to stockholders.

Source: Bloomberg (read more)

CASE STUDY: THE LINDA PROBLEM

Subjects were told about an imaginary Linda, young, single, outspoken and very bright, who, as a student, was deeply concerned with discrimination and social justice. [Researchers] asked whether it was more probable that Linda is a bank teller or that she is a bank teller and an active feminist. The overwhelming response was that 'feminist bank teller' was more likely than 'bank teller', violating the laws of probability. (Every feminist bank teller is a bank teller.) In this case, System 1 substituted the easier question, 'Is Linda a feminist?' dropping the occupation qualifier. An alternative view is that the subjects added an unstated implication to the effect that the other answer implied that Linda was not a feminist.

Source: Wikipedia (read more)

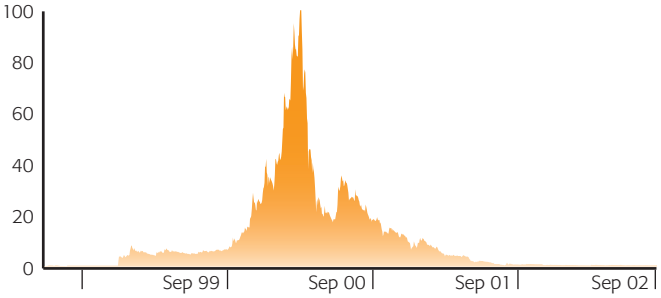
CASE STUDY: SOCIAL PROOF/THE BANDWAGON EFFECT

The most famous study of social proof is Muzafer Sherif's 1935 experiment. Subjects were placed in a dark room and asked to look at a dot of light about 15 feet away. They were then asked how much, in inches, the dot of light was moving. In reality it was not moving at all, but due to the autokinetic effect it appeared to move. How much the light appears to move varies from person to person but is generally consistent over time for each individual. A few days later a second part of the experiment was conducted. Each subject was paired with two other subjects and asked to give their estimate of how much the light was moving out loud.

Even though the subjects had previously given different estimates, the groups would come to a common estimate. To rule out the possibility that the subjects were simply giving the group answer to avoid looking foolish while still believing their original estimate was correct, Sherif had the subjects judge the lights again by themselves after doing so in the group. They maintained the group's judgment. Because the movement of the light is ambiguous the participants were relying on each other to define reality.

Source: Wikipedia (read more here and here)

CHART 1: DAVNET SHARE PRICE* ($)



*Adjusted for share consolidation

Source: Capital IQ

brains make decisions using two different methods. The first is instinctive (or system 1), a fast and automatic way of thinking that, based on past experience, helps us to quickly arrive at decisions. The second is more logical. Kahneman calls it reasoning (system 2), whereby we slowly and consciously sift information. Certain situations call for intuitive decision-making, others for reasoning.

The trouble is, you used instinctive thinking to address situations that called for a more rational approach. In essence, you let your emotions get the better of you. Let's go over your case history and look where this occurred.

Your decision to become a day trader was almost certainly an instinctive one. You have taken two mental shortcuts here. When you asked yourself whether you could successfully day trade, you didn't think of all those people that had lost money in the past because at the time you didn't know any. And you probably didn't think of past speculative bubbles when ordinary investors lost great fortunes because you didn't realise this was a speculative bubble.

Instead, you reached for the information most easily recalled: The fact that Charles was day trading and doing well, as were other professionals like you, gave you encouragement. This is the availability heuristic at work. You used the information that was readily available to you, not the information that was most useful to you. Kahneman calls this the WYSIATI effect, where what you see is all there is.

There was a bandwagon effect here, too; a form of group think where crazes and fads take hold. Other people were making money with little apparent effort so why shouldn't you? In fact, the very act of others profiting from day trading offered social proof that it was a respectable and sensible thing to do. Any doubts you may have had would have been quickly erased by others embarking on the same activity."

Alex had always felt slightly uneasy about trading, as if it was somehow illegitimate. He designed bridges, things that you could see and travel across. Day trading didn't exist in quite the same way. And yet how easily those misgivings had been pushed aside. An almost animalistic instinct had been triggered; he didn't want to miss out; he didn't want to be the only one not making easy money; and if everyone else was doing it, why shouldn't he? The well-reasoned calm that made him a good engineer had been quickly cast aside.

Then, as he looked up, he saw Karl's hand reaching out, offering a sheet of paper. Alex looked down at it. He didn't need to be told what it was.

"You may recognise Chart 1. If you don't, the problems are more serious than I thought. It shows the rise and fall of Davnet's share price, from boom to bust. You fell victim to a number of psychological biases on the way up, and a couple more on the way down. I'm going to talk you through each one.

You mentioned Wayne Bos and how you admired him, following him from one investment to another. I think you even described his physical appearance. You liked his goatee and the way he spoke. This is the halo effect, where we take one characteristic we find attractive in someone and extend it to other characteristics. Your mistaken presumptions about Bos and his ability as a businessman and dealmaker originate here.

There is another aspect to this that has less to do with physical appearance than expertise. Humans have a particular regard for experts. We look to experts to inform our decisions but frequently give the value of their insights too much weight. That's what you did with Wayne Bos and probably a host of other brokers and commentators

that you followed. You took a mental shortcut that allowed you to avoid examining opinions and instead said to yourself, 'They're experts so I'll listen to them.'

And you did. You invested in the stocks with which he was associated and they went up. Boy, did they go up. To you, that confirmed that the experts did know what they were talking about. There are two important concepts here that you should understand.

The first is confirmation bias. This is where we seek out information that confirms a view or decision we have already. Rising stock prices confirmed to you that you were smart and had made smart decisions. They also confirmed that the strategy of following Wayne Bos was clever, too. What you didn't look for was evidence to the contrary. You only sought out what you wanted confirmed, despite the fact that the rational part of your brain might conclude a rising share price, at least in the short term, tells you nothing much at all.

Unfortunately, you doubled up on your confirmation bias. Seeing the prices of the stocks you purchased rise confirmed the sense in your choice. This probably led you to believe that you were a more capable and skilful investor than subsequent events proved. You attributed Wayne Bos with the skills and characteristics that were responsible for a rise in stock prices. This is called fundamental attribution error.

You attributed the wrong facts to the outcome and made an association that was tenuous at best and, at worst, non-existent. It really didn't matter whether you or someone else purchased stock in Solution 6. Nor did it matter whether Wayne Bos was involved in it or not—it could have been anyone.

What caused the booming stock price was neither your actions nor his but the situation in which you found yourself. You were in the midst of a tech stock bubble and it was this that was pushing up prices. In seeking an explanation, you attributed the wrong facts to the situation and drew incorrect conclusions from them."

Alex had long realised he'd been gulled by the boom and its pushers. There was a frenzy in which he was swept up that at the time contained its own strange, internalised logic. Only in retrospect had the period felt like a charade. And yet the biases that Karl had identified were real enough. The tech bubble may have long since gone but Alex felt he was still drawing the wrong conclusions from episodes in his life.

Even that very morning, as he'd been about to cross the road, a car had screeched to a halt, just narrowly avoiding him. What a fool, Alex thought. Didn't the driver even see the zebra crossing? Only as he reached the other side of the road and turn to scowl once more at the car driver did he see the cat lying under the car's wheel.

With his mind wandering, from the corner of his eye he saw Karl pointing at the chart he had earlier handed to him. Making mistakes on the way up was easy thought Alex. How would he feel after Karl had dissected his errors on the way down?

"You see Chart 1 don't you Alex, the very steep descent? There were two more errors you made here. These errors are no more or less important than those you made when stock prices were rising, although there is one which is especially important in investing, so let's deal with that first.

Anchoring is a behavioural bias where we fix too heavily on one piece of information at the expense of others. One might say that in the boom, you anchored on Wayne Bos. But as the bust took hold, you anchored on your original purchase price. Why do I say that? Because you said, 'I just wanted to get my money back so I waited for the stocks to return to the price I bought them at.' This tells me you anchored on the wrong piece of information.

The market does not care about your purchase price. All it cares

CASE STUDY: THE AVAILABILITY HEURISTIC

Tversky and Kahneman presented participants with four lists of names: two lists with the names of 19 famous women and 20 less famous men, and two lists with the names of 19 famous men and 20 less famous women.
The first group was asked to recall as many names as possible and the second group was asked to estimate which class of names was more frequent: famous or less famous.
The famous names were most easily recalled compared to the less famous names, and despite the fact that the less famous names were more frequent, the majority of the participants incorrectly judged that the famous names occurred more often.

Source: Wikipedia (read more)

CASE STUDY: THE HALO EFFECT

Participants were asked to rate photographs of three individuals, ranging from low, medium, to high attractiveness. The physical attractiveness scale was determined by an earlier survey of a hundred students. The participants were to provide ratings for several different categories including personality traits, overall happiness, and career success. The ratings were then averaged. The results show that attractiveness is positively linked to more socially desirable personalities (Dion, Berscheid & Walster, 1972).

The findings also confirmed that "attractive men and women were expected to attain more prestigious occupations". Interestingly, attractive individuals were not expected to be better parents. Although it is not statistically significant, attractive individuals were even given lower ratings as possible parents.

Overall, the experiment concludes that, "not only are physically attractive persons assumed to possess more socially desirable personalities than those of lesser attractiveness, but it is presumed that their lives will be happier and more successful". The results confirm people tend to associate beauty with other positive qualities.

Source: *What is Beautiful is Good*
— Dion, Berscheid & Walster (1972)
via Psychwiki (read more)

CASE STUDY: CONFIRMATION BIAS

A team at Stanford University ran an experiment with subjects who felt strongly about capital punishment, with half in favor and half against. Each of these subjects read descriptions of two studies; a comparison of U.S. states with and without the death penalty, and a comparison of murder rates in a state before and after the introduction of the death penalty. After reading a quick description of each study, the subjects were asked whether their opinions had changed. They then read a much more detailed account of each study's procedure and had to rate how well-conducted and convincing that research was. In fact, the studies were fictional. Half the subjects were told that one kind of study supported the deterrent effect and the other undermined it, while for other subjects the conclusions were swapped.

The subjects, whether proponents or opponents, reported shifting their attitudes slightly in the direction of the first study they read. Once they read the more detailed descriptions of the two studies, they almost all returned to their original belief regardless of the evidence provided, pointing to details that supported their viewpoint and disregarding anything contrary. Subjects described studies supporting their pre-existing view as superior to those that contradicted it, in detailed and specific ways. Writing about a study that seemed to undermine the deterrence effect, a death penalty proponent wrote, "The research didn't cover a long enough period of time", while an opponent's comment on the same study said, "No strong evidence to contradict the researchers has been presented". The results illustrated that people set higher standards of evidence for hypotheses that go against their current expectations. This effect, known as "disconfirmation bias", has been supported by other experiments.

Source: Wikipedia (read more)

CASE STUDY: FUNDAMENTAL ATTRIBUTION ERROR

A classic study by Jones and Harris (1967) investigated this phenomenon. Participants were shown speeches, written by college students, that either supported or opposed Fidel Castro, the communist leader of Cuba. The independent variable was whether the college students were allowed to choose, or were assigned by the experimenters, to write a pro-Castro or an anti-Castro essay. The dependent variable was the participants' pro-Castro attitude, measured on a scale of 10 to 70, as rated by observers.

If the participants were told that the writers were assigned a particular side then their measurements of the students' true attitudes should be the same, regardless of whether they were forced to write in favour of or against Castro. If the position was assigned, how could participants infer the writers' true positions knowing that the behaviour was forced by the situation? However, results revealed that participants were willing to make internal attributions even when they were told the essay writer had no choice (Cohen, Maoz, and Trope, 1988). This study illustrates the fundamental attribution error at work: people ignored the situational pressures to write a pro-Castro essay, attributed their behaviour to dispositional factors and concluded that the writer's true opinion must be pro-Castro as well (Cohen et al., 1988). Despite clear evidence that behaviour was shaped by external forces observers still disregarded highly salient situational factors.

Source: Wikipedia (read more)

CASE STUDY: ANCHORING

In a study by Dan Ariely, an audience is first asked to write the last two digits of their social security number and consider whether they would pay this number of dollars for items whose value they did not know, such as wine, chocolate and computer equipment. They were then asked to bid for these items, with the result that the audience members with higher two-digit numbers would submit bids that were between 60% and 120% higher than those with the lower social security numbers, which had become their anchor.

CASE STUDY: LOSS AVERSION BIAS

Identified by Daniel Kahneman and Amos Tversky in the mid-70s after they gave their students at Hebrew University a simple survey asking them whether or not they'd accept a variety of different bets. The psychologists noticed that, when people were offered a gamble on the toss of a coin in which they might lose $20, they demanded an average payoff of at least $40 if they won. The pain of a loss was approximately twice as potent as the pleasure generated by a gain. Furthermore, our decisions seemed to be determined by these feelings. As Kahneman and Tversky put it, "In human decision making, *losses loom larger than gains.*"

Source: Wired.com

about is the collective expression of what investors think something is worth at any given time, expressed in the price. At one point, the market thought Davnet was worth a fortune. Just a few months later, it was almost worthless. Your purchase price is irrelevant but you were wedded to it. Had you realised its insignificance, you could have sold out and salvaged something, but you hung on and got almost nothing.

In investing, there's a saying: 'Price is what you pay, value is what you get.' Had you anchored on value, you probably wouldn't have bought Davnet in the first place. It may have saved your house."

No one could accuse Karl of beating around the bush, thought Alex. He wasn't exactly rubbing it in but he was hardly making it easy for him, either. The directness was confronting. No wonder some of the people at the exchange thought him egocentric, although perhaps this was just another example of fundamental attribution error. Even if he wanted him to go a little easier, he doubted whether this frank man was capable of it.

"The second mistake you made in the bust hasn't yet revealed itself to you. Had you not come here it may never have done so. You said you vowed never to buy a tech stock again but it makes no sense. Again, you're anchoring on the wrong thing—in this case your experience of losing lots of money on tech stocks.

Let's deal with loss aversion bias first. You see, we fear losses far more than we appreciate gains. Because of your experience, your frame of mind is such that this natural tendency is now even stronger in you. But your fear of loss and your negativity bias may actually blind you to opportunity.

I am sure you know that markets have a tendency to over-react. Don't you think there may be some tech stocks that are worth more than their current share prices right now? But your refusal to look at them—your loss aversion bias—is misplaced. Again, you are drawing the wrong conclusions from inappropriate facts. Just because there has been a tech stock crash does not mean there won't be any tech stocks that make a good investment at some point."

Karl sat back in his chair and peered over his glasses at the rather forlorn looking man opposite. He smiled warmly, as if he understood. Then he handed him another piece of paper, this time a little less confronting.

"Here, work your way through this list. These books will tell you far more about cognitive biases than I ever could. I think you'll find it a worthwhile investment of your time, although please don't expect it to cure the ailment. These patterns of behaviour have been inscribed in us over hundreds of thousands of years, and for very good reason. You won't change them over a few cappuccinos in a Brunswick Street café. But if you can reduce your error rate by five or 10%, you'll put yourself in a different league to other investors. Sadly, most of them are blind. They don't have the courage or the wherewithal to do what you have just done. But you, you have just opened one eye."

Reading list

- ***The Black Swan*** *by Nassim Nicholas Taleb*
  Taleb's writing style is not to everyone's taste, but the black swan concept is tremendously useful, especially for those of us who learn more convincingly through analogy. We plan for the expected and get done in by the unexpected. This book will change your thoughts on risk management.
- ***Influence: The Psychology of Persuasion*** by Robert Cialdini
  This is not an investing-related volume but there are some important lessons which can certainly be applied to the sharemarket. The book details six powerful 'Weapons of Influence' which are often used by people trying to persuade you to buy (or do) things that you don't really want to. It's a fascinating read, especially before talking to your broker.
- ***Poor Charlie's Almanack: The Wit and Wisdom of Charles T. Munger*** by Peter Kaufman
  This book begins with a description of Warren Buffett's business partner, Charlie Munger, and his approach to life. It finishes with ten of his speeches at various universities and functions over the years. With titles such as 'Practical thought about practical thought', 'A lesson on elementary, worldly wisdom' and 'The psychology of human misjudgement', these speeches are jam packed with wisdom. There are many useful ideas in this book, best summed up by the Munger quote: 'I think it's a huge mistake not to absorb elementary worldly wisdom if you're capable of doing it because it makes you better able to serve others, it makes you better able to serve yourself and it makes life more fun'. If you enjoy this book, we also recommend Seeking Wisdom—From Darwin to Munger by Peter Bevelin. It covers similar ground, albeit from a different angle.
- ***More Than You Know: Finding financial wisdom in unconventional places*** by Michael Mauboussin
  Munger likes to give the crowd an idea and then let individuals figure it out for themselves. Mauboussin, chief investment strategist at Legg Mason, has dived into a bunch of subjects and done exactly that. For a sample of his work, head to his research papers. If you like what you find, you should read this book.
- ***Thinking Fast and Slow*** by Daniel Kahneman
  This recent book, by 2002 Nobel prize-winning economist Daniel Kahneman, explores the 'machinery of the mind'. Kahneman, one of the pioneers of behavioural economics alongside Amos Tversky, explains the two 'systems' of thinking we all employ. 'You believe you know what goes on in your mind, which often consists of one conscious thought after another,' writes Kahneman. 'But that is not the only way the mind works, nor indeed is that the typical way. Most impressions and thoughts arise in your conscious experience without your knowing how they got there.'
- ***Behavioural Investing: A Practitioner's Guide to Applying Behavioural Finance*** by James Montier
  A compilation of articles grouped by theme, by analyst James Montier, who currently works for respected fund manager GMO. The format makes it ideal for dipping in to but less appealing for those who prefer a more 'narrative' approach to a topic.

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DATE OF PUBLICATION 10 July 2012