

## Asymmetries in the Psychology of Confidence<sup>1</sup>

Karl E. Scheibe

Professor of Psychology, Emeritus

Wesleyan University

Recently I had the opportunity to visit New Zealand, after attending a conference in Melbourne, Australia. My wife and I flew from Melbourne to Christchurch, New Zealand, stayed overnight there, and early the following morning we flew from Christchurch to Dunedin, both on the South Island of New Zealand. Only after we were aboard our flight to Dunedin, did I note a curious fact about this trip: We had not gone through any kind of airport security check in Christchurch prior to boarding our aircraft—no x-raying of luggage, no metal detectors, no search of any kind. On international flights out of New Zealand, one does go through the standard airport security checks. But apparently someone has decided, at long last, that it is not necessary to conduct these checks for domestic flights within that country.

Airport security checks became virtually universal in the 1960's as a response to aircraft hijackings, where airplanes were seized while in flight in order to demand money or for political goals. In 1969, a record of 82 skyjacking incidents occurred, and thereafter airport security checks became virtually universal. A major change in the intensity and thoroughness of security checks occurred after September 11, 2001. An incident occurred in December 2001 involving the concealment of explosive materials in a shoe, and in 2008, a man was found to have been carrying explosive materials in his underwear. These events resulted in a generalized requirement that shoes be removed as part of the airport security procedures, and more recently, full-body scanning devices have been installed in some airports.

The psychological point I wish to make in reminding us of these facts is that the fear resulting from a set of original criminal incidents have generalized powerfully in both time and space. With respect to the psychology of confidence, the general use of intensive security checks at airports represents a dramatic reduction in the confidence the government and airlines have about the honest intentions of their population of passengers. These measures can also be seen as an attempt by the government and airlines to restore the damaged confidence of the public about the safety of air travel.

The generation and generalization of fear to replace confidence is the objective more broadly of all terrorist activities, of which skyjacking is but one example. I mention my recent check-free experience of air travel in New Zealand to make the point that it takes a long time for confidence to be restored, once it has been damaged in a way represented by the 9/11 attacks or similar incidents. It is remarkable that one failed attempt for someone to cause damage by igniting explosive material in a

---

<sup>1</sup> Prepared for and given at the Regional Conference of the Interamerican Society of Psychology, Asuncion, Paraguay, August 2010.

shoe can cause millions of passengers routinely to take off their shoes for inspection years after the original incident. Similarly, multitudes submit passively to full-body scans because of a failed attempt by one individual to blow up an airplane with explosives concealed in his underwear. Confidence, damaged quickly, recovers slowly. It is remarkable that I was able to take a commercial flight in New Zealand recently with no security check, for I have had not had such an experience for over 40 years.

The objective of my presentation today is to illustrate this thesis about asymmetry in the reduction and recovery of confidence by referring to a set of data derived from a completely different domain—that of the stock markets in the United States. At the conclusion of my discussion of the asymmetry between fear and greed in the stock market, I shall return to the general thesis and suggest how it might apply to other domains of human activity as well.

### **Fear and Greed in the Stock Market**

Wall Street is an avenue of avarice, where speculators feed on fear and greed.

Robert J. Samuelson

That willing suspension of disbelief for the moment, which constitutes poetic faith.

Samuel Taylor Coleridge

In the drama of everyday life, we often take palpable fictions as real. Through the willing or unwilling suspension of disbelief, we can be absorbed by made-up worlds. Such an enthralling world, I contend, is provided by the stock market. The structure of the stock market is not given in nature, but is a cultural creation that has come to be an essential background condition of our daily lives. In this dramatic world, fear and greed play leading parts as alternating and complementary motivating forces controlling the players caught up in the action.

One general fiction is that the purchaser of a share of stock becomes a partial owner of a company. While it is true the ownership of stock has *something* to do with company ownership, the vast majority of people who own stock (now over half of the adult population of the United States) have absolutely nothing to do with the normal tasks of ownership-management and control of resources. People buy stocks because they expect the values of these securities will increase (greed), and they sell stocks because they are concerned that the values of the securities they hold will decrease (fear). If one has the stakes to play, the game provided by the stock market can be as absorbing as hypnosis or any work of fiction. The values of securities do go up and down with scintillating unpredictability, providing not just suspense but watchful excitement loaded with positive and negative payoffs for the participant.

Stock market investing is like casino gambling with two important differences. First, the odds of making money are much better for the individual investor in the stock market than for the player at the casino. Second, the stock market is connected, if in complex and often tenuous ways, to the real world of production and consumption. All of the economic sectors--banks, governments, corporations, research and development units, agriculture, and service industries--that are concerned with production and consumption have an influence on the market, as does the grand public, with its vicissitudes of confidence in tomorrow. Outcomes in the market are determined by

multiple and arcane forces, far less simple than the spin of a wheel or a throw of a dice. But it is an important part of the game to know that if I invest in a cracker company there really are crackers somewhere out there with intrinsic value for consumption. The stock market theater is a liminal world located somewhere between the hard reality of farm and factory on the one hand and the evanescent cloud space of the casino on the other.

Another of the prime fictions supporting the stock market theater is money--the medium for gauging and measuring the values of securities as well as all manner of commodity and service. Money is valuable only if it is believed to be valuable--it has no intrinsic worth apart from the social consensus of confidence. Numismatics is the discipline devoted to the appreciation of legal currency or tokens of economic exchange. I pull out a bill from my wallet. On the face side it reads: "This note is legal tender for all debts, public and private." On the obverse this legend appears: "In God we trust." The promise is secular but the backing premise is sacred. We permanently suspend our disbelief, and go about acting for all the world as if money and the securities they purchase have real value--a sacred fiction. Numismatics can tell us about the magic of transforming ordinary material into the sacred stuff called money--material stamped with symbols that vouch for seriousness and authenticity.

An episode illustrating the fictive character of money involved my older son, David, then eight years old. Like many good Americans, we introduced our children to the basic exercise of fear and greed in the marketplace by playing the game of Monopoly. One Sunday afternoon, after hours of play, David landed as a guest on a high-class property sporting several hotels. He paused, looked at his piece, looked at his money, and his gentle, dark eyes filled with tears. "I am ruined," he said, and began to cry.

"No, no, you are not ruined. This is just a game. Monopoly money is not real. Let's all quit." I said something to this effect, and we did, in fact, emerge from the drama. While his tears soon dried, David's somber mood lasted for quite a time. This incident made me ponder: What is the fundamental difference between our tiny world of Monopoly and the big world of real investment, real money? I concluded that there is no essential difference, unless one counts the mere matter of scale as essential. In both worlds, one has printed money. One has a group of people who are willing to consider it to be legal tender, *pro tempore*. The supply is limited. With money one buys advantages and property. Property can yield more money. When the game is over, or outside the context of the game, the money has no intrinsic value whatever.

Once the *Titanic's* lifeboats were away, those left on the ship might have been rich as Croesus, but the change in circumstance rendered their money useless. Rich and poor alike did drown. Hyperinflation is an approximation of this condition of useless money, and is inevitably the consequence of the decay of confidence in the government institutions that stamp money with credibility. Fear that leads to disbelief can make value disappear into thin air--a dramatic transformation.

## PSYCHOLOGY IS NOT PHYSICS

The laws of conservation of mass and of energy in physics provide enormous reassurance to science. If some object appears to be missing, one may be assured that it is not truly gone but is merely transformed or hiding in another place. This is not the case with economic systems, for all such systems are based on a psychology of beliefs and values. In this domain the laws of conservation do not apply. If the market loses over 20 percent of its value, as it did on October 19, 1987, this does not mean that hundreds of billions of dollars of wealth just moved from one place to another. In fact, the wealth simply disappeared--a consequence of fear, or lack of confidence. Fear made the prospect of holding on to securities seem riskier to millions of investors than selling them in a wildly declining market. It took about two years for little steps of greed to resynthesize the wealth that had been dissipated in just a couple days in October. After the stock market crash of October 1929, it took until November 1954 for the market to regain the value it had suddenly lost.

But even so, after every major and even cataclysmic loss in the stock market, recovery has eventually occurred. Over the long run, the wealth represented by the stock market has grown on the average by just over two hundredths of a percentage point per day. While the quantity mass and energy in the universe may be constant over eons, the wealth of nations has, in fact, steadily increased over the past century. This is because wealth is a creative product of human imagination--at once dramatic and psychological. Apart from being perceived as valuable, no mere object is a part of wealth. Physical reality does not have this nice contingent quality. Creating fairies by clapping your hands is an outrage to physics, but is compatible with the drama of everyday life.

## THE ASYMMETRY OF FEAR AND GREED

I argue here on *a priori* grounds that the extremes of fear are greater than the extremes of greed. Hell is bad and Heaven is good; but Hell is worse than Heaven is better. Dante's *Inferno* contains graded degrees of misery and affliction; Paradise has its thrones and cherubim and seraphim, but it is rather more uniform and less extreme than Hell.

Imagine your worst fear. Perhaps it is that you will be stricken with a painful and fatal disease. Perhaps it is that someone close to you, a family member or friend, will be killed. Perhaps it is that all of your worldly possessions will be destroyed by fire or flood. Death probably figures somewhere in the sketches of fearful imagination. One thinks of holocaust.

Now imagine your greatest hope for personal gain. Perhaps it is of winning a \$100 million lottery. Perhaps it is of winning a Nobel Prize or an Academy Award. Perhaps it includes enjoying perfect health until a very old age. Perhaps the dream is of great fame and personal power. Perhaps it is the hope of being loved, idolized, even worshipped. One may hope for Peace on Earth, even while worrying that it might be boring.

The test comes in a subjective comparison of the two imaginative exercises. Which is the greater departure from the status quo? Evidence and argument point to loss being more fearsome than gain is pleasing. As Amos Tversky has put it: “You probably imagine things could be slightly better but infinitely worse. We have probably evolved to be very sensitive to losses and much less sensitive to gains” (1995, 3).

One empirical demonstration of this asymmetry of valuation is the phenomenon of risk aversion. Most people choose to accept a sure award of \$100 over a 50 percent chance of winning \$200, even though the expected values of these choices are identical. Taking a risk entails the fear of not winning, so risk itself is negatively valued. Thus analysts assume that people must be enticed to take risks by enjoying the prospect of greater returns on an uncertain investment.

(Insert Figure 1 about here)

Tversky and Kahneman (1986) have extended this principle to show that risk on the loss side of the status quo is differently valued than risk for gain. Their findings are represented in the function portrayed in Figure 1. The domain of this function shows losses and gains relative to the status quo--not some final position of wealth. The function illustrates the differential valuation of losses and gains. Obviously, the function is monotonic, so that the greater the loss, the greater the pain, and the greater the gain, the greater the pleasure. However, the loss side of the function is much steeper than the gain side, illustrating the psychological fact of asymmetry. For a given magnitude of loss, the pain is greater than the pleasure associated with the same magnitude of gain. The loss of \$1,000 hurts more than gaining \$1,000 pleases. Finally, the shape of the function is concave in its gain region and convex in its loss region. This reflects the economic equivalent of Weber’s Law for perceptual dimensions--that just-noticeable differences in magnitude are an increasing function of quantity--so that, as psychologically experienced, the difference between a loss or gain of \$100 and a loss or gain of \$200 is much greater than the difference between a loss or gain of \$5,000 and a loss or gain of \$5,100.

(Insert Figure 2 about here)

The history of changes in the value of the stock market illustrates another empirical consequence of the asymmetry of fear and greed. Suppose we calculate the percentage change in the Dow Jones Industrial Average (DJIA) for each day in its history of more than 27,000 days. The mean change for the distribution of daily changes in the DJIA is +.024 percent. But the median change (+.045 percent) --the midpoint of the distribution- is higher than the mean. While well over 50 percent of daily changes are positive, the most extreme daily changes are negative, and the effect of these extreme losses is to pull down the mean but not the median. In fact, the skewness index for the frequency distributions of all major indexes (the DJIA plus the S&P 500, the NYSE, and the NASDAQ) is negative for their entire histories. Figure 2 displays these functions.

These figures are almost, but not quite, beautifully normal. They are all negatively skewed. A careful eye will see that they all have a peak slightly above the breakeven point of 0 percent. But the tails on the left are more extended than the tails on the right. For the DJIA, the greatest single loss is

23.52 percent, compared with the maximum gain of 16.83 percent (outside the domains shown on the graphs). The extremes are roughly the same for the other three indexes as well. In all cases, the greatest losses exceed the greatest gains. *The extremes of fear are greater than the extremes of greed.*

Greed is manifest in many small steps of growth. Nothing succeeds like success, and as the market grows, more and more investors are attracted to the prospect of gain, cautiously but consistently investing their available funds, causing the market to rise and fall still further. The bull market investors have enjoyed since August 1982, until the recent downturn in late 2008, is the longest period of continual growth in the history of the stock market. Over this period, the value of shares has grown twelvefold--an unprecedented gain. But this period has also seen the largest one-day losses in the history of the stock market. More recently, the stock market reached a nadir on March 2, 2009—and has slowly but steadily recovered since then.

It is as if fear lurks in the background even as greed has its way. As the market grows and grows, investors start thinking of bubbles. They remember the tulip mania in Holland in the seventeenth century. They imagine castles in the air. The Great Depression looms large in their consciousness. They invoke the example of Japan--where the stock market has still not recovered from its 18-year-old slide. Still the market continues to grow, as more and more cash pours in from eager investors. Then, one day, something happens. Perhaps there are rumors of a rise in interest rates. Perhaps a currency crisis occurs in some country in the Far East. Suddenly investors rush to sell their portfolios. The Roadrunner, having run off a cliff and out into the open air, suddenly looks down, screams, and then plummets like a stone into the sea- this is not physics, it is dramatic psychology. The latent fear has become manifest and has turned to panic--where panic is defined as everyone rushing to the door because everyone is rushing to the door. Portfolio managers are tested for their "vomit index"--that point in a falling market when they involuntarily throw up their holdings. The most recent crisis in world markets was linked to overvalued real estate and the marketing of complicated and questionable mortgage securities. But this surely is only part of the story.

Because of the tendency for panic selling to run out of control, the stock exchanges have instituted "circuit breakers", which automatically halt trading when losses exceed certain limits. The hope is that the pause in trading will allow heads to cool and fears to subside. But the paradoxical effect of circuit breakers can be just the opposite, given a sufficient load of fear. The interruption in trading can serve as a conspicuous and unmistakable sign that the authorities are worried. And if they are worried, the individual investor is going to be worried in spades.

Recovery usually begins a few days after a major selloff. As the supply of fear is exhausted, it dawns upon investors that the fall in prices is an opportunity to acquire some major bargains, and greed begins to assert itself again, initially in great gains, later as more cautious advances. This has been the pattern for the past twenty-six years. This pattern has occurred with a population of investors who have heard about, but not experienced, the Great Depression. The cold chill of that fear lasted for decades but now exists only as an abstract point of reference. The way markets

behave is a function of the collective psychology of the actors in the theater of the investing universe.

#### NOBODY KNOWS

A friend who owns a pension management firm once observed to me after a long discussion of the stock market: "Nobody understands what causes the market to move." He explained that the possible sources of influence are so numerous, and their interactions so difficult to understand, that no one can credibly claim to comprehend what makes the market go up or down. But this does not stop commentators and money managers from offering instant analyses of what caused a particular change.

On April 28, 1998, the *Hartford Courant* business section had this headline: "Dow Takes 146-Point Pounding." The subheading declared an explanation: "Stocks Hurt by Fears about Interest Rates." Within a week the paper announced that the loss was entirely recovered, because of an "erasing of fears," completing a tight circle of logic.

Sometimes the string of logic will run something like this: The most recently released unemployment figures show a decline--good news! But the rise in employment may cause inflationary pressure--bad news. Inflationary pressure, in turn, may cause interest rates to rise--bad news, again. Rising interest rates make the yield of stocks seem less attractive--bad news again, and the stock market tumbles. But on another day the entire set of connections may be stimulated again by a favorable employment report. Only this time the investors ignore the potential effect on the market and a substantial gain occurs. As Fats Waller said, "One never knows, do one?"

Among other closely watched signals for the market's behavior are trade deficits. Gross Domestic Product, indexes of corporate profits, productivity rates, orders for durable goods, retail sales figures, product inventories, the consumer confidence index, put-call ratios, odd-lot sales, and federal budget trade deficits or surpluses, with accompanying tax initiatives. Sometimes these indicators predict what the market will do; often they do not. But they are all on the shelf to be used as needed. They stand ready for invocation to account for any day's market change.

John Maynard Keynes likened the ability to pick winners in the stock market to a particular kind of beauty contest--where the task was not to pick the most beautiful contestant but rather to choose the girl who would be picked as the most beautiful contestant by others. This requires a particularly delicate form of empathy, where one puts oneself in the position of other judges, to judge how they would judge others to judge qualities of beauty. After the third remove in this regress, the ordinary mind becomes dizzy with the possibilities, with no hope of sorting it all out.

I return to the blunt assertion of my pension-manager friend. No one knows how the market works. Chaos theory, which came into vogue 25 years ago, is perhaps the best way to characterize the inner dynamics of the market. It's like a fractal: sometimes you get big waves, sometimes little ones. You never can tell where they come from. And like fractals as well, the movement of the market makes a fascinating display.

A young friend of mine, a recent college graduate, landed a job with a large brokerage firm in New York. Within a year, he had major responsibility for recommending investments for funds with billions of dollars in assets. He privately admits that he has no idea whatever about how to predict the movement of the market in his areas of responsibility--utilities and defense industries. So he is careful to watch what other people are recommending, and he goes with the flow, hoping against hope that he will not end up in disaster. So far, things have gone well for him. A rising tide floats all boats. But he has a strong fear of being found out by his bosses. My hunch is that if he makes it for another year or so he will develop the quality that is essential for success--a capacity to make others believe he understands what is going on. And, of course, he dresses the part and is careful to show his face in the office both early and late.

#### WHY NOT JUST INDEX?

My young friend has a lot of company, of course, but few are willing to be so candid, and in time he will become more reserved as well. The world of money management is full of people who have strong interest in not revealing a fearsome and central secret of their lives: that, just as in theater, the ostensible purpose of their professional lives is not its true purpose. Everyone is interested in making money--true enough. And the world of money management is fiercely competitive, with everyone trying to best everyone else. However, the fact is that in any given year about 75 percent of portfolio managers will fail to beat the indexes; that is, their portfolios will perform less well than the average of securities invested in a representative selection of stocks in the S&P 500 and passively managed with no turnover.

This becomes mathematically intelligible at once: The average of averages must be the average, and if the distribution of performance rates of a set of portfolios is symmetrical, at best 50 percent of them will perform above average. Because portfolios have turnover rates (the proportion of their assets that are bought and sold in a given year) of around 50 percent and some as high as 250 percent, it follows that subtracting transaction costs (commissions) will result in poorer-than-average performance for a majority of the portfolios--so the average performance of actively managed funds is bound to be significantly less than the average of a passively managed fund in any year. Hence it is perfectly reasonable that about 75 percent of fund managers perform below the averages.

One might expect, then, that many people would be attracted to the simple and irrefutable mathematical logic of indexing their portfolios. Invest the funds in a representative set of securities and go for long vacations--fishing, at the beach, or in the mountains. But such a strategy has some major disadvantages. The one mathematical disadvantage is related to a psychological one: While one may be assured of performing near the index averages by a passive investment strategy, it is equally certain that one will not beat the averages in this fashion. This lack of opportunity to beat the averages is, for the most red-blooded managers, quite intolerable. To quote an advertisement for a state lottery, "You can't win if you don't play." The drive to finish near the top is so great as to create a quite irrational denial that one is likely to finish badly. This is related to a second disadvantage of passive investing: it is boring. Frequent buying and selling means frequent complex



decision problems, and creates a fresh interest in the largely futile activity of checking the market every few minutes. The third and final disadvantage of passive investing is perhaps the most serious for money managers: The wholesale adoption of passive investing would mean the loss of thousands of well-paying jobs in the financial management industry. Portfolio and mutual fund managers could be replaced by machines run by clerks. The touts and analysts who serve this community would find the reason for their professional roles subverted.

We must see that theater is not reasonable--it is built upon profligacy, waste, and irrationality. And yet its attraction is irresistible. Elsewhere, I have argued that the accumulation of wealth is not primarily for the accumulation of wealth. Rather, it is about the creation and maintenance of edgy dramas, engaging scenarios about the possibility of enjoying a bonanza. Erich Fromm (1941) said: "Greed is a bottomless pit which exhausts the person in an endless effort to satisfy the need without ever reaching satisfaction" (115). Thank heavens, then, for greed--for a principle that ensures endless effort is dramatically much more interesting than one that runs a straight course taught toward satiety and boredom. It is in this sense that one might agree with the infamous Ivan Boesky, who said "Greed is good," and with Keynes, who argued that greed and "the detestable love of money" must continue to rule us until we have grown to the point of eliminating poverty and providing for the satisfaction of all human wants. But I doubt that even Keynes could imagine the psychological and dramatic poverty that could result from satiety and the final removal of fear and greed. *Human imagination rather fails on the upside.*

#### NOT A RANDOM WALK

The kind of challenge to the conventional practice of money management that I have just articulated will strike true believers as a dangerous heresy. It is similar to another dangerous heresy that emerged from the barren halls of academe more than thirty-five years ago—namely Burton Malkiel's (1973) claims for an efficient market hypothesis and the related notion that the market meanders along in an essentially unpredictable way, which he called a random walk. I confess that Malkiel's argument had great appeal for me when it was published, and I initially agreed with him (see Scheibe 1979). However, when I and my students performed an elementary empirical analysis of the random walk hypothesis, we found it to be false. There is, in fact, a certain intricacy in the market's dance that belies the impression of random movement.

A random walk process is characterized by an absolute lack of predictability in a series of discrete moves or steps. The efficient market hypothesis is that information relevant to the direction of the market's movements is already discounted and in the market by the time it becomes known—an economic version of precognition. Together, these ideas produce the conclusion that it was a waste of time to try to predict which way the market will turn from day to day, week to week, month to month. Market timers, Elliot Wave enthusiasts, and other prognosticators are no better than blind soothsayers at predicting market movement, according to the random-walk view. Here is a typical Malkiel pronouncement:

These technical rules have been tested exhaustively by using stock price data on both major

exchanges going back as far as the beginning of the twentieth century. The results reveal conclusively that past movements in stock prices cannot be used to foretell future movements. The stock market has no memory. The central proposition in charting is absolutely false, and investors who follow its precepts will accomplish nothing but increasing substantially the brokerage charges they pay (1973, 120).

Malkiel documents this assertion with a footnote claiming that evidence for it is to be found in the list of references. But my search of the list of references yielded no convincing proof of this null hypothesis, only an odd assortment of failed attempts to find systematic movements in this or that security.

It is one thing to say that no one understands why the market behaves as it does. I believe this to be true. But it is quite another to say that one cannot describe regularities in the market's behavior. This is demonstrably false. Without knowing at all why the market moves up or down, one can still examine the contingencies of movement. Does a movement in one direction on one day yield absolutely no information about the direction and extent of movement on the following day? It is possible to submit this matter to empirical test.

My students and I have used the same daily index values that form the basis for Figure 2 in an analysis of conditional probabilities. If the behavior of the stock market is random, then  $P(\text{UP}|\text{UP}) = P(\text{UP}|\text{DOWN}) = .5$  (that is, the probability of an UP day given a preceding UP day equals the probability of an UP day given a preceding DOWN day, and both are equal to .5 as the length of preceding sequences of events is increased to two, three, four, and so on).

Table 1 presents actual data on the conditional probabilities for the first-day and second-day sequences for four major indexes. We computed these conditional probabilities by splitting each distribution of daily percentage change values at the median, then calculating the contingencies just one step or two steps back—considering only whether the previous days were UP or DOWN days. It is easily seen that many of the conditional probabilities are not equal to one another, or to .5. (The statistical significance of the departure of these values from the hypothetical value of .5 is greater than 1 in 1,000 in most cases—those marked with an asterisk.)

Considering only the previous day, each of the indexes shows the same direction of departure from independence—with the probability of an UP day given a preceding UP day being considerably higher than the probability of an UP day given a preceding DOWN day. This probability ranges from 59 percent for the NASDAQ index to 51 percent for the S&P 500. While these departures from .5 may seem small, they are overwhelmingly significant.

(Insert Table 1 about here)

In order to demonstrate the reliability of these data, we split each distribution of index data in half by calendar date. (We ended up with one DJIA distribution from January 1, 1900, to July 10, 1945, and one from July 11, 1945, to April 24, 1998; the other distributions were split at their halfway points as well). We then recalculated the conditional probabilities for both the early and the

late halves of each distribution. These split-half data replicate quite closely over the early and late periods, as Table 1 shows. These effects are not due to chance.

Our findings indicate strong non-independence of move sequences. The market shows a “positively recency effect” --the tendency for a trend to continue. We continued the analysis of conditional probabilities up through trends involving as many as eight previous days. The resulting conditional probabilities for first-half and second-half samples are strongly related to each other.

These data are sufficient to refute the random walk hypothesis for the stock market. The existence of reliable conditional probabilities for changes that depart from .5 for median-split distributions of sequenced changes means that there is at least some amount of useful information in data on daily market changes. The universe of market investors does have a memory—the dance is not random.

The practical application of this non-randomness to making money in the stock market is another matter. Malkiel raises the challenge in his book: “If you are so smart,” he says to the market timer, “then why aren’t you rich?” But some market timers are, in fact, quite rich. One of them, Gil Blake, has employed a strategy of trading that was initially a direct application of the principles I have just described. He moved money into a fund when it went up, and moved it out when it went down. (By using mutual funds as his investment instruments, he was able to avoid transaction costs, since many mutual funds allowed unlimited and cost-free transfers of money). “In the twelve years since he began trading, he has averaged a 45 percent annual return” (Schwager 1992, 230). This is an astonishing level of performance. While Blake has had to modify the rules of market timing as conditions in the market have changed (and when he was no longer allowed free fund transfers), his principle remains simply of that capitalizing on regular and replicable contingencies in the upward and downward movement of certain stocks and funds. He is a market timer. Jack Schwager (1992) reports dozens of other market-timing analysts who manage to beat the market consistently. So the refutation of Malkiel’s random walk hypothesis is not just a matter of theory. Practical demonstrations of its falseness are in hand.

The psychological and dramatic interest of these findings should be clear. These regularities in market movement are entirely psychological. They do not depend upon GDP, budget deficits, interest rates, or any other external indicator. Rather, they reflect a psychological trend for those who invest in the market to be encouraged or discouraged by the experience of a given day, and to translate this encouragement or discouragement into a decision to add or remove funds from the market on a subsequent day. People believe in the market being hot or cold, and because they believe this, the market does in fact get hot and cold. What happens on the stage is controlled by the actors in the audience.

Investors are moved to action by the complementary yin and yang of fear and greed. Both are constant presences in investors’ minds, like different strains of bacteria in the digestive tract. A rational and safe strategy of investing would be to buy and hold a representative variety of

securities for long-term gain. But the daily action of several billion shares is testimony to the reactivity of investors to the fear and greed of the day.

Greed is active on more days than is fear, but when fear hits, its effects are more extreme. The existence of systematic regularities in the day-to-day movement of the market is testimony to the power of momentum for investors as a collective entity. People have a demonstrable tendency to believe that the market will continue to move in the direction it does. But by a willing suspension of disbelief, one might endeavor to learn to dance in step with the market's gyrations. The stock market is theater for the masses in contemporary capitalist society. Its movement is captivating, entrancing, hypnotic in its effect.

#### OTHER DOMAINS WHERE ASYMMETRY IN CONFIDENCE IS OBSERVED

In my clinical practice, I have often worked with married couples where it becomes evident almost immediately that the confidence and trust that once prevailed in the relationship has long since decayed. Perhaps an incident of infidelity has occurred or is suspected. Perhaps control of finances has become a central issue. Often both partners see the other as controlling and insensitive, or as taking more from the marriage than they are contributing. Sometimes alcohol or drug abuse is a central issue, with one partner resigned to the other partner's inability to maintain an extended period of sobriety or abstinence.

The restoration of confidence for both partners in a marriage is the central objective of marital counseling. But this process can be long and arduous, if it is possible at all. Dr. John Gottman, a most experienced and authoritative marriage therapist, asserts that he can tell within the first three minutes of a couple having a conversation whether there is or is not hope of the long-term survival of the relationship. He looks for evidence of absent confidence in the form of four kinds of behavior: displays of criticism, of contempt, of defensiveness and of stonewalling. He refers these four types of behavior as the "Four Horsemen of the Apocalypse," for their presence is a sure sign of the doom of the marriage. Sad to say, by the time many couples try to seek help for their relationship, they have already closed the door to the possibility of the restoration of confidence, and they consistently employ these combat techniques as way of maintaining own survival.

I have often used a botanical example as a way of achieving an understanding of the way confidence can be damaged and can be restored. Confidence is like a tree that takes a long time to grow—but that can be cut down in a few minutes. The restoration of the tree of confidence may be possible, but such a restoration will depend on the basic health of the root structure, and will in any event require a good deal of time and patience. The first task in the restoration of confidence is to reopen the door of possibility. It is one thing to say that it is *difficult* to trust your partner; it is quite another thing to say that your partner *cannot* be trusted. If one partner in a marriage takes the latter position, then the best advice that can be given is for them to see a lawyer, not a therapist. But if at least the possibility of the restoration of confidence can be admitted, then with careful nurturing and with ample time, a healthy relationship might be achieved.

To take an example from another domain, it is now well established in behavioral medicine that patients who do not think they can recover from a disease will be less likely to recover than those who can at least maintain a semblance of hope. Many of the techniques of guided imagery, cognitive behavioral therapy, and the like that are employed with severely ill patients are designed to foster the recovery first of some hope in victory over the disease. The patient who despairs of all possibility of recovery is unlikely to observe the therapeutic measures that might lead to success.

My mentor, Ted Sarbin, referred to the possibility of hysterical death as a way of illustrating an extreme form of this resignation. Among certain Polynesian tribes, a procedure of bone-pointing is used to identify a member of the community who might be responsible for crimes or general misfortune. The person who is chosen by the spinning bone at the center of the village circle then “takes the role of the dead.” Knowing of their doom, they cease to eat, cease to observe even minimal hygiene, and soon die. To be sure, the simplicity of this story is likely to be a product of a certain amount of leveling and sharpening—but the general thesis is, I believe, quite valid. If one truly believes in one’s doom, then the realization of that doom will not long be delayed.

#### IMPLICATIONS

My thesis is quite simple: Confidence—whether in the safety of travel, the growth of the stock market, the love of one’s partner, or the prospect of one’s personal health—is asymmetrical in its growth and decline. The decline is commonly rapid, and can be accompanied by feelings of despair, panic, and hopelessness. The recovery is likely to be slow and extended, and can be easily damaged by the recurrence of traumatic incidents which damaged confidence in the first place. But it is worth remembering that forests do grow again in areas of complete devastation. The stock market has always recovered from temporary declines, and in the very long term, seems to grow inexorably. Advances in public health and in medical science have gradually resulted in the extension of human life. Reigns of terror have always come to an end, to be replaced with more benign forms of civilization—less dramatic, but more conducive of satisfactory life.

Hope springs eternal. Psychologists would do well to employ their efforts to the removal of whatever forms an obstacle to that spring.