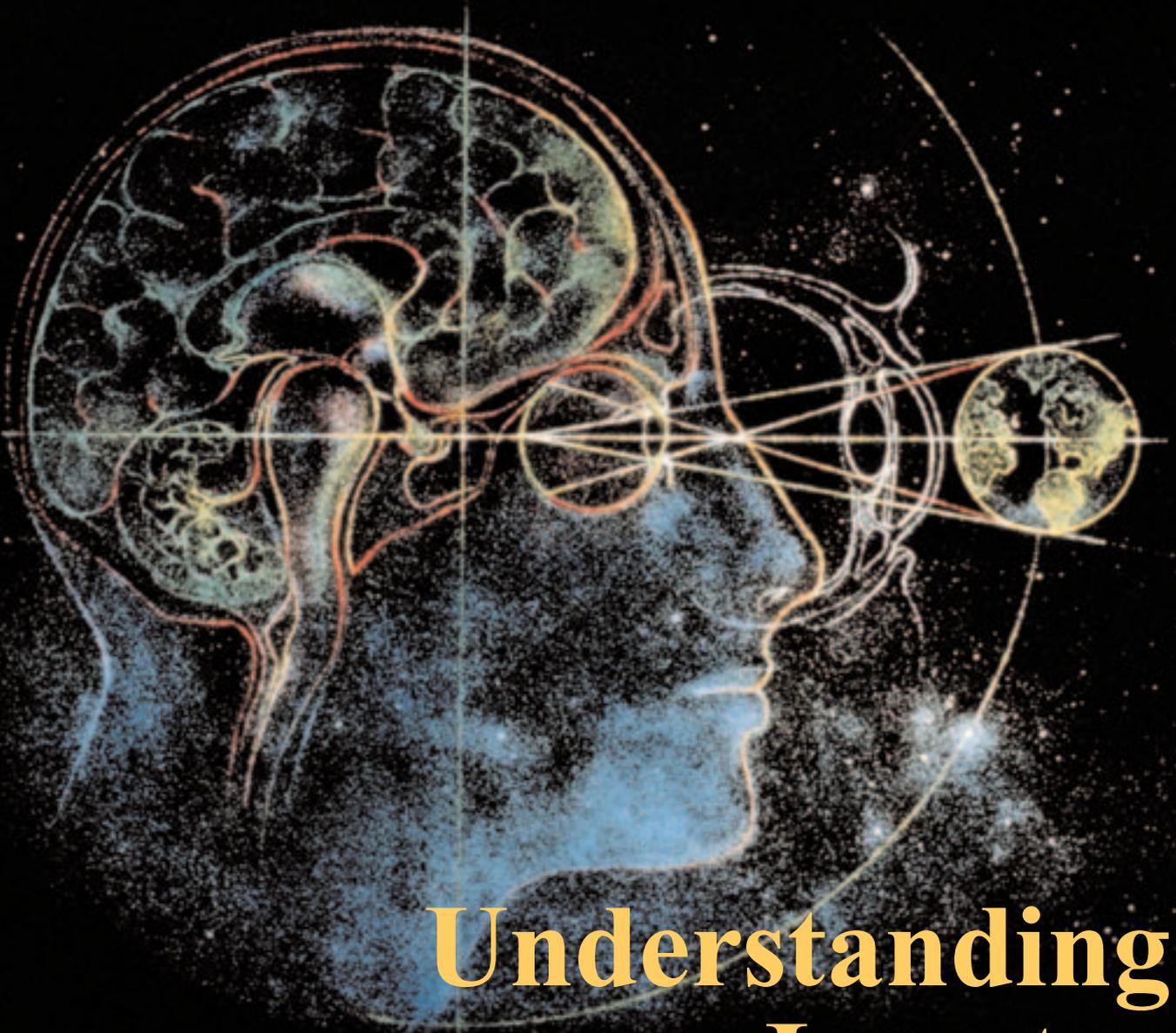


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COLLECTIVE insight

insights into SA investing from leading investment professionals



Understanding Investor Behaviour

ISMA

INVESTMENT MANAGEMENT ASSOCIATION OF SOUTH AFRICA



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Understanding Investor Behaviour

AS INVESTORS, we're often dazzled by the magic of investment markets. The whoosh and rush of information, the never sleeping giant of the world economy, the sparkle of the investment wizards like Buffett and Soros. We imagine that intellect, perseverance and diligent skill will get us to the pot of gold at the end of the rainbow.

But the true magic is what goes on in our minds. Behavioural finance explores the path between best investment intentions and how we stray off that path. For deep within us all are mysterious forces that vex our investment decisions – arriving unannounced like the evil stepmother in fairy tales and spoiling the party.

What is behavioural finance?

Behavioural finance is a movement within the financial world focused on understanding the effect of human behaviour and investor psychology on investment decisions and market prices. This field questions whether investors always behave rationally as expected from economic theory but not always observed from "efficient markets". The research then seeks to understand these differences in the context of psychology.

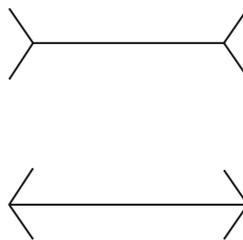
Mind games and illusions

The human mind has developed many tricks over millennia to enable us to survive. If I threw a snake at you, you'd no doubt leap in fright. You wouldn't stop to check if it was real.

Jason Zweig points out in this example that it's the brain's amygdala kicking in. That region of your brain handles emotions rapidly, preparing the body for a primal flight or fight response.

The mind is also adept at handling patterns, using shortcuts to get the answers as quickly as possible. The simple visual illusion illustrates this. Which line is longer?

The top line only looks longer because we're seeing this in "three dimensions". Our judgment on perspective



is getting in the way. The nagging thing is that these illusions persist. Even after measuring these two lines and knowing they're equal they still don't look equal.

Fast reaction and pattern recognition have helped us get to the top of the food chain. Behavioural theorists call these *heuristics*: simply put, they're rules of thumb the mind uses. These are universal and "get" us all. There are detailed studies exploring a number of cognitive biases regarding these heuristics.

Investment traps

So intelligence or knowledge is no substitute when it comes to the persistent power of heuristics. These riddles affect our thinking, despite how smart we think we are. Barry du Toit and Professor Marius Vermaak explore this interplay between logical expected utility theory and people's choices in "What's behavioural finance really telling us?"

Rick di Mascio, from Britain, points out in his article "Fund managers are also human" that even professional investors can succumb to behavioural biases that interfere with their abilities to translate their best ideas into performance.

The good news here is that, for the first time, the industry is now developing tools that allow us to first identify behav- **▶▶ 4**

History of behavioural finance

THE beginnings of behavioural finance are widely acknowledged to start with Kahneman and Tversky's work on prospect theory, which looks at how decisions are made – not necessarily in the most rational manner.

Behavioural finance gained more impact with studies looking at anomalies in stock market prices, whether overreaction to earnings announcements or persistence effects. This challenged those believing in the efficient market hypothesis.

Behavioural finance continues to grow in stature. In 2003, Daniel Kahneman was awarded a Nobel Prize in Economics for this work in developing behavioural finance. ■

- 3 ioural biases in managers and then work with managers to constrain the influence of these biases.

The way out of the forest

But it has only been in the past few years that investors have been able to identify ways in which they might take advantage of “weaknesses” in how others interpret information in formulating their investment strategies.

Roland Rousseau, of Deutsche Securities, gives a detailed account in “Mad dogs, Englishmen and speculation” of how practitioners are challenged by the human element in earnings’ forecasts and proposes a more objective way forward.

Mirror, mirror on the wall

Another key finding about the human mind is that decision-making is very sensitive in how a problem is described. Behavioural finance theorists call this “framing”. If you were very sick, would you prefer the doctor to say taking this new drug meant that 5 970 people survived out of a study of 6 000 or that 30 people died taking the medicine?

Trustee groups are increasingly exposed to information and how it’s marketed as they strive to make good decisions for their members. Conventional wisdom suggests that group decisions should help weed out individual cognitive errors and biases.

However, in Anne Cabot-Allethausen’s paper “Cognitive errors in

Jason Zweig lists a number of techniques that investors should consider:

- Resist frequent checking values. Keep checking the value of your investments and sudden short-term movements could spark an emotional reaction.
- Stay in balance. Stick to a plan, such as a certain asset mix (50% equities) or stock levels (maximum 10% in one stock). Rebalance six monthly in a disciplined way.
- Use different wallets. If you want to risk money then do that on a fraction of your wealth.
- Redouble your research. Just because something goes up doesn’t mean it’s right. Avoid self-fulfilling prophecies and keep questioning.
- Build an emotional register. As a younger investor, record how you feel about outcomes to improve your investing behaviour.
- Protect older investors in your family; age affects judgment.
- Look at the long-run. Avoid your brain being lured into short-term performance patterns.
- Diversify, diversify, diversify. ■

groups” – when the power of the group is not greater than the individual – it would appear that, more often than not,

the opposite is true.

Living happily ever after

The message for pension fund trustees, pension fund members and individual investors is unmistakable. We tend to attribute performance outcomes to whether fund managers are succeeding or failing. What’s becoming increasingly apparent is that often it’s the decision-makers themselves who may be inadvertently destroying value based on analyses of when they buy, when they sell and whether either decisions are appropriate to the initial long-term strategy. Overconfidence and oversimplification is a dangerous cocktail and investors need to be wiser going forward.

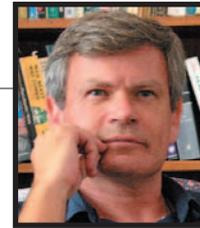
Dan Nevins recognises that investors worry not just about the end result but also about market movement during the life of an investment. He offers advice in his synopsis of a broader article in the *Journal of Wealth Management*.

Nevins steers investors to “goal-based investing” – where investors look at outcomes in easily understood terms to ensure they meet their needs.

Having learnt more about how our behaviour affects our investment decision-making how do we wave the magic wand to make it all better? Given how that’s ingrained deep in our thinking it’s no apprentice’s task.

But Jason Sweig leaves our readers with an invaluable list of helpful techniques to control our worst inclinations (see box). ■

What is behavioural finance really telling us?



PROF. MARIUS VERMAAK
Department of
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Rhodes University



BARRY DU TOIT
Risk Worx

FOR most people behavioural finance is a set of interesting and baffling puzzles. However, we need to ignore the cuteness and focus on what these puzzles are really telling us about our investment decisions and ourselves.

A good start is to grasp the difference between descriptive and normative theories. A descriptive theory attempts to capture what we actually do when we make risky judgments in finance. The theory doesn't *evaluate* our performance. A normative theory, by contrast, prescribes how we *ought* to behave.

Let's see how behavioural finance can be interpreted in both a descriptive and (less often) a normative manner.

Behavioural finance as descriptive: cognitive therapy for investors

The psychologists Kahneman and Tversky have provided the most influential response to the puzzles of human investment behaviour. Their line is that the puzzles reveal how we actually think and behave, but not how we ought to.

The puzzles, they say, show us the distorting biases and the shaky heuristics that bedevil our thinking.

Consider, say, the "endowment effect". We seem to think differently about investments depending on how they were acquired, even though that clearly shouldn't matter. Suppose you're given R100 to invest. You choose share A as the best prospect. Now suppose instead of being given R100 you're given R100's worth of share B. In that case many people hold on to share B, simply because they already own it. Perhaps they're worried that if they switch from B to A, and then B does better, they'll feel bad.

That's termed the problem of regret. Or perhaps they're just prone to inaction: the "status quo" bias. Either way, it seems stupid. And, potentially, it could cost/lose money.

Behavioural finance here is pure descriptive psychology. The way to use the puzzles is as a form of cognitive psychotherapy. Self-awareness will set us

free. The lesson is: beware of the pitfalls. Study the literature to bone up on the common biases and heuristics. Spot them when they influence your thinking. Keep a log of your investment decisions and your reasoning – it helps. This approach can also be applied in the institutional context. Luca Celati does that in his recent book *The Dark Side of Risk Management*.

Behavioural finance as normative: the attack on expected utility theory

One area where behavioural finance has normative implications is in its challenge to expected utility theory, or EUT. This theory tells us that we ought to act so as to maximise our expected utility. Utility in the investment context expresses what a certain amount of money is worth to us (for example, for most people winning R20m is not worth twice as much as winning R10m). Expected utility adds probability to the

Set-up 2:

- 2a. You win R1m, regardless of what ball is drawn (100%).
- 2b. You win R5m if a white ball is drawn (10%), R1m if a green ball is drawn (89%) and nothing if a black ball is drawn (1%).

Would you choose 2a or 2b?

The most common response when this question is put to large groups of people is to choose 1b and 2a. Many people see that as a perfectly sensible pair of choices. But – and here's the paradox – it can be shown that, according to the principles of EUT, there's no difference between set-up 1 and set-up 2.

Here's why. From the point of view of EUT, this is how the alternatives look:

$$\begin{aligned}
 1a) & U(R1m)*p(\text{Black}) + U(R1m)*p(\text{White}) + U(0)*p(\text{Green}) \\
 1b) & U(0)*p(\text{Black}) + U(R5m)*p(\text{White}) + U(0)*p(\text{Green})
 \end{aligned}$$

“ Behavioural finance is pure descriptive psychology. Self-awareness will set us free.”

picture: it means take the probability-weighted average of all possible outcomes.

Here the behavioural finance argument goes like this: though our decisions may sometimes seem irrational from the point of view of EUT, nevertheless they are quite rational. One puzzle that suggests this is the Allais Paradox:

One ball is to be drawn from a jar containing 89 green balls, one black ball and 10 white balls.

Set-up 1:

- 1a. You win R1m if either a black or a white ball is drawn (probability of 11%) and nothing if a green ball is drawn (89%).
- 1b. You win R5m if a white ball is drawn (10%) and nothing if a green or a black ball is drawn (90%).

Would you choose 1a or 1b?

$$\begin{aligned}
 \text{and} \\
 2a) & U(R1m)*p(\text{Black}) + U(R1m)*p(\text{White}) + U(R1m)*p(\text{Green}) \\
 2b) & U(0)*p(\text{Black}) + U(R5m)*p(\text{White}) + U(R1m)*p(\text{Green})
 \end{aligned}$$

First, note that the green ball outcomes are the same for both options in each set-up (nothing in set-up 1, R1m in set-up 2) and, therefore, whatever utility you ascribe to 0 or to R1m it must be the same for both choices. So, under EUT, these green ball outcomes are irrelevant to your decision-making process.

That means your decision must be based on the white and black ball outcomes. However, it turns out that this choice is exactly the same for both set-ups. In both cases you have to choose between R1m for white or black or R5m for white and nothing for black. Since they're exactly the same, whatever utili-

▶▶ 6

► 5 ty function you apply (whatever your level of risk-aversion) the expected utility cannot be different. So, by EUT, if you choose 1a you must also choose 2a. Choosing 1b and 2a would simply be irrational.

Critics of EUT would claim that such a choice can be rational. Consider the reasoning of people who make the 1b/2a choice. They presumably think as follows: In the first set-up, winning R5m is a lot more attractive than winning R1m and my chance of winning is only fractionally less (10% versus 11%). So why not choose 1b? If I lose, I won't have any serious regrets. It would be like choosing the wrong lottery number.

In the second set-up I've the option (2a) of a guaranteed amount that would completely change my life. Though the second option (2b) promises much more, I'm just not prepared to risk losing this guaranteed wealth – no matter how small the risk. That would be like winning the lottery and then losing the ticket.

That sort of argument therefore depends on the view that regret is not always an irrational bias in our thinking about risk, but can be an important aspect of what matters to a human being faced with such choices.

The rule of half

We'll end with an example that illustrates both a descriptive and a normative use of behavioural finance:



Puzzles... reveal how we think and behave, but not how we ought to.

Here's why this makes sense in terms of descriptive behavioural finance. Your starting point in the situation above is not psychologically neutral; in fact, your situation is quite extreme (your loan is 100% floating). That's setting you up for such typical cognitive errors as inaction, procrastination and holding on to losses.

For example, hedging immediately after a massive interest rate increase will feel like fixing your losses and admitting your stupidity. Hedging half now protects you from falling prey to these mental biases and failings.

Second, from a normative perspective the rule of half may also be right for deeper reasons. You may not want to live your life permanently worried about the future direction of interest rates, puzzling over the right action to take and regretting it when you get things wrong.

For most people that isn't part of their idea of the good life. So the right decision here incorporates life values and decision procedures that go beyond the usual understanding of EUT. ■

What do you do?

You could try the rule of half. Unless you've a really important reason for not doing so, just hedge half. That is, fix the interest rates on half of your mortgage and leave the other half floating. Once you've done that you can start thinking about whether or not you prefer some

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“ Keep a log of your investment decisions and your reasoning – it helps.”

You have a large floating-rate mortgage over your home. The new JSE Yield-X exchange will provide a mechanism for fixing the rate. You think interest rates are low in the longer term but you don't think they've yet hit bottom.

kind of tactical tilt.

(The same principle can be extended to many other areas, such as buying US dollars ahead of a trip to the US, or rebalancing sector weightings in your investment portfolio.)



RICK DI MASCIO
Analytics

Fund managers are also humans

Natural biases affect performance and decision-making

ACCORDING to the classic investment model, fund managers only make investment decisions based on perfect knowledge and an objective assessment of the facts. But despite the fact that most investment professionals have greater access to information, significantly more experience, far superior analytical tools, larger funds to manage (thus allowing for better diversification opportunities), that rarely translates into sustainable outperformance over other investors.

Behavioural finance may shed some light on this phenomenon.

Increasingly, behavioural finance is helping us understand how powerful an individual's personality, cognitive biases and emotional predisposition can be in successfully translating experience and insight into performance. Even professionals are first and foremost human beings.

Up until now, though, the academic literature in behavioural finance has remained largely descriptive or anecdotal, suffering from a lack of empirical evidence from fund managers to support these propositions. The purpose of this paper is to introduce a new framework and analytical tool that allows us to actually identify the range of behavioural biases exhibited by a given fund manager.

We believe that this tool can play a critical role in helping us to understand:

- * Whether a manager's specific predisposition to buying or selling is compatible to their long-term investment strategy.

- * Whether a manager's degree of overconfidence or lack thereof plays a counterproductive role in the translation of their investment ideas into a meaningful portfolio holding.

- * Whether the performance we are observing is driven by the manager's best views or whether it's being eroded by poorly implemented trading

of good ideas, poor cash flow management or poor control of reflexive behaviour under adverse market conditions.

Once understood, behavioural predispositions can either be better contained (if they erode performance) or better maximised (if they provide demonstrable value).

Fund manager biases: The good, the bad and the ugly

Each of us players in investment management have our own mindsets and predispositions that influence when we buy shares, how much we buy and when we sell.

For example, we may be a natural contrarian and, as such, be only willing to buy shares when we feel confident that everyone's looking elsewhere. Conversely, we may be the kind of individual who needs their investment views affirmed by other investors before we're prepared to make significant commitments.

Our attitude to living with winners or losers also has a significant effect on how long we're likely to hold a given share. Is the manager in question someone who holds on to losers (or winners) on the eternally optimistic hope that things will come right? Or do they have a hair-trigger response to risk that results in their taking profits too early or selling out before an idea has had time to come to fruition?

Is the fund manager so blinded by optimism or overconfidence that they focus more on what shares they're going to buy without fully appreciating that their performance is also influenced by what they choose not to buy?

All these issues have as much an influ-

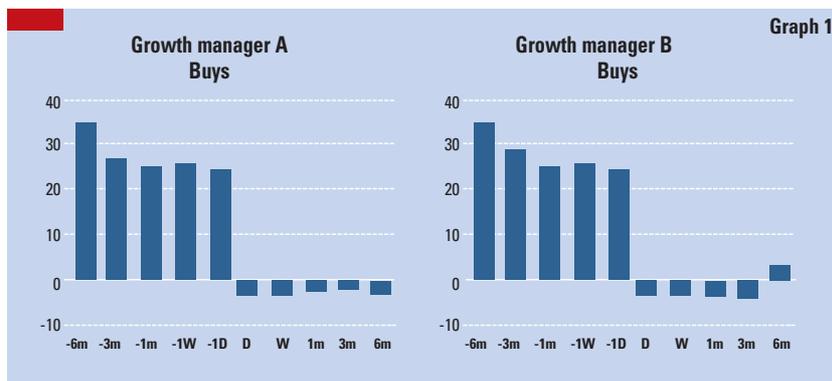


ence (if not greater) on performance outcomes as a good investment philosophy or investment idea. The issue is not so much that some of these natural biases are good and others are bad. (In reality, both good and bad biases can translate into either good or bad outcomes.) What's important is a manager's level of self-awareness. The more they understand their natural predispositions the more effective they can be at managing them.

SA fund managers are also human

We applied our analytical framework to the SA market. The results presented below are based on a cross-section of SA's fund management industry. However, what made the outcome of particular interest is that they mirrored our observations of the European investment management industry.

Using actual trades from these SA managers we've been able to gain insights into how specific managers bought shares, sold them and determined how much to hold (or not hold) of each share.



The case of two growth managers

What makes this a particularly interesting case study is that the two growth managers in question appeared to have indistinguishable investment philosophies and strategies. They both appeared to have very comparable method-



8 ologies for valuing shares and appeared, at any point in time, to look to the same areas of the market for buying opportunities. Still, manager B seemed to repeatedly add incremental value beyond manager A. The reason why was simply not observable.

However, by decomposing the buying and sales of both of these managers we were able to detect a distinct difference in trading dispositions.

Graph 1 (p 10) helps us understand not only what happened to the performance of the shares in the months after the shares were bought but what was happening to those shares in the months before the manager bought them. In keeping with the growth style bias, both managers appeared to be most comfortable with buying momentum – ie, they bought shares only after those shares began to move upwards.

The notable difference between the two managers on the buy side was that eventually – in fact, as long as six months later – manager B's selected shares appeared to turn and start to outperform. With a little bit more time, manager A's shares would invariably follow suit; but the dilemma for manager A was that, by that time, he had already thrown in the towel and started selling out of the shares.

Worse, as Graph 2 indicates, when growth manager A's shares were starting to perform the manager invariably sold the shares too early, consequently missing out on further upside. Manager B experienced no such problem.

While our analysis of managers A & B appears to suggest that manager B is better at executing stock selection ideas our experience in working with managers in the past is that once they understand their counterproductive trading biases these seem to be relatively easy problems to rectify.

These outcomes appear to be less related to an investor's investment philosophy than to their behavioural predispositions. Self-awareness is the critical starting point to changing that outcome.

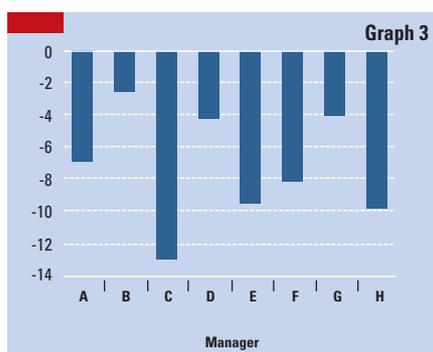
Trading analyses of value managers show, in aggregate, outcomes that are predictably different from growth managers. They tend to buy shares early as the share prices continue to decline. Still, like our growth managers, their record on timing their sales is highly variable. In general, we've found that managers are either good at buying or selling – and very rarely successful at both. However, selling appears to be the transaction that

manifests the most counterproductive behavioural biases.

Translating good ideas into good positions

We all recognise that the science of portfolio construction has made major progress over the past 20 years with the adoption of risk models and clearer client guidelines.

Despite these advances we've found that the process is still prone to common behavioural biases. Fund managers are



by nature optimists and, as such, they tend to put far more attention into what they want to buy for their portfolios than they do on understanding the implications of not buying something else. These biases and traps can put performance objectives at risk or simply leave opportunities to generate alpha unexploited.

In total, we analysed eight portfolios with a wide range of investment styles and mandates. Despite the variety we found a number of consistent themes. Namely, that in all cases the heavily underweighted stocks contributed negatively on average to the alpha of the portfolios.

Graph 3 provides the average monthly contribution for the most underweighted positions in the portfolios.

As we can see, all eight managers experienced difficulties with the most underweighted positions, and that was independent of style.

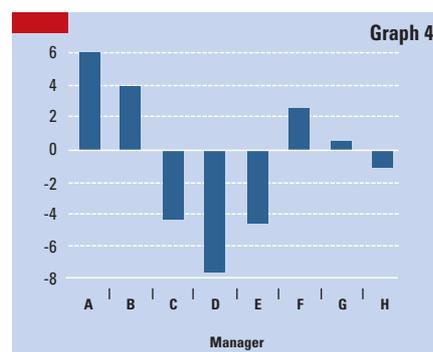
We then carried out the same analysis for the most overweighted stocks.

Interestingly, the outcome is more positive than for the underweights; but only 50% of the managers were able to generate alpha on average from the heavily overweighted stocks (Graph 4).

For many observers of the SA market this outcome seems highly predictable. We like to think of SA as a heavily concentrated market. Because almost all

South Africans managers have a natural underweighting to resource shares, performance is more a function of how much of an underweighting they hold to Anglo American or BHP Billiton (and whether resources are going up or down) than to any other bet reflected in their portfolios. Outperformance from overweight holdings typically only happens if resources are going down.

But the reality is (our research suggests) that in many markets the outcome is much the same. Managers (and the



people who select managers) fail to realise that more often than not it's what they don't buy (mostly an inadvertent decision) that's driving the bulk of their performance – not what they do buy.

In conclusion, our focus here is on promoting awareness or, better yet, self-awareness. The issue isn't about what strategy works and what doesn't: markets are still fickle enough to make that exercise a futile one.

Rather, by knowing how your natural biases are affecting your performance and your portfolio construction practices, you can at least make an informed decision as to whether that's what you intend to have driving the performance of your fund.

That's one case where learning from the past can have broad implications for the future. ■

RICK DI MASCIO

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ROLAND ROUSSEAU
Deutsche Securities

Mad dogs, Englishmen and speculation

Successful investing is anticipating the anticipations of others – John Maynard Keynes

TRADITIONAL economic and finance theory is quite unanimous about the fact that markets are efficient and that trying to beat the market on a sustainable basis is wishful thinking. The theory holds that new information is simply too quickly reflected in share price movements for investors to take advantage of it.

While new research on the “psychology of crowds” is helping to explain why markets not only behave irrationally but also predictably, the bad news is that measuring or converting human behaviour to investment ideas is not that simple.

We look at how one might quantify this behaviour and employ it into a framework for investment decision-making.

“To do otherwise than to account for human behaviour would be irrational for economists.” – Richard Thaler

The limits of fundamental analysis

Mounting research over the past 15 years is demonstrating that fundamentals alone explain a far smaller portion of a stock’s return than we ever believed. In fact, it now suggests that the bulk of the variability of returns is explained not by traditional fundamentals but by human psychology.

So, why can a stock remain fundamentally over- or under-valued for extended periods, sometimes for years (eg, tech bubble)? Why, when a stock’s price adjusts, does it tend to completely over- or undershoot “equilibrium” value, hardly spending any time close to fundamental “fair value” levels.

As Robert Shiller pointed out “measures of stock price volatility over the past century appear to be far too high – five to 13 times too high – to be attributed to new information about future real dividends...” Clearly, other nonfundamental or “psychological” factors are at play. And, unfortunately, as JM Keynes observed: “Markets can remain irrational longer than you can remain solvent.”

Earnings forecasting obsession

Let’s just look at two cases in point:

From March 1998 to March 2001 a forecast relative earnings outperformance of

107% for FirstRand to the market should have left investors bullish regarding the share price. What transpired, though, was a 43% decline in the share price relative to the market over the same period.

Similarly, Tongaat’s earnings underperformed the ALSI’s earnings by about 36% from June 2000 to March 2002 – yet the price outperformed the ALSI by 54%.

Burton Malkiel suggests there are two reasons why earnings growth correlates so poorly with share price performance.

- Influence of random events. “A company is not an entity unto itself. Many of the most important changes that affect the basic prospects for corporate earnings are essentially random.”

- Herding. “Analysts prefer sometimes to copy the forecasts of other analysts or to swallow the ones released by management without even chewing.”

Clearly, analysing earnings forecast alone is not enough. What is needed is an unbiased “true” consensus view that represents overall market perceptions regarding a stock or a sector’s earnings potential.

A number of behavioural finance adherents have argued that consensus earnings could provide a better reflection of market psychology. But in aggregate, that data seems to provide little more than an excellent reflection of what often seems like the eternally optimistic and bullish aggregate view of most analysts.

The bottom line is that prices lead earnings and forecasting earnings or using any forecast data has limited use. Lead-lag evidence from the US, using IBES consensus data, shows that analysts typically change their forecasts long after the news hits the market. It’s ironic that forecasts don’t actually forecast but often simply lag reality.

Remember how analysts all downgraded their earnings after the tech bubble, many as much as a year later? That “rear-view forecasting” is backed up by behavioural research that explains why analysts, due to anchoring, are reluctant to change their forecasts initially when news breaks but then have to play catch-up later on – once reality sets in.

Our challenge is to define and understand the notion of sentiment in order to

make progress. We need to accept that fashion trends and fads can create value where there’s no true underlying value.

Does the market have better information than analysts do?

Perhaps we need to accept that what the market thinks is going to happen is more important than what actually happens. We need to revisit our notions that the market will automatically move towards the value

SNAPSHOT OVERVIEW

TRADITIONAL fundamental analysis assumes that analyst earnings’ forecasts represent expected future value and that the current price of the stock represents current value or rating. Therefore, if earnings are expected to outgrow the market by a sufficient margin then the current price will adjust to this higher level of intrinsic value. In a nutshell, traditional fundamental analysis always assumes the market’s valuation is wrong and that one’s earnings forecasts are right.

Traditional behavioural finance analysis assumes that earnings’ forecasts are biased and polluted by human psychology, such as herding, anchoring, etc, causing over-reaction to market news and under-reaction to fundamental news. Behavioural financiers assume that earnings are typically not reflective of reality and therefore hardly ever “right”. Behavioural finance explains sustained periods of misvaluation and investment bubbles.

Our approach to behavioural finance assumes that the market’s price moves constantly try to anticipate future or expected earnings. Evidence suggests that price movements lead earnings changes. What the market thinks is going to happen is more important than what actually happens. Our model assumes that forecast earnings are not only extremely difficult to get right but not that useful in the medium term, as the market is constantly doing its own forecasting for us. ■

▶ represented by either our magical forecast or even consensus earnings.

The best way to measure these expectations is to use the market pricing mechanism for a true consensus forecast of earnings expectations and not have to rely on consensus earnings forecasts of a few analysts. The answer lies in measuring the gap between actual and perceived value, not forecast value.

We believe the relationship between price and earnings momentum is a powerful indicator of overall market/sector sentiment. It's easy to demonstrate that prices lead earnings. That phenomenon has consistently been evidenced by research conducted in several countries by, among others, Kothari and Zimmerman (1995), Collins et al (1987). In fact, we find in SA that each sector has its own unique "look forward" earnings window.

We prefer to use historic earnings in our model, as we don't want any expectational element or human bias reflected in the earnings figures. The market pricing mechanism is perhaps the best consensus tool.

For example, why do prices often rise sustainably without any new fundamental or earnings news? The answer can only be that the market has changed its aggregate view (perhaps irrationally so) and is suddenly expecting higher earnings to materialise. But prices cannot rise/fall forever if earnings do/don't eventually materialise in the income statement.

“ Stocks are bought on expectations – not on facts.”

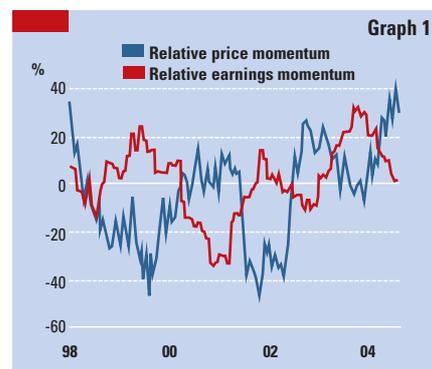
If prices do rise without any eventual increase in reported earnings, the market is being driven by sentiment or speculation. It's becoming irrationally exuberant and a subsequent collapse is likely if earnings expectations are not met.

For that reason we measure sentiment as the gap between price momentum and historic earnings momentum. The price momentum gives the forward-looking expectation or anticipation of the market and earnings momentum reflects current reality based on what the company is delivering in terms of fundamental value. Our model requires no forecasts, as the price momentum is forecasting earnings expectations for us.

Let's illustrate: Graph 1 shows us the rolling annual change in prices of the

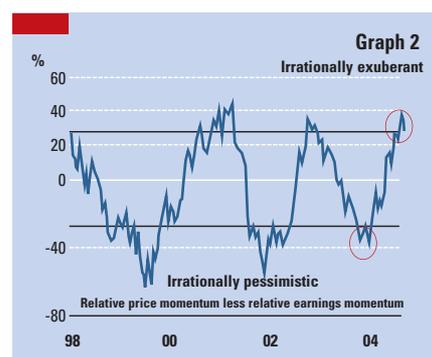
FTSE/JSE banking sector (J081) relative to the ALSI (ie, relative price momentum) as well as the rolling relative earnings momentum of the banking sector to the ALSI (ie, using historic earnings).

It's the gap between these two lines that's of interest. It indicates when prices are running/falling too hard relative to earnings. Price momentum anticipates the magnitude and direction of future earnings momentum. Changes in price momentum seem to occur regularly about 12 to 14 months ahead of similar changes in earnings momentum.



Even more interesting is Graph 2: the relative price momentum minus the relative earnings momentum for the banking sector (ie, the gap between the two lines in the first graph).

Notice here how price momentum can run too hard and fall too far relative to earnings momentum. That occurs when expectations (price momentum) deviate



too far from reality (historic earnings momentum) or when a sector or the market becomes irrationally exuberant or pessimistic.

Notice how pessimistic the market was towards the banking sector in about May 2004 and how hard price momentum has run relative to earnings momentum since then. That's a signal for us that there's cur-

rently much speculation in the banking sector (due to the latest corporate merger activity), and that the sector may be becoming irrationally optimistic.

That doesn't necessarily imply that the sector's price is about to collapse but that the sector has high expectations for future earnings. Remember: price momentum leads earnings momentum.

If earnings over the next year do sufficiently materialise then the current price is justified; but if there's any earnings disappointment emerging from this sector in the next few months the price is likely to come under pressure, as price momentum cannot deviate from earnings momentum for ever.

We prefer relying on using price momentum as an evolving expectational process that constantly tries to forecast/anticipate earnings. Our research takes a twist on mainstream behavioural research that focuses on the cognitive biases inherent in consensus earnings forecasts. We do that because price momentum is a good lead indicator of future earnings. Our model doesn't require any earnings forecasts because we believe that prices lead/anticipate earnings and not vice versa.

While we believe our model captures the essence of the behavioural factors that influence a large percentage of price formation, we accept that behavioural finance will not totally replace traditional fundamental valuation models. Behavioural finance presents the industry with new opportunities and ways to conduct radically different valuation research.

"Ninety percent of what we do is based on perception. It doesn't matter if that perception is right or wrong or real. It only matters that other people in the market believe it. I may know it's crazy, I may think it's wrong. But I lose my shirt every time by ignoring it." – *Wall Street Journal*, 23 September 1988. ■

ROLAND ROUSSEAU

ROUSSEAU is responsible for quantitative analysis at Deutsche Securities. He also covers style-based performance analysis, such as growth and value themes.

Since 1999, Rousseau has been rated SA's number one quantitative analyst in the *Financial Mail's* Analyst of the Year surveys. He also attained a number two rating in risk management in the 2004 survey. ■



ANNE CABOT-ALLETZHAUSER
*α*dvantage asset managers

Cognitive errors in group

When the power of the group is not greater than the individual

JUST when the behavioural finance specialists are beginning to provide insights into how bad we human beings can be at making good investment decisions, here's news from a related arm of academic research – the field of decision sciences – that suggests an even more disturbing problem:

In an article which appeared in the *Journal of Psychology and Financial Markets*⁽¹⁾, John Payne and Arnold Wood pointed out that this tendency towards bad decisions could potentially escalate when investment decisions are made in groups.

That should definitely give us all pause for thought. Arnold Wood says that more than US\$6 trillion in investments is overseen by investment committees of one form or another worldwide. In SA, investment committees are probably responsible for more than R1 trillion in pension fund investments alone⁽²⁾.

The magnitude of influence that these groups hold absolutely demands that we understand the counterproductive forces at work in the group decision-making process and help trustees develop ways to mitigate them.

Surely this all seems counter-intuitive. We know that individuals make mistakes and have flawed cognitive processes. The "group" should theoretically control against individual error by introducing counterbalancing views and by expanding the information and experiential base from which a decision is made. But research outcomes are suggesting a different reality.

Payne and Wood point out that as long as the task at hand is straight problem-solving or of a purely technical nature (such as formulating an accurate member profile for a fund) the group decision-making process can be quite constructive.

However, it's when groups are faced with issues that demand judgmental inputs that the group process dynamic does its greatest damage. Unfortunately, decisions such as: What's our tolerance for risk? How should we formulate an investment policy? What asset classes should we include? and which managers are best for the jobs? are all judgmental

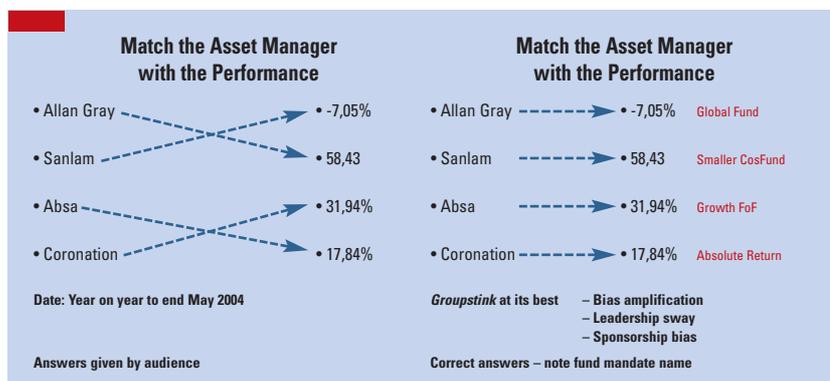
decisions. So the prognosis for investment committee processing is clearly not good.

What goes wrong when groups make decisions?

What goes wrong here? Simply put, the group dynamic is a social one: where the primary activity is spent on determining whether one belongs or doesn't belong or in assessing (not necessarily consciously) how one might go about increasing one's acceptance into the

minds is a better bet than depending on one mind (75% of people in a Wood and Payne study of investment committee members believed that the decision they reach in a group would be better than the decision they would make on their own) in spite of evidence in some of the work by Terrance Odean that the contrary is usually the case.

When more than one member of a group agrees to a specific point or when a particularly influential member of the group presents their views, the illusion



group.

It's a phenomenon Barton Biggs neatly summed up in the title of his paper: "Groupthink = Groupstink"⁽³⁾. He cites Yale psychologist Irving Janis when he says that Groupthink is "a mode of thinking that people engage in when they're deeply involved in a cohesive in-group, when the members' striving for unanimity overrides their motivation to realistically appraise alternatives. . . a marked distortion in information processing, reality testing and mental efficiency that results from in-group pressures".

The dynamic of "Groupstink" builds upon many of the issues initially cited by the behavioural finance academics but adds a few of its own special twists.

For example, Wood and Payne have identified a litany of common pitfalls that have their own special meaning in the group decision-making processes:

Illusion of effectiveness/overconfidence

Starting at the top, groups typically have this illusion that a collection of good

quickly forms that that must be the right answer – and typically one sees the rest of the group generally migrating to this "right answer".

This example of overconfidence, egged on by bias amplification, becomes even more pronounced if the initial sponsor of the idea was the alpha, or dominant, member of the group.

Bias amplification/leadership sway

I've run a little experiment to illustrate the power of bias amplification with at least 30 different live audiences in SA – and not once has the exercise failed in getting the audience to arrive at the wrong investment conclusions.

Construct a list of well-known fund manager names, picking managers that represent recent performance extremes. Alongside the list, list a series of investment performances by one of the publicly available funds actually managed by each of these managers. Ask the audience to match the manager to the performance.

Behavioural Difference in Groups

MALE

Constructive

- * Assertive
- * Single-minded
- * Takes decisions
- * Strong negotiator
- * Goal-orientated/results
- * Fact-based
- * Risk tolerant
- * Competitive

Destructive

- * Testosterone
- * Power is paramount
- * Ego - overconfident
- * Low e.g. - doesn't build consensus

FEMALE

Constructive

- * Consensus builder
- * Process orientated - it's a journey, not an end
- * Draws inputs from multiple sources - intuitive
- * Multi-focused
- * Better understanding of member issues
- * Safety conscious

Destructive

- * Poor negotiation skills
- * Tends to personalise
- * Acquiesces to preserve group
- * Reflective - needs confirmation

▶ 13 On the left hand side were the answers given by the audience. On the right hand side are the correct answers. Clearly, the audience thought they knew the correct answer because they had pre-existing biases towards the different managers thanks to the power of media coverage and marketing.

But the really disturbing aspect of the exercise was not that I was able to trick the audience; in fact, there's usually some bright spark in every audience who comes up with the right answer. Rather, it was the speed with which I was able to manipulate the audience into a consensus regarding the wrong answers.

That's the dynamic that occurs in the group when there's bias amplification and leadership sway. In the investment committee setting, the magnitude of this overconfidence invariably emboldens groups into taking decisions that individuals in their own right would feel they lacked enough information or insight to make.

Sponsorship and confirmation bias/knowledge bartering

Sponsorship and confirmation bias and knowledge bartering are reflected in situ-

ations where members of an investment committee, for example, may over commit to an idea if they believe it will help curry favour with other group members.

Similarly, instead of expanding on each other's knowledge base, group members will introduce information if it helps confirm a powerful chairman's view or withhold information if it helps curtail the power of another group member.

The more homogeneous the group, the more likely the group is to reaffirm and accentuate that bias rather than work to dissipate it.

As Biggs says: "On an investment committee it's almost better to be wrong with the group than to express a contrary view, even if it's right, because if by any chance you're both wrong and a dissident you're finished as a functioning member of the committee."

Addressing the problem - the first baby steps

The clear message is not that the group dynamic is hopelessly flawed. Without question the starting point for change is to first recognise and properly label the problem. The next step is to identify ways to minimise counterproductive behaviour before it even starts.

For example, decision science experts seem to agree that the more heterogeneous the group is in terms of cultural background, values, education and experience the higher the probability of controlling against counterproductive behaviours.

From that perspective, SA investment committees would appear to have a distinct advantage in being able to assemble such a population - particularly as pension fund boards of trustees are required to draw 50% of its representatives from the employee ranks. But that advantageous starting point can be easily diluted if there are too many trustees in total (more than 10 starts to become counterproductive because then consensus-building becomes the exclusive activity).

The perfect investment committee?

But research has shown that it's not so much the different cultural backgrounds that reduce the counterproductive behaviour (there are alpha males in just about every advanced culture). Rather, true diversity comes when you've completely different operational modes represented in the group dynamics. As such, the fastest way to introduce a diversity of mindsets is to simply introduce members

of the opposite sex⁽⁴⁾.

Simplistically, these two populations bring to the table the type of diversification in group behaviour and information processing that's essential to an effective working committee. The table below provides a broad summary of general characteristic differences - both the good and the bad:

But beyond this "fix" of enhanced committee composition there are other "behaviours" that investment committees can introduce that can contribute significantly to ensuring a more rigorous and fruitful decision-making process. In summary, these are:

- Create the time, space and culture for debate.
- Don't fall back on what you know, know what you don't know.
- Take time as a group to understand likely cognitive errors.
- Push process planning before task planning - neutralise railroading.
- Don't work on lowest common denominator principles.
- No "loafing". Give everyone an area of responsibility - and make them deliver.
- Take time to go through a governance budgeting exercise so that everyone knows who decides what and where each member's responsibilities begin and end.
- Make sure to create the time to get to the right decisions.
- Maintain good records of why decisions were made.
- Choose a leader with wisdom - not answers.

Footnotes:

- (1) John Payne and Arnold Wood, "Individual decision-making and group decision processes"; *The Journal of Psychology and Financial Markets*; Vol 3, No 2, 2002.
- (2) Alexander Forbes Survey 2004
- (3) Barton Biggs; "Groupstink" Strategy and Economics; Morgan Stanley Dean Witter; May 1999.
- (4) Jonathan Myers; "Sex, Conflict and Investment Style!"; Psychonomics Research; June 2004. ■

ANNE CABOT-ALLETZHAUSER

CABOT-ALLETZHAUSER is Chief Investment Officer of *advantage* asset managers. She's been an asset manager for 25 years, managing pension fund assets in North America, Japan, Britain, Europe and SA.

In SA she was responsible for the development of the multimanagement approach. Cabot-Alletzhauer also oversees all its investment-related activities. ■

Goals-based investing

The best of traditional and behavioural finance

Behavioural finance teaches a great deal about the types of errors that investment practitioners make in their analysis and pricing of market securities. But it also shows how investors view their portfolios and how these portfolios should be constructed to meet investor objectives. Goals-based investing aims to do just that: understand how individuals frame investment objectives, express risk in understandable terms and construct portfolios best positioned to meet these objectives. This is a shortened version of a longer article published by Nevins in the *Journal of Wealth Management* (1).

Explaining the imperfections

ECONOMICS is a social science. And, like many social sciences, economics attempts to model aggregate human behaviour by setting out a number of assumptions regarding market players, constructing relationships between these players and following these relationships to their logical conclusions. Most practitioners agree that the assumptions are imperfect but few agree on the sensitivity of results to violation of the foundational axioms.

Behavioural finance has for some time been used to explore and explain imperfections in the capital markets, for few suggest that the markets behave perfectly in line with Markowitz's classic model. For more than two decades researchers have studied how behavioural biases – such as overconfidence, belief perseverance, overreaction, regret avoidance and hindsight bias – have affected players in the market, calling into question the most important of foundational assumptions: rational decision-making.

This article isn't about irrational trading decisions and their effects on capital markets. It's about recognising that all investors, sophisticated or not, tend to think in boxes, aiming to attain a variety of objectives rather than attempting to manage all assets (and the corresponding liabilities) in a single block. Successful investing depends on attaining these goals more than on achieving that utopian, theoretical and practically out of reach ideal: the optimised portfolio.

Goals-based investing combines traditional and behavioural finance, recognising that investors:

- Are often as concerned about losses during their period of investment as the potential for a poor outcome at the end of the period.
- Are seldom interested in volatility as a measure of risk, as it doesn't reflect the real value to the investor of positive and negative outcomes.
- Prefer to consider each goal in isolation and invest in a way that gives the highest opportunity to meet that particular goal with the lowest risk of failure, as defined by the investor.

And it's the definition of failure that most strongly differentiates goals-based investing from traditional optimised portfolio investing. Behavioural finance lessons illustrate the difficulties in determining the attitude of investors to risk.

The familiar questionnaire promising to provide an understanding of the so-called risk profile frequently fails as a result of the very tilts it's trying to avoid. Individual biases such as loss aversion, decision framing and mental accounting blemish the promise of accurate results – how difficult it is to avoid the middle option of the three no matter how the options are framed.

The designers of these questionnaires miss the whole point: it's not possible to shoehorn investor decision-making into the computationally convenient mean-and-standard-deviation framework of the capital asset pricing model.

We consider just two examples of investor needs to illustrate the benefit of goals-based investing techniques.

Need No 1: Current lifestyle requirements

An investor has a capital sum and needs to use it over a number of years. Pensioners without fixed annuity protection are frequently in that position; charities and foundations as well, though they usually wish to end the period in good financial shape, their capital intact.

There are a number of ways to meet this need. For example, absolute return mandates may be useful, or explicit cash flow matching techniques. But whatever



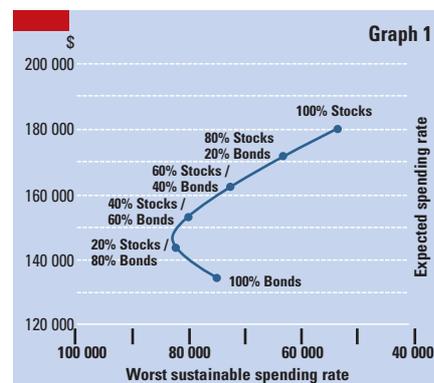
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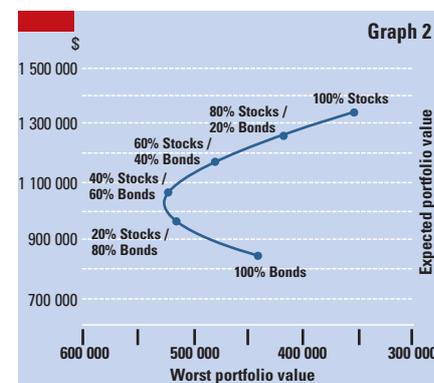
ROB RUSCONI
SEI Investments

approach is chosen, expressing the expected returns and potential downside in a way that the investor understands is crucial to selecting an investment mix that's most likely to lead to success as defined by the investor.

Graph 1 demonstrates a revised frame-



work for expressing risk and return. We use US data to determine the return distribution for each portfolio and Monte Carlo simulation methods to project forward the



potential outcomes. The investor is assumed to be drawing on a pool of US\$1m, exhausting the pool at the end of a period of 10 years.

Reward is defined as the expected rate of spending, not far off the conventional expression of reward as an annual investment return but far more relevant to the investor. The objective is to maximise the expected spending rate for a given level of risk.

But defining risk is more important, for the very definition of risk influences the outcome of the exercise. In this case, we ►►

▶ define it as the worst sustainable spending rate at any time during the period⁽²⁾. This approach recognises: (1) that investors are just as concerned about investment performance during the period, as they're the eventual outcome at the end of the period; and (2) that investors see risk in terms of an outcome, not some theoretical construct, like standard deviation.

The key is that the decision is framed in terms of the goal.

As it happens, the ideal portfolio may be close to the result that would be obtained from a typical optimisation exercise; but the results are obtained with far more confidence and understood more clearly.

Furthermore, the methodology allows alternative risk measures to be used. For example, potential loss is the amount that the investor could lose between any two points of time within the investment period – the peak-to-trough gap that more often hits the news and causes investors to respond inappropriately.

Need No 2: Investing for a fixed planning horizon

An individual has an amount to invest and no need to access this capital (or income arising from it) for a number of years. This could be a retirement saving, or preparation for tuition fees.

Reward can be expressed as the expected capital amount at the horizon date. After all, we invest for a period aim-

ing to maximise the value of that investment at the end of the period.

There are a number of ways of framing the risk of this investment that make sense to the individual. One way is to define it as the probability of losing money over the period: ending with less than we started. That's a little simplistic and unlikely to lead to a sensible allocation of assets⁽³⁾.

An alternative is to describe risk as the worst case value of the portfolio at the horizon date. Graph 2 shows an illustration of the trade off between the expected portfolio value and the worst case portfolio value 10 years in the future for a current lump sum of \$500 000.

DAN NEVINS

NEVINS joined SEI in 1999 and currently leads SEI's portfolio strategy team, overseeing research on investment strategies for individual and institutional investors.

Nivens holds two degrees from the University of Pennsylvania: a Bachelor of applied science from the Moore School of Electrical Engineering and a Bachelor of science in economics from the Wharton School of Business. He's a member of the Financial Analysts Society of Philadelphia and the Association for Investment Management & Research. He also holds AIMR's chartered financial analyst designation ■

Again, the outcome may be familiar to those more used to traditional capital asset pricing models. The benefit is that the investor has been given the opportunity to consider risk in terms that are easily understandable. A strategy understood is likely to be a strategy maintained.

Goals-based investing is an approach to wealth management that draws from both traditional and behavioural theories. Multiple strategies are linked to multiple goals and the approach improves on traditional approaches in the areas of measuring risk, risk profiling and managing behavioural biases. ■

ROB RUSCONI

RUSCONI is a member of the global asset allocation team at SEI Investments and responsible for providing strategic advice to South African clients on asset allocation and related issues.

He has experience in a wide variety of financial services roles in SA and Britain. He's worked for Old Mutual and Sanlam, the actuarial consultancy Hewitt Bacon & Woodrow and the Internet business of London's *Financial Times*, FT.com.

He has a statistics degree from the University of Cape Town and was admitted as a Fellow of the Institute of Actuaries in 1998. ■

Wired for wealth?

Just why do we behave so strangely?

ONE of the great puzzles for behavioural finance adherents has been just why it is that human beings make such persistent, bad decisions in investing.

Jason Zweig, well-known international author and columnist on investor behaviour and general investment trends, wrote in an article in *Money* magazine in 2002 that much of this behaviour can be explained by the way our brains are wired. In the academic research that Zweig reviewed, the suggestion was that from an evolutionary perspective, these types of cognitive behaviours served a hunting/gathering skill set very effectively. But, clearly the persistence of these responses in the complex world of invest-

ing, is problematic.

For example, Zweig in his report and supporting research identified that, while the amygdala is the early warning system of the brain, it also reacts strongly to the thought of financial gains or losses.

The fear of losses also leads to some form of hard coding taking place, thanks to the adrenalin release, while a neighbour in the brain – the hippocampus – gets involved if a losing streak is experienced, which partially explains why after a market crash investors take a lot longer to get involved again. The pain of loss is felt.

Ironically, and contrary to the general consensus, the highly emotional side of the brain can in fact help investors

behave more rationally. Memory has a role to play, as people investing in the long-term bull market of the Nineties found out – especially those who'd never experienced major losses and who mistakenly believed that they could shrug off the pain of loss before even experiencing it.

Zweig wrote that classical financial economics is simply wrong in its view of human nature – on at least three fronts.

First, people don't efficiently and objectively incorporate all available information into their decisions; in fact, they ignore most of the available information and quite often incorporate only the least reliable data.

Second, people don't consistently act ▶▶ 18

► 17 to maximise their expected utility of wealth; more typically, they take risks they should avoid and avoid risks they should take.

Third, people don't have stable and predictable preferences; even when we're most convinced that we know exactly what we want we're often disappointed when we get it.

In short, we're overconfident regarding the reliability of our judgments before we know the outcomes – and riven with regret after the outcomes become known.

He doesn't believe that behavioural finance can be used as a blunt instrument to "beat the market". Nor does he believe that humans are irrational. We're "imperfectly rational". Most of the time our intuitions are good, but when they're bad, they're horrid. And we're driven at least as much by our emotions as by our reason.

By ignoring the paramount importance of emotion in decision-making, traditional scholarship has taken an unreal-



Jason Zweig... what happens in the brain can affect investment behaviour.

istic view of "homo economicus".

We're not Excel spreadsheets that walk and talk; we're human beings who hope and crave and hurt. In his opinion, the study of behavioural finance won't necessarily enable you to take advantage

of the mistakes of others. But it should enable you to recognise, analyse and minimise your own costly mistakes.

That alone makes this field of study worthwhile.

His interest in this subject is to try to drill down as close to biological bedrock as possible: Why are we designed this way? What happens in the human brain when you make investment decisions? His conclusion is that our brains have been optimised for vastly simpler decisions under far different circumstances.

It's hard to generate durable investment success because our brains were designed by evolution to excel at predicting much less complex variables over short time horizons.

For most of us, the single best way to use that insight is not by trying to get everything "right" when we invest but rather by trying to get as few things "wrong" as possible.

Patience is the rarest virtue in money management – and yet it still goes begging. ■

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