

**Behavioral Finance and Technical Analysis as the Solution
to Fundamental Analysis and the Efficient Market Hypothesis**

from the preface to the 1852 edition of
Extraordinary Popular Delusions and the Madness of Crowds
by Charles Mackay

“In reading the history of nations, we find that, like individuals, they have their whims and their peculiarities; their seasons of excitement and recklessness, when they care not what they do. We find that whole communities suddenly fix their minds upon one object, and go mad in its pursuit; that millions of people become simultaneously impressed with one delusion, and run after it, till their attention is caught by some new folly more captivating than the first. We see one nation suddenly seized, from its highest to its lowest members, with a fierce desire of military glory; another as suddenly becoming crazed upon a religious scruple; and neither of them recovering its senses until it has shed rivers of blood and sowed a harvest of groans and tears, to be reaped by its posterity...
... Money again has often been a cause of the delusion of multitudes. Sober nations have all at once become desperate gamblers, and risked almost their existence upon the turn of a piece of paper.

Summary - Top Ten Main Points

1. The financial markets are not rational and the dynamics of the market are not the efficient processing of new information into price adjustments. The markets are pre-rational, emotional, and with regard to the flow of information - highly inefficient.
2. The financial markets are the play and display of the full range of the qualities and vagaries of human nature. Any theory that attempts to describe the financial markets without placing human nature and collective human behavior as the center piece of the theory is doomed to failure.
3. The engine that drives price trends and price trend reversals in the financial markets are not investors making rational adjustments to the price based on new information. The engine is the dynamics of herding behavior.
4. Herding behavior is always the expression of the survival instinct, whether that behavior is observed in insects, birds, or human beings. This phenomena of herding behavior has been hard wired into our nervous system by millions of years of survival pressure.
5. There is always an emotional component to survival, whether it is the fight or flight response in a life or death situation or the struggle to survive and thrive as an investor or trader in the financial markets.
6. This emotional content of the markets grows in intensity and significance the longer a trend persists. This finding is unequivocal and is found in all markets.
7. Fundamental analysis presumes the rational translation of changes in supply and demand into price trends. Fundamental analysis has no way to measure the emotional content of the market or to compensate for an emotional bias.
8. It is not simply that fundamental analysis cannot account for the role that emotions play in the markets. The very process of fundamental analysis is corrupted by the same emotional content of the market that drives the price trends.
9. The problem is not simply the emotion of optimism in an up trend and pessimism in a down trend. Every single emotion and quirk and vagary in human nature is expressed in and magnified by the financial markets.
10. Technical analysis cannot be corrupted as easily as fundamental analysis. For example, a hammer bottom with bullish RSI divergence cannot possibly be viewed as bearish. Also, technical analysis can quantify the emotional content of the market. Based on this and the findings of behavioral finance, the inescapable conclusion is that for anyone serious about trading or investing, technical analysis is a necessity not a luxury.

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Why Technical Analysis?

Why take the time to learn candlesticks and the RSI? Why go through all the effort of learning Elliott wave analysis and the classical chart patterns. Is fundamental analysis really that deeply flawed that we must take the time to learn all these new methods of analysis and all this new jargon? The evidence presented in this report indicates that the answer to this question is a resounding "yes." Fundamental analysis may have a role in sorting out the various supply and demand factors, but as tool for forecasting prices it is deeply flawed. The purpose of this essay is to shine a bright light on these flaws.

Our web-site contains over a thousand pages of tutorials on the methods of technical analysis that we employ. The reason for these tutorials is that we strongly encourage our clients to learn these systems and make them an integral part of their own day to day price risk assessment. When we make a price trend forecast or set a price target we do not want our clients to take our word for it. We want our clients to understand how the technical tools bring us to the conclusions that we reach.

Given how busy everyone already is with their professional and personal lives, who is going to go through all the time and effort to learn technical analysis if it is not absolutely necessary? The answer to this questions is "No One." This essay endeavors to show that the time spent learning technical analysis is not merely time well spent. It is time that must be spent if one is serious about hedging price risk and profiting from price trends.

Why Fundamental Analysis?

Now here is a question one does not hear asked much. Anyone who has studied economics or finance knows that, until quite recently financial analysis was fundamental analysis. And until quite recently the study of economics was fundamental analysis. And the intellectual foundation of fundamental analysis was something called the efficient market hypothesis. And the efficient market hypothesis was based on two related but unproven, speculative theories. The first theory was that the markets are efficient, meaning that the current price reflects all available information. This theory proposes that markets efficiently transmit new information into price changes. The second theory was that investors make rational use of information when they value an asset of any kind, whether it be paper or physical.

You may have noticed that we use the past tense to describe the theoretical foundations of fundamental analysis - as if this foundation no longer exists. It is a gross understatement to say that the last ten years have not been kind to the efficient market hypothesis. It is more accurate to say that events in the financial markets have, over the past ten years, ripped the efficient market hypothesis to shreds. Only the most stubborn and dogmatic still refer to the efficient market hypothesis in the present tense, as if it were still alive and well. Those still attached to this now widely discredited theory tend to be those with the most time invested in it. However the efficient market hypothesis is truly dead. And it was slain by a series of speculative bubbles starting from the mid 1990's.

Herding Behavior

In an efficient and rational market the emotional excesses that create speculative bubbles should not be possible. Markets should not be able to get either under or over valued. There is nothing either rational or efficient about the madness of crowds that drives valuations to unsustainable excesses and then abruptly vanishes, resulting in the collapse of those excesses to extremely undervalued conditions. Speculative bubbles, like those seen in the Nasdaq into 2000, the real estate market into 2006, the stock market into 2007, and the commodity markets into 2008, such bubbles are clearly not the result of independent, objective, and rational investor research on new fundamental developments. Such bubbles are the result of herding behavior. Behavioral economists defined such behavior as 'a social contagion of emotions causing collective euphoria or fear.'

'Somebody must know something so I had better buy right now' - this is the 'logic' of the herd. The repeated instances of financial bubbles and their ensuing collapse make very clear that investors do not buy and sell as the result of fundamental analysis. Investors buy and sell because they see others buying and selling. Price trends are not the cumulative effect of rational and autonomous decision making. Price trends are rather a social phenomena driven by the collective mood. And whenever a certain critical mass of herding behavior is reached the trend accelerates into a bubble. Fundamental analysis offers no protection against getting caught up in the madness of such crowd behavior. However the problems with fundamental analysis go much deeper.

The Corruption of Fundamental Analysis

It is not simply that fundamental analysis is ill equipped to predict the rise of bubbles or their inevitable collapse. The much more serious problem is that fundamental analysis is quickly corrupted by the same collective mood that drives financial trends. Evidence of this corruption is in the fact that fundamental analysts tend to get more and more bullish the higher prices rally, and more and more bearish the further prices fall. So in general fundamental analysts tend to be all bullish into major peaks and all bearish into major lows. And there is a rather embarrassing surplus of evidence to buttress these claims. We are referring here to the now forty years of sentiment data from the 'Bullish Consensus' service of Market Vane - a survey of fundamental analysts. However the big event that provided the first widespread discrediting of fundamental analysis was the rise and then collapse of the internet bubble from the peak of March 2000.

Going into the year 2000 fundamental analysts had buy recommendations out on companies with PE ratios in the hundreds, no product, no market share, and no cash other than the funds raised by the IPO. The logic was that it was a 'new economy' so the old metrics of valuation were now obsolete. How did fundamental analysis become so comfortable with such ridiculous valuations? The analysts had been completely corrupted by the bullish collective mood of the market. They still called it fundamental analysis but it was actually enthusiastic cheer-leading masquerading as rational analysis. Rational analysis became infected with irrational enthusiasm. And all that was left was cheer-leading.

The Flaws of Fundamental Analysis

By the time a speculative bubble is ready to pop and collapse, fundamental analysis has typically become an advocate of the inflated values. That was definitely the case with the massive internet bubble into March of 2000. And it was clearly the case with the housing bubble. In fact Alan Greenspan, one of the most iconic proponents of the efficient market hypothesis and of fundamental analysis, argued that it was impossible to even have a housing bubble. We also saw fundamental analysts get way bullish into the stock market peak of 2007 and the commodity bubble of 2008. How does this happen? How can a rational assessment of supply and demand not notice the danger of such clearly over-valued markets?

The main enemy of objectivity and rationality is enthusiasm. As a major up trend reaches its final peak the herding behavior driven bullish collective mood of the market reaches its maximum intensity. It is in the final leg up that the most stubborn bears finally give it up and jump on the bullish bandwagon. And those who have been bullish for some time see no case for resistance at any level. Bullish enthusiasm reigns supreme - except for those tracking certain technical indicators like momentum, sentiment, and price patterns. It is very difficult to still be bullish when you are staring at momentum and sentiment sell signals, major candlestick reversal patterns on weekly and monthly charts, and a long term Elliott wave pattern completion. There is no way to spin these things into bullish indicators. Fundamental analysis however offers no such unambiguous sell signals.

Bias and Theory of Rational Markets

The points covered in this essay so far have been made in other tutorials. What is new to this tutorial follows from here - a listing of the many ways in which fundamental analysis gets corrupted and is thereby rendered useless. This same listing is also a detailed accounting of why the markets are neither efficient nor rational. After perusing this list we think you will agree that fundamental analysis as a method of price forecasting is not merely tangentially flawed. It is deeply, critically, and irredeemably flawed. And after going through this list we think you will agree that the markets are neither efficient nor rational. The markets are rather very human. And that means they are very emotional. There is no machine-like efficiency in the markets. The efficient market hypothesis is in fact a complete delusion.

The flaws in the efficient market hypothesis that behavioral finance has brought to light are called 'biases.' We think they should have chosen a better word. The common understanding of a bias is something voluntary - a prejudice that it is possible to unlearn, a temperament or inclination that can be reversed with the correct information. However as employed by behavioral finance a bias is not something that can be unlearned. The biases cited by behavioral economists are deeply rooted qualities of human nature. They cannot be extracted like so many bad teeth. They are the essential parts of what make us human. And with few exceptions they are the many ways that herding behavior expresses itself in both individual and collective behavior.

The Survival Instinct is Not a Mere Bias

As just noted, the flaws in the efficient market hypothesis discovered by behavioral economists are called 'biases.' However these biases are not mere mistakes of the intellect that can be easily corrected and erased in order to revive the value of fundamental analysis as a tool of price forecasting. These biases are inextricable aspects of human nature that have been hard-wired into our nervous systems. They are not expressions of irrational behavior, but of pre-rational behavior. There is a big difference. And it is our contention that this pre-rational behavior is misrepresented by the behavioral economics term 'bias.' So before we list these various biases we think it necessary to underline how intrinsic they are to human nature.

Price trends in the financial markets are created by herding behavior - the modern day expression of the survival instinct. The old adage 'The trend is my friend' has a very long heritage that traces back to the survival instinct itself. Insects swarm, and fish swim in schools, and birds fly in flocks, and animals migrate in herds as various expressions of the same one survival instinct. In any predator - prey environment the prey find safety in numbers, in sticking together. The autonomically coordinated mass behavior of herds will tend to both confuse and intimidate predators, and thereby decrease the probability of the prey being eaten for lunch. The same survival instinct generated herding behavior that we see in nature impels investors to buy into up trends and sell into down trends. That 'somebody knows something so I better buy' is the survival instinct talking.

Markets are not Rational, They are Pre-Rational

Millions of years of evolution have weeded out the independent thinkers who wander off on their own for rest or relaxation. The wildebeest who leaves the seasonal migration to rest under a tree and catch his or her breath - this is the wildebeest that becomes lunch for the predators and thereby deletes itself from the gene pool. And any wildebeests that happened to be passing by as the independent thinker is being eaten are now even more motivated to stick with the herd.

Mankind was prey to a whole host of predators for millions of years. On the geological time clock we only became predators moments ago. For the millions of years spent evolving as prey, the pressures of survival in a deadly predator infested environment have hard wired into the human nervous system the recognition of safety in numbers, the need to move in groups. So the perception of security in a group or a financial trend is not the mere peer pressure of an under-developed personality. It is how our nervous systems are configured. And to label herding behavior in the financial markets as 'irrational' or a mere 'bias' is to mis-understand and under-estimate its power and significance.

The many types of bias listed on the following pages are not minor flaws in human nature that can be ironed out in order to restore rationality to the markets and fundamental analysis as a price forecasting method. They are deeply rooted aspects of human nature that make technical analysis a necessary component of any serious approach to investing, hedging, or trading.

Theory and Experience

It is careful observation, collected experiences, and controlled testing that enables us to weed out the false hypotheses and the wrong theories. Technical analysis, with assistance from the findings of behavioral economics, has revealed the efficient market hypothesis to be one of those wrong theories that had no basis in the real world. However the evidence is more clear cut in some markets than in others. The late stages of a bull market are the ideal time to observe the various bias dominated behaviors described in the following pages. By the end of a bull market there is typically a yawning chasm between the bearish message of the technicals and the wide-spread cheer-leading that results from the corruption of fundamental analysis.

Falsifiability and Objectivity

In technical analysis, candlestick reversal patterns on weekly and monthly charts accompanied with bearish sentiment and momentum divergence will falsify the theory that the trend is still pointing up. The message of such an array of technical indicators cannot be misinterpreted due to a bullish bias. In other words, in technical analysis one's price trend theory is easily falsifiable. It is much more difficult to negate a price trend assessment in fundamental analysis. The factors are much more complex and there is much more room for subjectivity. And the fact that most fundamental analysts work for investment banks makes objectivity even more difficult to achieve and maintain. The listing that follows can be read as the various pitfalls for a fundamental analyst - even one earnestly trying to remain objective.

Basic Definitions

Traditional Economics - An academic exercise in which all the financial decisions are rational and all the markets are always efficient. The critical fallacy here is the belief that economics and finance, a phenomena that is 100% the result of collective human interaction, can be understood without any reference to the nature of human nature.

Behavioral Economics - The scientific study of the role that human nature plays in economics. The field is based on actual observations, not academic theories. It studies the real world where rational motives play only a minor role in economic decisions. This field recognizes that markets are far from efficient.

Behavioral Finance - The application of scientific research on the psychological, social, and emotional contributions to market participants and market price trends.

Bias - a distortion in cognition and or decision making due to non-rational and or emotional factors.

Rational Economic Decision - A theoretical event where pure logic and uncorrupted reason are employed to produce a decision that achieves the optimal economic outcome. The findings of behavioral economics suggest that, while such decisions are a theoretical possibility, in real life they are extremely rare.

A Sampling of the Varieties of Non-Rational Dynamics that Drive Economics and Finance

Anticipated Pleasure Bias — the decision maker is influenced by how they will expect to feel once it is discovered that the choice they have made is either the right or the wrong decision. This bias can lead to one of two possible results. Either the decision is overly-influenced by the fear of being wrong, or the decision is swayed by an over-confidence that the correct decision will be made. In other words fear and hope are primary influences in the decision process, not rational or logical factors.

Attentional bias — the neglect of relevant data when making judgments or decisions. This neglect is the result of the inability to recognize and process all available information.

Authority bias — the tendency to reach a valuation based on the opinion of someone who is seen as an authority on the topic. In other words one lets a perceived expert make ones decision for them. A real world example would be getting ones opinions from the editorial pages of the 'Wall St. Journal.'

Availability bias — in making a decision, over-valuing the input from memories which are especially vivid, unusual, or emotionally charged. An example would be letting the wild antics of a Jim Cramer or a Glenn Beck form the basis of a decision.

Availability cascade — a self-reinforcing process in which a belief gains more and more credibility through its increasing repetition in public discourse. In other words, "If enough people say it and believe it then it must be true." A growing collective mood forms individual opinions and a group consensus.

Bandwagon effect — the tendency to do (or believe) things because many other people do (or believe) the same. This is herding behavior. Or as General George Patton once observed, "When everyone is thinking the same thing then no one is thinking."

Base Rate Fallacy — the error here occurs when the probability of one hypothesis is based on another hypothesis whose probability is unexamined. An example would be to say that "this is the longest recession since the Great Depression." The unexamined assumption is that this is not another depression.

Belief bias — here the evaluation of the logical strength of an argument is based on the belief in the conclusion. For an example, I like that my home price has risen so sharply, therefore there is no housing bubble.

Blind spot effect — the tendency to not compensate for one's own prejudice, pre-conceptions, and strongly held opinions. In other words "don't confuse me with the facts."

Choice-supportive bias — the tendency to remember one's decisions as better and more successful than they actually were. This selective memory breeds over-confidence and hubris.

Clustering illusion — one sees patterns and relationships where none exist. The extreme form of this was the subject of the 2001 movie "A Beautiful Mind." The Rorschach inkblot test harnesses this effect. This risk in financial analysis is that a strong enough emotional bias will override facts to the contrary.

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Confirmation bias — the tendency to search for information or interpret information in a way that confirms one's own preconceptions. This is the reason why the 'news' is only bullish at peaks and bearish at major lows. A real world result is that the larger ones speculative long position, the more bullish one gets, and the more likely one will be blind-sided by peaking action and get caught in a price collapse.

Conformity Effect — this is a big one. The result of this effect is that one is much more likely to think and do what everyone else is perceived as thinking and doing. This influence occurs on levels from small peer groups to the society as a whole. This is the modern day appearance of the survival instinct that we detailed earlier in this report. It is motivated by the sense of safety and security that being part of a group generates.

Conjunction fallacy — this is the tendency to assume that a detailed scenario is a more probable outcome than a general forecast. The risk here is that someone with a vivid imagination but lousy forecasting skills will be more believable than someone with good forecasting skills who is acutely aware of the difficulty of predicting precise details. In other words the story teller is more believable than the analyst.

Contrast effect — this is the tendency to judge more recently heard theories as more believable than older forecasts. In other words if it is new it must be better. The full blown variety of this allows one to dismiss all historical evidence.

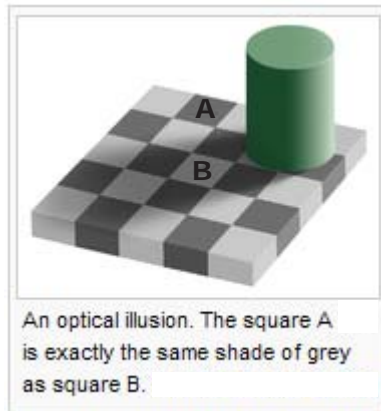
Déformation professionnelle — the tendency to see the world through the narrow window of ones own specialized field of knowledge, forgetting or dismissing the bigger picture outlook. From the name, one's specialized, professional knowledge deforms ones ability to view the world objectively. One by product of this effect is that one tends to prefer solutions native to ones one field. For examples there is the notion that generals tend to prefer military solutions to diplomatic ones. For an example from economics, Keynesians see monetary policies as the only solution while Austrian and Libertarian economists argue that monetary intervention only makes things worse. One danger of specialized knowledge is that it makes consensus building virtually impossible.

Denomination effect — the tendency to spend or risk more money when it is denominated in smaller amounts (e.g. coins) than when it is in larger amounts (e.g. bills). This is of course totally irrational but it is nevertheless accepted as common sense.

Disposition effect — the very human but completely irrational tendency to sell assets that have increased in value but hold assets that have decreased in value. A corollary of this is to take ones profits early but let ones losses run. The silver lining is that one ends up with a tax deduction from trading losses at the end of every year instead of a capital gains tax problem. But then such losses are not exactly the purpose of investing.

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Distinction bias — It is a well documented phenomena that two different options are viewed as more dissimilar when evaluated simultaneously than when evaluated separately. This is a very difficult illusion to counter. And it is a big issue. Two alternate choices or even two business plans can appears as either much more different or much more similar than they actually are depending on how they are compared. Is objectivity even possible? The visual equivalent of this cognitive problem is the 'Same Color Illusion' cited below.



Same Color Illusion

It seems absolutely impossible that the square labelled A is the same exact shade of grey as the square labelled B. But by all means do not take our word for it.

Go to:

http://upload.wikimedia.org/wikipedia/commons/6/60/Grey_square_optical_illusion.PNG

Then print the page and fold over the printed page so that the two boxes A and B overlap. You will find that the two boxes are the same exact shade of grey.

Emotional bias — refers to the fact that a person will tend to believe something that is pleasant or uplifting even if there is ample evidence to the contrary. The flip side of this bias is the reluctance to accept hard facts that are unpleasant or create anxiety. This is the dynamic that creates wishful thinking. With this bias rationality and objectivity are subjugated to the emotional needs for happiness and comfort.

Emotional Contagion Effect — this is a social phenomena whereby an emotion quickly spreads through a population until it is the dominant emotional mood. Unlike a disease, direct contact is not needed for a mood to spread. In fact this contagion spreads much more quickly through mass media. One might first think that a bull market spreads the contagion of euphoria via higher prices while a bear market spreads the contagion of panic through falling prices. However a closer examination of the causal relationship indicates that it is the nature of the contagion - euphoria or panic, that creates the content of the news - bullish or bearish. A bull market is not a rise in bullish news that creates euphoria. It is the rise of euphoria that creates the the higher prices and then the bullish news.

Endowment effect — refers to the fact that people often demand much more to give up an object than they would be willing to pay to own it. One is likely to be more indifferent to what one does not own. Once one owns something however there is the tendency to over-value it simply because one now owns it.

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Endowment effect - continued — the problem here is the difficulty of achieving an objective and rational valuation. This endowment effect means that we over-value whatever we own, whether it be real estate, commodities, or equities. This effect is especially dangerous in a bear market. The endowment bias can make it very difficult for an investor to believe that his or her investments have lost as much value as the market indicates. So there is the tendency to hold onto these assets rather than cut ones loses short and exit the position. This effect also means that it may be difficult to recognize the value of a new asset class until one is an actual owner. But then once one is an owner there is the risk of over-valuing that asset.

False Consensus Effect — the false consensus effect is the tendency for people to assume that others think the same way that they do and have the same opinions and expectations that they have. Because birds of a feather flock together, like minded people tend to aggregate and hang out together. This association with others of similar opinions means that a person may rarely meet those with conflicting opinions. So there is the tendency to assume that one is part of a broader consensus than is actually the case. And because association with like minded individuals makes one so comfortable with ones own opinions, when confronted with those holding opposite opinions there is a tendency to view those others as under-educated or defective in some way.

Framing Effect — There are several facets to this effect but they all cluster around the recognition that our view of the world is very often too narrow to allow for a complete or accurate understanding of the world and the events and ideas of which it is composed. It is this framing effect that allows two people with two different sets of pre-conceptions to draw completely opposite conclusions from the same set of data. This unfortunate tendency of our subjective bias to obscure our ability to perceive the reality of the world has been a key factor in Buddhist teachings for thousands of years.

There is a famous sutra in the “Tibetan Book of the Great Liberation” that states “ As a thing is viewed so it appears.” According to Indian and Buddhist philosophies one of the fundamental errors that we need to be liberated from is our tendency to project our own biases on the world without even realizing it. Faulty and deep seated pre-conceptions may mean that the world we see bears little resemblance to the world that actually exists. An aspect of ‘liberation’ is that one stops projecting, or “framing” and can thereby start seeing the world as it is.

This framing tendency has both metaphysical and economic repercussions. In finance and trading the mis-perception of a situation can be a costly error. Behavioral finance recognizes this danger and draws our attention to it so that we can make efforts to minimize our subjective bias and thereby experience a more accurate vision of the market and of market risks.

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Gambler's fallacy — is the tendency to think that future probabilities are altered by past events when in reality there is no relationship. An example of this fallacy would be the observation: "This coin has landed heads up five times in a row, so the chance of the sixth flip landing tails is much greater than another heads." A financial instance would be the observation that "this market has been down six trading days in a row, so the chance of a rally on the seventh day are higher than yet another down day.'

These two examples highlight the essential nature of the gamblers fallacy - There is no assurance that a departure from an expected average performance over the longer term will be corrected over the short term. In the coin toss five 'heads' in a row is a departure from the expected average performance. However this does not mean that a 'tail' is now due on the next flip. Similarly a string of down days in a market does not mean that an up day is 'due' for the next trading day. An expected average performance over the longer term does not mandate a specific outcome over the short term.

How long might it take for the short term to correct a deviation from a longer term average performance? Ask the traders from 'Long Term Capital Management.' Despite all their Ph.D. degrees and Nobel prizes they fell head first into the Gamblers fallacy. And then there is that Wall Street proverb that 'markets can remain irrational longer than you can remain solvent.'

Happiness Bias — Research shows that happy decision-makers are reluctant to risk or gamble. A happier person would tend to decide against gambling as that would jeopardize disturbing their happiness. Possible implications of this finding include the possibility that unhappy people may take imprudent risks and that happy people may miss profitable trading opportunities. However the real value of this research is that it highlights the fact that the subjective condition of the trader, hedger, or investor has a powerful effect on their financial decisions. This marks yet another blow to the efficient market theory where all investment decisions are strictly rational.

Hawthorne effect — The name comes from a factory, called the 'Hawthorne Works' where productivity was measured as a function of differing intensities of lighting. It turned out that the temporary increase in productivity that was measured was due to the fact that the workers knew they were being watched so they tried harder. The slight increase in productivity had nothing to do with varying the lighting. So this effect refers to the tendency for people to perform or perceive differently when they know that they are being observed. This effect has been well established by many studies since the original paper was published back in 1955. Here again the unexpected role of subjectivity intrudes into the purely 'rational and efficient' models of economic activity.

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Hindsight effect — also known as the “I-knew-it-all-along” effect, this phenomena refers to the tendency of people to believe that their ability to predict events in the past was better than it actually was. This effect takes many forms, but they all seem to boil down to one common dynamic. Having had a thought in the past that a certain outcome was possible is, in the present, remembered as a prediction. Of course if this effect relates to a move in the market, one predicted it but did not trade it. Why? Because what one remembers as a prediction was not a prediction at all. If one takes this self-delusion seriously it can result in a serious loss of money. If one enters a market based on an overstatement of ones abilities then one is very likely to trade beyond ones abilities - and lose money.

Hope and Fear Effect in Decision Making — in this effect “anticipatory emotions” relating to the potential results of a decision not yet made affect the decision making process. One experiences immediate visceral reactions of fear and anxiety as reactions to the risks and uncertainties of a decision that must be made. ‘Anticipated emotions’ such as disappointment and regret are emotions expected to be experienced in the future as the result of a decision made in the present. The point is that this effect is very real, as anyone who has ever made a major decision can attest. The reality of this effect pokes a big hole in the contention of the ‘Efficient Market Hypothesis’ that investors make only rational decisions.

Hyperbolic discounting — refers to the tendency for people to have a stronger preference for more immediate payoffs compared to a larger, later reward. This is the effect that must be fought when we attempt to ‘let the profits run but cut the losses short.’ Proverbs are easier said than done and this one is no exception. The term ‘hyperbolic’ refers to the research finding that the preference for the smaller gain increases as a hyperbolic function of how near the gain is in time. This effect has been observed and measured in both human and non-human subjects. In humans the effect is particularly measurable when the gain is money. Subjects with otherwise strong impulse control tend to lose that control when the near term gain involves money. The fact that some people will do almost anything for a short term financial gain has been taken full advantage of by certain “Reality Shows.”

In the market place this effect translates as an almost irresistible impulse to take short term profits even knowing full well that much larger, longer term gains are likely. The taking of short term profits is frequently justified by the stated intention to trade back in ‘on the next dip.’ The point is that taking quick profits means cutting ones profits short and is neither a rational nor an efficient decision. Once again we have empirical proof of the fallacy that markets are always efficient and investors are always rational. In fact every single effect and bias in this list is empirical proof of the fallacy of the efficient market hypothesis.

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Illusion of Control Effect — refers to the tendency to believe that we have an effect or even full control over an outcome that we clearly have no influence over. A common instance of this effect has been found in casinos where gamblers throw a dice harder to get a higher number and softer to get a lower number. In sports some fans tend to root for their team with an intensity that suggests they believe they have an effect over the outcome. In fact when their team wins they say 'we did it' and when their team loses they clearly take it as a deeply personal loss complete with depression and remorse.

While some have argued that 'optimistic appraisals of capability' can be advantageous because they inspire one to higher levels of achievement, this has been found to clearly not be the case in a trading environment. In a study of the illusion of control in a population of traders working in investment banks it was found that traders who were prone to high illusions of control had significantly worse performance in analysis, risk management and trading profits. They also earned significantly less. It almost appears as if these traders are more strongly motivated by the need to exercise control over their environment than the desire to make money. They are in the game to be proven correct more than to accumulate profits. As the stress of losses mount the tendency of these traders is to blame the market or other outside influences, rather than down-size the estimation of their own capabilities. The blame is always directed outwards.

Illusion of Control Effect — continued

We all probably know of traders with 'illusion of control' issues and of the funds they used to manage. When trading large enough volumes to temporarily move the market, those with 'illusion of control' issues it is a very short leap to feelings of invincibility - "the market will do whatever I want it to do so there is no need for analysis - because when I buy the market rallies." The ancient Greeks would call this hubris. The relevant proverb is probably "pride comes before the fall." This illusion of control is almost certainly a facet of the overconfidence effect.

We trust that a theme is starting to become visible. It is not simply that the markets are the direct display of the dynamics of human nature. The behavioral component goes deeper than that. The various effects and biases cited here bring another facet to light. The financial markets will invariably locate and magnify any psychological weakness in the market participants. Those with illusions of control issues seem especially vulnerable to taking large losses. Exaggerated self-esteem can cause traders to neglect or even completely abandon risk controls. For such traders loss limits are for mere mortals.

There is an implicit suggestion in all this. Perhaps those responsible for hiring traders and risk managers need to be looking deeper than resume content. A battery of psychological tests designed to locate the presence or absence of some of the more harmful bias may be justified. But perhaps we digress.

A Sampling of the Varieties of Non-Rational Dynamics that Drive Economics and Finance

Illusory correlation — refers to the belief in a cause and effect relationship that does not actually exist. One facet of this effect is the assumption and persistence of stereo-types. When a person of a certain religion or ethnicity is automatically assumed to have certain characteristics then we have a mistaken cause and effect relationship. The 'lucky hat' of a baseball player is another example. The so called fact that it always rains after you wash your car is yet another example.

Under 'illusory correlation' we would also place instances where the cause and effect relationship has been utterly confused to the point of reversal. For an especially important example, fundamental analysis presumes that bullish news creates an up trend in prices. However a closer look at the evidence reveals that the up trend in prices creates the bullish news. That is why the news is always and only bullish at all major peaks and always and only bearish at all major lows. The danger in this mistaken notion that 'news creates the trend' is getting caught long at major peaks and getting caught short at major lows. A good sentiment indicator can serve as the antidote to this confusion.

However the related and much broader fallacy is that the market is a place where new information is transmuted into price changes. The financial markets are constantly generating new information. And market prices are constantly changing. That the former causes the later is an illusory correlation.

Irrelevance of History Effect — if one can have a favorite irrational bias then this may be mine. We may have never heard the term 'the irrelevance of history effect' but we have definitely heard its repeated expression - "it will be different this time."

Whenever the actual history flies in the face of the conclusions of a wishful thinking or illusory correlation effect the typical response is to completely disregard the history - especially if one already has a position in the markets. Without exception, whenever I have heard a chorus of "it will be different this time" it has arisen from either a losing trading position or a view of events that is quickly becoming insupportable. "I am not wrong. I am just a bit early. And there is no risk of the position turning into a disaster because all the history is irrelevant in this instance."

History never repeats itself exactly the same way twice. Seasonal cycles can and occasionally do go haywire. Investment cycles can be upended by longer term economic cycles. Nevertheless, if there is a body of research that points to a historical effect then it has been our experience that it is far better to respect that effect than to dismiss it out of hand. And in any trade protective stops are to protect one against one's own flawed theories. The invocation of the "it will be different this time" mantra is not a trading strategy. It is a method for living in denial.

It is not rational to reject the lessons of history, but it is done all the time. Another hole is poked in the rational market theory.

A Sampling of the Varieties of Non-Rational Dynamics that Drive Economics and Finance

Limited Attention Effect - refers to the limited rate of information processing of the brain. These days we simply cannot process all the available information. "Information overload" is a term coined by Alvin Toffler to describe the difficulty of digesting the growing flood of information that we are presented with each and every day. And it has only gotten worse since Toffler coined his phrase. As part of launching the Microsoft "Bing" search engine there was a very clever series of TV ads that referred the "Search Overload Syndrome." You can still find them on 'YouTube.' However I never quite figured out how yet another search engine could solve the problem of too much information. With regard to the financial markets limitations on attention restrict the ability to detect both opportunity and danger. We have all heard the phrase 'paralysis of analysis.'

Compared to technical analysts, fundamental analysts have always had the tougher job. A technical analyst need only study the price action - as the price action tells all one needs to know about the forces of supply and demand. However the fundamental analysts is constantly bombarded with hundreds of pieces of news and information. What news is relevant? Which factors have already been discounted in the price? Which 'facts' are true and what has arise from someone talking their position? Which sources are objective and which have been corrupted by the collective mood of the market? Increased volatility and computer trading algorithms have only speeded up the mess.

Loss Aversion Effect - refers to the fact that the motivation to avoid taking a loss is much more powerful than the desire to book a gain. This is the flip side of the hyperbolic discounting already cited. Hyperbolic discounting is the tendency to cut ones profits short. Loss aversion is the tendency to let ones losses run. Neither effect is rational, but both have been empirically demonstrated by many empirical, scientific studies.

Ludic fallacy — the phrase was coned by Nassim Taleb in his 2007 book "The Black Swan." The fallacy here is the mistaken notion that a mathematical model can represent the world. Taleb's point is that statistical models can never be made to fit the complex world we live in. Taleb cites two key factors that doom any statistical model. First, it is impossible to possess all relevant information, and second - due to the non-linear character of complex events slight variations in initial conditions have a huge impact on the final outcome. This means that models cannot predict the effect of events that have not yet occurred. In other words, the rational and efficient world of economic models cannot replicate the real world. Or in other words, the 'efficient market hypothesis' model is a mirage.

Observer-expectancy effect — when a researcher expects a given result and therefore unconsciously manipulates the research or misinterprets the data in order to find what he or she is looking for. A bullish investor is likely to find evidence to support his position whether that evidence actually exists or not.

A Sampling of the Varieties of Non-Rational Dynamics that Drive Economics and Finance

Optimism bias — is the tendency to be over-optimistic about an outcome or plan of action. One rather famous illustration of this effect is the finding that, in the US, almost all newlyweds expect their marriage to last a lifetime, even when presented with the divorce statistics. One assumes this bias is unconscious but that may not always be entirely the case. For example, in the financial sphere analysts tend to overestimate corporate earnings and under-estimate corporate problems for firms that give investment banking business.

The dangers of over-optimism were recently the subject of a new book. Barbara Ehrenreich just released what may be an especially topical work "Bright Sided: How the Relentless Promotion of Positive Thinking Has Undermined America." The title rather speaks for itself. Her contention is that positive thinking is a dangerous ideology that sets one up for disappointment. One has to wonder whether this strong U.S. optimism bias is related to the fact that the United States has the worlds highest usage of anti-depressant medication. But perhaps we digress.

In the field of investing, it is axiomatic that the average investor will lose money in the markets. Of course every investor assumes that they will be the exception. This assumption of exceptionalism is another demonstration of the optimism bias. The cumulative and collective effect of the widespread and expression of the optimism bias is a speculative bubble.

Ostrich effect — this is the dismissal of an obvious negative situation or set of facts in favor of a more positive outlook. Both the Ostrich effect and the overconfidence effect are key elements in the just cited optimism bias.

Overconfidence effect — while this is a dynamic that enables us to overcome odds, it is also a dynamic that can doom us to failure. Students repeatedly over-estimate the scores they will achieve on exams, and MBA's typically over-estimate the number of job offers they will get and their starting salary. In the financial markets a critical result of overconfidence is excessive risk taking. We already covered pathological overconfidence in the illusion of control effect.

Pareidolia effect — the Greek pareidolia means 'false image.' Like seeing the image of a submarine in a cloud, or seeing the face of a man in the moon, or seeing the face of Jesus in a slice of toast. In this effect a vague or random stimulus or event is perceived as having significance. The Rorschach inkblot test uses this effect to glean information about personality. This test works because the viewer is typically projecting a subjective bias that is obvious to the impartial witness. A corollary is the "framing effect." We see what we want to see, not what actually exists. And as with all of these effects, they are not merely individual phenomena. Entire countries have been repeatedly caught up in the clutches of these effects.

See the page 1 quotation.

A Sampling of the Varieties of Non-Rational Dynamics that Drive Economics and Finance

Positive outcome bias — this is the tendency to overestimate the probability of good things happening. This is another facet of the optimism bias, the wishful thinking effect, and also the over-confidence effect, among others.

Primacy effect — asked to memorize a list of numbers we will tend to remember the early numbers. The 'first impressions are lasting effect' means we may not pay sufficient attention to the ensuing events. And having decided that a market is heading higher we may get long and then not pay close enough attention to later, bearish information. All this is the tendency to weigh initial events more heavily than subsequent events.

Recency effect — this is not quite the opposite of the just cited primacy effect. The recency effect is the tendency to value recent events more than earlier events. Taken together, the primacy effect and the recency effect highlight how our brain responds to too much information. These two effects together are an adaptation to the limited attention effect cited previously. The limited attention effect does not refer to the attention deficit disorder. It rather refers to fact that the human brain has biological limitations to the amount of information that it can process. If more information comes in than can be handled, the primacy and recency effects indicate that the brain tends to remember the initial pieces of information and the last few pieces of information. The stuff in the middle is an overload that is dumped from the system.

So do investors make rational investment decisions based on all available information. We have seen from earlier cited effects that investors are not rational. They are either pre-rational or outright emotional. We see from the limited attention effect, the primacy effect, and the recency effect, that investors cannot physically handle all available information. So the concept that investors make rational decisions based on all available information is not just a bad theory, it is an impossibility.

Rejection of regression toward the mean effect — this is the tendency to expect that extreme performance will continue. Due to the widespread nature of the optimism bias this effect is much more characteristic of the collective mood in a bull market than it is a bear market. It is said that a bear market falls down a 'slope of hope.' In a bear market the collective hope is that the continuing drop in values will stop and then reverse higher. In a bull market there are no hopes that the rally will end. In fact the sentiment history of major rallies show that, across all markets and all financial assets, the longer a bull market persists the more bullish the market gets and the higher the expected upside targets. While this assumption of a more and more extreme performance is of course a triumph of emotions over reason, it is an extremely well documented effect. And the reason it is so well documented is because, like all the other effects and biases listed here, it is an aspect of human nature revealed by the markets.

A Sampling of the Varieties of Non-Rational Dynamics that Drive Economics and Finance

Self-deception effect — in trading this is the dynamic whereby, if a person is bullish on a certain market, they will tend to deny the importance of opposing information. It is only human to have emotional attachments to beliefs that are essential to one's sense of well-being. The outcome of a large long position in the market can easily be viewed as essential to one's well being. The larger the long position, the greater the need to perceive a happy ending for the trade, the greater the likelihood that one will actively, if unconsciously, dismiss any contrary, bearish indications. However the effect reaches far beyond specific trades. Successful investing may be seen as a confirmation of one's self-worth and self-esteem and a vindication of one's education. In such a case, when a trader starts losing money, self-deception may be easier than addressing issues of self-esteem.

The self-deception effect can have a very high financial cost. The loss of objectivity from self-deception tends to be collectively the most powerful at major market peaks. A 90% bullish reading at a major top means that virtually the entire market has been blindsided to the down-side risk by the emotional and likely unconscious denial of opposing information. Furthermore, as all these various effects and biases attest, there are very often strong behavioral and psychological issues involved in investment decisions that have absolutely nothing to do with economics and finance. Human beings cannot turn off human nature every time they need to make an investment decision.

Self-fulfilling prophecy effect — does not refer to that myth that if enough people believe something then it will come true. This effect is not reality creation through consensus building. Perhaps the most frequently cited example of this effect is that of a run on a bank. If enough people become fearful that a bank will fail, they will line up to withdraw their funds, and then the bank will fail. The Greek legend of Oedipus is another famous example of this effect. Warned of a prophesy that his son would one day kill him, King Laius - the father of Oedipus, is so unnerved that his efforts to avert the prophesy enable the prophesy to be fulfilled. So at the core of this effect is a dynamic whereby the fear of something causes it to occur. This fear distorts the perception of reality, and that distorted perception allows the feared event to occur.

Texas sharpshooter fallacy — the example that gives this effect its name will make the point better than a labored description. You fire a shot gun at a barn wall. You then draw a circle around the biggest cluster of holes. You then declare that circle to be the target and yourself to be a sharpshooter. An example in investing might be wandering into the market without a strategy, making a few trades, and then naming what one has been able to accomplish as the goal. This is an especially problematic facet of the self-deception effect. Naming the goal after the fact means that one will always be able to claim success, whether one is actually competent or not.

A Sampling of the Varieties of Non-Rational Dynamics that Drive Economics and Finance

The Under-Reaction-Adjustment-Overreaction Model — This model recognizes that the price reaction to news is rarely rational or proportional to the significance of the news. In a bull market the bullish sentiment ensures that the price will over-react to bullish news. The series of over-reactions that is a bull market will invariably result in an over-valued asset. At a sufficiently high over-valuation, the asset or market ceases to respond to bullish news. A corrective retreat will then be necessary, during which time that asset class or market will under-perform other assets and markets. Eventually a bearish sentiment will result and the market will start to over-react to bearish news and under-react to bullish news. The market will thereby eventually become under-valued. Once it is under-valued enough the market will begin to under-react to bearish news and over-react to bullish news. This nature of the markets ensures a certain base-line volatility. In effect, the emotional content of the markets ensure a certain 'perpetual motion machine' aspect to market volatility.

In reality the reaction of the market to 'news' is a sentiment indicator that reveals the collective mood of the market. And in reality it is not the news that creates the trend. The reaction of the market to the news that the collective mood creates reveals the nature of the collective mood. This is why the news is only bullish at major peaks and only bearish at major lows.

Wishful thinking - or Tinkerbelle effect — the alphabetical order approach taken here has had the serendipitous effect of saving the most egregious evidence of the irrational nature of markets and investing for last.

Wishful thinking is the formation of beliefs and the making of decisions based solely on the emotional need for a happy outcome. The desired outcome in wishful thinking is usually in sharp contrast to forecasts based on objective analysis. The wishful thinker disguises the need for a happy face result by using terms like "up-beat" but in reality the thinker is delusional. When the positive outcome bias is about to crumple under the weight of a powerful bear market, the first level of retreat from reality is to the wishful thinking effect. While the positive outcome bias is typically largely unconscious, chances are that the person engaged in wishful thinking is frequently if not repeatedly accused by others of engaging in wishful thinking.

When even wishful thinking becomes difficult to maintain in the destruction of a major bear market, the final refuge from reality is the Tinkerbelle effect. The Tinkerbelle effect refers to the things that exist only because people believe in them - in other words collective delusions. The driver of the transition from optimism to wishful thinking to the Tinkerbelle effect is the refusal to abandon hopes for a happy outcome. To hold onto those hopes the investor must retreat from reality into a fantasy world - where if a person desires something intently enough, then it will happen.

A Sampling of the Varieties of Non-Rational Dynamics that Drive Economics and Finance

Wishful thinking - continued

In the field of economics a glaring instance of wishful thinking was Irving Fisher's 1929 conclusion that "stock prices have reached what looks like a permanently high plateau." This was just a few weeks before the 1929 stock market crash and the onset of the Great Depression. Another dramatic example of the Tinkerbell effect was from Mohammed Saeed al-Sahaf, the Iraqi Minister of Information in the final days of Saddam Hussein's regime. On April 6th 2003, with US Marine and Army tanks only a few blocks away, al-Sahaf went on CNN to assure the world that there were absolutely no Americans or American tanks in Baghdad.

Finally, all of the various effects cited in this report suggests that we should include one more bias.

The Efficient Market Hypothesis as an academic bias and the 'Markets are Rational' theory as a Ph.D. thesis bias — neither the efficient market hypothesis nor the theory that the markets are rational arose as an organic result of actual market dynamics. These theories were formulated at a great distance to the actual markets. These theories arose in the remote, insulated, and non-accountable environment of academia - specifically the pressure to produce an original Ph.D. thesis. Our intent is not to be anti-intellectual or anti-academic. Our intent here is to highlight the contrast between the speculation that produced the efficient market hypothesis and the careful empirical research that gave rise to the fields of behavioral economics and finance.

Summary

It is difficult to under-estimate the damage that has been done by the efficient market hypothesis. It's mistaken notions justified the near complete deregulation of the financial markets that was instrumental in the subsequent near collapse of the financial markets. It was the foundation of Alan Greenspan contention that it was impossible to ever have a housing bubble. And this hypothesis is also the basis for the remarkable contention of economists everywhere (Greenspan included) that it is impossible to identify a speculative bubble until after the bubble has burst.

We see no choice but to conclude that the efficient market hypothesis and the assumption of the rationality of the markets are biases perpetrated by those with a vested interest in an ideological driven desire for an unregulated marketplace. This effect already has a name. It is called the ideological bias. And while this particular bias is perhaps a much larger problem in politics and government, we see the fruit of this bias in economics as the blind adherence to failed models and dangerous policies. However this is a topic for another report.

Case Study:
Behavioral Finance and
the Housing Bubble

This cartoon from 2008 seems tailor made as a wonderful and entertaining illustration of the topics discussed in this tutorial. See next page.

To our eyes it demonstrates with alarming clarity how thoroughly an objective fundamental analysis can be corrupted by the collective mood of the market. And lest one think that Mr. Tomorrow is exaggerating to make a stronger case for parody, we refer you to the list of Alan Greenspan's own quotations presented on page 24.

It does not matter if one is a professional analyst at a top investment bank or a prospective homeowner. As a rising tide lifts all boats, so too the tsunami of bullish sentiment in a speculative bubble energizes the optimism of the entire population. Without the discipline of technical analysis it is all too easy to get bullish right at the top of a bubble - along with everyone else.

THIS MODERN WORLD

by TOM TOMORROW



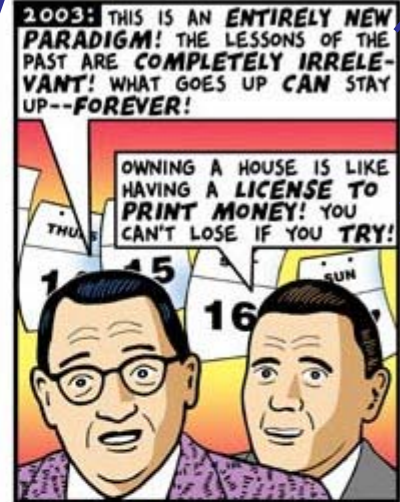
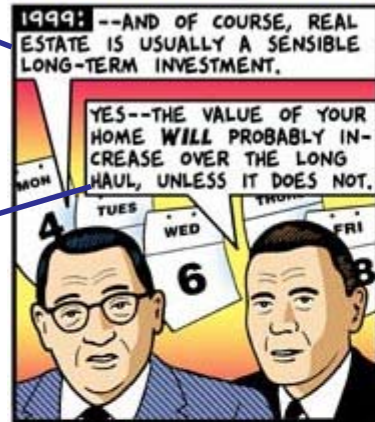
Behavioral Finance

Case Study: Behavioral Finance and the Housing Bubble

THIS MODERN WORLD

by TOM TOMORROW

TIMELAPSE CARTOONING: THE EXPERTS SPEAK



TOM TOMORROW © 2008... www.thismodernworld.com

Note: In areas like Las Vegas squatting in foreclosed and abandoned homes is now quite common.

Optimism Bias

Rejection of regression toward the mean effect

Conformity Effect

Irrelevance of History Effect

Overconfidence Effect

Positive Outcome Bias

Emotional Contagion Effect

Hindsight Effect

Choice Supportive bias

Bandwagon Effect

Ostrich Effect

Loss Aversion Effect



Alan Greenspan Quotations on Real Estate

July 2002

"The type of underlying conditions that create bubbles are very difficult to initiate in the housing market," Greenspan said. "It is not an issue on the table on the moment."

Irrelevance
of History
Effect

October 2004

"While local economies may experience significant speculative price imbalances, a national severe price distortion seems most unlikely."

Wishful
Thinking
Effect

Sep 2002

"People say, Alan Greenspan doesn't think there's a housing bubble," says Robert J. Schiller, Yale economics professor. "Well, he said there was no stock market bubble, too."

Blind Spot
Effect

Aug 2005

"an end to the housing boom could induce a significant rise in the personal saving rate, a decline in imports and a corresponding improvement in the current account deficit."

Tinkerbell
Effect

Feb 2003

"The notion of a bubble bursting and the whole price level (of real estate) coming down seems to me as far as a national nationwide phenomenon, is really quite unlikely. Comparisons to the stock market aren't justified since most people must live in their homes and house transaction costs inhibit speculation."

Optimism
Bias

Nov 2006

"It looks as though the worst is behind us" in terms of the effect of the housing slump on economic growth."

Ostrich
Effect

Feb 2004

"American consumers might benefit if lenders provided greater mortgage product alternatives to the traditional fixed-rate mortgage."

Self
Deception
Effect

Sep 2007

"There is no doubt about the fact that low interest rates for long-term government bonds have caused the real estate bubble in the United States"

Hindsight
Effect

Case Study: Behavioral Finance and the Housing Bubble

Just for the record, and as longer term clients well know, I had been a proponent of the model for an 18 year real estate cycle since the mid 1990's. In this cycle real estate prices were due to peak into 2005 and then decline into 2014.

And where was Alan Greenspan as this bubble inflated? As the quotations on the previous page make very clear, he was in what I had come to call his "Mr. Magoo Mode." . He was completely oblivious to the disastrous effect his ultra-low interest rates were having. His rock bottom rates inflated the largest credit bubble in the history of the world. But according to the 'efficient market hypothesis bubbles are impossible - especially in real estate. And markets are always fairly valued.

This brings to mind my favorite economist joke. Two economists go moose hunting in Alaska. They are dropped off on a remote lake by a bush pilot. The last thing the pilot states before leaving: "remember, this plane can only carry back one moose carcass." After two weeks of hunting the plane returns to pick up the economists and their dead moose. However there are two moose carcasses. The economists explain that their metrics and models predict the plane can easily handle the load. As the plane tries to take off it stalls and then crashes. As the economists stagger out of the burning wreckage the one economist asks "Where are we, what happened?" The second economist replies "We fell only 50 feet from where we crashed last year."

Update: 02 March 2011

If an economist gets stuck in a wrong theory then they become vulnerable to repeating the same mistakes over and over again. It will never occur to them that they are wrong. The blind spot effect will prevent the recognition that no amount of tweaking can repair a flawed model. What is worse, the mistaken notions that markets are rational and efficient and always fairly priced - these failed economic doctrines do not reside in a few disgraced and marginalized economists. These notions are still mainstream policies at the Federal Reserve. So now we have the ominous specter of Ben Bernanke repeating the same deeply flawed strategies of his predecessor Alan Greenspan.

We are living through the golden age of the speculative bubble. And what is fueling the unprecedented duration and frenetic pace of this conveyor belt of speculative bubbles? It is the Fed policy of ultra-low interest rates. The entire economy has been deeply distorted. The quick band-aid fix has replaced serious efforts to deal with the critical economic problems plaguing the United States. So we get the 2000 internet bubble, then the 2005 real estate bubble, then the 2007 stock market bubble, and then the 2008 commodity bubble. Now Fed QE policy has inflated both another commodity bubble and another stock market bubble. The technical evidence that the recent rallies in equities and commodities are bubbles is compelling. Meanwhile the economy is being manipulated by ideologues that promise to intervene if bubble start forming while maintaining that bubbles are impossible to identify and that markets are always fairly priced. Good luck to us all.

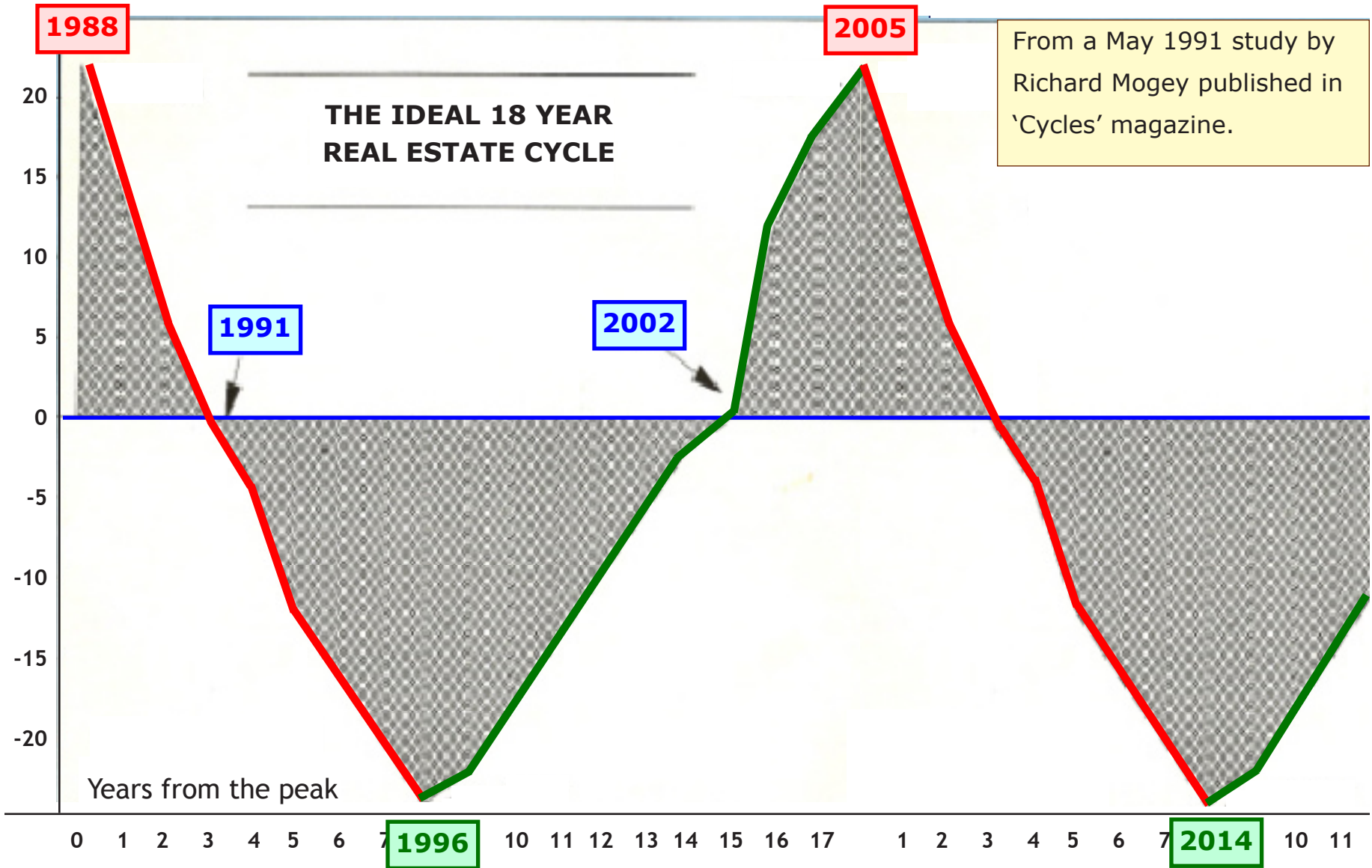


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Real Estate
Graphics

Appendix - Real Estate Graphics

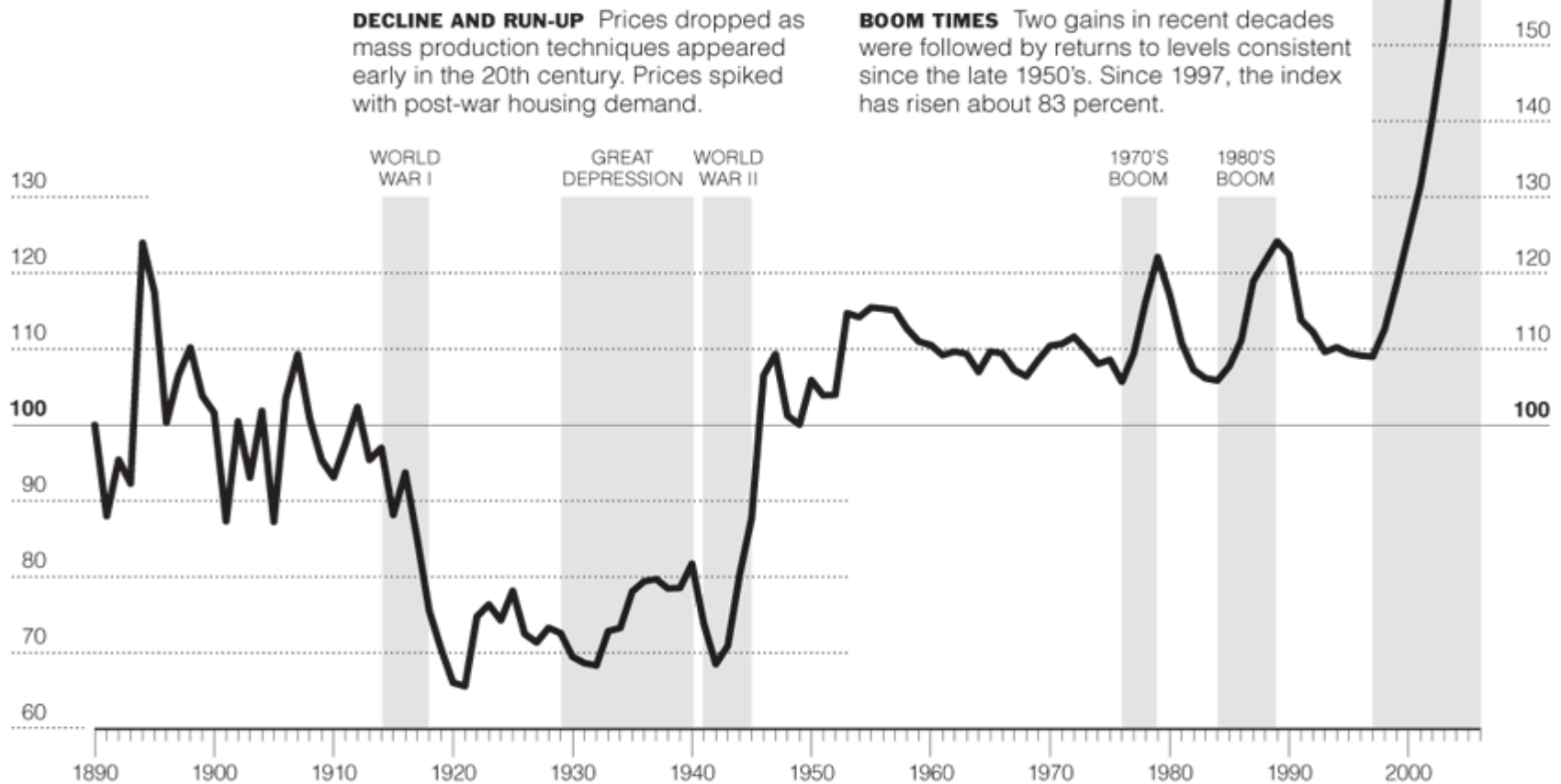


Case Study: Behavioral Finance and the Housing Bubble

A History of Home Values

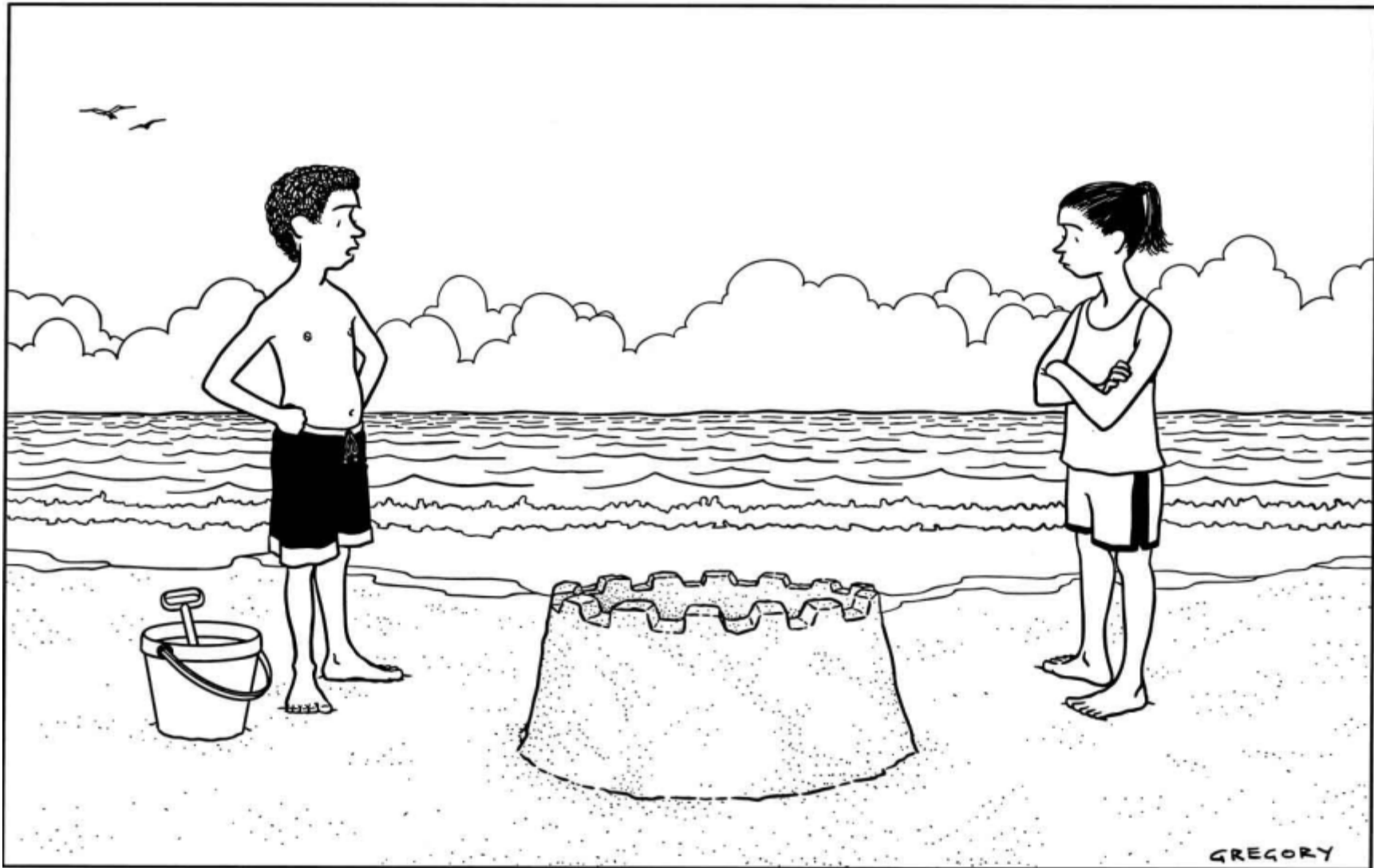
The Yale economist Robert J. Shiller created an index of American housing prices going back to 1890. It is based on sale prices of standard existing houses, not new construction, to track the value of housing as an investment over time. It presents housing values in consistent terms over 116 years, factoring out the effects of inflation.

The 1890 benchmark is 100 on the chart. If a standard house sold in 1890 for \$100,000 (inflation-adjusted to today's dollars), an equivalent standard house would have sold for \$66,000 in 1920 (66 on the index scale) and \$199,000 in 2006 (199 on the index scale, or 99 percent higher than 1890).



Source: "Irrational Exuberance," 2nd Edition, 2006, by Robert J. Shiller

Bill Marsh/The New York Times



"I hope we can flip it before the tide comes in."

