

## Money and Sentiment: A Psychodynamic Approach to Behavioral Finance

Ildiko Mohacsy and Heidi Lefer

*Abstract:* This article tackles one of the timeliest issues for both practitioners and patients today: sentiment, psychodynamics, and the stock market.

Economic bubbles and crashes have occurred regularly through history—from Holland's 17th century tulip mania, to America's 19th century railway mania, to the 1990s high-tech obsession. Though most investors regard themselves as investing rationally, few do. Instead they react collectively, buying high and selling low in crowds. Being subject to the illusion of control, they follow regressive behavior patterns and irrational, wishful thinking. They are victimized by their own emotions of hope, fear, and uncertainty.

Crises happen often in economics. Indeed, the market itself may be quantified as a conglomeration of human sentiment. The relationship between magical thinking and the pictorial language of the market will be explored. Psychodynamic conceptualizations about risk and speculation are discussed, as are the interplay of affects versus judgment, rational thinking, and the knowledge of one's own capacity for stress tolerance.

### MASTER OF THE MINT

Until 1720, Sir Isaac Newton was one of the most rational men in England. Author of *Philosophiae Naturalis Principia Mathematica*, Sir Isaac had also researched optics and chemistry. He had corresponded with author Samuel Pepys on dice-throwing, wagers, and probabilities. Since 1699, he had served as Master of the Royal Mint. He also invested in the British stock market. Who was better equipped to stomach the twists of investing than Sir Isaac? Who was less likely to be fooled?

In 1720, Sir Isaac witnessed the growth of a huge stock market bubble. This phenomenon, known as the South Sea Bubble, began with widespread interest in British companies that proposed to make fortunes by exporting goods to Latin America and to the Caribbean—then known as

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the South Seas. These markets were just waiting for English goods! London's daily newspapers trumpeted tales of new markets, new inventions, and a new future. Any Englishman with money was encouraged to invest. By the time the South Sea Company made an additional public offering of stock at £128 a share on April 14, people were enthralled. Shares sold out within hours. Being cautious, Sir Isaac bought only a small amount. He deemed the stock to be terribly overvalued. By April 22, after making a profit, Sir Isaac chose to quit. "I can calculate the motions of . . . heavenly bodies, but not the madness of people," he declared, selling his £7000 stake in South Sea stock (Kindleberger, 1996, p. 28).

Yet the stock continued to rise, reaching a peak of £1050 a share in June. The scientist, watching others growing unbearably wealthy and regretting his decision to get out, again bought South Sea stock—this time £20,000 worth. Thanks to fraud committed by South Sea Company management, however, the stock crashed in September. Along with innumerable fellow investors, Sir Isaac lost money. For the rest of his life, he would pale at mention of the words "South Seas."

What happened to Sir Isaac? He underwent a common occurrence. He knew there was no basis for the exorbitant price of a stock, but he felt envious of those who seemed to be making money. He hoped to get rich quickly. He hoped the stock price would rise even more. He got caught up in the excitement of his day, with a horde of speculators gripped by stock market mania. In the end, Sir Isaac Newton joined in with a crowd.

## MARKETS AND EMOTION

Economics is generally categorized as social science. Yet its practical application is as much art as it is science. Since the 1687 publication of Sir Isaac's *Principia*, the use of empirical evidence, scientific reasoning and logic, have been accepted as a standard intellectual paradigm (Murray, 2003). No amount of reasoning, though, can explain the behavior of crowds, their manias and panics. Nor can it explain the volatility of financial markets. It is crowds that cause financial bubbles, and crowds that cause financial crises. Crowds experience collective optimism, which is always followed by collective pessimism. During optimistic periods, market prices soar as crowds are willing to pay anything. In pessimistic periods, market prices crash as crowds feel unwilling to buy, no matter how cheap the price.

The Efficient Market Hypothesis, first promulgated by the economist Burton G. Malkiel in 1973, has been a popularly accepted theory for the workings of financial markets. According to the Efficient Market Hypothesis, the price of a holding accurately reflects all public knowledge of it at any given moment. Still, this theory does not explain bubbles and

crashes. It instead lumps bubbles and crashes under the convenient term "anomalies." But bubbles and crashes occur far too often to be anomalies.

Market efficiency cannot quantify instinct and emotion, nor the sentiments that inspire behavior among crowds, that is, large groups of investors. More recently, proponents of behavioral finance, among them Kahneman, Slovic, and Tversky, have contradicted Malkiel (Shefrin, 2000). They argue that markets are inefficient. Otherwise, the price of securities would never differ from their fundamental value. De Bondt and Thaler suggest that market inefficiency is partly caused by general overreaction "to both good and bad news" (Shefrin, 2000, p. 8.) So behavioral finance is a newer approach to economics, blending in psychology and sociology.

Rather than being anomalies, bubbles and crises are the rule in economics. They result from collective reaction and instinct. Those sentiments guiding human activities remain constant. Hope involves anticipation and pride; fear involves anxiety and regret. Most investors are overly optimistic and overconfident. They ignore the need for diversification, that is, to protect themselves by buying diverse types of holdings. They reject the existence of a connection between return and risk. They attribute gains to their own skill and losses to bad luck. Indeed, the "investor's worst enemy is himself" (Graham, 2003, p. 15).

Though finance seems a far cry from psychology, the stock market cannot be approached purely scientifically. In fact, the market is a conglomeration of human sentiment. The indices that measure it are constructed accordingly. Those ratios that measure fundamental values within the market, or offer technical predictions about the market's future are also constructed accordingly. The great speculator Bernard Baruch (1957) wrote:

The stock market . . . could be termed the total barometer for our civilization . . . .Prices . . . are affected by . . . everything that happens in our world, from new inventions . . . to vagaries in the weather and the threat of war. But these happenings do not make themselves felt in Wall Street in an impersonal way . . . .What registers in the stock market's fluctuations are . . . human reactions to . . . events, how millions of individual men and women feel these happenings may affect the future. Above all . . . the stock market is people. It is people trying to read the future. And it is this intensely human quality that makes the stock market so dramatic an arena in which men and women pit their conflicting judgments, their hopes and fears. (pp. 84-85)

When the term "market" is used, it is actually "people" who are being discussed. As people invest, they must consider alternatives. They must

accept or reject risk, watch the price of their holdings rise or fall, stick with a strategy, or change it.

Really, the market has both open and hidden rules. These rules are based on hope, fear, and greed. Because of sentiment and irrationality, the market is inherently inefficient. Buffeted by good news, people buy in hordes. They prefer the comfort of buying in a group. They like joining a trend, feeling "the trend is my friend." More and more people buy to become friends with a trend. But emotional moves invariably undergo equally emotional corrections (Kahn, 2003). Group sentiment gradually sways from greed to fear. The trend toward fear accelerates faster, as people tend to find the prospect of suffering fear and regret much more painful than any pleasure derived from feeling hope. As a result, market rises are shaped like a "U," in which there is plenty of time to join the trend of general optimism. Declines are shaped steeply, like an upside-down "V," and occur with little warning (Niederhoffer, 1997). Buyers vanish during panics.

Why do people speculate? They buy an overvalued stock, hoping to sell and make a profit before its price drops. They are practitioners of the "Greater Fool Theory." They believe they shall find a fool greater than themselves willing to pay more for their stock. Daniel Kahneman, winner of the 2002 Nobel Prize in Economics, suggests that market manias may be due to investors' illusions of control (Tarquinio, 2004). People look to one another for signs of optimism. They anchor to a reference point (Shefrin, 2000), acting as if the market is a yo-yo swinging back to a particular level. People not only bet on a trend: they bet the trend will continue. They extrapolate, basing their projections on limited information. They chase glamour stocks up to absurd prices. Many do not realize they are trading via the Greater Fool Theory.

Since the 1990s, Wall Street has pushed the Greater Fool Theory under the more appealing guise of "momentum investing" (Chancellor, 2000, p. 95). This technique has been used to pluck crowds of their capital for centuries. As far back as the South Sea Bubble in which Sir Isaac Newton lost money, an anonymous pamphlet warned:

The additional rise of this stock above . . . true capital will be only imaginary; one added to one . . . will never make three and a half; consequently, all the fictitious value must be a loss to some persons . . . The . . . way to prevent it to oneself must be to sell out betimes, and so let the Devil take the hindmost. (p. 69)

People wish to believe the market efficient, that understanding the market is a science. They long for stability and control, or to play the market with gamblers' wisdom. People of all sorts, from small investors

to economists at the Federal Reserve, chart the market. They study, analyze, and forecast it. Actually, they are watching each other. They want to know what the crowd thinks, what the crowd is doing. Televisions flash the market's latest behavior with green or red arrows: is it up or down? Hundreds of thousands of people watch prices change hourly on web sites such as *Yahoo! Finance* or *Bloomberg*. They read a forest's worth of newspapers, newsletters, and magazines. Mutual and hedge fund managers boast how they can beat the market. Economists quote laws of supply and demand; they invent any number of formulas. Yet market bubbles and crises, based on widespread speculative manias and depressions, continue to defy formulation.

### THE MADDENING CROWD

People suffer from contradictory desires. They wish to be individual, yet belong to a group. The difference between individual and group reaction is innate. People react differently to stimuli individually than they would in a group. A crowd is a group of individuals who identify with each other—and always with a leader—in an attachment for a common, mutual object. Identification serves as a defense against envy, so group members may control themselves. Instead of competing and fighting, they keep together, forming a coherent group. They feel devoted to their mutual cause.

Freud (1921/1957) theorizes the psychological framework for collective behavior in "Group Psychology and the Analysis of the Ego," discussing original writings by Gustave Le Bon, William McDougall, and Wilfred Trotter on mass psychology. Le Bon examined the genesis of crowds, noting the "peculiarity . . . of a sort of collective mind" (Freud, 1921/1951, pp. 72–73). In *Psychologie des Foules*, Le Bon suggested that individuals within a group give into instincts under restraint. Conscious personality disappears; unconscious personality predominates. Individuals become more open to suggestion, and to acting upon suggestion. They cease to reason, to think critically. They respond vis-à-vis emotion and instinct.

McDougall, in his 1920 *The Group Mind*, described collective behavior as due to the "principle of direct induction of emotion by way of the primitive sympathetic response" (p. 84). The greater the number of people involved, the greater the urge to act in accordance with the group. *Gemeingeist* (p. 120), group spirit, develops. But as critical thinking cannot be transmitted en masse, lower levels of thinking—what Freud terms "cruder and simpler emotional impulses"—are transmitted. A crowd may end up acting childishly, wildly, passionately. In worst-case scenarios, a crowd acts savagely.

How does a random assortment of people transform into a crowd? Normally, individual self-interest is supreme. Potential for crowd formation exists when people have a common interest, along with a comparable emotional bias or wish. The individual perceives that mutual interest, the togetherness and support of the crowd, offers more than individuality. Wishful thinking may tilt people's perception of reality or even replace it, so that realistic judgment is constrained. Perception, sense of judgment and reality are gradually excluded. Without the controls of reality, wish is turned into action.

"Groups have never thirsted after truth," Freud remarks (Ibid, p. 80), "They demand illusions, and cannot do without them." Personal interest gets sacrificed to collective interest. It becomes increasingly difficult for an individual to conceptualize the idea of acting against the group. Such opposition may lead to separation from the group, and separation may be perceived as devastating. Freud cites Trotter's 1916 *Instincts of the Herd in Peace and War*, suggesting that herd instinct is as innate in humans as it is in animals. Evidence for this exists in the common fear in young children of being left alone. Freud (Ibid, p. 123) concludes that "the psychology of groups is the oldest human psychology."

When people feel doubt and panic, they regress to an earlier stage either individually or en masse. Under stress, they revert to affect (Mohacsy & Silver, 1980). Such mobbing has an obvious psychological counterpart in the market. Here, crowds are governed by wishful thinking. "Investors are coached to believe that a stock is a better buy when the price rises, that it's 'safer' to join the crowd in betting the price up and 'riskier' to buy a stock declining in price" (Vick, 1999, p. 7). Investors also join a crowd to minimize regret. If something goes wrong, they know others behaved the same way.

## BUBBLE DYNAMICS

What goes up must come down. "A stock market boom has its own internal dynamics, and ultimate collapse . . . that brings business confidence down with it" (Shiller, 2003, p. A16). After so much tension builds up, the need for release from stimulation, due to cathexis or the amount of energy attached to such tension, is inevitable. "Every biological circuit, whether a sequence of proteins in the act of consuming a sugar molecule, or a complex ecosystem exchanging material and energy, exhibits self-correcting tendencies like those of the steam engine" (Niederhoffer, 1997, p. 143). The market functions by recirculating shares of equities among sellers and buyers: one investor's loss becomes another investor's gain.

Likewise, if too great an amount of psychical energy is invested in an idea or group of ideas—if psychic apparatus becomes overly excited—then at some point such psychic energy must be converted, that is, discharged. Freud (1924/1959a, 1900/1958) uses the term “economic” to signify the psychic process by which instinctual energy is circulated and distributed. Basic emotion, stimulated under primary process, is discharged as free energy. Emotions underlying higher levels of thought, utilized under secondary process, are discharged in a controlled fashion as bound energy.

At some point during a bull market, fantasy overpowers reality. “Speculative manias typically commence with a displacement which excites speculative interest . . . It is followed by positive feedback as rising share prices induce inexperienced investors to enter the stock market, and results in euphoria—a sign that speculators’ rationality is weakened” (Chancellor, 2000, p. 53).

At the start of a market mania, large groups of people go from investing rationally to speculating irrationally. New technology is invented and publicized; new opportunities for riches are promised. “Weighty academic research is . . . hauled out to inflame the public stampede” (Niederhoffer, 1997, p. 410). Confidence and optimism increases, so that classes of people who might not normally purchase equities join in. They join the upward trend. A bubble, where market prices soar, results. Excitement increases to the point that some financial professionals actually describe the market as having a “blow-off top.” Soon people grow nervous. Some begin pulling their money out, only to be joined by more and more people in the downward trend. Suddenly everyone rushes to get out, to the point that what the Germans call *Torschlusspanik*, door-shut-panic, occurs (Kindleberger, 1996). A crash, really a kind of extended, negative bubble where prices fall too low, may result.

## FOREVER BLOWING BUBBLES

Market bubbles are the product of group mania and depression. People act in a herd, losing their rationality en masse. All bubbles have something in common. They begin with a period of relative national prosperity, in which new technologies are invented and new opportunities are promoted. Prescott and Kydland, winners of the 2004 Nobel Prize for Economics, theorize that it is new technology—and not just the law of supply and demand—that causes market booms and busts (Uchitelle, 2004). It is new technology that turns people into speculators. This works both ways, as new technology could not be marketed without participation by speculators ready to take on risk (Chancellor, 2000).

Speculators play a vital role in the capitalist system. Throughout history, all flourishing capitalist economies have been inherently speculative.

Since the 17th century there have been dozens of speculative bubbles. There was Holland's Tulip Mania of 1634–38, in which bulbs were introduced to Holland from the Ottoman Empire, and deemed a rare and lovely commodity. At the height of Tulip Mania, people eagerly paid 2500 guilders—the equivalent of an Amsterdam townhouse—for a single bulb. There was the lesser-known Hyacinth Mania that gripped Holland a century later, along with the more obscure Clock Mania. There was the South Sea Bubble in 1720 England, a disaster paralleled by the 1719–20 Mississippi Bubble in France.

Great Britain had its own share of bubble companies during the 18th century. As with other market manias, the cause involved the promotion of delightful new technologies. Such wealth was promised! One company would extract saltpeter from toilets all over England. Another would cure venereal disease, another trade human hair. Others would extract silver from lead; build an engine for moving the madhouse Bedlam around the British countryside; invent a wheel of perpetual motion; make an "air pump for the brain" (Chancellor, 2000, pp. 71–72). The Metropolitan Bath Company would pipe sea water from the coast to London; the London Umbrella Company would establish umbrella rental stations; the London Cemetery Association for the Security of the Dead would prevent bodysnatching. The Resurrection Metal Company would gather iron by raising cannonballs from the seabed below where the Battle of Trafalgar had been fought. Another company would drain the Red Sea to get "gold and jewels left by the Egyptians, in their passage after the Israelites" (pp. 105–107).

Since its inception, the United States economy has been wonderfully speculative. It has been suggested that such speculative tendencies are based upon the nation's colonial origins. "The American dream is posited on the vision of a beneficent ever-improving future. . . . As the [19th] century financial writer William Fowler observed, 'Imagination, in this country, lives in the future rather than the past'" (Chancellor, 2000, p. 153). The U.S. stock market first crashed in 1791, due to the machinations of an ex-colonel from George Washington's army. Soon thousands of Americans began speculating in the building of canals and turnpikes. Bubbles and crashes became common. There were the Panics of 1848 and 1873, which resulted after investors threw money into the new technology of railway construction. There was the Panic of 1884, which led to the demise of 16 major Wall Street firms. "Panics on Wall Street in the 19th century had the certainty of the sea closing over a shipwreck" (Niederhoffer, 1997, p. 37).



The 20th century brought fresh panics. The most famous occurred in 1929. The stock market had climbed to dizzying heights since 1923, thanks to companies and newspapers hyping the newest technology of the age: autos, washing machines, radios, electricity. Brokers and banks pooled together to manipulate equity prices up. Skeptics were excoriated. Small investors, from doormen to golf caddies—indeed all walks of life—eagerly bought and shared tips. The daughter of National City Bank President Charles Mitchell recalls: “People believed that everything was going to be great always” (Blumer, Hovde, & Meyer, 2004). Brokers encouraged customers to indulge in the precarious habit of buying on margin, that is, to put little cash down. Privately, large investors awaited the inevitable correction. The bubble burst near the end of October, as small investors frantically sought to sell off all their shares at once.

The internet boom of the 1990s was an equally fantastic bubble. *The Wall Street Journal* explains: “Technology . . . drove the spectacular stock market boom between 1995 and 2000, because investors overreacted . . . believing in a ‘new era’ . . . the Internet was excitement without borders” (Shiller, p. A16.). Like their 18th and 19th century predecessors, innovators such as Microsoft founder Bill Gates hinted at unimaginable riches. In his best seller, *The Road Ahead*, Gates informed potential investors how the information superhighway would alter culture as dramatically as Gutenberg’s press did for the Middle Ages (Chancellor, 2000). Innumerable technology stocks grew astonishingly overpriced: their cost lacked even the remotest connection to company earnings. Many Wall Street players declared that the old fundamental ratios, used to calculate financial value, were irrelevant under this glittering new economy. James Cramer, host of the financial talk show *Ludlow & Cramer*, admonished: “You have to throw out all the matrices and formulas and texts that existed before” (Zweig, in Graham, 2003, p. 16).

Speculators stampeded in the herd pattern of all classic bubbles. “Breathe the word ‘Internet’ around a stock and anything can happen,” quipped one financial analyst (Chancellor, 2000, pp. 150–151). Crowds threw money at anything remotely connected to computing. Marketwatch jumped from \$17 to \$97.50 in one day. The online auction site eBay commenced its first day of trading at \$18, and soared to \$241.25 within two months. The stock of search engine Yahoo surged 153% on its very first day. Federal Reserve Chairman Alan Greenspan called internet valuations “pie in the sky” (Shefrin, 2000, p. 246). He compared internet investment to indulging in a lottery; most shares would become worthless. Most notably, he warned about the technology market’s “irrational exuberance” (Abelson, 2002, p. 5).

## MANIA AND DEPRESSION

During a bubble, collective mania ensues. Most speculators are no more rational than someone suffering from gambling mania. They believe that they will win, and are unable to anticipate the possibility of losing. Speculators show clear signs of manic-depressive behavior. Such traits reflect the collective psychology of bull and bear markets. The poet Samuel Coleridge described market mania as early as 1817 (Chancellor, 2000, p. 119): "Little by little, circumspection gives way to desire and emulous ambition . . . the movements of Trade become yearly gayer and giddier, and end at length in a vortex of hopes and hazards, of blinding passions and blind practices." After the British Crisis of 1825, banker S.J. Loyd likewise stated (p. 120): "First we find . . . a state of quiescence, -next improvement, -growing confidence, -prosperity, -excitement, -overtrading, -convulsions, -pressure, -stagnation, -distress, -ending again in quiescence."

This portrayal resonates with an article from *The Newcastle Journal* on the 1840s English railway mania (p. 140): "The transition . . . has been from unexampled buoyancy to almost hopeless depression—from an unnatural and unstable elevation to the lowest depths of suspicion and distrust."

In the 20th century, the brilliant financial economist Benjamin Graham advised investors to treat the market as an obliging but irrational business partner who let his fears and enthusiasms grow equally out of control. He dubbed this imaginary partner "Mr. Market." Mr. Market turned molehills into mountains, and small vicissitudes into enormous setbacks. The best thing an investor could do was to ignore daily market news altogether, tuning out the noise Mr. Market makes, and be guided by the less exhilarating, albeit more realistic numbers in annual reports. Graham—whose most famous disciple is Warren Buffet—was kindly warning readers that by heeding the market's daily activity, and by worrying about the behavior of others, they were in danger of being pulled into the crowd. His readers were to enhance their intelligence by harnessing their emotions, thus refusing to stoop to the market's level of irrationality. His lesson was that being an intelligent investor is more a matter of character than brains. Graham's warning about irrational Mr. Market is echoed in recent descriptions of the financial world (Zweig, in Graham, 2003, p. 205): "Listen to . . . daily broadcasts and you think you are hearing the latest medical report on someone who ought to be . . . on tranquilizers, or strapped down by attendants. It sounds like a manic-depressive head case."

Yet the question remains why people let Mr. Market dictate when to buy or sell. Events of the 1990s, which led up to the 2000 crash, are quite

curious. The 1990s bore all the signs of a technology bubble. Many people deluded themselves: this time things would be different. They lived amid an enchanting new economy, in which dull value indicators for stock price, value and earnings, debt and cash flow, seemed meaningless. As with previous bull markets, prices continued rising, since there was no “demarcation between progress and fantasy” within group dynamics (Zweig, in Graham, 2003, p. 205). Many people simply ceased believing in bear markets. They hoped that the bull market would go on forever, and they acted accordingly. This collective irrationality, evinced by masses willingly parting from money on the flimsiest possible evidence, shows signs of manic behavior. Being subject to cognitive dissonance, people lacked the capacity to process information. They filtered or manipulated it till it concurred with “strongly held internalized beliefs” (Kindleberger, 1996, p. 198). Others, recognizing the 1990s bubble for what it was, still lost money. They believed that they would sell out in time. These practitioners of momentum investing—the Greater Fool Theory—showed similar symptoms of mania. They deluded themselves into thinking that their own skills were superior to others.

Depressed markets are as much a product of group dynamics as manic markets. People are willing to sell at any low price because others are doing so. They become convinced that everything good is finished, that the bear market and bad times will go on forever. Being unable to process information, they distort it so that it matches these pessimistic beliefs. Feeling fear, they remain in a state of cognitive dissonance. During a depressed market, investors as a group evince all signs of depression.

Investors tend to act irrationally during calm markets too. Many hang on to losing stocks. They resist selling, as they do not wish to admit making a mistake. They struggle with loss aversion (Shefrin, 2000). Loss aversion leads to “get-evenitis,” where investors feel they must make money back from a stock in which they lost it, rather than facing reality and moving on. They wish to avoid feeling regret, the painful state in which they feel responsible for a loss, accepting: “I bought, it went down, I sold, I feel lousy” (Goldberg, 2003, p. 40). By holding a loss, they continue distorting reality and rejecting individual responsibility. Researchers at the University of California at Berkeley, examining 163,000 customer accounts at a national discount brokerage, found that investors were 70% more likely to sell a gain than a loss (Shefrin, 2000). As Freud (1921/1957, p. 81) explains: “All prestige . . . is dependent upon success, and is lost in the event of failure.”

Many people use irrational wishful thinking—magical thinking—to understand what seems incomprehensible. The unknown and uncontrollable makes people feel helpless, frustrated, and angry. Such magical

thinking interferes with the logical, "causal" thinking processes. People feel safe in a crowd, yet end up involved in regressive behavior. Their behavior turns self-destructive, both emotionally and financially. They become one with Mr. Market. As the tycoon character Gordon Gekko cautions in the film *Wall Street* (Stone & Weiser, 1987): "Don't get emotional about stock. It clouds . . . judgment."

The connection between group dynamics and the manic behavior of investment professionals may have been a major factor in the 2000 crash (Cass, 2004):

[Brokers were] exhibiting symptoms of hypomania that manifested themselves as excessive phone calls to future investors (over 600 per day), euphoric mood, a decreased need for sleep, an increase in risk appetite, grandiose thoughts . . . a sense of invulnerability, and excessive spending . . . Their energy and confidence sparked investors' interest and a desire to go against their better judgment . . . There is a reciprocal relationship between brokers' moods and . . . highs and lows of our market share prices.

(<http://www.catsg.com/stockdoc-article-mamd.asp>)

In sum, it is necessary to approach the market with the understanding that much of it is about illusion, delusion, and that it has a bipolar aspect. A bipolar market has rapid changes in cycle. Those who allow their emotions to rule, rather than their cortical functions, are bound to lose money.

## BIOLOGY AND SPECULATION

There is a branch of economics, transaction cost economics, which relates economics to biology. One hotly debated question within this field involves the rationality of the markets and rationality of people involved in making financial decisions. How lucid is *homo economicus*?

It is the biology of consciousness that serves as the basis for behavioral finance. Over a century ago, Freud (1895/1966) theorized the biological basis underlying affects, instincts, and drives, along with the existence of *neurones*. More recently James Crick (1994, p. 31), co-discoverer of the double-helix structure of DNA, stated: "The astonishing hypothesis is that you, your joys and your sorrows, your memories and your ambitions, your sense of personal identity, and freewill are, in fact, no more than the behavior of a vast assembly of nerve cells and their associated molecules."

Biological response to ups and downs of the market is unavoidable. Scientific research suggests that certain regions of the human brain respond in a particularly ordered fashion to the anticipation and reward of

money (Breiter, Aharon, Kahneman, Dale, Shizgal, 2001). These parts of the brain assess the potential of receiving reward or loss, and likewise react when a person either wins money or loses it. There is a prospect (e.g., expectancy) phase followed by an outcome phase. First, the amygdala acts as a critical substrate, triggering a somatic state from a secondary inducer, such as the thought of gaining a large sum of money (Bechara, Damasio, Damasio, 2003). Next, a region of the human brain, called the anterior cingulate—part of the cingulated gyrus—becomes active in moments of emotion or moments of pondering something difficult. This region of the prefrontal cortex, which stores autobiographical memories, is also the place where decisions are made governing future behavior (Blakeslee, 2003). It has lately been theorized that single neurons in the anterior cingulate have responses that change strength with reward expectancy. The anterior cingulate monitors “performance monitoring, error detection, conflict monitoring and response selection” so that “functions of the anterior cingulate are connected through their dependence on reward or goal expectancy . . . When certainty about outcome is removed from expectation, the progressive modulation [of the neurons involved] disappears” (Shidara & Richmond, 2002, pp. 1709–1711).

Brain signals related to increasing anticipation may be disturbed, in cases where motivation and reward are disordered. The result is that the act of risk-taking causes a surge in the release of dopamine, a neurotransmitter. There is more activity within the anterior cingulate than within the dorsolateral prefrontal cortex—a region governing working memory and deliberation (*Harvard Mental Health Letter*, 2004). In sum, though what people feel is as vital as what they think, their feelings and their thoughts may be incompatible.

Speculating naturally appeals more to people than investing. Dopamine is not triggered by more sophisticated behaviors involved in investing, such as considering the long-term future, considering real facts or real numbers indicative of financial stability and strength. Because of neurobiological processes, people are tempted by immediate rewards. Zweig delineates the connection between neurobiology and speculation:

Our brains are hard-wired to get us into investing trouble; humans are pattern-seeking animals . . . Our brains are designed to perceive trends even where they might not exist. After an event occurs just two or three times in a row . . . the anterior cingulate and nucleus accumbens automatically anticipate that it will happen again. If it does repeat . . . dopamine is released . . . Thus, if a stock goes up a few times in a row, you can reflexively expect it to keep going up . . . Brain chemistry changes as the stock rises, giving . . . a “natural high.” You effectively become addicted to your own predictions. (Graham, 2003, pp. 220-221)

It is neurobiological processes that turn people into speculators. Speculation may entail watching hourly changes in market price, reacting immediately to news or price movements. Speculative stocks offer greater risk, greater potential growth, and therefore the greatest excitement (Thomsett, 1998). It is far less exciting and far more burdensome to examine numbers on a spreadsheet, to read through a company's annual report; it is neurobiologically less pleasurable to invest.

During a speculative dysphoria, neurobiological processes are also at work. People tend to convince themselves that downward patterns in the market already exist. The sentiment of fear is a lower-level, easily transmitted emotion among groups. When stock prices decrease, the amygdala becomes more active. The portion of the brain processing anxiety and fear predominates over the dorsolateral prefrontal cortex. Essentially the "fight or flight" response common among cornered animals overpowers secondary processes such as the ability to filter and consider information. Over-reaction and aversion to remorse—one is less culpable getting out of the market if others are selling—feels more important than the possibility of future reward.

## CONTROL

Market legends resemble medieval exempla, parables of the Seven Deadly Sins warning against pride, wrath, envy, lust, gluttony, avarice, and sloth (Chancellor, 2000). During a bubble or speculative mania, greed and even conspicuous consumption are celebrated. After a crash, generalized revulsion sets in. The Seven Deadly Sins are reviled. Conspicuous consumption is replaced by saving. Wall Street bonuses are quickly cut; the public takes its remaining money, fleeing to banks or treasury bonds.

Some people feel *Schadenfreude*—pleasure in the troubles of others. They regard a crash as just—punishment for excess. When there is euphoria and people buy based on ignorance, something improper is happening. The punishment of a few selective culprits can never make up for widespread financial loss. Yet after each bubble, prosecutors single out several famous faces for public examples. In the 1930s, Charles Mitchell was convicted for tax evasion. Really, as director of the National City Bank, he was a major scapegoat for the Crash of 1929. In the 1990s, Mike Milken and Ivan Boesky were tried and convicted to much public satisfaction. More recently, Martha Stewart, Sam Waksal, Dennis Kozlowski, Bernie Ebbers, Ken Lay, and Jeffrey Skilling served a similar purpose. Chancellor compares speculative manias to medieval carnivals, in which excess is encouraged. Like carnivals, speculative manias end by

scapegoating. A symbol is punished, just as an effigy of the carnival king was once burnt.

Issues of control are certainly related to issues involving money. Freud (1913/1959b) hypothesized a symbolic connection between feces and money:

Interest . . . attached to excrement is carried over on to other objects—for instance, from faeces onto money . . . .Folklore . . . demonstrates the persistent and indeed ineradicable nature of coprophilic interests, by displaying to our astonished gaze the multiplicity of applications—in magical ritual, in tribal customs, in observances of religious cults . . . by which the old esteem for human excretions has found new expression. (pp. 90-91)

Young children naturally find excrement to be interesting. If allowed, they would play with it as they would clay. During toilet training, though, they are taught to regard excrement as disgusting and rejectable. Many child patients refuse to draw with brown or black crayons. Others refuse to eat anything brown, even chocolate, which they once liked. Excrement becomes associated with dirt and issues of control; coprophilic desire is integrated into character formation. Evidence of displacement is obvious. Consider the popular cultural adjectives associated with money: “filthy rich,” “stinking rich,” “obscenely rich,” “dirty money.” War profiteers grow rich from “bloody money.” Oil is “black gold.” A similar correlation exists among phrases associated with poverty: “dirt poor,” “filthy poor.” So money is described in pejorative idioms connected with excrement when someone is either very rich or very poor—depending on who is uttering the description by comparison to himself.

Perhaps the most unfortunate cultural displacement for money has involved Jews. Allowed by many European rulers to work solely as merchants or moneylenders, Jews were popularly despised. They were used and abused. Being identified with money, they were commonly demeaned by pejoratives associated with money: “stinking,” “dirty,” “filthy.” Shakespeare’s *The Merchant of Venice* is a tale of Jews and “blood” money. Jews were scapegoated, accused of bringing disease, infecting non-Jews around them.

It is a short jump from money to dirt, from dirt to disease. Another cultural displacement is the popular psychological association between market crashes and plague, disease, and murder. Luckily, for the last couple of centuries, this association has been metaphoric. A newspaper described the 1853 crash in the United States (Chancellor, 2000, p. 86): “Wall Street was as sombre [sic] as a plague-stricken city. Brokers flitted

in and out like uneasy ghosts." During the crash of 1929, Black Thursday was followed by Black Monday and Black Tuesday. President Herbert Hoover tried calming the public by quoting Treasury Secretary Andrew Mellon:

"When people get an inflationary brainstorm, the only way to get the thing out of their blood is to let it collapse . . . Panic was not altogether a bad thing . . . It will purge the rottenness out of the system." (Kindleberger, 1996, p. 127)

Newspapers called a far more recent Black Tuesday—the technology crash of 1997—a "bloodbath," "butchering," "massacre," and "murder" (Niederhoffer, 1997, p. 390). Recessions and depressions in Asia have been referred to as financial contagion, and compared to the spread of the bubonic plague. Not long ago, Federal Reserve Chairman Alan Greenspan complained about the dangers of "infectious greed" (Abelson, 2002, p. 5).

Crashes happen on "black" days, which are associated with plague. These metaphors, both for money and for the aftermath of speculative mania, indicate some cultural recognition of collective behavior. Le Bon too relates contagion to collective behavior. Individuals sacrificing personal interest to collective interest is evidence how "in a group every sentiment and act is contagious" (Freud, 1921/1957, p. 75). It is by joining groups, by running with crowds, that people become infected.

### FALLIBILITY OF INVESTMENT PROFESSIONALS

Many investors fail to consider that experts whom they entrust with their money are prey to emotions that cause mistakes. Some financial professionals are prone to replicating their peers' trades, for better or worse. This is one explanation for why mutual fund managers often act in lockstep. They fear being left behind—underperforming—so they trade against common sense. Other money managers and traders act out of envy. One psychotherapist, who works with financial executives and commodities traders, told *The Wall Street Journal* (Hymowitz, 2004, p. B1): "They see someone else trading big . . . so they trade big regardless of what the market is doing." Such imitative behavior feeds into the herd mentality conducive to bubbles.

Other financial practitioners repeat mistakes because of their own biases. Their perceptions of risk and return interfere with objective decision making. For example, financial professionals tend to be influenced by a company's recent earnings success when considering long-term



prospects. They become overly optimistic about recent winners and overly pessimistic about recent losers (Shefrin, 2000). They end up recommending stocks that have recently done well, thus encouraging momentum investing. Other financial professionals have trouble incorporating new information, and end up being repeatedly surprised by good or bad news. They look for confirming evidence, while ignoring disconfirming evidence. While forecasting future returns, financial professionals tend to overestimate or underestimate, misinterpreting the law of averages. Worse, many feel overconfident about their own predictions.

A study of financial professionals (Gorrell, 2001), researched at South-eastern University's Center for Psychological Studies, offers troubling results of a different nature. Some financial professionals may be prone to mental health problems that severely interfere with decision making. A sampling of account executives at seven major Wall Street firms was surveyed shortly before the October 2000 crash. It was found that 23% of account executives suffered from clinical depression (Thomas, 2004), and 38% from clinical subdepression (Gorrell, 2001), significantly higher than NIMH's concurrent statistic of 7% national average for clinical depression among males. According to data from insurance companies, a stigma against therapy discourages financial professionals from seeking emotional help. Worse, the study found that 54% drank heavily at least once a month. Apparently male financial professionals are prone to self-medicate. According to a therapist working with many such patients, the typical Wall Street mental profile is (Hempel, 2004): "Type A, hyperactive, hypomanic . . . more at risk for drugs and alcohol . . . A lot . . . use amphetamines and cocaine to get through a day." A psychiatrist in London likewise reports rampant problems with alcohol, cocaine, ecstasy, and amphetamine abuse among British financial professionals (Butcher, 2004, p. 1): "People take drugs across the board, from investment banking to the trading floor" ([http://news.efinancialcareers.com/NEWS\\_ITEM/newsItemId-3433](http://news.efinancialcareers.com/NEWS_ITEM/newsItemId-3433))

## DISDAIN

There is a conflict between the superego and material things. In ancient Greece, the practice of trade, buying and selling cargo, was frowned upon by landed aristocrats. It was a socially acceptable occupation only among lower levels of Greek society (*The Oxford Classical Dictionary*, 1996). Ancient Roman aristocrats also disdained commerce. Aristocrats had estate managers who dealt with financial affairs. Such businessmen were members of a lesser social class, *negotiators*. Even lower on the social order were traders, *mercatores*. Until World War I, Eu-

ropean aristocrats—with notable exceptions such as in Germany—professed similar disdain for business. They imitated the ancient Romans. If they invested in banks, railroads, agriculture, or slaves they did so in semi-secrecy. Socially acceptable merchandising for aristocrats might be in dealing, via managers, in racehorses or wine.

Today many wealthy people emulate aristocrats by not dealing directly with money. They instead delegate power and responsibility to brokers and money managers. They claim themselves too busy to manage their own money. Yet many do careful comparison shopping in other areas. They evaluate prices at stores and online; they research computers, cars, and homes before buying. They take pride in finding bargains or good quality merchandise. Yet they do not research companies before buying stock. They trust brokers, money managers, mutual and hedge fund managers whom they scarcely research either. Financial professionals often serve to shield investors from feelings of regret. If an investment professional does well, the investor can feel pride about their own skill in having picked that professional. When the investment professional does badly, the investor can blame the advisor or the bad luck of having chosen that particular advisor (Hulbert, 2006).

Today, physicians are deemed one of the worst classes of investors (Baruch, 1957; Graham, 2003). This problem may be due partly to hubris. Many physicians feel too busy to research their own investments, that their time is needed or better spent elsewhere. They naively turn to a specialist, assuming this person to be a conscientious professional. They consider their broker or money manager to be possessed of great talent, of arcane knowledge acquired by years of higher study. One money manager explained in *The Wall Street Journal* (Colter, Craig, & Davis, 2004) that the very character traits deemed positive among physicians, are counterproductive to handling personal finances. Even physicians who invest directly in equities themselves frequently experience disastrous results. Some tend to invest heavily in drug stocks, keeping too much of their portfolios weighted within this sector (Graham, 2003). Others invest repeatedly in new drug or pharmaceutical companies, overpaying or putting their money in badly run companies. Having money, physicians are a target class of investors, much beloved by financial professionals (Kane, 2002).

Physicians, who deal with health problems, tend to neglect the care of their own money when investing. Really, physicians ought to do homework first. They should not be timid in learning more about money, nor in asking questions. They should consult more than one specialist—money manager or broker—they should read annual reports, Securities and Exchange Commission filings, and learn exactly what they are buying. Actually, physicians too busy to do minimal research do not be-

long in the market. Just as it is advisable to be an informed patient, it is advisable to be an informed investor. In the medical model, conscientious physicians triple-check current information regarding patient treatment. Physicians need to triple-check their own investments, as financial professionals have intrinsically conflicting interests.

Yet even the most conscientious investors may end up misled, due to collaboration between powerful parties interested in blurring the public's vision, the sort of swindling referred to as "cooking the books." Misrepresentation of financial information for public companies dates back to at least the 18th century Mississippi and South Sea bubbles. More recently, all sorts of accounting tricks have been documented. Many companies have inadequate internal controls (Volker & Levitt, Jr., 2004). In the last few years, over 1000 public companies have been forced to restate their earnings; some have gone into sudden bankruptcy. Corporate scandals involve a range of industrial sectors, including food (Parmalat), energy (Enron), telecommunications (WorldCom), media (Tribune), as well as pharmaceutical, biotechnology, and healthcare companies (Bristol-Myers Squibb, Elan, GlaxoSmithKline, ImClone, and HealthSouth).

In conclusion, feelings of hope, trust, and greed—collective sentiments—play a role in the formation of market bubbles and crashes. In times of prosperity, people grow convinced the good years will last. They decide the future will be as wonderful as the present. It is thanks to conditions conducive to widespread optimism, collective euphoria and dysphoria, that excessive speculations and frauds can take place. There is an old saying that those of us who do not remember the past are doomed to repeat it. The truth is that those of us who do remember the past may also repeat it.

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