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Clayton Christopher Williams

University of Tennessee - Knoxville

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SENIOR PROJECT - APPROVAL

Name: Clayton Williams

College: Business  Department: Finance & Accounting

Faculty Mentor: Dr. Albert Auxier

PROJECT TITLE: Investor Psychology and Market Speculation

I have reviewed this completed senior honors thesis with this student and certify that it is a project commensurate with honors level undergraduate research in this field.

Signed: Albert L. Auxier, Faculty Mentor

Date: 12/4/03

Comments (Optional):

This paper is so well researched and written that if it were published, it would be a nice addition to the literature.
Investor Psychology and Market Speculation

Clayton C. Williams
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Senior Honors Project

Dr. Albert Auxier – Faculty Mentor
Abstract

The stock market is not simply a passive scale measuring the value of the businesses it contains. It is a very intricate system of transactions between individuals that is subject to the very same failings and limitations of the people who participate in it. The failure of the efficient market theory to deal with this aspect of the market has led to a surge in research in the budding field of behavioral finance. These studies have struggled to describe irrational market movements and the occurrence of speculative bubbles as was seen in the latter half of the 1990's.

Since investor psychology is such an important factor in the price level of the stock market it is vital to understand the psychological issues involved. This project will be an exploration of the topic to make it more easily relatable to the general investor. First, market speculation is certainly not a new occurrence and the project will begin by examining prior cases of market speculation to give investors a historical perspective. Then the project will describe the psychological tendencies investors exhibit such as a rearview mirror bias and herd mentality. These psychological traits will be further developed by tracking the progression and indicators of a speculative bubble. Finally, the project will propose a sound investment philosophy that will help insulate investors from making these psychological errors.
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The Importance of Investor Psychology

The stock market has grown in prominence to the general public over the last decade. From 1990 through early in 2000, the NASDAQ Composite Index soared 999% and then lost up to 78% of its value over the course of the next three years. This stunning rise and fall rivals even the magnitude of the 1920’s stock market bubble. The volatile and sweeping movement in the market has attracted the attention of both the general public and the academic world, putting the efficient market theory to the test and forging the relatively new study of behavioral finance. Many investors might question how a market can accurately reflect all known information and exhibit such irrational movement.

Surely the existence of “speculative bubbles” such as what was seen in the late 1990’s is proof enough that a greater understanding is needed of the role investor psychology plays in stock market movements. In a December 2001 article in Fortune the world’s most famous investor Warren Buffett maintained that the three most important variables in stock prices are interest rates, corporate profitability, and investor psychology. Although the market always returns to a rational valuation in the long-run, investor psychology is likely the single most important short-term factor in valuation, and often short-term speculative bubbles can have long lasting effects on capital markets.

The traditional definition of investing is the process of laying out money in the present in order to receive more money in the future. However, this definition lacks an important distinction. It makes no assertion as to the level of examination or certainty of future returns. It only maintains an expectation of receiving more money in the future. Clearly a speculator is expecting a future return. However, Benjamin Graham in his
The landmark work *The Intelligent Investor* makes the important distinction between investing and speculation by writing, “An investment operation is one which, upon thorough analysis promises safety of principal and an adequate return. Operations not meeting these requirements are speculative (1).”

The terms investor and speculator are often applied differently in different periods of history. Following the stock market collapse in 1929 when financial markets were generally perceived as very risky, the term speculator was broadly used to describe any individual putting money into the market. On the other hand, in the late 1990s, the term investor was used to describe day traders who would buy shares of companies they knew nothing about and holding them sometimes only as long as a few minutes. Graham argues that the loss of distinction between these two categories is often a sign of trouble (3).

Speculative bubbles have occurred repeatedly throughout history, and modern technology and media have only made their existence more pervasive and easier to create. Therefore, to successfully navigate financial markets, it is vital to understand the history of investor psychology, the human tendencies that create speculative bubbles, the indicators of such bubbles, and how to avoid such costly financial mistakes.

**The History of Financial Speculation**

"All nations with a capitalist mode of production are seized periodically by a feverish attempt to make money without the mediation of the process of production." ~ Karl Marx
Tulipmania

The occurrence of a speculative bubble is certainly not a new phenomenon. The earliest, widely recognized financial bubble is known as The Dutch Tulipmania and took place in the mid 1630's. The tulip bulb was introduced into Europe in the mid sixteenth century by Turkish traders and it soon became a very prestigious flower sought after by the European elite. The high demand generated as European nobles competed for the new social status symbol greatly elevated the price entering the 1630's. This price movement was simply a balance of price and demand. However, by 1634 traders had entered the market solely for the purpose of speculating on future price movements. MacKay writes, “rich people no longer bought the flowers to keep them in their gardens, but to sell them again at cent per cent profit (95).” This inflow of capital from both domestic and international investors caused an even greater swell in demand causing prices to rise even further.

One aspect of tulip cultivation caused a significant delay between purchase and delivery of the bulbs, creating essentially a futures market by 1636. Many of these transactions were undertaken on margin or credit, indicating the powerful feelings of optimism felt by investors. It is hard to find a consistent and comparable index of bulb prices, but at the height of the trading, one transaction was reported with a value of 5500 guilders. The same sum measured in gold, it would be worth $33,000 (Garber 26). However, in February of 1637 the market for tulips had collapsed leaving many of the futures contracts significantly underwater. The States of Holland subsequently suspended all of the outstanding contracts and the courts would never uphold any of the contracts.
The South Sea Bubble

Perhaps a more directly applicable case of financial market speculation is the South Sea Bubble of 1720. The South Sea Company was chartered by English Parliament in 1711 and equipped with a government granted monopoly on all trade to the Spanish American colonies. The company was capitalized through a mandatory exchange of nine million pounds of government debt securities for shares in the new joint stock company (Carswell 54). Parliament formed the company with the aim of restoring the public credit, and from its creation the company was immersed in political struggle, bribery, and personal profiteering.

The company was sold to the public through a grand vision of the wealth of Spanish America, but there was little chance that such a great profit would ever be realized. The King of Spain would only allow for one ship per year to make the voyage and even that was subject to a heavy Spanish tax. The first voyage was not made until 1717 and trade was then suspended in the next year following the outbreak of hostilities between Spain and Britain. The main operations of the company were actually financial in nature, stemming from their involvement with refunding the government’s debt. In this matter they were directly rivaling, politically and financially, the Bank of England.

In 1717, the King of England began a second push to improve the state of public credit. The Bank and the South Sea Co. made several proposals for the refinancing of the 50 million pound public debt. The South Sea Company won the bid in no small part due to a number of bribes and company stock given to members of parliament (MacKay 82). The passage of this bill was truly the spark that ignited a public frenzy of mass speculation. A chart showing the progression of the bubble can be seen in Exhibit B.
The stock was at 310 pounds at the beginning of April 1720 when the refunding act was passed and slowly climbed to 400 pounds over the next couple of months. Then from the end of May the stock would soar 150% to 1000 pounds on June 17.

It is during this period, the summer of 1720, when the term “bubble” made its first rise to popular use. The amazing success of South Sea Company stock had captured the public imagination causing a huge influx of capital into the market. Entrepreneurs sensing the public’s willingness to part with their money on a speculative venture formed every business conceivable and made public subscriptions of their stock. The most notorious example of these “bubble companies” was “a company for carrying on an undertaking of great advantage but nobody to know what it is.” The fact that one thousand shares were subscribed in a single day, followed by the immediate disappearance of the stock’s issuer, shows the enormous public appetite for financial speculation (MacKay 55). The activity became so frenzied and fraudulent that the government was forced to pass the “Bubble Act” to halt the formation of new corporations and dismissing the petitions of some 86 public stock corporations. The South Sea directors had pushed this bill through parliament because they felt the speculation in these smaller companies would hurt the performance of their own stock.

The stock would decline relatively slowly to 775 pounds by the end of August. With the built up expectations and speculation, the stock had risen to such heights on so little fundamental reasoning that its impending collapse was inevitable. The brunt of the collapse would come from September 1 through October 1. In this time period the stock declined 62.8% to 290 pounds or in other terms, 103 million pounds in market value was lost, a sum more than twice the amount that the British national debt was to begin with!
The striking thing about this time period was that there was little in the way of new news that developed for the South Sea Company. The problem with bubbles is that prices are allowed to deviate from the underlying economic value based solely on psychological factors, and with no economic underpinning the price is very sensitive to developments outside of the company’s control. Unforeseen by the South Sea directors, the passage of the Bubble Act in mid August actually ended up hurting the company. By putting downward pressure on the “bubble company” stocks, the act created a huge liquidity crunch. Many of the investors who had purchased the bubble companies with borrowed money were forced to sell their South Sea positions to cover their margin calls, creating a huge supply matched by little demand. Also, during this same time period, the financial markets in France were suffering from a similar financial crisis with the final collapse of John Law’s Compaignie des Indes in September. This exacerbated the financial liquidity problems and created an environment of panic as investors realized a similar collapse could occur in Britain. Once the tide of public opinion had turned, there was nothing left to support the share price of the South Sea Company and the bubble burst (Garber 119).

Psychological Forces in Investing

The Greater Fool Theory

“But it did not follow that all these people believed in the feasibility of the schemes to which they subscribed; it was enough for their purpose that their shares would, by stock jobbing arts, be soon raised to a premium, when they got rid of them with all expedition to the really credulous.” ~ Charles MacKay (56)

One of the primary psychological thought processes that leads to investor speculation is known as the Greater Fool Theory. This way of thinking is that it does not
matter what a stock is worth, it only matters what someone in the future will pay for it. Speculators become solely focused on momentum. If a stock is doing well and going up, they plow into the fray. They often know that the security in question is not worth the price, but they are gambling that the upward price momentum will continue and a greater fool will come along later and pay an even more outrageous price. The problem with this way of thinking is that it is nearly impossible to tell when the upward momentum will break and someone is inevitably left with huge losses when demand dries up.

In this way, speculative bubbles are really just naturally occurring Ponzi Schemes. A Ponzi, or pyramid, scheme is a fraudulent investment opportunity where investments from successive waves of investors are used to pay off the prior wave thereby giving very high returns to early investors. Later investors will see these returns and want to invest more money. However, eventually the supply of investors will run out or investors will realize that there will not be anyone foolish enough to continue to join and the pyramid will collapse.

This dangerous game of chicken with stock price movement is an indication of the underlying attitude of speculators. Speculators are very focused on the short term. Graham writes, “timing is of great psychological importance to the speculator because he wants to make his profit in a hurry. The idea of waiting a year before his stock moves up is repugnant to him (96).”

Trying to gauge investor sentiment is inherently very difficult. There are so many factors to consider and changes can take place so rapidly that it is almost impossible to benefit from over the long-run. It also involves making a high number of trades trying to time the market and the more decisions that need to be made, the higher the probability
that a disastrous decision will be made. Warren Buffett states, “Indeed, we believe that according the name ‘investors’ to institutions that trade actively is like calling someone who greatly engages in one-night stands a romantic” (qtd in Auxier 14).” There is actually a whole investment philosophy built on the grounds of momentum and historical stock movements known as Technical Analysis. Despite the well-known limitations of this method, since much of Wall Street revenue is generated on trade based commissions, there is little incentive to change this outlook. It is to their advantage to have a short-term perspective that generates high trading volume. Ben Graham said that technical analysis was “as fallacious as it is popular” (qtd in Auxier 47).

The Rearview Mirror

“People are habitually guided by the rear-view mirror and, for the most part, by the vistas immediately behind them.” ~ Warren Buffett

The next key psychological factor in the market is the human tendency to always focus on the past when making major decisions. When making an investment in a company, it is logical that one would be considering the present state of that company and the likelihood of improving or failing financial performance in the years ahead. However, this is often not the case. People have a tendency to become fixated on the past. It is true that past market performance can provide useful insight into the market’s future behavior by revealing the major mistakes and excesses of the market, but these insights are lost when only a limited view of the past is considered.

If people have recently lost significant amounts of money in the market, they are angry, upset, or ashamed, and because of their bad experience they are likely to shy away from further involvement in the markets even once the markets are considerably cheaper.
The reverse is also true. If the market has experienced great gains then people feel good about their experiences in the market and rush to put more money into the market, even after the market becomes considerably more expensive. The euphoria of a large gain instills a sense of confidence in the speculator, making larger and more reckless bets seem less risky. The psychological term for this process is known as adaptive expectations, meaning people’s expectations continually change their attitudes to reflect recent experiences. This is confirmed by psychological experiments that indicate individuals are more likely to make more risky bets with money recently won in a casino than with the money brought into the casino (Nofsinger 32). They feel as if they are playing with the “house’s money.”

Another psychological perspective of this behavior is known as a feedback model. Shiller describes the feedback model thusly, “when speculative prices go up, creating successes for some investors, this may attract public attention, promote word-of-mouth enthusiasm, and heighten expectations for further price increases ("From" 14).” The current high level of prices are basically used as a support or anchor for a future, even higher level of prices. However, once the bubble bursts the same cycle of negativity propels the stock downward. The feedback theory also takes communication between investors into account, which leads directly into the next investor tendency.

*Follow the Crowd Syndrome*

*In our own stock-market experience and observation, extending over 50 years, we have not known a single person who has consistently or lastingly made money by thus ‘following the market.’ We do not hesitate to declare that this approach is as fallacious as it is popular." ~ Benjamin Graham (X)*
Perhaps the greatest factor in speculative market movements is the human tendency to follow the crowd. There is a strong herd mentality on Wall Street as investors scramble to catch the next hot stock, and often the only motivation for buying into a stock is to avoid being left behind. Many fund managers struggled to explain to major investors why they did not own Enron when it was the darling of Wall Street. Investors can simply not stand to be left out of the party when they see others earning huge returns. A sense of regret can be a powerful motivator for someone to enter the market, even at historically high levels. The existence of, and widespread participation in, speculative bubbles is excellent evidence of group psychology. If investors each made independent decisions then errors would tend to average out, having little impact on prices, but this is clearly not the case.

A key consideration when considering herd psychology is media and communications. Changes in communications technology changes the flow of information and attitudes. It is no coincidence that all of the major stock market booms of the last century occurred in the midst of sweeping changes in the way people communicate. In the 1920s it was the radio and telephone and in the 1950s it was the television. Before these advances, the general population was less exposed to the daily swings of the stock market. Most information was obtained from newspapers, which is a far less seductive and exciting form of media. The telephone was the first major advance of the 20th century. It was virtually unused at the beginning of the 1900s but by the mid-1920s, the average individual made nearly 200 calls a year (Shiller, Irrational 156). This increase in personal connectivity allowed people to discuss hot stock ideas or encourage the spread of ideas and opinions.
The boom of the radio was just as pronounced. In 1920 there were three radio stations in the country, but by 1923 that number had increased to five hundred. The first national radio network was created in 1926 creating a sense of national identity unheard of in previous generations. A national identity increased the power of collective thought. The information revolution and the technological explosion of the last ten or twenty years has further exacerbated this problem. The advent of CNBC and online brokerages has brought the market even closer to the general population and allowed them to not only hear about the market but to begin personally speculating on its movements with ease.

One psychological argument is known as the “free-rider theory.” Many individual investors who have been taught the efficient market hypothesis feel that the huge amount of research done by the Wall Street firms makes any attempt at valuation fruitless. They therefore follow the crowd and invest in the hot stock they’ve read about in the Wall Street Journal or seen on CNBC. Following changes in brokerage recommendations is also likely to prove a poor strategy for individual investors since by the time they have a chance to react to forecast changes, the larger money accounts have already bid up the stock price.

To test the independence of people’s judgment, psychologists designed a test where respondents were given a set of questions based on the length of line segments. The tests were administered in groups of nine with eight secretly in collusion with the test administrator. The first eight would give obviously wrong answers to some of the straightforward questions, and experimenters found that in a third of the cases, the test subject would give in and give the same obviously wrong answer. The subjects also exhibited a great deal of anxiety since the majority opinion conflicted with what seemed
to be correct (Asch 450). This study shows the power of collective opinion over the judgment of an individual.

Cognitive Dissonance

Everyone knows that speculative stock movements are carried too far in both directions, frequently in the general market and at all times in at least some of the individual issues. ~ Benjamin Graham (13)

Cognitive dissonance is a psychological term used to describe the human tendency to ignore or rationalize any new information that conflicts with a preconceived idea. Investors can be confronted with two competing ideas. On the one hand they are caught up in the optimism of a roaring bull market with no end in sight, yet the metrics they formerly used as a basis of valuing stocks tells them that the market is greatly overvalued. Instead of altering their preconceived outlook, most investors will choose to invent new metrics and assumptions to base their valuations on. For this reason, a study of historical stock market bubbles will often reveal popular acceptance of the notion that the market has entered a “new era” where the guidelines and models previously used on the market no longer apply.

The Anatomy of a Bubble

When analyzing the major financial market bubbles through history, a common progression becomes evident. The sequence of events is far from being so simple, but it can be helpful to think of the anatomy of a bubble through the following stages. Then, to help understand some this progression, it can easily be related to the internet bubble in the late 1990’s.
In the 1990's, the stage was perfectly set for a market boom by the convergence of a number of factors. First, a bull market had begun in the early 1980s, recording a gain of 234% by the end of the decade. The rearview mirror was therefore very attractive to investors beginning to pay more attention to the market. Also, the aging Baby Boom population was beginning to think more about retirement, increasing their appetite for investments. Many of these individuals were far less risk averse than the preceding generation that had lived through the depression. They were also far more materialistic. A survey taken in 1975 and again in 1994 found that the percentage of people reporting money as an integral part of “the good life” rose from 38% to 63% over the 19-year period (Shiller, Irrational 22).

There was also a swell of pride and confidence in capitalist America following the perceived victory over communism with the fall of the Soviet Union in 1991. In addition, the market was becoming much more visible in society. Accompanying the bull market of the 1980s, there was a swell in 401k plans and mutual funds. This not only increased the ease with which the public could invest, it also forced the public to evaluate investment opportunities and become aware of the long-term out-performance of stocks. The high returns stocks promised were very attractive to an aging, materialistic society eager to get rich quick. Media was also a major factor with cable news channels feeding
this infatuation with around the clock stock market coverage. CNN began in 1980 and CNBC began in 1983 with both channels finding a significantly larger audience in the 1990s following the Gulf War. The public had an ever-increasing appetite for news and the media was searching for a source of continually changing and exciting news.

However, the ultimate catalyst for the bubble was technology. The personal computer was just beginning to gain wide acceptance in the early 1990s. Computers had been around a while, but the idea of the connective power of the internet was a major development. The world wide web was created in 1993 and rapidly grew to large-scale acceptance by 1997. Excitement began to develop around this new technology. People believed that the internet had boundless potential to bring people closer together and to facilitate the flow of information, dramatically improving efficiency. This innovation was accompanied by a completely unrelated burst in corporate profitability that nonetheless helped lend credibility to the argument that the internet would revolutionize everything. The S&P 500 experienced real profit growth of 36% in 1994 followed by 8% in 1995 and 10% in 1996. The swell of 36% was mostly attributable to the depressed profit levels and cost cutting during the recession of the early 1990s and greatly fueled market optimism.

Promises of Growth

As entrepreneurs began recognizing the potential of the internet, they began to seek capital for businesses, and as with any sales pitch they made big promises on the results that could be delivered by entering this high growth field. Investors were more than happy to supply this capital because thanks to the rear view mirror, stocks were no longer perceived as terribly risky. An indication of the increased tolerance for risk is the
proliferation of initial public offerings or IPOs. IPOs are privately held companies coming into the market for additional capital for the first time.

The lack of publicly available information on these companies and their relatively brief historical track record make them inherently more speculative. Exhibit D shows the Bloomberg IPO Index, which tracks the performance of IPOs during the two years following their issuance. The rise of almost 1600% from 1994 through 2000 clearly exhibits the same bubble as seen in other market indices. In his chairman’s letter to Berkshire Hathaway shareholders in 2000, Buffett wrote, “the fact is that a bubble market has allowed the creation of bubble companies, entities designed more with an eye to making money off investors rather than for them.” The frenzy and proliferation of tech IPOs in the late 1990s is remarkably similar to the rise of the South Sea “bubble companies” discussed earlier. Businessmen and clever con artists alike exploited the public’s speculation.

In addition to entrepreneurs and investment bankers beating the bushes for capital, promising incredible growth and easy riches, the brokers and Wall Street investment firms started aggressively promising growth to increase their transactions or assets under management. The proportion of “sell” recommendations to “buy” or “hold” recommendations fell dramatically. In a survey by Zacks Investment Research, analyst “sell” recommendations for 6,000 publicly held companies were found to have declined to 1% by 1999 from 9.1% in 1989 (Shiller, Irrational 30).

The Bandwagon

This stage is where investor tendencies to follow the crowd come into play. Seeing the big returns, the general public rushed to jump on board the rocketing stock
market. The online brokerage business surged. One indication of the swell of interest in investing among the general public is the surge in membership among the National Association of Investors Corp., an association of private investor clubs. In 1990 the organization had registered membership of 7,087 clubs, but by the end of the decade 35,810 clubs were registered with total membership of 537,150 (Nofsinger 74). This pattern has been repeated before as well. In 1970 at the top of the market, the same investor organization had 14,102 clubs registered. Ten years later near the bottom of the market in 1980, the organization had 3,642 registered clubs (Shiller, Irrational 58).

Companies as well as individuals were subject to the bandwagon impulse. During 1998 and 1999, 147 companies changed their names to include " .com " or a reference to the internet and then subsequently outperformed the market by 57% in the following three weeks (Nofsinger 77). The fact that nothing more than a name change can have such a meaningful impact on results has no other explanation than investor psychology. Clearly the business can not gain an additional 57% in revenue or profits by such a simplistic marketing gimmick.

Padding the Results

Following the initial success experienced in the market and the hefty promises made by executives to drive stock performance, executives then come under an intense amount of pressure to meet the markets expectations. This causes an increasing focus on short-term results. Revenues and expenses are shifted from period to period to smooth earnings. In the euphoric conditions, firms push profits by lowering estimates such as loss allowances and loosening credit standards to drive revenue growth.
In some instances, it is simply a case of optimistic accounting tricks and a short-term focus causing poor business decisions, but sometimes companies resort to outright fraud. Although the results of such fraud usually aren’t seen till much later, they often begin taking place early in the course of a bubble. By 1997 Enron was already hiding debt and inflating profits through its complicated accounting. Another notorious bankruptcy which revealed the accounting excesses undertaken during the bubble years was WorldCom which ended up restating its financial statements by over $7 billion. Post-bubble earnings restatements were actually very common. In 1997, 116 firms restated their earnings, but in 2001 270 firms were forced to restate earnings, a rise of over 200% (Chang).

A New Era

As companies soar, it becomes apparent to most knowledgeable market observers that the market is high on a historical level, but for the most part their tendency towards cognitive dissonance is too strong. Talk begins of the market entering a “new era.” In the 1990s a specific distinction was drawn between “old economy” and “new economy” companies. To support the high valuation of stocks like Amazon.com and Yahoo!, speculators basically threw out traditional valuation measures arguing they were no longer applicable. At the beginning of 2000 Yahoo! was trading at 4000 times the twelve cents per share that the company would earn that year, and at its peak in 1999, Amazon.com was valued at $38 billion dollars despite having lost $879 million from 1999 through 1995. Proponents of these stocks were more likely to cite “price to sales,” content basically to ignore profitability. Some Wall Street “analysts” even proposed “price to click throughs” as the appropriate way to value internet stocks because it
measured the amount of the exposure a company had. Once again, this measure was completely devoid of any relationship with the future return offered by the business.

Not only were the new economy stocks soaring, stocks pegged with the stigma of “old economy” were punished. Warren Buffett’s Berkshire Hathaway lost 48.5% of its market value between March of 1999 and March of 2000, as the NASDAQ rose 112% over the same time period. Buffett criticized the tech bubble and refused to invest in tech stocks causing many to say that he had lost his touch. Time magazine even declared that 1999 “might be the year the rest of us got smarter than Warren Buffett.” Clearly, as seen in Exhibit H, the subsequent four years have shown that Buffett was right on in his aversion to technology stocks, and the media’s criticism of his performance reveals their significant short-term bias.

The media fed the notion of the new era. The exploits of the stock market made excellent news and attracted large audiences to the network. The networks therefore had a vested interest in its perpetuation. Technology also fed the rise of speculation by encouraging active trading. One study found that portfolio turnover increased from 70% per year to 120% after switching from a phone brokerage to an online brokerage account (Nofsinger 17). This was no doubt related to a phenomenon known as “day trading” that rose to prominence during the bubble. Day traders would often make hundred of trades a day based solely on the markets movement. This led to not only huge transaction costs, but huge losses as well when the momentum turned down.

Confidence Wavers and Markets Fall

Once a speculative bubble has broken its relationship with economic value, there is nothing holding it up but investor confidence that prices will continue to rise. The
reluctant to think about the market. Markets can therefore languish for an extended period of time at levels well below not only their heights but their true worth as well.

The Tech Bubble has not yet seen its definitive resolution so it is hard to predict its ultimate effect on the market. However, following the 1929 collapse, it would take the market almost thirty years to regain the same inflation adjusted level of wealth. During the ten years immediately following 1929, the market yielded average real returns of negative 1.4% a year. Similarly, following the market peaks in the mid-1960s, the S&P yielded a real return of negative 1.8% for the next ten years and would not regain its real value until 1992.

It is during this period of pessimism that the true damage of a speculative bubble is done. Not only has one group of investors gotten artificially rich at the expense of those who invested in the late stage of the bubble, but the lack of faith caused by the collapse can hinder business and economic development for years, further exacerbating any real economic recessions. The stability of the US stock market is so important because it is such a large store of the nation’s wealth. The total value of equities in the US as measured by the Wilshire 5000 index is now over $10 trillion, greater than the entire US government debt. Furthermore, the loss of confidence caused by a bursting bubble can drive away foreign investment by causing local markets to look riskier. This is an even larger problem for developing markets.

**Indicators of a Speculative Bubble**

*But how do we know when irrational exuberance has unduly escalated asset values, which then become subject to unexpected and prolonged contractions as they have in Japan over the past decade? ~ Alan Greenspan*
Since a speculative bubble can be so damaging to investor wealth over the long term, what practical ways can there be of recognizing a speculative bubble? Perhaps the most simplistic measure of investment valuation is the price-to-earnings or PE ratio. The PE ratio is a very basic way to gauge what value investors are placing on the current year's earnings. Historically, the average PE multiple for the S&P 500 is 14.5 times. Exhibit D shows the fluctuations in the S&P's PE for the last 122 years. As can be seen in the exhibit, PE ratios can fluctuate dramatically around the average dipping to 5 in 1921 and as high as 45 in late 2000. While there are some problems with a strict interpretation of PEs, they definitely should be monitored, and large departures from historical means should be a cause for concern. Investors should especially question the markets valuation when PEs reach levels that cause market forecasters to begin ignoring them altogether as a means of valuation.

Another gauge of market valuation on a macro level is the relationship between the market and gross national product. Gross national product (GNP) is a measure of the value of the entire income earned by a nation and serves as an indicator of general economic growth. One would expect that since both GNP and the stock market are measuring the value of American business, both should experience similar trends over time. However, this is not the case and often the divergence between the two can be quite significant. Buffett lays out an example of this divergence in his Fortune article on the stock market by comparing two 17-year time periods. From 1964 to 1981, the DJIA advanced from 874.12 to 875 while GNP rose an impressive 373%. In the subsequent 17-year period from 1981 to 1998, however, a 177% gain in GNP was accompanied by a 949% gain in the DJIA from 875 to 9181.43. There are a number of factors contributing
to this discrepancy such as interest rates and corporate profitability, but investor psychology plays an undeniably powerful role. Exhibit E is from the same article and shows the steep ascent of US stock market value vs. GNP in the 1990s. Just like the PE graph, market value as a percent of GNP is a major outlier during the tech bubble.

Since investors have a significant rear view mirror bias as discussed earlier investor sentiment gauges and fund flow measures can be excellent indicators of a speculative bubble. There are many investor sentiment indexes that measure attitudes towards the future of the stock market. These indicators can show early warning signs of irrational optimism, but are difficult to use as predictors of market movement since investors can remain overly optimistic or pessimistic for an extended period of time. Fund flow measures are better measures of sentiment because they don’t measure abstractly what investors think, but measure what they are actually doing with their money. Exhibit F shows that stock mutual fund inflows were at their highest in February of 2000, near the market's peak, and stock mutual fund outflows were at their highest in late 2002 when the market was at its bottom. A "contrarian" investment philosophy has been built around using these indicators of public sentiment and then making the opposite judgment calls on the market.

Pension assumptions are an alternate measure of investor sentiment that specifically targets the professional investor. One would expect that a professional money manager would be less susceptible to sentimental errors, but this has hardly been the case. Professional money managers exhibit the same rear view bias. As an example of this, in 1982 the expected return on the pension funds at Exxon, GE, GM, and IBM was an average of 6.95%. These assumptions were set in light of the very poor market in
the 1970s when stocks were plagued by a weak economy and high inflation. However, after 18 years of a booming stock market, when stocks were at dangerously high speculative levels, expensive by any historical measure, the expected return at the same companies was an average of 9.75%. High expected pension returns are an excellent indicator that the market may be overly optimistic.

There are many other examples such as those listed above. There is no comprehensive list or strict guidelines to use to gauge the aggregate level of the stock market, but what is important is not to have a comprehensive list, but to have a disciplined and clear thought process to evaluate the market independent of not only the psychology of the masses, but of one’s own psychology as well.

**Avoiding a Speculative Bubble**

> "It would be rather strange if with all the brains at work professionally in the stock market there could be approaches which are both sound and relatively unpopular. Yet our career and reputation have been based on this unlikely fact."
> ~ Benjamin Graham

Since the ebb and flow of investor psychology is likely to take the markets significantly away from economic value many times in an investment lifetime. It is very important for successful investors to monitor their own attitudes to prevent expensive psychological mistakes. In the introduction to the Intelligent Investor, Benjamin Graham writes “for indeed, the investor’s chief problem – and even his worst enemy – is likely to be himself (xv).” The key to avoiding these mistakes is by laying out a sound and disciplined investment philosophy based on logic and fundamental research instead of the whim and emotional subjectivity of technical analysis. Arguably the most successful
investment strategy is that which is laid out in Security Analysis by Benjamin Graham and David Dodd.

It also helps to be able to put the market in perspective. Graham went on in The Intelligent Investor to tell the famous parable of Mr. Market. Mr. Market is your business partner and each day he comes to you offering at the same price to either buy the remaining portion of the business or sell you more of the business, and every day the price changes. Sometimes the price is ridiculously high and sometimes the price is ridiculously low giving you good opportunities to sell or buy, or if he offers a fair price you don’t have to deal with him at all. What makes this situation really interesting is that, in Mr. Buffett’s words, Mr. Market is also a “maniac depressive alcoholic.” The opportunities offered in this partnership are unheard of in the business world. No businessman would logically make such volatile and arbitrary offers.

A businessman in the real world would not view a stock as separate entities of fluctuating value and attempt to make speculations on its short-term movement. The correct way to look at a stock is as a percentage ownership claim in a specific business and an investor should not be willing to pay more for part of a business than for the whole thing. The true value of a business comes from the expected future cash flows that investors will receive from the business. If investors discipline themselves to tying the stocks value to its economic worth, they will minimize their exposure to speculative bubbles.

Another key to Graham and Dodd value investing is known as the margin of safety. When engineers are building a bridge that is expected to carry 1000 tons in traffic, they do not build it to hold 1000 tons, but rather build it to hold 5000 tons. They
want to leave a considerable margin of error to insure the safety of the bridge. Similarly, if one is going to make an investment, he or she should not pay what they think a business is actually worth, because valuing a business is very subjective and imprecise science. He should instead search for a value beneath his estimate of economic worth so that even if estimates prove to be wrong, the investment will still be unlikely to lose money.

It is important that investors stay within their “circle of competence” or the area of businesses that they feel that they can adequately understand. This is precisely why Buffett did not plunge into the madness of the internet bubble. Since he felt that he could not understand which tech company would prove to be a long-term winner, he was comfortable in avoiding the whole sector. A good investment is a company with a “moat” or competitive advantage that will protect long-term returns, but since technology is such a rapidly changing business, no company truly possessed a moat. However, people were excited by this rapid change and the great opportunities provided by the uncertainty. This is another paradox. Typically, the greater the uncertainty surrounding a future return, the more its present value is discounted to the present period. However, in the height of a speculative bubble, speculators will actually pay more the more uncertain the return promised! To truly have predictable results over the long-term though, investors should stick with predictable businesses.

There are currently over 50,000 Chartered Financial Analyst Holders in the world, the majority of which monitor US markets. This number is only a fraction of those who work daily in the operation of financial markets. Considering the vast amount of intellectual effort being conducted in financial analysis, one might conclude that the
market is basically efficient and that any effort in fundamental research is a lost cause. However, this is not the case. In a meeting with University of Tennessee students Warren Buffett stated that “if you think the market knows more than you do then you shouldn’t be in the investment business (qtd in Auxier 47).”

**Conclusions**

The contagion of a speculative bubble will come again to financial markets, and it is not an epidemic affecting simply the weak and stupid. Its effects do not discriminate between the casual investor, the PhDs of academia, or the MBAs on Wall Street. The same psychological factors are present in all investors, making it essential to develop a sound investment philosophy and to stay vigilant for the signs of a speculative bubble. Investors must be on guard against allowing the past to unduly cloud their judgment or drawing false assurance from the fact that almost everyone seems to be in agreement. They should also carefully observe for the reemergence of “new era” thinking or unrealistic promises of growth, and market indicators of valuation and sentiment will almost always show them early warning signs of such “irrational exuberance.”

The one, almost inexorable rule of financial markets is the tendency to revert to the mean. Financial markets cannot forever outgrow the underlying economy and despite what the media or the stock market “experts” might say, every bubble will eventually fall and every stock price will eventually reflect the economic value of the underlying business. Fortunately for investors, the reverse of this principle is true as well. A depressed market will always provide value for the shrewd and disciplined investor, but
Exhibit A:

Nasdaq Composite Index
Exhibit B: The South Sea Bubble (Garber)

Figure 17.1
Daily South Sea Share Prices, 1720. Data courtesy of Larry Neal.
Exhibit C: (Shiller)

S&P 500 Inflation Adjusted Price Index

1,600
1,400
1,200
1,000
800
600
400
200
0

Exhibit D:

Bloomberg IPO Index

[Graph showing the Bloomberg IPO Index from Nov-94 to Nov-02]
Exhibit D: (Shiller)

S&P 500: Historical PE

The market has been a wild thing

The value of U.S. stocks vs. GNP has avalanched since 2000. But October's ratio of 133% still tops the 1929 peak.
Exhibit F: Stock Mutual Fund Flows (Investment Company Institute)
Exhibit H:

Berkshire vs. the Nasdaq

[Graph showing the performance of Berkshire versus the Nasdaq from Jan-00 to Oct-03]
Bibliography


