

THE ANATOMY OF BUBBLES AND BUSTS—AND THE OPPORTUNITIES THEY CREATE

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The root cause of asset bubbles is not too-lax credit but too-gullible human beings. Behavioral finance sheds light on the origins of bubbles—and points the way for investors to capitalize on the busts that invariably follow.

FOR CENTURIES, INVESTORS HAVE FALLEN prey to the lure of a heady rise in stocks or commodities or houses, and these overzealous buyers have suffered losses in the bust that has inevitably ensued (*Display 1, following page*). With each bubble/bust cycle comes investors' refrain: "This time it's different." But while the object of affection-then-disdain may vary, bubbles and busts exhibit a predictable pattern:

- > A sharp rise in the price of stocks or some other object of speculation sparks the interest of investors.
- > Hunger for the coveted investment fuels borrowing, which fuels demand that drives prices up further. With no end to the increases apparently in sight, still more investors are lured into the marketplace, thereby pushing up prices even higher. All the while, capital flows freely, and often some financial innovation facilitates the leveraging process.
- > As a bubble builds, valuations become more and more distorted; fundamental considerations, such as realistic profit potential, are disregarded amid the prevailing irrational exuberance.

- > Investors rationalize the soaring prices by telling themselves that some unique or revolutionary aspect of the inflated asset has rendered the old economic rules obsolete.
- > At last (though it's always hard to predict when), some failure—a scandal, an earnings shock, or a sign of weakness in the support for the boom—signals the old rules do in fact still apply, rattling investors and precipitating a crisis of confidence. Prices start to fall, gathering momentum as investors' panic contaminates even good investments.
- > Eventually the fears subside and "normal" market drivers reassert themselves, creating outperformance opportunities for those investors who remained true to fact, not euphoria.

The US Housing Bubble

The US housing bubble and its painful unraveling are a vivid reminder that markets have a disturbing habit of becoming grossly overinflated—and then collapsing, inflicting damage on investors' wealth. Home prices started to rise in the late 1990s, as low interest rates and easy credit facilitated by financial innovations—notably, subprime mortgages pitched to

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Display 1

Bubbles are as old as investing itself, but no matter what the chosen asset is, the pattern of investor self-delusion persists

Bubbles Across the Centuries				
Bubble	When	Coveted Asset	Inspired Idea	Telltale Warning
Tulip Mania	1630s	Purple-streaked <i>Semper Augustus</i>	Foreign tulip fanciers would sustain boom for Dutch speculators	Tulip bulbs cost five times a worker's annual salary
South Sea	1720	Stock in South Sea Company	Spain granted monopoly on all South American trade	Joint stock in company rose tenfold in one year
Mississippi	1729	Stock in Mississippi Company	Monopoly on trade in "French Louisiana" on beaver pelts, gold, taxes, coinage	Shares shot from 500 to 10,000 livres in a few months (and plunged as fast)
Roaring Twenties	Late 1920s	"High-tech" stocks of the day	Purportedly transformational "New Economics" revolving around auto and airplane stocks	Massive public participation—and shares trading at dot-com-style P/E ratios (until market fell 90%)
Nifty Fifty	1960s–70s	Blue Chips like Kodak, Polaroid, and Xerox	High-P/E, brand-name growth stocks were deemed so reliable as to be "one-decision" purchases—buy and hold forever	Kodak soared to \$148 at its peak, only to plunge 60%
Japan	Late 1980s	Any big Japanese stocks	Japan was said to be the unstoppable new global economic powerhouse	The Nikkei index hit 38,915 in '89—even today it is back only to around 13,000
Tech and Telecom	Late 1990s	Internet and telecom stocks	The Internet and communications revolution had supposedly transformed the rules of economics, permitting permanent rapid growth	Internet start-ups with no actual profits, just a business idea, traded for triple-digit multiples (Nasdaq index would plunge 80%)

Source: AllianceBernstein

borrowers with limited or bad credit history—made home ownership widely accessible.

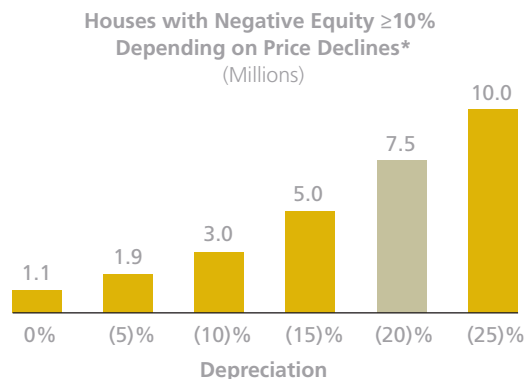
In a classic pattern, the favorable environment drove increasing demand for homes, propelling home prices higher. The escalating prices attracted speculators, causing still more money to flow into housing as buying and selling became fervid. By 2005, buyers and lenders alike reassured themselves that prices could only go up, and buyers used their houses' values to fund a spending spree. Credit standards eased further. The June 13, 2005, cover of *Time* magazine, which depicted a man hugging a house, bore the line: "Home \$weet Home."

That may well have marked the housing bubble's psychological high point. Soon after, investors became alarmed when overextended subprime borrowers began falling seriously behind on mortgage payments. By 2007, the housing market entered an inevitable correction, which is still under way. Of the nation's

50 million homes with mortgages, as many as 7.5 million could have seriously negative equity—that is, be worth significantly less than the principal remaining on their mortgages—if the average house price were to fall 20% from the 2006 peak (*Display 2*).

Display 2

Many homes could soon be worth less than the principal remaining on their mortgages



*Estimates based on what would occur if the average house depreciated up to 25% from the 2006 peak
Source: Federal Reserve, National Association of Realtors, and AllianceBernstein

The US housing bubble has had far-reaching ramifications for the global investing markets. Subprime and other asset-backed loans had been bundled into packages of securities and sold to financial institutions globally. As indications mounted that the underlying loans were at risk, turmoil grew, and the market for such securities evaporated. Holders—predominantly financial institutions and other leveraged investors—were forced to mark down their holdings, often accompanied by margin calls that prompted widespread selling of other liquid securities, especially stocks. Stock markets around the globe have tumbled, and stock prices of financial institutions, at the heart of the maelstrom, have been hardest hit.

With rising home values no longer available as the credit line for US consumers' spending, fears of a US economic recession have grown, fanning the flames of investor anxiety. In a sign of how pronounced the tidal wave of fear had become, as of the end of March 2008, investors were willing to accept a real (after-inflation) yield of (2.38)% on two-year US Treasuries—in other words, they were willing to accept a negative investment return for the safety of holding Treasuries.

Although the resolution of the housing bubble has yet to occur, history may offer some hope for the future: A study of modern stock market bubbles reminds us that recovery does come eventually (*Display 3*).

Display 3

Stock bubbles burst...and markets recover

Bubble	Had to Own	Peak	Subsequent Trough	Percent Change	Percent Change First Year After Trough
Nifty Fifty	Kodak	\$148 (1972)	\$59 (1974)	(60)%	75%
Oil	S&P Oil & Gas Index	\$51.23 (1980)	\$24.39 (1982)	(52)	55
Japan	Nikkei index	38,915 (1989)	14,309 (1992)	(63)	45
Biotech	Amex Biotech Index	257 (1992)	73 (1994)	(71)	24
Technology	Nasdaq	5,046 (2000)	1,114 (2002)	(78)	72

Source: FactSet, Markit, and AllianceBernstein

KEY CONCEPTS

- > Asset bubbles and busts—such as today's housing crisis—have occurred throughout history, in remarkably similar guise
- > Behavioral finance scientists have identified emotional traits of investors that ultimately lead to bubbles and busts: among them, believing that rising markets will keep rising; irrationally fearing even small losses; and preferring instant gratification to greater long-term reward
- > Given human nature, cycles of bubbles and busts are inevitable
- > These cycles offer great opportunity for value investing that's driven by intensive research and a disciplined process

How Behavioral Finance Illuminates Bubbles

Why the investing markets are prone to such cycles has been explained, in part, by experts in the field of behavioral finance—in which investing, economics, and psychology intersect. Pioneered in the 1970s by Daniel Kahneman, winner of the 2002 Nobel Prize in Economic Sciences, and the late Amos Tversky, the study of how human beings make decisions when faced with unknown outcomes has shed light on investor behavior. What compels investors to chase “hot” performers long after the opportunity has passed, or to steer clear of

out-of-favor stocks despite their longer-term promise, or to avoid risk even at the cost of a reduction in yield or return?

In all cases, the answer is predicated on human emotion or, more precisely, on a set of decision-making biases that kick in when risk is involved. Nevertheless, there's a positive side to investors' penchant for engaging in mass psychological self-deception: It can create opportunities to profit from emotion-driven investors' overreactions to good or bad news. While the field of behavioral finance is rich with evidence of a wide array of such biases, here we focus on just a few of the critical ones that come into play during boom/bust cycles.

Decision-Making Glitches

Behavioral finance suggests that human beings are as poorly equipped to be investors as could be imagined: Our own wiring works against our very success. For example, through extensive research, Kahneman and Tversky proved that we feel pain from loss more keenly than we feel pleasure from gain (*Display 4*). In fact, based on their studies, if you won \$100 one day and lost it the next, you'd be twice as unhappy about your loss as you were happy about your good fortune. Such extreme sensitivity to pain makes investors generally risk averse, and that trait becomes even more pronounced when bubbles burst. That's a powerful headwind in investing, where greater return opportunities typically entail more risk.

Another powerful bias that foils good decision making is "anchoring." When an investment has done especially well, investors become convinced that such performance will continue into the future, fueling frenetic demand that, for some period of time, becomes self-fulfilling: Prices continue to rise. The same holds true on the bust side: When something has faltered, or some bad news besets the investment, investors become adamant that it is permanently imper-

Display 4

A loss hurts twice as much as a gain pleases



Source: AllianceBernstein

iled and they can't get rid of it fast enough, which hastens the downward spiral of the investment's price.

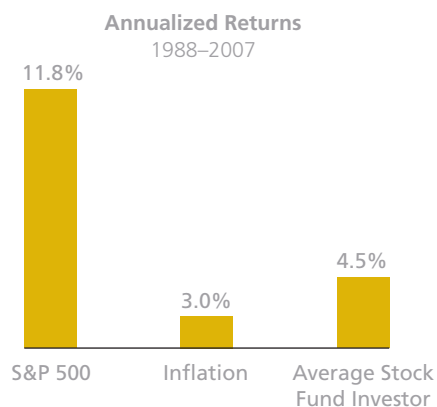
The bait for another thinking trap is "availability," or people's tendency to be influenced by what they hear most frequently. In today's always connected world, headlines can become stand-ins for "the truth," and decision making reflects that.

The Cost of Emotions

These biases are so very natural that fighting them seems unthinkable. Yet, such emotion-driven investing can be extremely detrimental, as *Display 5* illustrates. Over the past 20 years, the average stock mutual fund investor reaped an annualized return of about 4.5%, barely outpacing inflation, while the US stock market grew at close to 12% annualized over the same period. The marked discrepancy is a function of flawed choices driven by these biases. Anchoring and availability tend to cause investors to move out of an investment that may be lagging and into one that has been prospering. But doing so typically means they've missed most of the opportunity in the hot idea and forgone the developing opportunity in the disappointment.

Display 5

The average investor's results lag the market—because of flawed, emotional decision making



Past performance is no guarantee of future results.
Source: Dalbar, Inc.

Risk-aversion features here, too, as investors tend to shy away from stocks when times get difficult, thus locking in losses and missing out on surges.

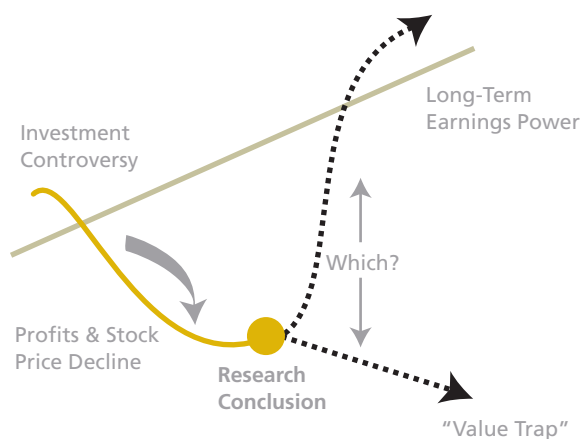
From Destructive Bias to Advantaged Insight

When faced with such faulty decision-making frameworks, can an investor come out ahead? The answer is yes, although what it takes to succeed does not always feel good.

Perhaps the greatest example is value-stock investing. As Bernstein practices it, value investing seeks out stocks that intensive research reveals are exceptionally inexpensive versus their long-term earnings potential. During booms, these are often stocks of companies not associated with the fad of the moment; during busts, when widespread anxiety fuels high levels of risk aversion and often indiscriminate avoidance of stocks, the opportunity set for value investors widens. As *Display 6* illustrates, the pertinent question for a value investor is: Is the stock price depressed because of some problem from which the company is unlikely to recover, or is it in fact a setback that ultimately will be corrected, restoring the company's long-term earnings power—and its stock price?

Display 6

Distinguishing a permanent problem from a temporary setback is critical to value investing



Source: AllianceBernstein

The emotional challenge, though, in value investing is that the greatest buying opportunities are created when negative sentiment is at its most intense—the very time when buying into controversy seems entirely irrational.

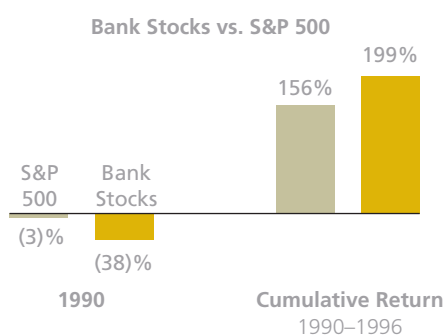
For example, think back to 1990, when big American banks were in a not-unfamiliar position: mired in a mortgage crisis, amid the worst downturn in commercial real estate since the 1930s. On top of that, banks were still coping with soured developing-country and leveraged merger loans. As most investors saw it, the “troubled” big banks would go on hemorrhaging loan losses, and, what’s more, their basic business model was becoming obsolete. People assumed a number of big banks would collapse, along with many S&Ls.

Our research uncovered a different picture: We felt certain out-of-favor banks had the profit potential to more than cover their bad loans and that industry consolidation plus cost-cutting and fee-raising would in fact spark an earnings boom. Convinced that loss-averse investors had vastly overreacted, we sought out beleaguered but basically sound banks, like Citicorp (whose total return was down 52% in 1990); Chemical Bank, (59)%;

and Bank of Boston, (64)%. More stringent lending policies soon brought loan losses under control, and merger synergies helped restore profits. Banks and bank stocks rebounded dramatically (*Display 7*). From 1990 through 1996, Citicorp rewarded investors with 338% in total return; Chemical, 321%; and Bank of Boston, 318%.

Display 7

Bank stocks suffered in 1990 but ultimately rebounded, outperforming the market



Past performance is no guarantee of future results.
Source: Standard & Poor's and AllianceBernstein

In a fast-changing world, investor opinion often veers rapidly from one extreme to another, as behavioral finance has documented. A shining star of high tech for decades, IBM fell on hard times in the late 1980s, as demand for mainframes shrank and its share of the personal computer market fell from 100% in 1981 to a mere 16% 10 years later. By 1993, IBM was earning less than \$1 a share, and its stock price fell to \$41 in August of that year, down from \$100 in July 1992.

Nevertheless, under new management IBM began to reboot itself, although investors remained skeptical. Our research indicated the company's strategy was sound and that the stock was significantly undervalued. IBM revamped its product mix to increase revenues; sharply cut costs (expenses went from 43% of sales in 1991 to 28% in 1996); and boosted earnings per share more than tenfold. When investors finally began to catch on to the

overhaul, IBM stock embarked on an impressive recovery (*Display 8*).

Display 8

Investors' emotional overreaction to the computer maker's travails created a value opportunity



Note: IBM went on to split two-for-one in May 1997, and again in May 1999.

Source: FactSet and AllianceBernstein

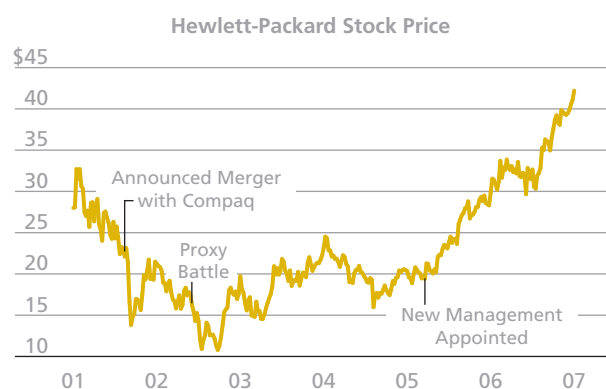
Value investing thrives on controversy, which invariably has an emotional component. Although dominant in computer printers, Hewlett-Packard in 2001 was subscale in personal computers and hardware and services. By the end of 2002, the market valued HP more like an appliance-maker than a high-tech company. And when HP announced its acquisition of Compaq in 2002, the merger appeared merely to combine two weak PC makers, thereby diluting the high-value printer business. Compounding the investment controversy was a formidable rival in Dell and a high-profile CEO at HP who served as a lightning rod for investor anxiety. Many doubted HP management could make the merger work, and the stock continued to slide through 2002.

However, our objective research persuaded us that HP's prospects were underrated. The merger fundamentally improved the company's competitive position in both personal computers and enterprise hardware. Greater leverage over suppliers and a tougher negotiating stance allowed HP to boost gross margins, and it decisively lowered operating costs by reducing head count. Operating earnings on the PC business went from a loss of nearly

\$1 billion in fiscal 2001 to a profit of nearly \$800 million in fiscal 2007. The Dell threat abated, as that company's supply chain was replicated by Taiwanese assemblers. And HP countered a competitive challenge to its printer business by introducing a low-cost unit capable of producing high-quality images. New management in 2005 added momentum to HP's recovery (*Display 9*). But again, being able to spot the underlying opportunity when things looked bleakest was key.

Display 9

The market was skeptical of HP's merger with Compaq, but our research foresaw that in time it would pay off



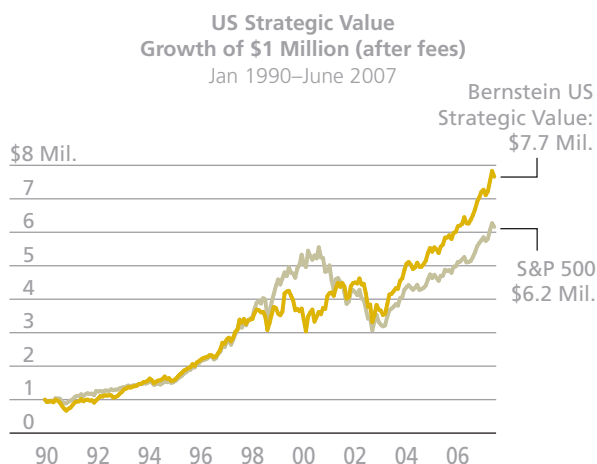
Source: Company reports and AllianceBernstein

Bernstein's history as a value investor suggests that a disciplined process, driven by intensive research, can effectively gauge the opportunities created by controversy to generate long-term success. Over the period from 1990 through June 2007, which saw the pronounced declines and recoveries referenced above, \$1 million invested in Bernstein's US Strategic Value portfolio would have grown to \$7.7 million after fees, while a million dollars invested in the S&P 500 would have amounted to \$6.2 million (*Display 10, top*). And by adhering to this discipline throughout our history, our US Strategic Value portfolio has

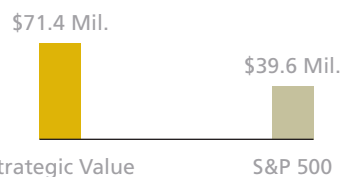
significantly outperformed the broad stock market since its inception, after fees (*Display 10, bottom*).

Display 10

Disciplined value investing involves a rational approach that has been successful over time



US Strategic Value Since Inception* vs. S&P Growth of \$1 Million (after fees) Jan 1974-June 2008



Past performance is no guarantee of future results. See notes on performance, page 8.

*January 1, 1974

Source: Standard & Poor's and AllianceBernstein

Cycles of booms and busts seem to be unavoidable features of investing, and the process of equilibrium being restored—whether at the individual stock level or, as today, across a wide swath of the capital markets—is painful. But the emotional biases that, in part, underlie them can translate into unduly pronounced security mispricing. For those who rely on deep research as a guide, exploiting the discrepancies can create significant opportunity for gain. ■

US Strategic Value (All Accounts)

1. General Notes:

a. Performance Statistics Are Not Financial Statements—

There are various methods of compiling or reporting performance statistics. The standards of performance measurement used in compiling these data are in accordance with the methods set forth below. Past performance does not guarantee future results. A portfolio could suffer losses as well as achieve gains.

b. Composite Structure—Beginning in 1993, the Bernstein US Strategic Value (all accounts) composite (the “composite”) includes only fee-paying private and institutional discretionary accounts not subject to significant investment restrictions imposed by clients. From 1974 through 1992, the composite includes all private and institutional discretionary US Strategic Value accounts.

c. Rate of Return—Performance returns for each account are calculated monthly using trade-date accounting. Performance results are reported on a total-return basis, which includes all income from dividends and interest, and realized and unrealized gains or losses. Prior to July 1993, all cash flows were assumed to have occurred on the last day of the month. From July 1993 through 2000, if an account’s net monthly cash flows were equal to or exceeded 10% of its beginning market value, the Modified Dietz Method was used to daily-weight the cash flows. When an account’s net monthly cash flows were less than 10% of its beginning market value, the cash flows were assumed to have occurred on the last day of the month. Beginning in 2001, all cash flows are daily-weighted using the Modified Dietz Method. Beginning in 1993, the monthly composite returns are calculated by weighting each account’s monthly return by its beginning market value as a percent of the total composite’s beginning market value. Prior to 1993, the composite results are equal-weighted on a quarterly basis.

These monthly and quarterly performance figures are geometrically linked to calculate cumulative and/or annualized “time-weighted” rates of return for various time periods. Closed accounts are included in the composite for each full quarter prior to their closing.

d. Benchmark—The benchmark for the composite is the S&P 500 Index. The S&P 500 Index is widely regarded as the standard for measuring large-cap US stock market performance.

2. Net-of-fee performance figures for the composite have been calculated as follows:

a. Prior to 1983, management fees were not charged; instead, the accounts incurred transaction costs.

b. From 1983 through 1992, the composite’s net-of-fee return is the equal-weighted average of the actual after-fee returns of each account in the composite. From 1993 forward, the composite’s net-of-fee return is the asset-weighted average of the actual after-fee returns of each account in the composite.

c. Net-of-fee returns for the past 10 years are as follows: 1998: 10.1%; 1999: (0.2)%; 2000: 10.0%; 2001: 9.3%; 2002: (17.6)%; 2003: 32.0%; 2004: 13.5%; 2005: 8.6%; 2006: 20.1%; 2007: (1.2)%.

3. Dispersion—Dispersion is calculated on the gross-of-fee annual returns of the accounts included in the composite for all 12 months of the calendar year; it is the asset-weighted standard deviation of these returns. Dispersion of returns for the composite is as follows: 1998: 2.0%; 1999: 2.0%; 2000: 1.6%; 2001: 1.7%; 2002: 1.6%; 2003: 1.4%; 2004: 1.2%; 2005: 1.1%; 2006: 0.8%; 2007: 1.1%.