

INVESTOR BEHAVIOUR IN THE CAPITAL MARKETS

Patrick Picenoni – Altrafin Ltd.

Students of business administration and economics become acquainted with the concept of the “*homo economicus*” in their first microeconomics lecture. The “*model world*” of the rationally acting economic subject is used to explain elementary economic correlations, and is the basis of many economic models. The basic assumption of this economic system is that the acting *homo economicus* is able to form a clear, quasi-rational order of preferences prior to making a decision on all possible alternatives and then decide on the alternative that is best according to his preferences. One consequence of this relayed way of thinking is the belief in the efficiency of the financial markets and the rationality of the actors operating therein. According to this theory, the prices of securities in the financial markets should be an expression of a state in a constant perfect equilibrium.

The events in the capital markets of the last century, and particularly the exaggerations and corrections of the past several years, however, clearly show that the prices of securities indeed develop rationally according to the underlying economic structure (for example, the profit developments of companies in terms of share prices) in the long term, but in the short and medium term appear to depend much less on rational decisions, but rather on *non-rational* behaviour patterns of the wider investment community. These accentuate booms and busts - because prices of securities rise and fall much further than do company profits - and thereby determine the risks and opportunities in the markets to a much greater extent than ever could be the case under the classical model described above.

This article therefore attempts to highlight the behaviour and thought patterns of investors in the “real world” and the exaggerations triggered by them – particularly in the context of today’s situation in the markets.

“The not-so-rational actor”

It is self-evident for a psychologist that humans are neither completely rational nor entirely egotistical, and that their preferences are anything but stable. The behavioural economist Richard Thaler differentiated between the *Econs* (“*homo economicus*”) and the *Humans* (“*ordinary mortals*”). The *Humans* let themselves be guided mostly by intuitions, emotions, simplified associations, etc. Their world view is limited to the information that is available at any given time, and they can therefore not act as consistently and logically as *Econs* can. The psychologist and Nobel laureate in economics Daniel Kahneman (co-founder of the new *prospect theory*) summarises the characteristics of *Humans* as follows:

- works, thinks and acts automatically, quickly, mostly intuitively and effortlessly
- is shaped by impressions, feelings, emotions and tendencies
- infers causes and intentions and invents both, if necessary
- has the tendency to believe and confirm information
- exaggerates emotional consistency. A great chasm exists between stated mindset and actual behaviour
- focuses on available information and often blocks out missing information
- sometimes replaces a difficult question with an easier one (heuristics)
- reacts more sensitively to changes than to conditions
- attaches too much importance to low probabilities and underestimates the regression to the mean
- shows reduced sensitivity for quantity, reacts more strongly to losses than to profits (loss aversion)
- often defines decision problems too narrowly and separates interconnected decisions from each other

As investors come together in the capital markets on a daily basis and establish the prices and trading volume of securities through their trading (supply & demand), it is of crucial importance to the successful investor to understand their investment behaviour in rudimentary terms at least and to assess it properly. This usually improves investment results and reduces risks. The greatest risk of investing is the belief that there is no risk. The investor Warren Buffet was therefore very accurate when he said, ***“The less prudence with which others conduct their affairs, the greater the prudence with which we should conduct our own affairs”***. Normally we should be very careful when the majority of the investment community acts euphorically. But if everyone else is being very careful, we should have the courage to position ourselves more aggressively in the markets.

However, the psychologically rooted behaviour of investors is anything but consistent. Instead, it is subject to a classic cycle which basically repeats itself over and over again, and – to use the words of Sir John Templeton (the founder of the US asset management firm Templeton Investments) – causes market phases to overshoot both toward the top and toward the bottom: ***“Bull markets are born on pessimism, grow on scepticism, mature on optimism, and usually die on euphoria”***.

“Changes in investor behaviour during an upward cycle”

If we assume that the vast majority of investors is equipped with the characteristics of the *Human’s* described above and then analyze the cycles in the financial markets, we see an ***ideal-typical upward trend*** which is approximately as follows (think back, for example, to the cycles of the recent past: 1991-2000, 2003-2008 and 2009-?):

1. If economic growth is weak or negative and if the financial markets already have adjusted strongly, investors are worried about losing even more money and ignore the risk of missing out on potential investment opportunities (as the prices have already fallen sharply). The media, which typically also is dominated by *Humans*, will continue to report negatively at this stage, which negatively reinforces the investment behaviour of investors. Only a few investors, who think anti-cyclically, are capable of imagining that improvement is possible.
2. From a certain point onwards, the economy shows the first signs of life and company profits start to trend upward instead of falling further.
3. Sooner or later, economic performance increases tangibly and profits show significant increases.
4. As a result of the growing discrepancy between economic facts and investor expectations, the prices of investment securities begin to rise slowly.
5. Owing to the rising prices in the markets, in connection with the improving economic situation and company reports, the average investor realizes that improvements are actually taking place. Confidence begins to increase. Investors gradually start to feel better off financially and smarter, they forget their earlier bad experiences and begin to extrapolate current progress into the future.
6. Scepticism and caution disappear and are substituted by optimism and aggressiveness.
7. All of those who have not jumped on the bandwagon are starting to feel the pain of not being part of what is happening. It is only a matter of time until the last few investors are gradually “dragged into” the market.
8. The longer this process lasts, the more enthusiasm towards investments increases. During this phase, investors – contrary to their basic disposition regarding loss aversion – are less worried about losing money than about missing out on potential investment opportunities.
9. The risk aversion evaporates and investors begin to have difficulties imagining that a sizeable correction could easily occur again in the short to medium term.
10. Financial institutions and banks are subject to the same influences and usually are willing to grant more debt capital in the form of credit financing (including mortgages). Private equity firms borrow more and more money – for example, for the acquisition of companies – and therefore are able to pay higher purchase prices, which results in a further increase in the price of companies.
11. The markets increasingly mutate into a “perpetual motion machine.” Value increases accelerate, the last sceptics capitulate and the last potential buyer purchases, possibly until a bubble is created.

The amazing thing in all of this is that such cycles repeat themselves at regular intervals in financial history. Only the asset classes, or certain themes, appear to change. At one time there were excesses in precious metals (silver bubble of the 1970s, during which the price rose from USD 1.50 to more than USD 50), then there were euphoric movements in the so-called “Nifty Fifty” stocks (the 50 “best” and fastest-growing companies in the US) toward the end of the 1960s until the beginning of the 1970s (whose price-earnings ratios of 80-90 sank to about 9 after the bubble burst and investors lost about 90% of their money). Another time it was the exaggerations in stocks and bonds of the emerging countries (end of the 1990s in Thailand, Asian tiger countries, Russia). At the beginning of the 21st century it was excesses in technology stocks (1997-2000) and finally exorbitant exaggerations in the US-American real estate market (until the bubble burst in 2007-2008). The excessive easing of monetary policy among Western central banks (led by the US Fed, the European Central Bank and the Japanese Central Bank) since the emergence of the financial crisis with interest rates that are held artificially low and *quantitative easing* programs, i.e. the purchasing of government bonds in order to keep long-term interest rates as low as possible, will probably accelerate future exaggerations for certain financial assets.

Usually it is just before the turning point or bursting of the bubble that most investors, including financial intermediaries such as banks (which profit the most from a price bubble), turn into true experts in the field. In the process they lose any and all objectivity, in that they stop asking critical questions about potential alternative scenarios. But the prices cannot rise forever. Generally, once the last buyer has purchased there is nobody left who could let the prices rise further.

Only few, disciplined, rather rationally thinking and independently acting investors will have the foresight to know that there is a limit to everything and the probability of a sizeable correction increases when prices continue to rise. And this usually marks the start of the downward trend, which could be described in the same terms, but in the opposite order, as the aforementioned upward trend (the painful version of a “*regression to the mean*,” so to speak; compare with point 3 below). The tragedy here lies in the fact that our *Human* described above allows himself to be (mis-)led by the same psychological behaviour patterns in a downward trend, which typically only amplify this trend and therefore allow the prices of securities to be even further removed from the economic reality. One example for this was the price development of top-rated corporate bonds between the 4th quarter 2008 and, approximately, mid-2009 (many investment grade bonds of blue chip companies traded at prices between 80 and 85).

One of the best-known speculators at the turn of the 20th century, Jesse L. Livermore (1877-1940), long ago accurately formulated the logic for these recurring upward and downward cycles: ***“All through time, people have basically acted and reacted the same way in the market as a result of: greed, fear, ignorance, and hope. That is why the numerical formation and patterns recur on a constant basis.”***



“Selected behaviour and thinking patterns in the context of investment decision processes”

1. Illusion of competency

The brain filters and simplifies so as to master the large volume and complexity of information. This results in simplified assumptions and assessments, which can lead to a series of erroneous behaviours, for example self-overestimation. Prof. Kahnemann mentions, in the context of investing, that an entire sector – i.e. the financial industry – appears to be based on an **illusion of skills**. The empirical volume of data after more than fifty years of research on this topic, contrary to what most market players believe, is unambiguous: for the vast majority of investors, the selection of individual shares is equivalent to rolling the dice. This can be seen in the annual results (performance). If the competency of the investors played a role, the rankings would be more stable from year to year. But in reality, the correlation between the successive annual investment results of investment funds is generally very small, only just above zero. That is why researchers agree that almost all investors (including the majority of professional investors) are playing a game of chance, whether they know it or not – and very few know it. Securities traders feel (subjectively), that they are making rational, well-reasoned assumptions in situations of great insecurity. But well-founded assumptions are no more accurate than blind assumptions when it comes to highly complex markets.

This means that even so-called experts are subject to the illusion of skills. They too have a hard time recognizing the limits of their powers of prediction, because humans tend to construct coherent narratives about past events, and to believe in them. Everything makes sense with hindsight (e.g. if we think about everything that was written about the causes of the financial crisis after 2009), a fact financial experts exploit every day, when they deliver convincing explanations for the events of the day (for example, the commentators on financial news channels such as Bloomberg, CNBC, n-tv, etc.).

The illusion of understanding the past supports the overestimation of our abilities to predict the future. The psychologist Philip Tetlock (University of Pennsylvania), who summarised his research results in the book *“Expert Political Judgement: How Good Is It?”*, which was published in 2005 (he collected 80,000 predictions over a period of 10 years, using interviews with 284 individuals, who earn their living as advisors or commentators on economic and political trends), also came to the conclusion that, “those who know more deliver only marginally better predictions than those who know less”. The experts were not significantly better than the laymen even in the fields with which they were most familiar. In this context compare the accuracy of financial analysts and economists regarding exchange-rate prognoses or index levels of stocks at the end of a particular year. Despite this, investors still allow themselves be guided and influenced by the prognoses and assessments of market commentators, etc., on a daily basis, even though with hindsight it should be apparent to anyone that the **illusion of prognosis** represents a widespread problem. Supposedly there are more than one million trained economists on Earth. But virtually none of them predicted the timing of the financial crisis exactly, let alone the sequence of events from the bursting of the real estate bubble in the US to the collapse of credit default swaps to a full-blown economic crisis.

The Harvard economist John Kenneth Galbraith once said: **“There are two kinds of forecasters: those who don’t know and those who don’t know they don’t know.”** The basic problem is as follows: experts don’t pay a price for false prognoses – neither in money nor in a loss of reputation. There is no mechanism for sanctions if the prognosis is inaccurate, but a premium (in the sense of a no-cost option) in attention, advisory mandates and media interest, if the prognosis is accurate or even extremely sufficient. As the price of the option is zero, we see a virtual flood of predictions. This increases the probability that more and more predictions are accurate out of sheer

coincidence. The more complex a system is – and this includes the economic and financial system to a large degree – and the longer the time frame, the more blurred the vision of the future. Even though the price of oil, exchange rates, the price of gold, stock indices or growth rates are virtually impossible to predict, banks, national and supranational institutions (International Monetary Fund, World Bank, etc.) employ hundreds of thousands of economists and experts who do nothing all day except prepare prognoses on these subjects.

2. Tunnel vision and adverse selection of information

Once a subjective opinion has been formed on an investment topic, for example, *“the price of gold will again rise above USD 1,900 per fine ounce”*, investors then tend to interpret new information in such a way that it is compatible with their theories, world views and convictions (known as **“confirmation bias”**). In other words, new information that contradicts their existing views is filtered out. They therefore prefer to read reports and prognoses that also assume a continuously rising price of gold or communicate with investors who share their views, instead of trying to seek out opposing opinions (known as **“disconfirming evidence”**).

Warren Buffet is clearly aware of this when he says, **“what people are best at is filtering new information in such a way that existing opinions remain intact”**. The greater the self-overestimation of the investors and the more developed their *confirmation bias*, the more likely they are to have difficulties recognizing and accepting shifts in market trends early, and drawing the appropriate conclusions.

3. Cycles and regression to the mean

Many of the greatest mistakes in the financial world are related to a lack of understanding of cycles and the **phenomenon of regression**. Investors extrapolate upward trends and downward trends too far. But the truth is that trends do not last forever; they are subject to cycles, they adjust and they move toward a long-term mean. Moreover, the more pronounced a trend is, the greater the likelihood that it will break and that a strong counter-movement will occur (bursting of the bubble or start of an upswing).

The phenomenon of regression to the mean is usually alien to the human mind. Sir Francis Galton, a famous polymath, discovered the phenomenon and gave it its name (1886). The conclusion is simple, but has surprising consequences: whenever two measurements do not correlate perfectly with each other, a regression to the mean follows, and extreme situations (excesses and stock market crashes) regress to the mean over time.

4. Herd mentality, social confirmation and group-think

Investors often diverge from their original strategy in the face of new events and follow the masses. Example: the conservative investor X has for years defined a maximum stock quota of 40% for himself. After the announcement (in the summer of 2012) by ECB President Mario Draghi, *“to do everything to prop up the EURO, including, in emergency situations, with the unlimited purchasing of government bonds,”* investor X decides a few months later, despite initial scepticism, to purchase a few stocks, which lets the equity allocation rise above 40%. He is still not convinced that the stock market will continue to rise, but as stock prices climb further he increases his maximum limit to 45%, and by the end of the year turns into an offender by conviction. He now believes that this will continue and once again increases the maximum quota he’s willing to tolerate by 5%, to now 50%. **The power of the masses represents the psychological phenomenon with the most prominent effect. Once the herd is at full trot, there is often no way to stop it.** The investor X is now afraid of

missing out on something. The herd and the media reports provide him with confirmation of this and his individual risk situation is now unimportant.

If everyone acts this way and investor X succumbs to group-think, for example due to his belonging to a certain investor community (such as Internet blogs, communities), he will adjust his opinion more and more in line with the supposed consensus within the group. In the end this results in decisions that each individual member would have rejected under normal circumstances. This herd mentality is the curse underlying bubbles and market panic.

5. Clinging to and guidance by “sunk costs”

Investors are usually guided by the purchase price when deciding whether to sell. If the price of a share is above the purchase price, they sell (usually much too early). If it is below the purchase price, they do not sell. The pattern is: the more money we have already lost on a stock, the more we stick to the position. We do not wish to realize losses; instead, the wait is extended in the hope that the stock will recover. A loss that has not been realized is not yet a loss. This is irrational. The purchase price should play no part in this. The only thing that counts is the prospective future price development of the stock or the future potential of alternative investments (opportunity costs). For the rational investor, the purchase price is an irrelevant fact of the past. Not so for most investors (*Humans*).

In addition, ownership of an asset plays a significant role in the sales decision for most investors (**so-called ownership or “endowment” effect**). Something that we own – for example, holding shares in a certain company for many years, from which we also buy products in our daily lives, or our own property, art collection, etc. – appears to us to have more value than something which we do not own. In other words: If we sell something we ask for more money than we would be willing to pay for it. Remarkably, this effect even occurs where people nearly own something: during auctions, those bidders who bid until the very end already consider themselves owners. Accordingly, the object of desire has increased in value for the potential buyer. They are suddenly willing to pay a higher price than that which they had intended to pay initially. Examples for this are property, art or company purchases that were made during auction proceedings.

6. Loss aversion

The concept of loss aversion is one of the most important contributions of the field of psychology to behavioural economics. For most people the fear of losing EUR 100 is stronger than the hope of gaining EUR 150. **The brain even reacts quickly to purely symbolic threats.** Emotionally charged words in the media quickly draw attention and negatively charged words (**crime, financial collapse, bankruptcy of Greece, collapse of the EURO, etc.**) draw attention much quicker than positively charged words (**peace, stabilization of the real estate market, decreasing unemployment, etc.**).



The **new prospect theory** (Daniel Kahneman & Amos Tversky, 1979) – which specifically incorporates the failure of rationality into its research – extensively discusses the behaviour of *Humans*. Humans are guided by the immediate emotional effects of **profits** and **losses**, and much less by long-term profit potential or the global expectation of utility, on which the classic theory of utility is based. The preferences and decision patterns are divided into four scenarios (“**the quadrisected pattern**”) in the new prospect theory:

Profits

a) Potential effect: This is the classic case of a lottery ticket or a visit to a casino (roulette). Example: 0.05% probability of occurrence (“PO”) to win EUR 10,000 in the context of a lottery. Even though the PO is very low, the potential of a win is sufficient and people let themselves be tempted to enter such a bet (they are **risk-seeking**).

b) Safety effect: People are risk-averse. They are willing to be satisfied with less than the expected value of a game of chance in order to secure a safe profit. Example: 95% PO to win EUR 10,000 or 100% PO to surely obtain EUR 9,500. The safe, i.e. the latter option will usually be preferred, not the lottery (**risk-averse** behaviour).

Losses

a) Potential effect: This correlates to the classic case of insurance protection. Example: 0.05% PO to lose EUR 10,000. Although this probability is very low, the fear of high losses is present (**risk-averse** behaviour). The insurance sector takes advantage of this behaviour and makes its money through insurance premiums. People are willing to pay much more for an insurance policy than that which corresponds to the expected value of the risk. This also is the reason that the prices for options in the capital markets or for general hedging strategies usually are very high immediately after a major correction.

b) Safety effect: The insights from this scenario are particularly interesting and do not match the pattern we would intuitively expect. Example: 95% PO to lose EUR 10,000 or 100% PO to realize a loss of EUR 9,500. The sure loss is very aversive, because the reaction to a loss of EUR 9,500 is more than 95% as intensive as is the reaction to a loss of EUR 10,000. *The sensitivity toward a sure loss decreases with the increasing PO of a lottery, or, in other words, the aversion toward the sure loss increases.* This is a very important conclusion because it helps us better understand decision-making processes – and therefore exaggerations and crises, too – in the capital markets or in political processes. These involve people, who are confronted with very negative situations, deciding on bets with little chance of success (**risk-seeking** behaviour), in which they accept a high probability that they will make everything worse, in exchange for the very slim hope of avoiding a large loss. Example: the **portfolio manager** on behalf of clients, who has already suffered great losses and who now raises risk margins in his portfolios significantly and incorporates new investment instruments with highly speculative characteristics in the hope of evening out these losses. Or if we look at the crisis situation in **Greece since 2010**: Should the European Union (EU), in close cooperation with the International Monetary Fund (IMF) and the European Central Bank (ECB), give more money to Greece in order to save the country from bankruptcy or not? The choice here, therefore, is between the sure loss (**safety effect**, i.e. write off the Greek debt) and the lottery, where it is very likely that they will have to accept even higher losses, if Greece cannot repay its debt in the end. The outcome is not yet known, but in the end it is easier to inject new money into the situation, since the sensitivity toward the sure loss decreases and the safety effect reduces the aversion toward the lottery. We can see the same phenomenon in the implementation of large

projects in the **economy** (notably in the context of company acquisitions that turn out to be disastrous) and in **politics**. *As defeats are so hard to absorb, losers in wars often fight far beyond the point at which the victory of the other side is assured and is only a matter of time.*

The critical discussion of the concept of loss aversion helps the forward-looking investor to better understand the ups and downs of the capital markets – even beyond any general financial data such as price-earnings ratios, dividends, interest differentials, etc. – and to prepare accordingly. Very successful investors and traders on the financial markets have a partially intuitive understanding of these concepts and make their living by shielding themselves from the emotional pain of losses through conscious strategies.

7. Thinking in probabilities and exponential growth

People do not as a rule take into account probabilities when they act (compare the examples under point 6 above), **but instead are guided by linear benchmarks** – which explains the extrapolation of growth rates, stock market developments, etc. - **and struggle to understand the concept of exponential growth**. According to research by the economists Joshua Tasoff (Claremont Graduate University) and Matthew Levy (London School of Economics), most people believe that a 1% increase in the constant return (compound interest effect on assets) has the same effect for all growth rates. It is therefore not surprising that investors are looking for new return opportunities in today's minimal interest environment, where even small profits seem to mean a lot (for example: the move away from government bonds to corporate bonds, up to high-yield bonds and bonds from emerging markets, etc.). But the reality looks very different. Over a period of 10 years, assets of EUR 10,000 grow to EUR 12,190 at an annual rate of return of 2%, and to EUR 13,439 at 3%, or an additional EUR 1,249. But the same assets of EUR 10,000 grow to EUR 31,058 at an annual rate of 12% in the same period, while growing to EUR 33,946, or an additional EUR 2,887, at 13%.

In other words, a slightly higher return in today's environment is not nearly as valuable as most investors believe. And yet, more and more investors move into assets – currently in fashion are emerging-market bonds from so-called “*frontier markets*” – whose risk they truly do not understand, increase the activity (buying/selling) in their portfolios or try “by any means necessary” to exploit remote interest rate advantages. This investment pattern also is a potential fire-starter for future development of bubbles in certain asset classes and/or regions. The interest rate policies of the central banks may intentionally or unintentionally amplify this pattern – act as an accelerant, so to speak.

“Conclusion”

In order to be successful in the markets, it is necessary - apart from a basic understanding of macroeconomic interdependencies & correlations and financial benchmarks - to understand the psychological decision-making traits of the actors, to categorize their current actions and to draw appropriate conclusions from them. The representatives of the central banks are also aware of the psychological effects of statements. Sometimes - as with playing Poker - a “**bluff**” is all it takes to drive the herd of market participants in one direction or another: compare the announcement of the ECB in the summer of 2012 to prop up the EURO, without actually acquiring billions of government bonds to achieve the intended goal.

At the same time, it is necessary to **have the courage and the will to swim against the tide** prior to potential turning points in trends, to counter the typical behaviour patterns of most *humans* and **to make decisions that are anti-cyclical and which at first sight appear unreasonable** – as they do not conform to the consensus.

If, as investors, we are aware of the behaviour patterns described above, we allow the insights derived from them to guide our **personal investment and risk strategy** and we **create structures and processes to overcome certain “human weaknesses,”** it is **likely that investment results will get more consistent and better over time.** If we are not confident of achieving this or if we do not want to bother with investment topics, it is helpful to outsource it to professionals. **However, these people must be professional advisors and investors who consider all aspects of investing critically, who think and act independently, and who do not let themselves be guided willy-nilly by internal (company) pressures** (such as, for example, conflicts of interest in the selection of investment products or slow, consensus-driven investment decisions, which are typically made by large investment panels).

A final word: ...despite the acknowledgment of the topic of illusion of prognosis, we will allow ourselves to make a prognosis that will come true in all likelihood: as long as people are active in the markets using their not-so-rational trading and decision patterns, there will continue to be cycles, excesses and panic situations in the future. Even the tightest financial market regulation, which is the focus of many regulatory agencies around the globe and which lately is experiencing a true renaissance, will not be able to change this. Anyone who has spent a little time studying the financial and capital market history of the last 150 years will recognize the repeated failure of such efforts. In the end, the behaviour patterns of humans in the capital markets can hardly be regulated...



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