

The Problem With Assumptions
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By John Mauldin

Insanity, my bride tells me again and again, is doing the same thing over and over and expecting different results. This week we return to the concept of Bringing Out Your Inner Spock. We look at four more reasons why our psychological make-up makes us prone to making major investment mistakes. For those who missed it, I discussed one of them with Ron Insana and Sue Herera on CNBC yesterday afternoon. They invited me over to their spiffy new studios for some on air chat time about the markets. Hopefully next time I will know in advance and alert you.

But before we explore the psychological reasons we make investor mistakes, let's look at an even more basic reason for investment difficulties: simple ignorance. The NASD commissioned a survey of investors, and only 35% got seven out of ten very basic (and simple) multiple choice questions right. They were too polite to say so, but if my kids had brought that test home, I would have noted they had failed and needed to go to their room for more study.

15% of investors thought that if you bought a share of stock you would get your money back with interest or had lent the company money. Only 40% knew that if interest rates drop then bond values will go up. 25% thought it meant bond values would go down and 12% said it does not affect the price. A total of 60% of investors did not understand the relationship between interest rates and bonds. Given that interest rates are likely to rise over this decade, that lack of understanding does not bode well for investors.

Only 21% could correctly identify a no-load mutual fund, and 31% thought it meant a fund with no fees. Maybe it was just a poorly worded question, but a staggering 46% believed that they were insured against stock market losses by (choose one): the SEC (16%), FDIC (14%), SIPC (12%) or the NASD (4%).

The survey revealed that despite the recent bear markets, we are still optimistic about future market returns. 40% of us believe that a reasonable average long term return from a broadly diversified mutual fund will be 10%. That, by the way, is the survey answer which was considered "correct."

6% of those surveyed thought that 20% or more was a reasonable expectation, and 15% thought that a 15% was reasonable. That adds up to 61% who think the markets will give them 10% or more over the long term.

They are likely to be disappointed over the next 10 years. Starting from today's high P/E ratios, Yale Professor Robert Shiller clearly shows there has never been a time

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in which investors saw returns that were better than that of simply parking their cash in a money market fund. The studies, written about in this column for the last few years, of Arnott, Bernstein, Grantham, Alexander, Dreman, Stein, Buffett, Montier, Easterling and many others (along with the work of your humble analyst), all show the likelihood of meager returns over the next decade.

If my kids had chosen 10% or more, I would make them go to their room and read my past letters. Cruel punishment, maybe, but better than making bad investment decisions based upon unrealistic expectations.

Now, let's turn to today's main topic, the psychological reasons for our investment mistakes, as opposed to the ignorance demonstrated above.

Your Inner Spock, Part 2

Extraordinary Delusions and the Madness of Crowds is a popular book on the history of investment bubbles. Delusions and madness seem to repeat. Kahnemann and Tversky received the Nobel Prize in Economics for not just showing us that investors are irrational, which is a readily observed fact, but that they are irrational in predictable ways. There is a branch of psychology that seeks to determine if there is a biological or evolutionary reason for that predictable irrationality.

It is self-evident, at least to me, that many of our most basic social institutions are having difficulties in adapting to a modern and fast-changing world. As an example, the way in which I raise my children must deal with pressures and situations far different than that of my Revolutionary War era ancestors, and are even more remote from that of my forbears (probably peasant, at least on my father's side) who lived in medieval Europe.

Yet I can recognize responses in myself to the problems of my children that were "learned" from my Dad which he "learned" from his Dad and so on. They were culturally ingrained – loosely speaking of my family behavior characteristics as cultural. It is why we all tend to notice family traits, not to mention attributing some traits to nationalities or regions.

Trying to raise 21st century children using 17th century models is futile, if not damaging. I know some will fondly recall the superiority of the old ways and days, but a little research shows that not all the family practices of the past were helpful. Do we really want our daughters marrying in their early teens (without their consent, to men chosen by their families) or our sons to be basically limited to following in their father's occupations? How do we teach them the Old Values in a modern context? It is only as I consciously adapt those inherited family biases that I can even hope to raise my kids to cope with a world that will change even more for them and their children.

I would suggest it is no different with economics and investments. We have within us a set of survival instincts, values and biases that were developed for living first

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in hunter-gather societies and then in small subsistence agrarian communities. As we will see, these do not necessarily translate well into the investment world. (I highly recommend the Pulitzer Prize winning book *Guns, Germs and Steel* by Dr. Jared Diamond for those interested in learning how difficult and long the road to modern civilization has been.) In fact, these hard-wired responses may in fact be responsible for most of the common mistakes we make as investors.

Today, we are going to return to a topic I wrote about a few weeks ago called Your Inner Spock. It was part of a chapter on the psychology of investing in my upcoming book. Today, we will look at some more of that chapter.

It is based upon the rather substantial and very impressive research of James Montier, the Global Equity Strategist for Dresdner, Kleinwort Wasserstein Research based in London, England. He is the author of the well reviewed and very readable (thus unusual in its field) book called *Behavioural Finance – Insights Into Irrational Minds and Markets* (for those of you looking for the book, note that Amazon lists it as *Behavioural Finance: A User's Guide* and behavior is spelled the British way which slips in an extra u). He has produced a large body of work analyzing numerous books, studies and research papers on the neurological and psychological reasons for our investment decision making process. Rather than quoting his works at length, he has graciously consented to let me use a few of his papers as the base for the chapter. I have edited and added a few illustrations and examples, but the bulk of the material and conclusions is the fruit of years of his concentrated research.

A Litany of Mistakes

Our minds are far more suited for dealing with the basic decisions of survival than for choosing stocks and investments. Jumping to some of the conclusions, we will see that our emotions rule our minds for good reason: if you took time to analyze a situation you could soon be dead. Flight or Freeze is a basic response to fear. We all know that when fear rules our mind, the investment decisions we make may not be the best. The problem is, however, it is not simply a matter of repressing our emotions, for we will find that without our emotions we cannot make decisions. There is a process which we all go through to make decisions that needs to be adapted to the investment world. We need to develop our “inner Spock” (the ultra logical character in Star Trek) so that we can keep our emotions in balance.

(The November 14 Thoughts from the Frontline called Your Inner Spock dealt with the first five investment mistakes caused by psychological self-deception. You can see that letter by going to the archives at www.2000wave.com. We now take up four more.)

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¹ Hirschleifer, D (2001) Investor Psychology and Asset Pricing, Journal of Finance 56

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It is now time to move from the problems caused by self-deception to those under the category of heuristic simplification. Heuristics are a fancy way of saying “rules of thumb” for dealing with massive amounts of information. In many settings heuristics provide sensible short cuts to the “correct” answer, but occasionally they can lead us to some very strange decisions.

For instance, a rule of thumb for measuring wood says that a 2x4 piece of lumber (at least in the US) is 2 inches by 4 inches on the side. If you had 10 of them stacked side by side, a simple heuristic or rule of thumb would say you have 20 inches of board. But the actual width of the board is 1.875 inches, so the exact number is 18.75 inches. Not a problem if you are trying to figure out how many boards you can get into the back of your pick-up. However, if you are trying to load 30 rail-road cars with boards, it could cause a significant error in your freight bill.

This second group of biases effectively represents information processing errors. They cover biases that result from the admission that we aren't super computers capable of infinite dynamic optimization.

When faced with uncertainty people will grasp at almost anything when forming opinions. In the classic experiment Tversky and Kahneman (1974) asked people to answer general knowledge questions such as what percentage of the UN is made up of African nations? A wheel of fortune with the numbers 1 to 100 was spun in front of the participants before they answered. Being psychologists Tversky and Kahneman had rigged the wheel so it gave either 10 or 65 as the result of a spin. The subjects were then asked if the answer was higher or lower than the number on the wheel, and also asked their actual answer. The median response from the group that saw the wheel present 10 was 25, and the median response from the group that saw 65 was 45! Effectively, people were grabbing at irrelevant anchors when forming their opinions. This is known as **anchoring**.

Think about this in the context of valuation. In the absence of any reliable information, past prices are likely to act as an anchor to current prices. Does it not strike you as strange that the average analysts' price target is 28% above current market price?

Too many Discounted Cash Flows (DCFs are a way of looking at the valuation of a stock) are anchored around current market prices. Montier cites personal stories where some analysts deliberately seek to arrive at a DCF target that is close to market price, apparently in an effort to justify their analysis and the price upon which they are fixated.

The best way of beating this problem when it comes to stock valuation is to use reverse engineered DCFs. That means backing out what is implied by the current market price, and then seeing if it matches your view. For instance, for the US market the current dividend yield is around 1.5%; assuming that investors want a 3.5% equity risk premium, and given a nominal bond yield of 4.4%, we can see that the current pricing of equities is only consistent if dividends can grow 6.4% per year, forever! However, if you change your assumption of the risk premium, you can make the number say anything you want.

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Sadly, the empirical evidence suggests that such high dividend growth is highly unlikely, but some analysts simply ignore the evidence because it does not fit with their biases. If the numbers don't fit your forecasts, then change the numbers.

The other element to beware of is relative valuation. All relative valuation measures should be ignored. It is simply far too easy for an analyst to fixate (anchor) on their sector average as the 'correct' value. For instance, in the past Montier has been asked by analysts to construct tables of valuations on criteria such as PE and Price to Book across industries, so that the analyst can compare the stock under investigation with its peer group. This tells us nothing about the true 'fair value' of the equity. But it can be a "justification" for an analyst's bullish projection.

The tendency to anchor on some irrelevant number provides our sixth rule:

(6) Forget relative valuation, forget market prices, work out what a stock is actually worth (use reverse DCFs). (A good book on reversed engineering DCFs is *Expectations Investing* by Alfred Rappaport and Michael J. Mauboussin)

Framing The Problem

When information is presented to us, we aren't very good at seeing through how it is presented. We tend to take things at face value rather than drilling down to get to the detail. As an analogy think about the typical optical illusions where we are shown lines of apparently variable length, (typically they are part of a larger drawing or picture) and asked which are longer? The majority of people get the answers wrong. However, if you put the two line pictures sides by side and draw lines connecting them, giving the viewer a way to "frame" the picture, it becomes clear the lines are the same length.

We fail to accurately see through the way in which the lines are presented until we make the frame transparent (i.e. we add the connecting lines for accurate comparison). When we do this it becomes immediately clear that both lines are exactly the same length. This inability to see through the way in which things are presented is called **narrow framing**.

Think of the Ibbotson studies on long term stock returns that I have written about in many letters. It is not that the data is wrong. It is scrupulously accurate. The problem is that it is used to suggest that the immediate decades following today will look like the past - that if investors will simply (and be confident in the data) stay the course, they will be rewarded. The data is not "framed" by the other numerous studies presented which show that valuation, the direction of interest rates and inflation, international currency flows and a host of other factors may perhaps influence the market in a less than satisfactory manner.

This kind of narrow framing generates our seventh rule:

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(7) Don't take information at face value, think carefully about how it was presented to you.

Representativeness

Let us turn our attention to Linda. Linda is 31, single, outspoken, and very bright. She majored in philosophy at university, and as a student was deeply concerned with issues surrounding equality and discrimination. Is it more likely that Linda works in a bank, or is it more likely that Linda works in a bank and is active in the feminist movement?

Somewhat bizarrely many people go for the latter option. But this can't possibly be true. The second option is a subset of the first option, and a subset can never be larger than one of the contributing sets!

So what is happening? Well, people judge events by how they appear, rather than by how likely they are. This is called **representativeness**. In the example of Linda, people picking the option that Linda works in a bank and is active in the feminist movement are underweighting the base rate that there are simply more people who work in banks, than people who work in banks and are active in the feminist movement!

Representativeness has many applications in investment. For example, do investors think that good companies make good investments? You can see this in stock analysts projections about future earnings. In several studies (which I illustrate in the book but will summarize here) you can clearly see that analysts projections of the future five years of earnings to be are **HIGHLY** correlated with the immediate past five years. But actual results are somewhat different. The projections for the companies with the highest earnings are wrong by more than 50% and for the very highest companies by 2-3 times!

The results show that analysts suffer **representativeness** twice over. Firstly, companies that have seen high growth in the previous five years are forecast to continue to see very high earnings growth in the next five years.

Secondly, analysts fail to understand that earnings growth is a highly mean reverting process over a five year time period. The actual (base) rate for mean reversion is very high. The low growth portfolio generates nearly as much long term earnings growth as the high growth portfolio. Effectively, analysts judge companies by how they appear, rather than how likely they are to sustain their competitive edge with a growing earnings base.

These mistakes lead us to our eighth rule:

² It draws on work by Chan et al (2002) The level and persistence of growth rates, Journal of Finance forthcoming and our (meaning Montier's and DKWR's) own work

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(8) Don't confuse good firms with good investments, or good earnings growth with good returns.

Post-it Note Memories

Our minds are not supercomputers, and are not even very good filing cabinets. They bear more resemblance to post-it notes which have been thrown into the bin, and covered in coffee, which we then try to unfold and read the blurred ink! In particular the ease with which we can recall information is likely to be influenced by the impact that information made when it went in. For instance, which is a more likely cause of death in the US, being killed by a shark attack, or being killed as a result of a lightening strike?

Most people go for shark attacks. Largely this is a result of publicity that shark attacks gain in the media, and the fact that we can all remember the film Jaws. In actual fact, the chances of dying as a result of a lightening strike are 30 times greater than the chances of dying from a shark attack. (Curious unrelated fact: Orlando, Florida, where I am writing the last parts of this letter today, is the place with the most lightening incidents in the world.)

A less drastic example comes from Kahneman and Tversky (1973). They asked people the following: "In a typical sample of text (which they were shown) in the English language, is it more likely that a word starts with the letter k or that k is its third letter?" Of the 152 people in the sample, 105 generally thought that words with the letter K in the first position were more probable. In reality there are approximately twice as many words with k as the third letter as there are words that begin with k. Yet because we index on the first letter, we can recall them more easily.

Think about this in the context of stock selection. How do you decide which stocks you are going to look at when you arrive at work in the morning? Is it because you read about them in the Financial Times? Or heaven forbid, that some broker sent you an email mentioning the stock, or some analyst wrote a research report on it? It is worth noting that Gadarowski (2001) investigated the relationship between stock returns and press coverage. He found that stocks with the highest press coverage underperformed in the subsequent two years! Be warned all that glitters is not gold.

(9) Vivid easy to recall events are less likely than you think they are, and thus subtle causes are generally underestimated.

³ S Gadarowski (2001) Financial press coverage and expected stock returns, Cornell University Working Paper

⁴ See Gary Klein (1999) Sources of power: How people make decisions

⁵ Klein actually refers to something he calls naturalistic decision making (NDM). I believe that NDM and X-system are highly related, if not in fact identical concepts.

⁶ Joseph Piotroski (2000) Value Investing: The Use of Historical Financial Statement Information to Separate Winners from Losers, Journal of Accounting Research, also available from <http://gsbwww.uchicago.edu/fac/joseph.piotroski/research/>

⁷ Partha Mohanram (2003) Is Fundamental Analysis Effective for Growth Stocks? Available from <http://www.ssrn.com>

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It's time to close up shop for today. The small TV screen at my seat on the JetBlue flight to Orlando shows us now over Florida, and thus near landing. It has been a busy week, starting with finishing my book (except for the appendixes and a few odds and ends)! Then on to New York, where I spoke at a Bank of New York conference, met with several hedge funds and finally got to meet with Debra Englander, who is my editor at Wiley Press (who will publish my book). She tells me the book may run some 400 odd pages. We are going to call it "**Bulls-eye Investing, Target Your Investments Where the Market Will Be, Not Where it Was.**" (Special thanks to Sam Chiodo and his cohorts at MONY for hosting a great dinner.)

If New York hotels are an indicator, the economy is booming. I neglected to get a room until last Monday. There were very few rooms available anywhere at any price. I had to change hotels last night, to something called The Alex, which had one of the few rooms available in mid-town. It is a brand new hotel, with construction everywhere. They have not quite got the kinks out. Little details like chairs in the rooms, towels and coffee (nowhere in the hotel!) were still on the to do list, as was the promised high speed internet. The room was typical of New York, small. Normally this is just part of life, but the hotel also set my personal all-time high overnight rate. Oh, well. It was a room. And an earlier dinner with Art Cashin (after the CNBC interview) made the evening a great one.

As I noted, I am in Orlando for the day, visiting my good friend and one of my favorite managers and thinkers, Dr. Gary Hirst. Some day I need to do a whole letter on his view of statistics and how they can be so misleading when it comes to investing.

Tomorrow morning I fly to Tulsa to watch my daughter Amanda cheerlead at two ORU basketball games. She was an All-American in high school and the clever girl got a scholarship for cheerleading. All those lessons paid off! Dad is only a little proud.

It will be good to be home on Sunday for the rest of the year. It will be beginning to look a lot like Christmas as I get home tonight, as my bride will have decorated the house for Christmas. Life is good.

Your having more fun than the law allows analyst,

John Mauldin

⁸ See Montier (2002) Behavioural Finance: Insights into irrational minds and markets (Wiley)