



# Trading Insights

SWI Continuing Education

Technical Analysis Part 4

## Irrational Exuberance

### Introduction

In *Irrational Exuberance*, Robert Shiller argues that high stock market valuations in 2000 and 2005 were unjustified. The book starts with historic valuations based on PE ratios. Shiller shows that valuations in these two periods were well above those seen at prior peaks in 1901, 1929 and 1966. This book however, is not about valuation. Instead, the author identifies a series of factors that brought about these speculative excesses. The meat of the book lists 12 factors that facilitated big market moves from 1995 to 2000 and from 2002 to 2005. Shiller then goes on to explain the mechanisms that amplified these factors. The book also covers cultural and psychological influences that further contribute to irrational decision making when it comes to making investments. After explaining our attempts to rationalize this irrational behavior, Shiller then offers some solutions to prevent future speculative bubbles.



Taking its title from Alan Greenspan's famous description of the stock market in 1996, *Irrational Exuberance* was first published in 2000 and coincided with the NASDAQ peak that same year. Needless to say, the timing was most prophetic. The second edition was published in 2005 with the S&P 500 up some 50% from its 2002 low. This advance continued another 30% before the financial crisis triggered a massive decline in 2008.



## Ties with Technical Analysis

Many of the theories put forth in this book fall in the realm of behavioral finance or behavioral economics. Behavioral finance is considered a branch of technical analysis. In fact, *Irrational Exuberance* was required reading for the Chartered Market Technician (CMT) exam on 2011. Behavioral finance is an attempt to understand the behavior of investors and institutions when investing in stocks, bonds, real estate, tulips or other securities. What prompts individuals to buy or sell a security? How do investors handle risk or loss? Why do speculative bubbles appear and then burst? Is there such thing as the dumb money and the smart money? Shiller sheds light on the investing process by highlighting the key factors that led to Irrational Exuberance in the late 1990's.

## Structural Factors

Shiller identifies 12 structural factors that contributed to the unprecedented rise in stock prices from 1995 to 2000. Even after the big decline into the 2002 lows, valuations were again at relatively high levels a few years later.

**1. The capitalist explosion and the ownership society** encouraged stock investing. Societies built on communism and socialism opened up to capitalistic ways. Russia and China come to mind over the last 20 years. George W. Bush promoted the ownership society by advocating property and stocks for all. Corporate downsizing and the decline of labor unions prompted people to take their destiny into their own hands and spawned the entrepreneurial spirit. Corporations tied salaries to performance with stock options.

**2. Cultural and political changes** favor business success. There has been a significant rise in materialistic values over the year. Shiller reports that more people viewed money as important to success in the mid 90s than in the mid 70s. Society viewed successful executives more favorably than scientists or artists. The 1995 Republican congress proposed cutting the capital gains tax and it was cut in 1997. Further cuts were proposed soon thereafter. These tax cuts as well as the anticipation of future capital gains tax cuts provided incentives to buy stocks.

**3. New information technology** suggested that new era. The first cell phones appeared in the early 1980's, which is when the great bull market started. The Internet came of age in the mid 1990's and grew rapidly the next five years. Investors viewed this Internet revolution as a game changer that justified the stock market boom.

**4. Monetary policy and the Greenspan put** took perceived risk out of the equation. The Fed did nothing to stop the surging stock market from 1995 to 1999. Interest rates did not increase until August 1999. In addition to letting the bubble grow, the Fed indicated that it would be there to pick up the pieces should anything go wrong, just like in 1987 and 1998. Having the Fed on standby in the event of a market crash was like owning a put option.

**5. The perceived effects of the baby boomer generation.** There was indeed a baby boom after World War II and this boom resulted in a large number of people aged 35-55 in 2000. However, Shiller argues with data that there is no correlation between a baby boom and a surging stock market. Instead, Shiller argues that, as with the Internet, the public perceptions of the baby boom influence help inflate the stock market.

**6. The 1990's surge in business media** undoubtedly contributed to interest in the stock market. Not much explanation is needed here. Newspapers created big glossy business sections to attract readers. Good stories replaced hard news. Increased media exposure led to more advertising and this simply fed the public appetite for stocks. The media continues to pour it one with Mad Money debuting in 2005.

**7. Analysts estimates were routinely overoptimistic** in the last 1990's. Shiller notes that Zachs reported sell recommendations on 9.1% of stocks in 1989 and just 1% of stocks in late 1999. Analysts were hesitant to issue sell recommendations because many firms also had investment banking ties with the company. Analysts also did not want to offend the company because they might then be cut off from earnings guidance or key information.

**8. Defined-Contribution Pension Plans grew** and replaced many Defined-Benefit Plans. Among other things, the decline in unions and big manufacturing industries (autos) contributed to this trend. More people also wanted control over their retirement funds. Those with Defined-Benefit Plans must make their own investment choices and this increases the exposure to stocks.

**9. The number of mutual funds surged.** From 1982 to 1998, the number of mutual funds grew tenfold (340 to 3513). At one point, there were more mutual funds than stocks listed on the NYSE. Mutual funds became a regular part of 401K's. Money moving into these mutual funds from 401K's and individual investors found its way into the stock market to feed the bubble. Shiller also notes that widespread advertising compounded this growth and increased public awareness to new levels.

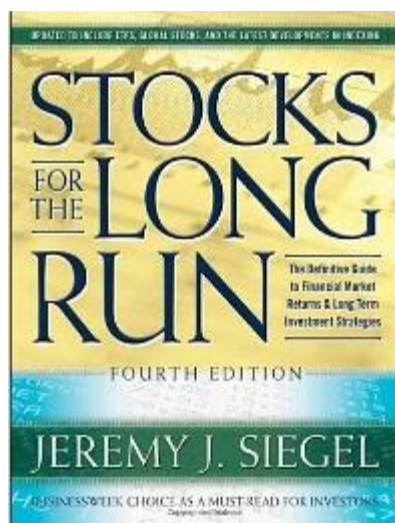
**10. Benign inflation created the illusion of wealth** and prosperity. After runaway inflation in the 70's, the inflation outlook steadily improved from 1982. Shiller's research found that the public associates inflation with economic prosperity and social welfare. Such perceptions promote positive expectations for the economy and the stock market.

**11. The explosion of trading volume** kept the bid in the bubble. Increased interest in the stock market and a dramatic decline in commissions facilitated a surge in trading volume on the exchanges. The growth in online trading also facilitated increased interest and made it easy to trade more frequently.

**12. There was an increase in gambling** over the years. Government sanctioned gambling (lotteries) and commercial gambling grew in popularity over the years. Poker players became stars. Lottery jackpots were heavily promoted. Slick adverts portrayed gambling as sophisticated and increased one's propensity to take risks. Online gambling facilitated growth as well.

## Amplification Mechanisms

As if the structural factors listed above were not enough, Shiller argues that amplification mechanisms intensified the affects. First, there was a change in investor attitudes towards stocks. By the late 1990, stocks were considered a long-term investment that could not go wrong. Jeremy Siegel first published *Stocks for the Long Run* in 1994. Subsequent editions have appeared in 1998, 2002 and 2007. Stocks indeed performed well from 1995 until 2000, when the S&P 500 peaked around 1550. The S&P 500 then went on a 10-year stretch of underperformance. In fact, the S&P 500 was trading below its 2000 in early 2011. This means 11 years of negative returns for buy-and-hold investors that bought in 2000.



Second, as inferred above, Shiller asserts that public attention to the stock market hit new levels in the 1990's. This heightened awareness made more money available for stocks. The media fed this infatuation with increased coverage. Dinner party conversations invariably turned to the stock market. Stock tips and advice were also readily shared among acquaintances.

Third, the consistent rise in stock prices provided a feedback loop that kept public attention on stocks. As the media reported the rise in the stock market, new money found its way into the stock market and pushed prices even higher. Higher prices led to more news and more news led to more investment money. A feedback loops evolved where price increases were feeding more price increases. Shiller calls these mechanisms naturally occurring Ponzi schemes because they feed on the perception of prior success.

## Cultural Factors

The news media and new era thinking are among the cultural factors cited by Shiller. Yes, the media seems to keep popping up in the book. Maybe that is why technical analysts only look at price charts!

The speculative bubble was clearly aided and abetted by the news media. Newspapers, television, radio and Internet media compete for public attention. Sensational stories with sound bites are more likely to attract attention than drab analysis with numbers and facts. Despite an inattention to detail, the news media was always there with specific reasons for a stock market move. The media always found the perfect excuse or news event to justify the move - after the fact. It is kind of like a solution in search of a problem.



Shiller notes that news of price changes is influential on investor behavior. In his survey after the crash on October 19th 1987, Shiller listed all the recent news events that seemed relevant and asked respondents to rate the stories. News of the October 14th price decline was also included in this list. At the time, this was the single largest one-day point decline in the Dow Industrials. Surprisingly, the stories relating to the past price declines were deemed the most significant news events. As Shiller states:

*Thus it appears that the stock market crash had substantially to do with a psychological feedback loop among the general investing public from price declines to selling and thus to further price declines, along the lines of a negative bubble. The crash apparently had nothing particularly to do with any news story other than that of the crash itself, but rather with theories about other investors' reasons for selling and about their psychology.*

New era economic thinking was also cited by Shiller as a cultural factor that contributed to the stock market bubble. New era thinking is not new. Stock market advances in the late 1800s, 1920's and 1960's were also facilitated by new era thinking. At the 1901 peak, new era thinking centered around railroads, big industrial trusts and the age of optimism. The roaring 20's were marked by the electrical age for big cities and the widening use of autos. The 1960's were punctuated by a baby boom, the proliferation of television and low inflation. Finally, the 1990s saw the Internet boom, low inflation, the new economy and the alleged end of the business cycle.

## Psychological Factors

Shiller asserts that there is a human tendency towards "overconfidence in ones beliefs". Moreover, people often rely on intuition when making investment decisions. The decision process is not based on carefully considered facts backed by numbers and evidence. Instead, investors make investment decisions based on the opinion of others. This stems from the need to conform. Investors make decision based on "good stories" or stories that seem logical. Because people get their information from the same sources, there is little or no evidence of independent behavior. Instead, individuals getting the same information react the same way to produce a herd mentality.



International Herald Tribune, October 27, 1989.  
Kal, Cartoonists and Writers Syndicate, 1989.



## Conclusion and Critiques

Shiller identified several credible factors that influenced investment decisions during the bubble years. Many of these factors exist today and his analysis provides food for thought when considering behavioral finance. Not all factors or influences are listed in this article. Shiller offers more factors and detailed evidence in the book. After examining efficient markets, random walks, bubbles and investor attitudes, Shiller also offers several remedies to contain "*speculative volatility in a free society*".

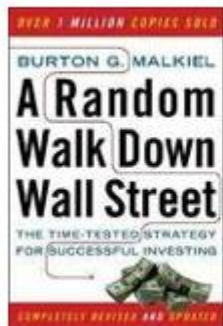
Behavior finance can help us understand what is happening, but understanding may not help with making money in the stock market. While the first edition coincided with the stock market peak in 2000, the stock market rose another 30% after the second edition was published in February 2005. There is an argument to be made for historical valuations, but markets can remain irrational a lot longer than traders can remain solvent. In other words, one would have left a lot of money on the table by selling in early 2005 or one would have gone broke shorting stocks in early 2005. To his credit, Shiller does provide evidence of past mispricing in the stock market. It can and does happen.

Furthermore, who is to say how much a stock is actually worth? The value of any asset is only what someone is willing to pay for it. Valuations are set everyday as stocks change hands on Wall Street. Just as prices trend, valuations also trend from overvaluation to undervaluation. Sometimes these trends get extreme on both sides. Stocks were severely overvalued in early 2000 and severely undervalued in March 2009. It would appear that some sort of timing mechanism is needed to avoid the big declines and participate in the big advances. Hmm... sounds like **technical analysis!**

## Random Versus Non-Random

### Introduction

The great debate continues to rage between random walkers and non-random walkers. Two competing books best represent these theories. Originally written by Burton Malkiel in 1973, *A Random Walk Down Wall Street* has become a classic in investment literature. The book has been revised numerous times with new editions as recently as 2007. Malkiel, a Princeton Economist, argues that price movements are largely random and investors cannot outperform the major indices.



VS



Written by Andrew W. Lo and A. Craig MacKinlay in 2001, the appropriately entitled [\*A Non-Random Walk Down Wall Street\*](#) provides the counter argument. Lo, an MIT Finance professor and MacKinlay, a Wharton Finance professor, argue that price movements are not all that random and that predictable components do indeed exist. Let the battle begin!

## Random Walk Theory

With "random walk", Malkiel asserts that price movements in securities are unpredictable. Because of this random walk, investors cannot consistently outperform the market as a whole. Applying fundamental analysis or technical analysis to time the market is a waste of time that will simply lead to underperformance. Investors would be better off buying and holding an index fund.

Malkiel offers two popular investment theories that correspond to fundamental analysis and technical analysis. On the fundamental side, the "Firm-Foundation Theory" argues that stocks have an intrinsic value that can be ascertained by discounting future cash flows (earnings). Investors can also use valuation techniques to ascertain the true value of a security or market. Investors decide when to buy or sell based on these valuations.

On the technical side, the "Castle-in-the-Air Theory" assumes that successful investing depends on behavioral finance. Investors must determine the mood of the market - bull or bear. Valuations are not important because a security is only worth what someone is willing to pay for it.

Random walk theory jibes with the semi-strong efficient hypothesis in its assertion that it is impossible to outperform the market on a consistent basis. This theory argues that stock prices are efficient because they reflect all known information (earnings, expectations, and dividends). Prices quickly adjust to new information and it is virtually impossible to act on this information. Furthermore, price moves only with the advent of new information and this information is random and unpredictable.



In short, Malkiel attributes any outperformance success to "Lady Luck". If enough people try, some are bound to outperform the market, but most are still likely to underperform.

## Non-Random Walk Theory

A Non-Random Walk Down Wall Street is a collection of essays offering empirical evidence that valuable information can be extracted from security prices. Lo and MacKinlay used powerful computers and advanced econometric analysis to test the randomness of security prices. Although this book is a heavy read, the findings should be of interest to technical analysts and chartists. In short, this book documents the presence of predictable components in stock prices.

Just prior to this book, Andrew Lo wrote a paper for the Journal of Finance in 2000: *Foundations of Technical Analysis: Computational Algorithms, Statistical Inference, and Empirical Implementation*. Harry Mamaysky and Jiang Wang also contributed. The paper's opening remarks say it all:

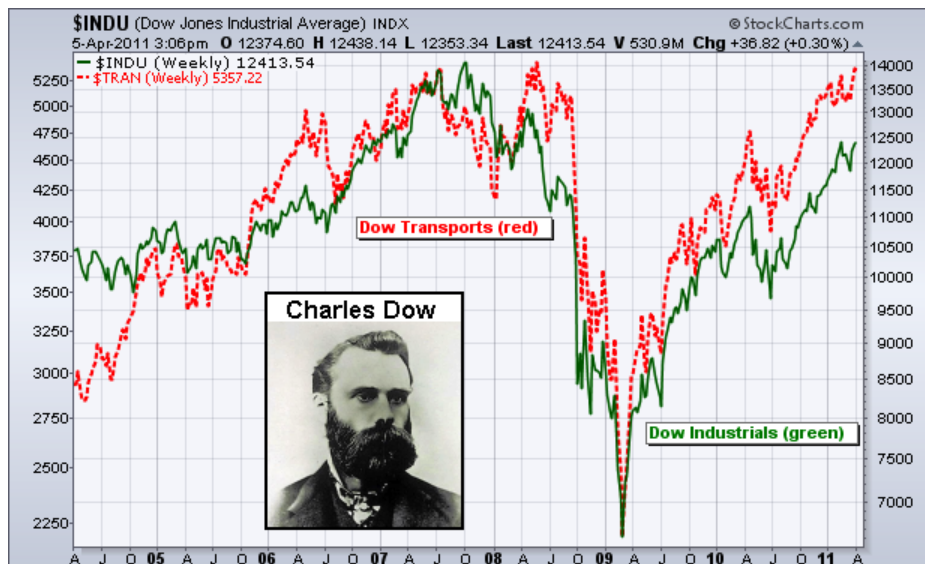
*"Technical analysis, also known as charting, has been part of financial practice for many decades, but this discipline has not received the same level of academic scrutiny and acceptance as more traditional approaches such as fundamental analysis. One of the main obstacles is the highly subjective nature of technical analysis. The presence of geometric shapes in historical price charts is often in the eyes of the beholder. In this paper, we propose a systematic and automatic approach to technical pattern recognition using nonparametric kernel regression, and apply this method to a large number of U.S. stocks from 1962 to 1996 to evaluate the effectiveness of technical analysis. By comparing the unconditional empirical distribution of daily stock returns to the conditional distribution conditioned on specific technical indicators, such as [head-and-shoulders](#) or [double-bottoms](#), we find that over the 31-year sample period, several technical indicators do provide incremental information and may have some practical value."* This paper can be found at [www.nber.org](http://www.nber.org)



## Dow Theory

There is also proof that one of the oldest systems around can outperform the market and reduce risk. [Dow Theory](#) seeks to buy when both the Dow Transports and the Dow Industrials record new reaction highs and sell or move into Treasuries when both record new reaction lows. The move out of stocks and into Treasuries greatly reduces risk because one is not exposed to riskier stocks. There have been a few big bad bear markets over the years and preserving capital is one of the keys to investment success.

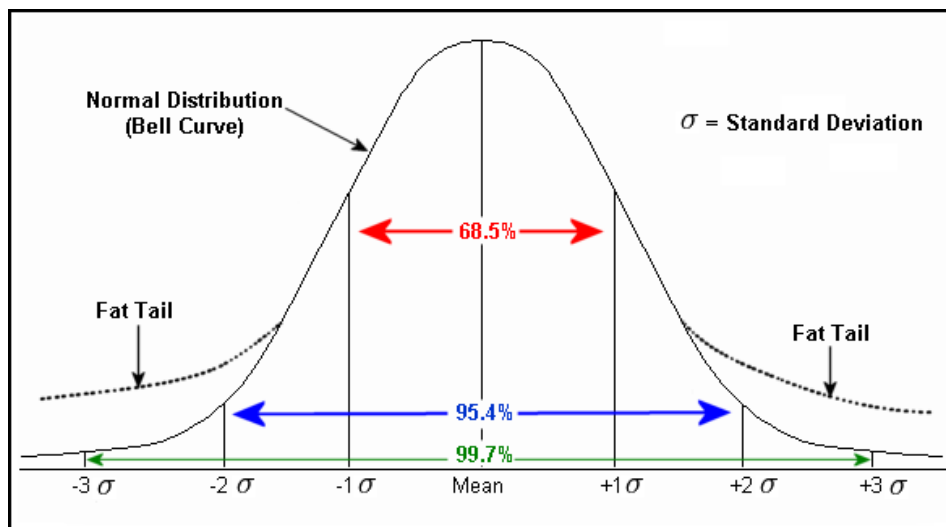




Stephen Brown of New York University, William Goetzmann of Yale, and Alok Kumar of the University of Notre Dame published a study on Dow Theory in the [Journal of Finance](#). The Dow Theory system was tested against buy-and-hold for the period from 1929 to 1998. Over the 70-year period, the Dow Theory system outperformed a buy-and-hold strategy by about 2% per year. In addition, the portfolio carried significantly less risk. If compared as risk-adjusted returns, the margin of outperformance would be even greater. Over the 18 years from 1980 to 1998, the Dow Theory system has underperformed the market by about 2.6% per year. However, when adjusted for risk, the Dow Theory system significantly outperformed buy-and-hold over this timeframe. Keep in mind that 18 years is not a long time in the history of the market and this period was during one of the greatest bull markets in history (1982 to 2000).

## Fat Tails and Trends

Historic stock returns are not normally distributed. What does this mean? If one were to measure the height of 1000 people and plot the distribution, this distribution would form the classic bell curve. The most recurring height (value) would be in the middle and the remaining heights would be equally distributed on either side. Furthermore, 68.5% of all values would fall within  $\pm 1$  standard deviation of the mean, 95.4% would fall within  $\pm 2$  standard deviations and 99.7% would fall within  $\pm 3$  standard deviations. The solid black line shows a typical bell curve with a normal distribution.



Statisticians have found that a distribution of stock returns forms a curve with "fat tails". For example, this could be a distribution of the 1000 weekly returns for a basket of stocks. In a normal distribution, 99.7% of all these returns would be within  $\pm 3$  standard deviations of the mean. This, however, is not the case for stock returns. Instead, the distribution has fat tails (black dotted lines). This means a relatively high number of returns fall outside the normal distribution. Some are lower and some are higher. These abnormal returns provide evidence of extended moves, outsized moves or trends. Note that the image above is just a hypothetical example to illustrate a point.

## Visual Evidence

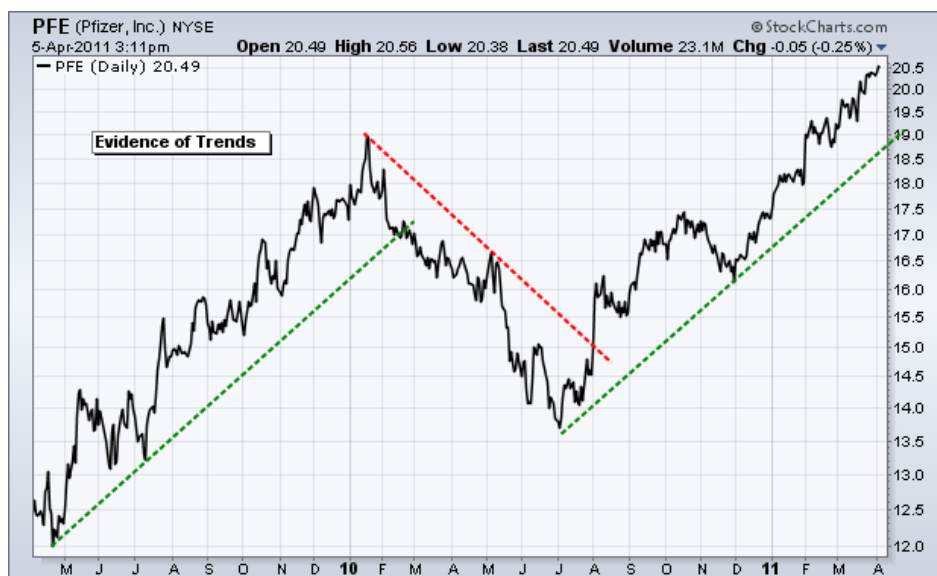
Anyone who has followed the stock market for any length of time realizes that trends can and will take hold. To be fair, not all stocks trend and trends do not last forever. However, there are enough asset classes, major indices, sectors, industry groups or stocks out there to insure that something is trending at some point. The challenge, as always, is to find that trend and ride it. The next three charts show some individual stocks with clear signals and trends. Identifying a simple double top and getting out of Citigroup (C) would have avoided a whole lot of pain. The same can be said for Enron, Worldcom and the few other debacles.



ExxonMobil (XOM) was choppy in 2009, down the first half of 2010 and then up sharply from July 2010 to February 2011. Catching this one big trend would have made up for quite a few losses.



Pfizer (PFE) shows an example of three sizable trends emerging over a two-year period. The stock was up over 50% in 2009, down around 25% in the first half of 2010 and up around 50% from July 2010 to March 2011.



## Conclusions

To be perfectly fair, there are both random and non-random aspects in the financial markets. Stocks sometimes trend and react well to patterns or indicators. Stocks sometimes trade choppy and ignore pattern setups or indicator signals. It is the job of the technical analyst or chartist to separate the wheat from the chaff. Chartists must also be able to adapt to ever-changing conditions.

Andrew Lo notes that beating the market does not come easy, nor is it something that is easy to maintain. Lo likens the pursuit of above-average returns to that of a company trying to maintain its competitive advantage. After introducing a hot new product, a company cannot just sit back and wait for the money to roll in. In order to remain above the competition, management must be flexible and look for ways to continuously improve and innovate; otherwise, the competition will overtake them. Money managers, traders and investors who find ways to outperform the market must also remain flexible and innovative. **Just because a method works today does not mean it will work tomorrow.** In an interview with [Technical Analysis of Stocks and Commodities](#), Lo sums it up by stating:

*"The more creativity you bring to the investment process, the more rewarding it will be. The only way to maintain ongoing success, however, is to constantly innovate. That is much the same in all endeavors. The only way to continue making money, to continue growing and keeping your profit margins healthy, is to constantly come up with new ideas."*

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