

EYE ON THE MARKET  
SPECIAL EDITION

THE  
agony &  
THE  
ecstasy



THE RISKS AND REWARDS OF A CONCENTRATED STOCK POSITION

J.P.Morgan



Hear Michael Cembalest, Chairman of Market and Investment Strategy at J.P. Morgan Asset Management, discuss the topic of concentration, from the Ecstasy of creating wealth to the Agony of how concentration can destroy wealth and result in permanent impairment

*The Agony and the Ecstasy* is a 1961 biographical novel by American author Irving Stone on the life of Michelangelo: his passion, intensity and perseverance as he created some of the greatest works of the Renaissance period. Like Michelangelo's paintings and sculptures, successful businesses are the by-product of inspiration, hard work, and no small amount of genius. And like the works of the Great Masters, only a small minority stand the test of time and last over the long run. *The Agony and the Ecstasy* conveys the disparate outcomes facing concentrated holders of individual stocks in a world, like Michelangelo's, that is beset with intrigue, unforeseen risks, intense competition and uncertainty.

## The Agony and the Ecstasy: The Risks and Rewards of a Concentrated Stock Position

### Executive Summary

There are many Horatio Alger stories in the corporate world in which an entrepreneur or CEO has the right idea at the right time and executes brilliantly on a business plan. But history also shows that forces both within and outside management control led many of their businesses to suffer serious reversals of fortune. As a result, many individuals are known not just for the wealth they created through a concentrated position, but also for the decision they made to sell, hedge or otherwise take some chips off the table. In this paper, we take a look at the long history of individual stocks, and at the risks and rewards of concentration. I first analyzed this topic in detail around ten years ago; since that time, while some things have changed, the overall song remains the same.



Over the long run, some companies substantially outperform the broad market and maintain their value. However, the odds have been stacked against the average concentrated holder:

- **Risk of permanent impairment.** Using a universe of Russell 3000 companies since 1980, roughly 40% of all stocks have suffered a permanent 70%+ decline from their peak value. For Technology, Biotech and Metals & Mining, the numbers were considerably higher.
- **Negative lifetime returns vs. the broad market.** The return on the median stock since its inception vs. an investment in the Russell 3000 Index was -54%. Two-thirds of all stocks underperformed vs. the Russell 3000 Index, and for 40% of all stocks, their absolute returns were negative.
- After incorporating the issue of **single stock volatility**, we find that 75% of all concentrated stockholders would have benefited from some amount of diversification.

Another sobering observation: since 1980, over 320 companies were deleted from the S&P 500 for business distress reasons, which implies a lot of turnover. This should not be a surprise: capitalism is based on competition, creative destruction and reinvention. While globalization (and in particular, China's acceptance into the World Trade Organization in 2001) expanded the opportunities for individual companies, it also increased their competitive, regulatory and operational risks.

We start with some empirical analysis, and follow with case studies by sector. While the losses on the stocks in our case studies may seem obvious or inevitable with the benefit of hindsight, in all likelihood the company's management, its board of directors, research analysts, credit rating agencies and its employees all firmly believed in its long-term success.

Michael Cembalest  
J.P. Morgan Asset Management

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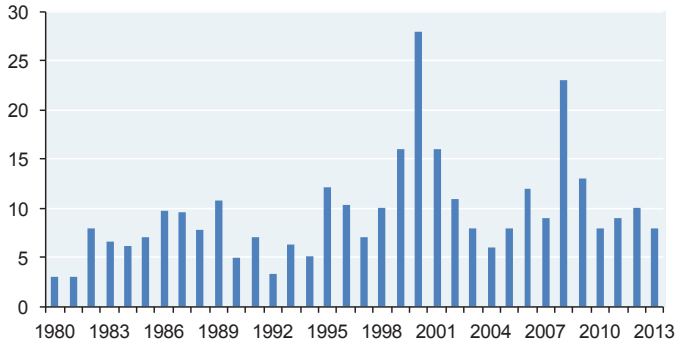
Please note: the results of any particular investment strategy may be uncertain. Particular circumstances may vary, and other factors may need to be taken into account when deciding on any diversification plan and timing.

## The steady drumbeat of creative destruction in the S&P 500

A simple place to start when thinking about the risk of concentrated stock positions: how often do their circumstances change? Since 1957, the S&P 500 has served as a proxy for 500 of the largest, most successful US-domiciled companies. We have compiled a detailed history of its additions and deletions since 1980, which forms the basis for this part of the analysis. To be clear, not every S&P 500 deletion was the result of a “problem stock”. Actually, *most* deleted companies were not the result of a problem, and reflect benign index removals because: they were acquired at a premium to their current price; they merged with other companies in the index; or, they reincorporated outside the US.

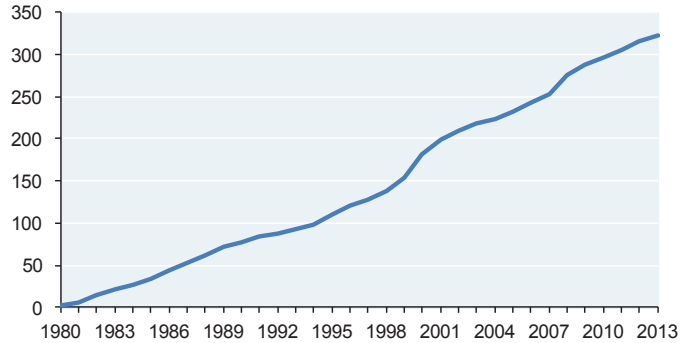
After sorting through the benign deletions, we focused on the rest: **the S&P 500 deletions that were a consequence of stocks that failed outright, were removed due to substantial declines in their market value, or were acquired after suffering such a decline.** As shown below, there were over 320 of them since 1980. The pace of distress-based deletions rises during a market crisis or recession, but there is a steady pulse of business failure during the entire business cycle. Consumer Discretionary, Technology and Financials accounted for the majority of distress-based deletions.

**Number of companies removed from the S&P 500 due to distress by year, Number of companies**



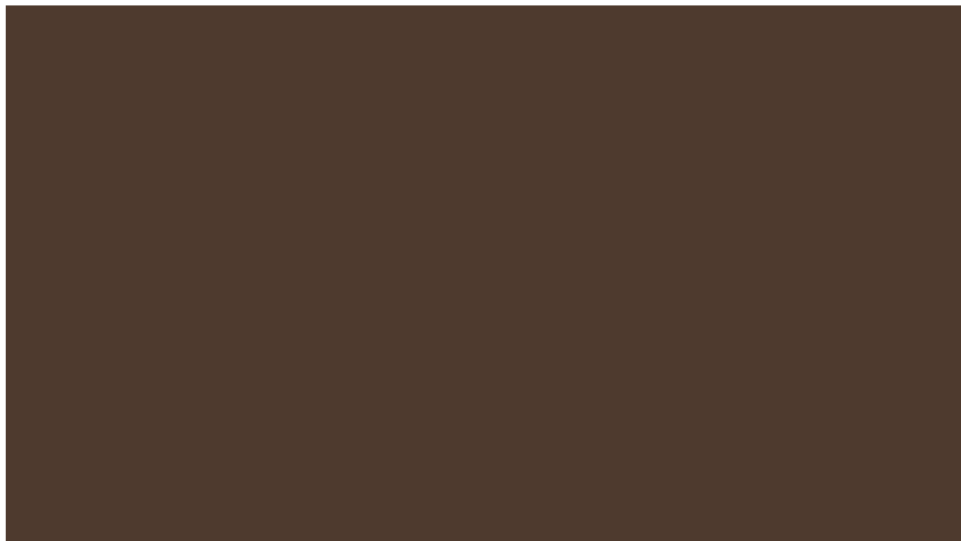
Source: FactSet, Bloomberg, Standard & Poor's, JPMAM. 2013.

**Cumulative number of companies removed from the S&P 500 due to distress, Number of companies**



Source: FactSet, Bloomberg, Standard & Poor's, JPMAM. 2013.

The spike in index removals during recessions is accurate in time, but misleading in terms of business risk. Many such companies were much riskier than they seemed during good times, and when the tide went out with the economy, their operational, financial and competitive weaknesses were revealed.



Our study on the creative destruction in the S&P 500—a proxy for some of the world's most successful companies—reveals that, since 1980, over 320 companies were removed from the index for reasons of business distress.

**Falling from grace: catastrophic losses on Russell 3000 companies**

The prior section looks at stocks that were deleted from the S&P 500. However, the “distress” rate of individual stocks is higher than the index deletion rate, since there are stocks that suffer substantial price declines from which they do not recover, irrespective of whether they remain in an index. And what about small and mid cap stocks which are not captured by the S&P 500?

To broaden our analysis, we analyzed all stocks that were members of the Russell 3000 at any time from 1980 to 2014, a database of 13,000 large cap, mid cap and small cap stocks. We then defined what we believe a concentrated stock holder would see as a catastrophic loss: **“a decline of 70% or more in the price of a stock from its peak, after which there was little recovery such that the eventual loss from the peak is 60% or more.”** How often does this take place? As shown in the table, 40% of all stocks suffered such a permanent decline from their peak value. Remember, we are not talking about temporary declines during the tech boom-bust or during the financial crisis, but large, permanent declines that were not subsequently recovered. Technology, Telecom, Energy and Consumer Discretionary had the highest loss rates. In terms of subsectors, Biotech (part of Health Care) and Metals & Mining (part of Materials) had loss rates over 50%.

Sector	Total % of companies experiencing "catastrophic loss", 1980 - 2014
All sectors	40%
Consumer Discretionary	43%
Consumer Staples	26%
Energy	47%
Materials	34%
Industrials	35%
Health Care	42%
Financials	25%
Information Technology	57%
Telecommunication Services	51%
Utilities	13%

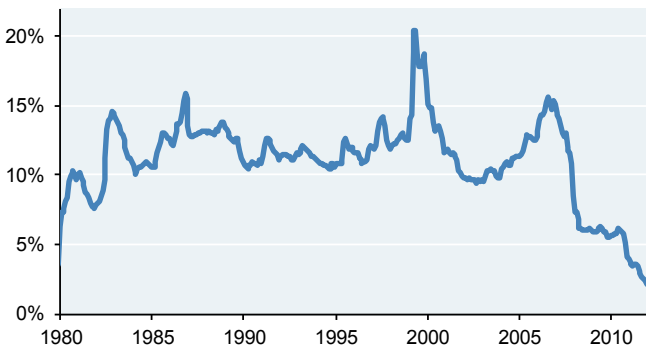
Source: FactSet, J.P. Morgan Asset Management.

Around 40% of all stocks experienced catastrophic declines, when defined as a 70% decline from peak value with minimal recovery. This is a subjective cutoff point; many concentrated holders would see smaller permanent declines as equally unacceptable, and whose risk should be mitigated. The outcomes based on a variety of thresholds suggest that for many concentrated holders, diversification should be a central part of wealth management planning.

When do such catastrophic declines happen? The next chart shows the percentage of companies at any given time experiencing a catastrophic loss. These loss rates tend to rise during recessions and market corrections, but there’s a steady pace of distress even during economic expansions. I don’t think we should draw too many conclusions from the decline in loss rates in 2010-2013; they have been dampened by the longest and largest monetary experiment in the history of the Federal Reserve, during which time the real cost of money has been negative for more than 5 years. There is also a natural tailing off at the end of the chart, given that there is less time for companies to fail.

**Catastrophic loss rates on Russell 3000 companies**

% of companies in the process of suffering a catastrophic, unrecovered loss of 70% or more



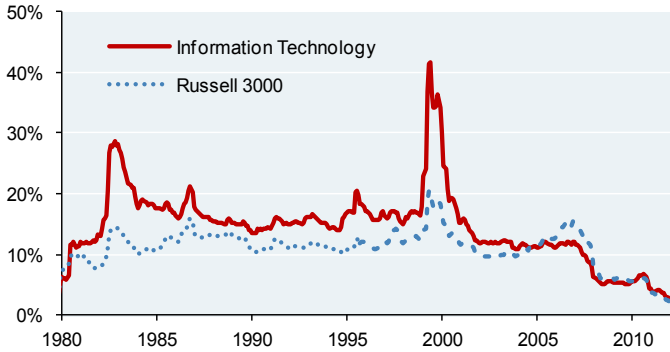
Source: FactSet, J.P. Morgan Asset Management.

The Russell 3000 Index measures the performance of the largest 3,000 US companies representing approximately 98% of the investable US equity market. It is reconstituted annually to ensure that new and growing companies are reflected.

When looking at the timing of catastrophic loss rates by sector, a few are similar to the overall market: Consumer Discretionary, Materials, Health Care and Industrials. Some sectors experience loss rates that are consistently above (Technology) or below (Staples and Utilities) market levels.

**Information Technology: loss rates higher than the R3000**

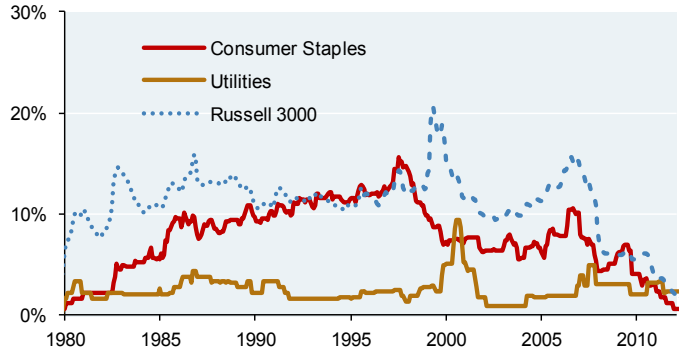
Companies in the process of suffering a catastrophic, unrecovered loss



Source: FactSet. J.P. Morgan Asset Management.

**Cons. Staples & Utilities: loss rates lower than the R3000**

Companies in the process of suffering a catastrophic, unrecovered loss

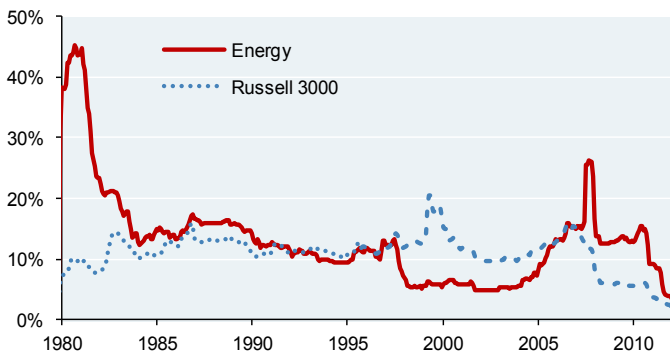


Source: FactSet. J.P. Morgan Asset Management.

Loss rates in Energy, Telecommunications and Financials tell the story of their respective points of distress. For Energy, the oil price collapse of the early 1980's and natural gas price collapse of 2008-2011 were catalysts for rising business failures and falling stock prices, while the energy price rally of the mid 2000's reduced loss rates. In the case of Telecommunications, loss rates were lower than the broad market in the 1980's and early 1990's. After the passage of the 1996 Telecommunications Act, loss rates rose in a deregulated environment (see pages 32-33 for more details in our case study section). And finally, the last chart shows the spike in Financial sector distress beginning in 2008, and also during the 1991 recession; outside of these periods, Financial sector distress was lower.

**Energy: catastrophic loss rates vs. the Russell 3000**

Companies in the process of suffering a catastrophic, unrecovered loss



Source: FactSet. J.P. Morgan Asset Management.

**Telecom: catastrophic loss rates vs. the Russell 3000**

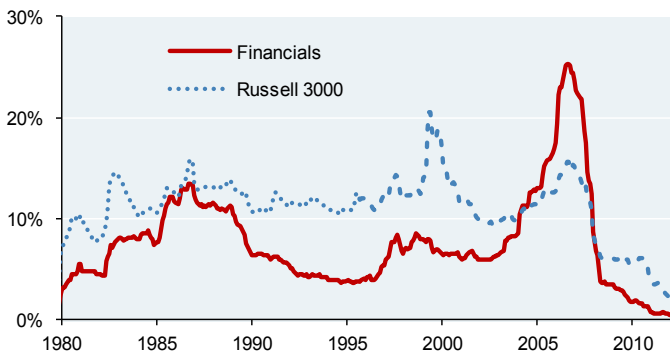
Companies in the process of suffering a catastrophic, unrecovered loss



Source: FactSet. J.P. Morgan Asset Management.

**Financials: catastrophic loss rates vs. the Russell 3000**

Companies in the process of suffering a catastrophic, unrecovered loss



Source: FactSet. J.P. Morgan Asset Management.

**A meaningful number of companies are always in the process of suffering sharp, unrecovered price declines at any given time, even during an economic expansion.**

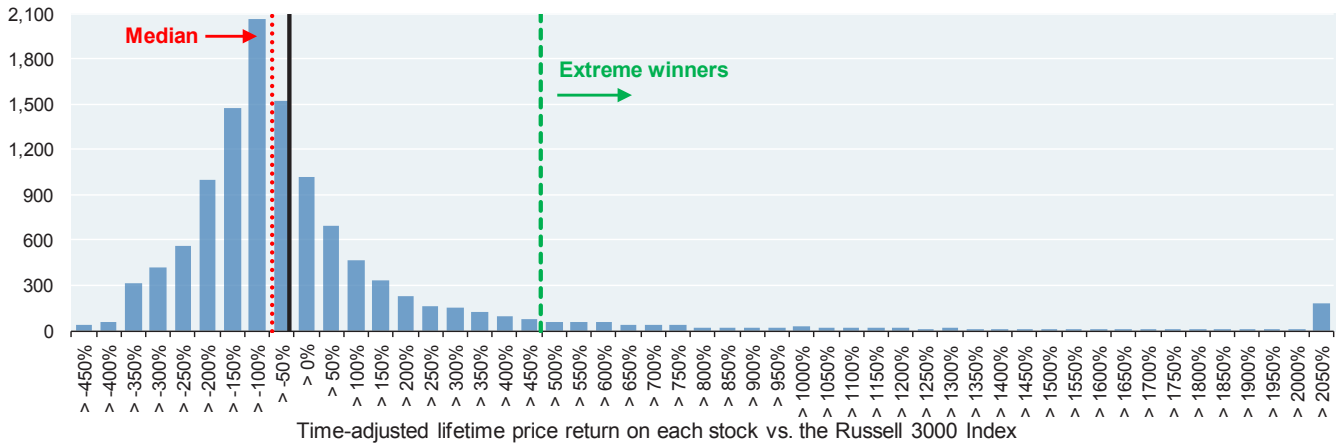
**Success, failure and the distribution of lifetime returns on Russell 3000 stocks**

Focusing only on the risk of failure misses half the picture: the potential *rewards* of a concentrated stock position. There are a number of ways to assess the risks and rewards involved. One approach is to look at all stocks and compute their respective “lifetime” price returns vs. the Russell 3000 (i.e., starting with the time when the company first exists in public form and reports a stock price, and until its last reported price in 2014 or until the date at which it was merged, acquired or for some other reason delisted<sup>1</sup>). The chart below shows the results, which can be summarized as follows:

- The **median stock underperformed the market** with an excess lifetime return of -54%. In other words, in most cases, a concentrated holder would have been better off invested in the market.
- **Two-thirds of all excess returns vs. the Russell 3000 were negative, and for 40% of all stocks, returns were negative in absolute terms.**
- Historically, there were **some extreme winners**: the right tail is ~7% of the universe and includes companies that generated lifetime excess returns more than two standard deviations over the mean.

**Distribution of excess lifetime returns on individual stocks vs. Russell 3000, 1980-2014**

Number of stocks



Source: FactSet, J.P. Morgan Asset Management.

The relative frequency of success and failure shown above is not sensitive to when companies were created. For example, in one scenario, we excluded all Technology, Biotech and other companies that went public between 1995 and 2000 in order to test whether the subsequent collapse in many of them had an outsized impact on the results above. They do not; even when excluding these companies, the median return is still negative, the percentage of companies underperforming the index is still around two-thirds, and the percentage of winners is still 7%.

<sup>1</sup> We compare stock price returns to Russell 3000 price returns. When including the impact of dividends on both individual stocks and the Russell 3000, the results do not change materially, even for the Utilities sector.



**The success/failure distribution is similar across most sectors.** As shown below, excess returns on the median stock were negative in each sector; 60%-70% of stocks in most sectors generated lifetime excess returns less than the Russell 3000<sup>2</sup>; a third or more generated negative absolute returns; and aside from Consumer Staples, the percentage of extreme winners was in single digits.

**Analysis of lifetime returns by sector, 1980-2014**

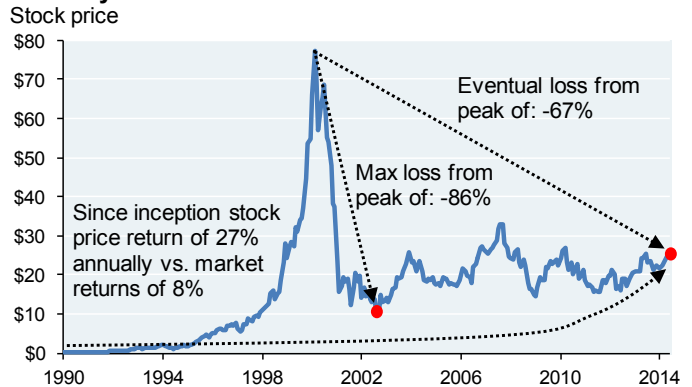
Sector	Median excess return vs Russell 3000	Percentage of stocks with negative EXCESS returns	Percentage of stocks with negative ABSOLUTE returns	Percentage of extreme winner stocks
All Sectors	-54%	64%	40%	7%
Consumer Discretionary	-62%	65%	44%	7%
Consumer Staples	-3%	51%	26%	15%
Energy	-93%	72%	48%	6%
Materials	-73%	66%	34%	8%
Industrials	-58%	64%	37%	7%
Health Care	-39%	60%	42%	8%
Financials	-21%	58%	30%	6%
Information Technology	-63%	71%	53%	6%
Telecommunication Services	-57%	68%	54%	6%
Utilities	-141%	85%	14%	0%

Source: FactSet. J.P. Morgan Asset Management.

**Here’s a synthesis of what we have done so far.**

The first step measured the frequency of a stock price suffering a catastrophic decline. This is a painful event; however, some concentrated holders might say, *“a decline from unsustainable market valuations was painful, but I still benefited substantially from being concentrated in the stock. My original basis was very low, so things turned out fine in the long run.”* There are many examples of this paradigm, particularly in Technology. Take Cisco, whose business model survived the tech collapse. It suffered a huge price decline from its peak and has only recaptured a portion since then, but still generated substantial excess returns vs. the market over the long run for its original concentrated holders. That’s the purpose of the second step: life-cycle analyses of price returns, to look for stocks whose returns were positive over the long run despite interim collapses and volatility. The negative skew of the distribution on the prior page shows that while some stocks generated volatile but positive life-cycle returns (like Cisco), many more did not.

**Cisco Systems**



Source: Bloomberg, J.P. Morgan Asset Management. July 2014.

**The frequency of catastrophic declines and the negative skew in the distribution of individual stock returns compound our perception of concentrated stock risk, and suggest that diversification play an important role in wealth planning for most entrepreneurs.**

<sup>2</sup> In the case of Utilities, the frequency of negative absolute returns is very low, while the frequency of negative excess returns is high. This is a reflection of the lower returns on utility stocks, which are offset by their much lower catastrophic loss rate. While utility stock risk is lower than the market, there have been more than a few examples of extreme utility distress, as explained in the case study section.

**Why volatility matters and its implications for “optimal” concentrated holdings**

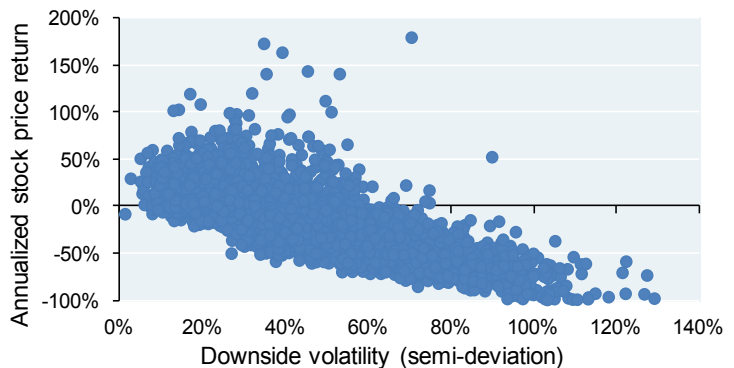
To many clients, stock price changes over the long run are all that matter, rather than anything that happens in between. However, volatility can be an important signal since it tells us something about the risk of a stock. Not everyone agrees that interim price movements are a good proxy for “risk”; in some cases, they aren’t. **However, over the long run, returns and volatilities tend to track each other pretty closely.** For purposes of this analysis, we define risk as “volatility of negative stock price movements”; in other words, we look at volatility from falling stock prices rather than from falling and rising ones. I find that most investors prefer this definition of risk (technically referred to as semi-deviation), since they are not worried about the risk of rising prices. As shown, **if the volatility of your stock is rising sharply, chances are that its returns are falling.**

Next, we factor risk into the equation of being a concentrated stockholder. With 20-20 hindsight, we can compute the “optimal” combination of any stock with the Russell 3000. In other words, **what combination of each stock and the Russell 3000 would have delivered the best risk-adjusted return?** Such an approach did not always hold a lot of a high-

returning stock if its volatility was too high. Similarly, it held *more* of a lower-returning stock if it exhibited attractive diversification benefits vs. the Russell 3000. The results tell us something about the frequency with which concentrated holders would optimally choose to own different amounts of their stock, if the issue of price volatility mattered to them.

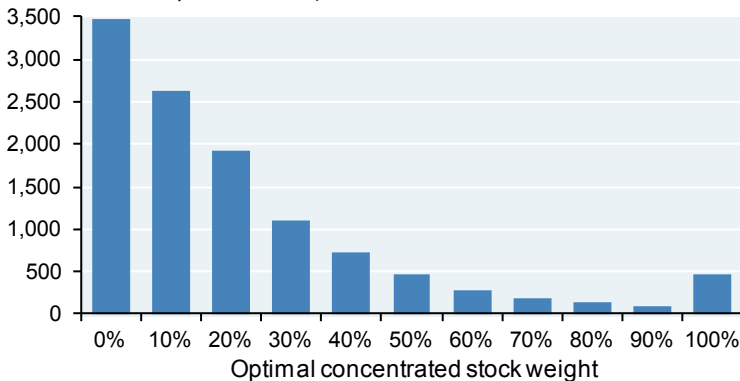
The bar chart below shows the results. There were quite a few cases when the optimal course of action from a risk-adjusted perspective was to own 100% in the concentrated stock: that happened around 6% of the time (500 observations in our data set). However, in the majority of cases, it made sense to own no more than 30% of the concentrated stock, and often none of it. This is not a surprise; as per page 6, if two-thirds of stocks underperformed the Russell 3000, it is very unlikely that a risk-adjusted approach would want to own many of them since it would prefer to own the Russell 3000 instead.

**Higher volatility usually associated with lower stock price returns, Universe: Russell 3000 stocks, min. 3 years of returns, 1980-2014**



Source: FactSet, J.P. Morgan Asset Management.

**Optimal mix of a concentrated stock position with the Russell 3000, 1980-2014, number of observations**



Source: FactSet, J.P. Morgan Asset Management.

**As a last step in our empirical analysis, we weave together each of the three risk factors we have examined so far: the risk of catastrophic loss, the risk of underperforming the Russell 3000 and finally, the risk of heightened volatility that subjected concentrated holders with insufficient diversification to a very wild ride.**

In the table below, we show the percentage of stocks in each sector that:

- suffered a catastrophic loss; or
- generated negative *absolute* lifetime returns; or
- generated negative excess lifetime returns vs. the Russell 3000; or
- experienced high volatility such that the optimal portfolio process described on the prior page chose to own no more than 20% in the stock.

In other words, all the cases in which some amount of diversification would have made sense. With the benefit of hindsight, in around three-quarters of all cases, diversification could have played an important role in sustaining family wealth.

**Percent of stocks whose concentrated holders would have benefited from diversification, 1980-2014**

Sector	Percent
All sectors	74%
Consumer Discretionary	74%
Consumer Staples	58%
Energy	81%
Materials	75%
Industrials	75%
Health Care	72%
Financials	63%
Information Technology	82%
Telecommunication Services	74%
Utilities	87%

Source: FactSet, J.P. Morgan Asset Management.

## **Sector case studies: some forensics on catastrophic loss**

A deeper dive into catastrophic stock price loss reveals important realities of global business dynamics. There are hundreds of cases to choose from; the ones we selected illustrate different paradigms that resulted in substantial and permanent impairment. We focus on large cap (and the upper end of mid cap), since many were “household names” at the peak of their success. It is not always simple to explain why a company suffered a decline, since a combination of fundamental factors and the whims of investor sentiment are involved. The descriptions represent our perception of the primary factors; other explanations may be just as plausible. Note that these examples were chosen in the summer of 2014; over time, many “Lazarus” stocks come back from the dead, so it is fair to assume that some of them may recover from their current levels.

In the case studies, there are instances of leveraged over-expansion, particularly towards the end of a business cycle, and examples of management misreading rapidly-changing industry dynamics and competitive factors. There are also examples of companies that mismanaged a large acquisition; we were not surprised by this, since most studies we have seen estimate M&A failure rates at 50% to 80% of all transactions<sup>3</sup>. However, many companies suffered due to **factors largely outside management control**. We list some of these exogenous factors in the box on the facing page. In these cases, it is not clear that even the best management teams in the world could have done much to alter the ultimate outcome.

**While some catastrophic losses on the following pages may seem obvious or inevitable with the benefit of perfect hindsight, in all likelihood the company’s management, its board of directors, research analysts, credit rating agencies and its employees all firmly believed in its long-term success.**

### Notes about the charts

Some examples show pre-Chapter 11 prices of companies that have since emerged from bankruptcy and are now thriving operating businesses (e.g., Charter Communications and Calpine). All stocks are shown through their final reported pricing date, which is either July 31, 2014, or an earlier date when the company was acquired, merged or delisted and which is noted below the chart. Price histories on many stocks reflect split adjustments that took place over time, such that historical prices appear lower than the levels at which they were once quoted.

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<sup>3</sup> The earliest analyses performed in the US and Europe in the 1970’s found merger and acquisition failure rates of 40%-50%. More recent estimates are higher. Wharton’s “*Why Do So Many Mergers Fail*” cites professor Robert Holthausen, whose failure rate estimates range from 50%-80%. A 2010 study from McKinsey estimates failure rates of 66%-75%. And in a 2010 book from Mitchell Lee Marks (San Francisco State University, and an advisor in 100 mergers and business transitions), failure rates are estimated at 75%.

**Force Majeure: a partial list of exogenous factors that can put companies at risk and which are outside management control**

- **commodity price risks** that cannot be hedged away
- **government policy examples:** changes in service reimbursement rates, a slowdown in FDA approval patterns, bandwidth and other public domain privatizations which increase the scope of competition, changing subsidies for renewable energy, changes in carbon tax regimes and fracking rules, government-sponsored enterprises with a lower cost of funds crowding out private sector activity, changes in the interpretation of anti-trust rules, shifts from capacity pricing to merchant pricing (natural gas), etc.
  - on government action, deregulation has proven to be just as disruptive as re-regulation, particularly as it relates to boom–bust cycles in telecommunications, utilities and broker-dealers
- foreign competitors whose market share is magnified by **government subsidies and exchange rate manipulation**
  - China’s exchange rate management and subsidies to its auto, steel, solar, paper and glass companies are primary examples (see Appendix I for more details)
- **intellectual property infringement** by domestic or foreign firms (see Appendix I)
- the impact of **patent trolls**, estimated to cost US businesses upwards of \$20 billion per year
- changes in **US or foreign government tariff or trade policy**
- **fraud by non-executive employees**, which according to SEC investigations from 1997-2007 accounted for ~30% of all instances; or fraud by employees or management in companies that you acquire, or which acquire you
- **technological innovation** that effectively provides consumers with enough information to bypass intermediaries and distributors
- a shift in buying power to the firms’ customers resulting from **consolidation**
- **unconstrained expansion by competitors**, leading to a collapse in pricing power

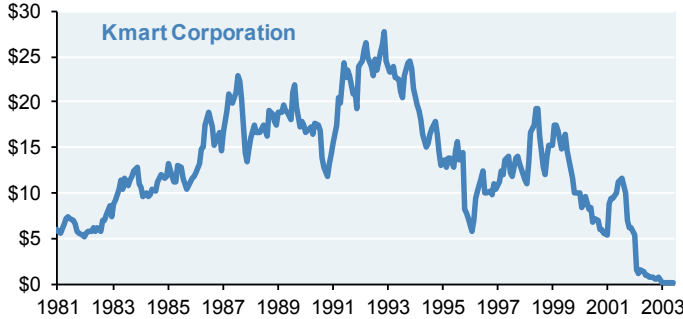


Future success may seem assured once a company establishes a brand presence, but our study reveals that plenty can go wrong even for mature companies.

**Consumer Discretionary**

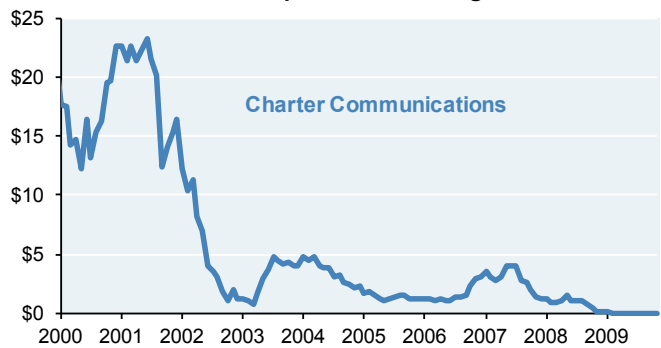
Consumer Discretionary has seen its fair share of catastrophic declines (see list on following page). Big box multi-line retailing, online retailers, auto parts, print media, publishers, music, faddish apparel and restaurant chains make up most of the list. One factor perhaps underappreciated by concentrated holders: according to Nielsen surveys, **US consumers are less brand-loyal than their counterparts in Europe, Asia, the Middle East and Latin America** when it comes to mobile phones, personal electronics, electronic appliances, beauty products, health/medical products, in-store retail and cable/internet service. They're also more likely to switch brands for a better price. Many brands enjoyed success during their initial expansion phase, but faced challenges when organic new store growth slowed, and when consumer tastes changed. Radio, music and print media struggled with shifting technology, which put a lot of pressure on ad revenues (e.g., a 57% drop in newspaper ad revenue from 2000 to 2009).

**Once the pioneer of discount retailing, management outflanked by Walmart and Target, and underinvested in merchandise, key locations and supply chain**



Source: Bloomberg, May 2003.

**Overleveraged cable television acquisition spree paid for with inflated stock price; accounting issues**



Source: Bloomberg, November 2009.

**Surpassed by digital competitors; low barriers of entry**



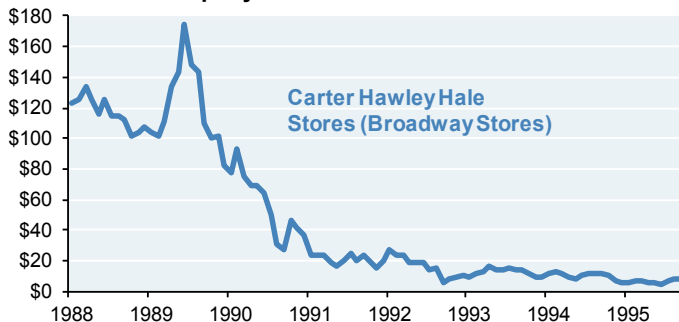
Source: Bloomberg, July 2014.

**Bad timing: leveraged theme park acquisitions heading into a recession**



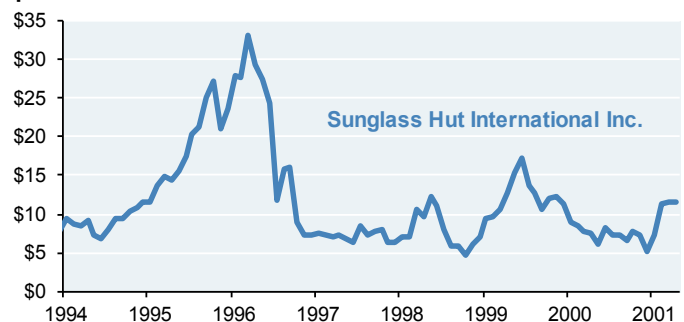
Source: Bloomberg, May 2010.

**Scorched earth strategy works too well: fending off The Limited (via spinoff of Neiman Marcus and massive debt) doomed the company's future**



Source: Bloomberg, October 1995.

**Organic sales growth hits a wall at 2,000 stores, acquisition of a key but fading rival compounds the problem**



Source: Bloomberg, April 2001.

There are dozens of other cases we could have chosen to illustrate examples of distress in the Consumer Discretionary sector. The table below shows some of the more recognizable names. Some date back to the 1980's, while others are more recent.

**Select Consumer Discretionary stocks in the Russell 3000 suffering unrecovered, catastrophic losses (see page 4 for definition) by industry, 1980 to 2014**

**Auto Components**

Dana Corp.  
Delphi Corporation  
Federal-Mogul Corp.  
Goodyear Tire & Rubber Company  
Lear Corporation  
Visteon Corp.

**Department Stores**

Federated Department Stores Inc.  
Macy's, Inc.

**Distributors**

GNC Energy Corp.  
Subaru of America Inc.

**Diversified Consumer Services**

Apollo Education Group Inc.  
Corinthian Colleges Inc.  
Education Holdings 1 Inc.  
ITT Educational Services Inc.  
Learning Tree International Inc.

**Hotels Restaurants & Leisure**

Bally Total Fitness Holding Corp.  
Boston Chicken, Inc.  
Boyd Gaming Corporation  
Checkers Drive-In Restaurants, Inc.  
Chi-Chi's Inc.  
Churchs Fried Chicken, Inc.  
Coleco Industries, Inc.  
Cosi, Inc.  
Krispy Kreme Doughnuts, Inc.  
Luby's, Inc.  
Monaco Coach Corporation  
Morton's Restaurant Group Inc.  
Patriot American Hospitality Inc.  
Rainforest Cafe, Inc.  
Shoney's Inc.  
Sizzler Restaurants International Inc.  
TCBY Enterprises, Inc.  
Trump Hotels & Casino Resorts, Inc.

**Household Durables**

Centex Corp.  
Hovnanian Enterprises, Inc.

**Household Durables (continued)**

Kaufman & Broad Home Corp.  
Maytag Corporation  
Pillowtex Corp.  
Sealy Corp.  
Standard Pacific Corp.  
Sunbeam Corporation  
Zenith Electronics Corporation

**Internet & Catalog Retail**

barnesandnoble.com inc.  
Buy.com Inc.  
Drugstore.Com Inc.  
eToys, Inc.  
Home Shopping Network, Inc.  
Lillian Vernon Corporation  
Nutrisystem, Inc.  
Spiegel Inc.  
Webvan Group, Inc.

**Leisure Products**

Baldwin Piano & Organ Company  
Callaway Golf Company  
LeapFrog Enterprises, Inc.  
Polaroid Corporation  
Worlds of Wonder, Inc.

**Media**

Adelphia Communications Corporation  
Cablevision Systems Corporation  
Carolco Pictures Inc.  
Clear Channel Outdoor Holdings Inc.  
Crown Media Holdings Inc.  
Emmis Communications Corporation  
Gannett Co., Inc.  
Harcourt Brace Jovanovich Inc.  
Harte-Hanks Inc.  
Idearc Inc.  
Intelsat Corporation  
Interpublic Group of Companies, Inc.  
Loews Cineplex Entertainment Corp.  
Martha Stewart Living Omnimedia, Inc.  
McClatchy Company  
New York Times Company  
Orion Pictures Corporation  
Readers Digest Association Inc.

**Media (continued)**

RH Donnelly Corp.  
Savoy Pictures Entertainment, Inc.  
Warner Music Group Corp.  
Westwood One Inc.  
XM Satellite Radio Holdings

**Multiline Retail**

Ames Department Stores Inc.  
Bradlees Discount Store Inc.  
Caldor Corp.  
Circle K Corp.  
Filene's Basement Corp.  
J. C. Penney Company, Inc.

**Specialty Retail**

Aeropostale, Inc.  
bebe stores, Inc.  
Blockbuster Inc.  
Boise Cascade Corporation  
Borders Group Inc.  
Chico's FAS, Inc.  
Circuit City Stores, Inc.  
Coldwater Creek Inc.  
CompUSA Inc.  
Design Within Reach, Inc.  
Eddie Bauer Holdings Inc.  
FAO Schwarz, Inc.  
Heileg-Myers Furniture Co.  
Jennifer Convertibles Inc.  
Just For Feet, Inc.  
Lechter's Inc.  
Office Depot, Inc.  
RadioShack Corp.  
Restoration Hardware Inc.  
Sharper Image Corp.  
Talbots Inc.  
Today's Man Inc.

**Textiles Apparel & Luxury Goods**

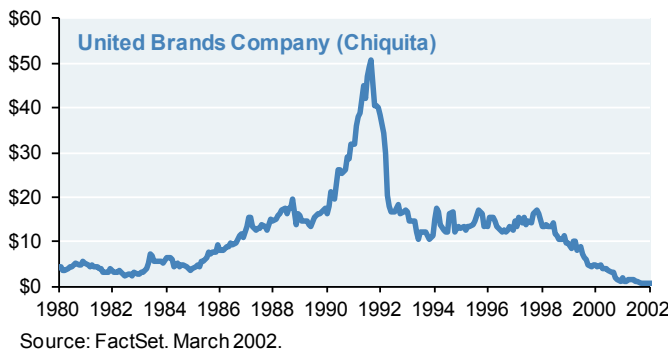
Burlington Industries Inc.  
Crocs, Inc.  
Fruit of the Loom Ltd.  
Jones Apparel Group Inc.  
L.A. Gear, Inc.  
North Face, Inc.



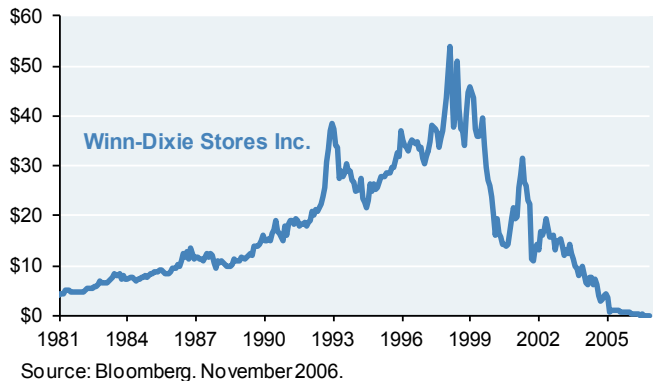
**Consumer Staples**

As noted on page 5, Consumer Staples have a lower rate of catastrophic price decline than the market as a whole. The Staples that did suffer such declines were often low-margin supermarket, drug store and convenience store chains that struggled to compete with the rise of Walmart (Bruno’s, Drug Emporium, Food Lion, A&P, SuperValu, Pantry Inc. and Winn-Dixie); we only review one of them below since the narratives are similar. According to a 2009 study from Dartmouth, when a Walmart opens in a new market, median sales drop 40% at similar high-volume stores, 17% at supermarkets and 6% at drug stores. There are some other episodes worth discussing, which we review as well. The first one below refers to the 15-year US-European banana war, an illustrative example of risks around trade and tariffs. Eventually, Europe reached a deal under which it planned to provide equal treatment to all importers. Unfortunately, this came too late for companies like Chiquita Brands.

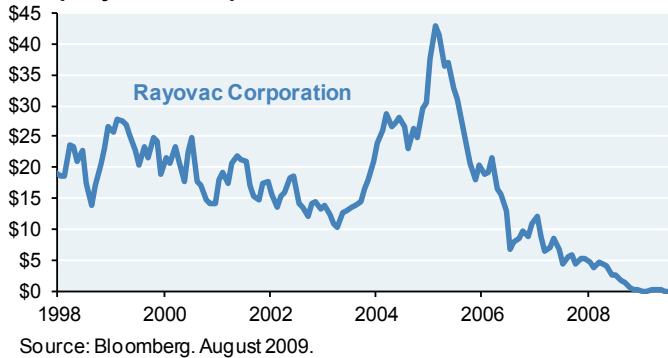
**Chiquita expanded during trade talks to open European banana market, suffers when Europe opts to maintain imports from former colonies; 2001 Chapter 11 filing**



**Competition in low-margin supermarkets from Walmart and Publix too much for “America’s Supermarket”**



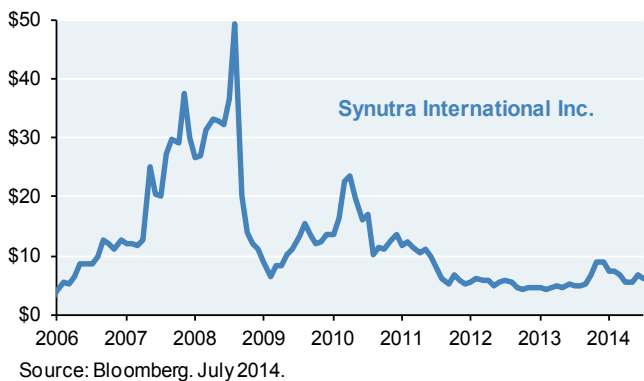
**Sometimes there’s no room for #3 (behind Duracell and Energizer); non-core acquisitions (pet supply) outside company core competence**



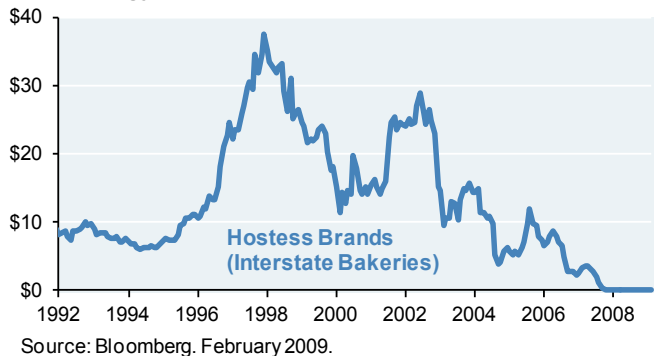
**Over-leveraged Revlon runs into deep-pocketed competitors (J&J, P&G), and loses**



**Doing business in China involves under-regulated supply chains and the lack of consumer safeguards**



**Chapter 22? Hostess first went bankrupt in 2004, citing reduced demand for high-carb snacks and rising labor/energy costs**



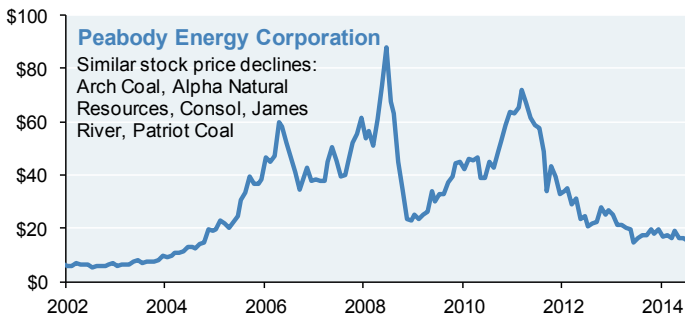


Our analysis shows that equipment, service and drilling companies, along with the core exploration and production companies, are some of the most risky within the Russell 3000.

**Energy**

Energy rivals Technology as the sector most ideally suited to discussions about concentration risk. The nature of exploration and production, commodity prices, business cycle risks, environmental accident risks and regulatory issues create a volatile backdrop for many oil and gas stocks. Event risk in E&P spiked during the oil price decline in the early 1980's, and almost every time since when a commodity price falls unexpectedly, such as during the natural gas price decline of 2009. Energy stock price volatility is not just an issue for E&P: out of 27 S&P 500 industries with at least 8 stocks, Energy Equipment & Services exhibited the highest volatility from 2002 to 2012, even higher than Metals & Mining, Software and Semiconductors (recent equipment/services catastrophic loss examples include McDermott, Willbros and Hercules). Business risk in the Energy sector is not confined to oil/gas and related services: despite the world's voracious use of coal (up 50% since 2000, with 2013 as the highest year of global coal consumption as a % of primary energy since 1970), coal companies face plenty of challenges as well.

**Largest coal company in the world; global expansion designed to reduce impact of US regulations and nat gas boom ended up damaging margins**



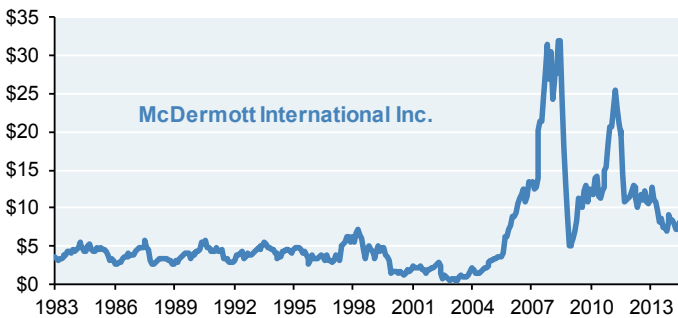
Source: Bloomberg. July 2014.

**Texas-based natural gas company suffers from collapse in natural gas prices, and leverage (45% of revenue in Q1 2014 used to pay interest expense)**



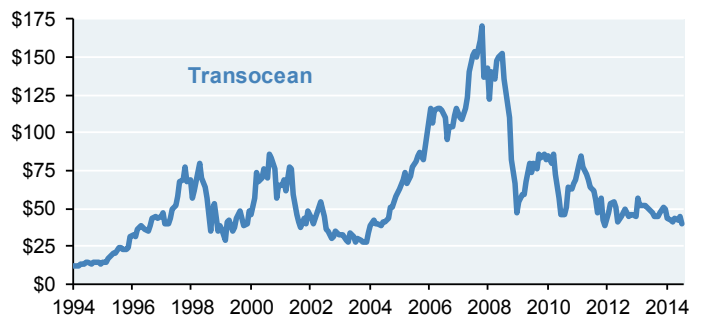
Source: Bloomberg. July 2014.

**When core competence is in shallow water, deepwater operations can be high risk for companies providing construction equipment and services**



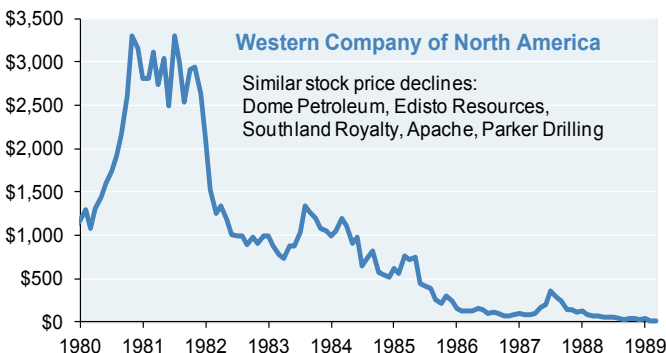
Source: Bloomberg. July 2014.

**Owners of Deepwater Horizon, the semisubmersible drilling rig which caught fire, exploded and then sank in the Gulf of Mexico**



Source: Bloomberg. July 2014.

**Early 1980's: OPEC over-supply and lower oil demand due to recession hurts E&P and equipment/services**



Source: FactSet. March 1989.

**What happens to the largest operator of oil tankers when tanker rates decline by 40%-50%; leverage and some aging vessels compound the problem**



Source: Bloomberg. July 2014.



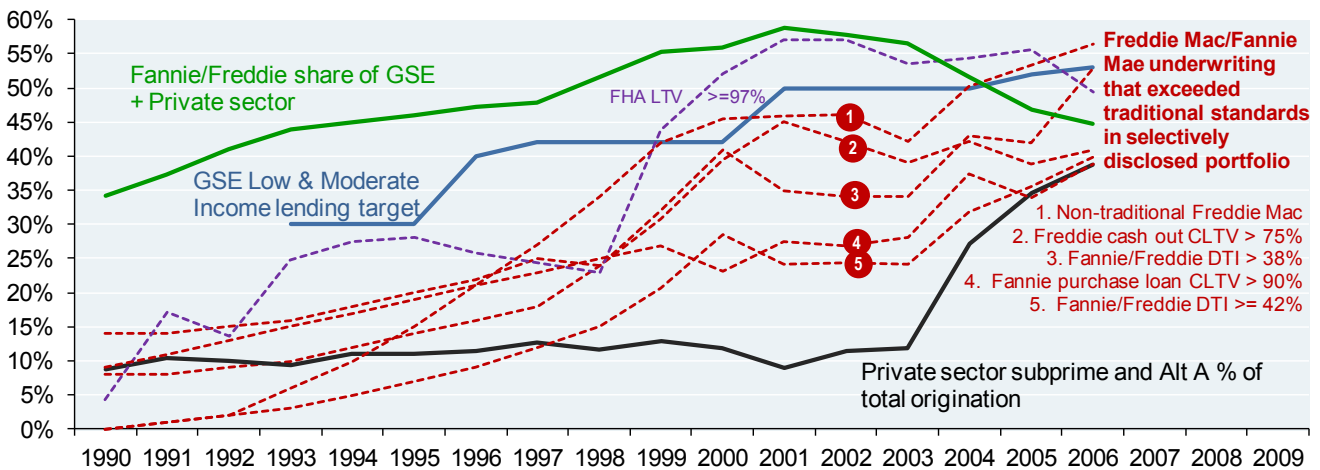
In Financials, we see that the influence of public policy can rapidly change the behavior of other players in the industry, altering the risk profile of a concentrated holder's position.

## Financials

There's a long list of banks, brokerage firms, mortgage insurers, REITs and specialty finance companies that suffered permanent price declines during the financial crisis of 2008-2009. What's interesting for purposes of understanding concentration risk in Financials: **the role that government policy can play in altering or influencing the behavior of private sector firms.** As described in a November 2013 Eye on the Market ("*Course of Empire*"), US government-sponsored enterprises took a lot of the oxygen out of the room: the green and red lines in the chart show the increase in high-risk lending undertaken by the GSEs which predated the massive increase in subprime and Alt A lending by the private sector (black line). The GSE increases move roughly in tandem with lending standards which required the GSEs to make more low and moderate income loans (blue line). This timeline is not meant to absolve the private sector, which made some horrendous and well-documented underwriting decisions; the point is to understand what government actions and policies preceded them.

### The Course of Empire: Prelude to Destruction

Percent of annual underwriting (except Fannie/Freddie share based on total outstanding balances)



### A brief summary of the timeline (see November 18, 2013 Eye on the Market for more details)

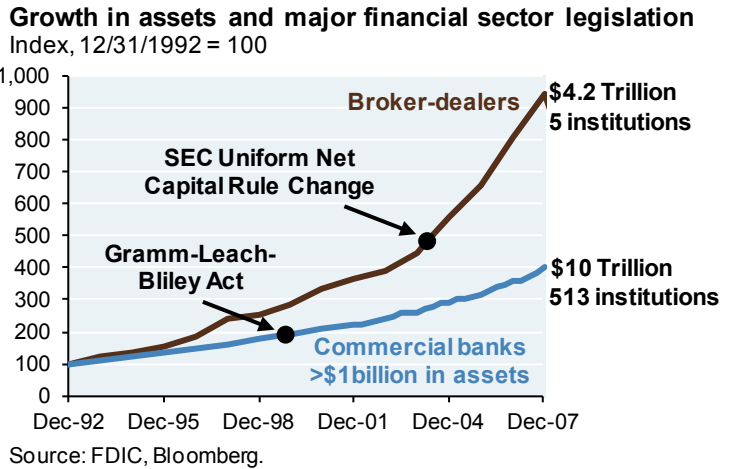
In 1990, Fannie Mae and Freddie Mac (government-sponsored enterprises) adhered to prudent underwriting on single family mortgages: the vast majority had debt-to-income ratios below 38%, loan-to-values below 90% on purchase loans, or loan-to-values on cash-out refinancing loans below 75%. The GSEs had a one-third share of outstanding mortgages. Private sector subprime had existed for decades, but was limited in size at ~10% of annual residential mortgage origination. Home ownership rates and home prices relative to income and replacement cost were stable at post-war averages.

The era of sound GSE lending did not last. The 1992 "*Federal Housing Enterprises Financial Safety and Soundness Act*" enabled the Department of Housing and Urban Development to set formalized minimum affordable lending standards for the GSEs. HUD first set Low & Moderate Income standards at 30% of annual GSE acquisitions, and raised them to 50% in the week before the November 2000 election. Home ownership rates jumped, and home prices relative to replacement cost, rent and household income began to rise above historically stable levels.

By 2002, the GSEs had increased their market share from one-third to 60% as the size of the mortgage market rose by 2.5x vs. 1990. Freddie Mac's non-traditional loans were ~45% of their annual acquisitions and guarantees, and more than 40% of Fannie Mae's Alt A (low documentation) loans qualified for the HUD-determined affordable housing goals. Note that the GSE revolution took place before the explosion in private sector subprime and Alt A loans.

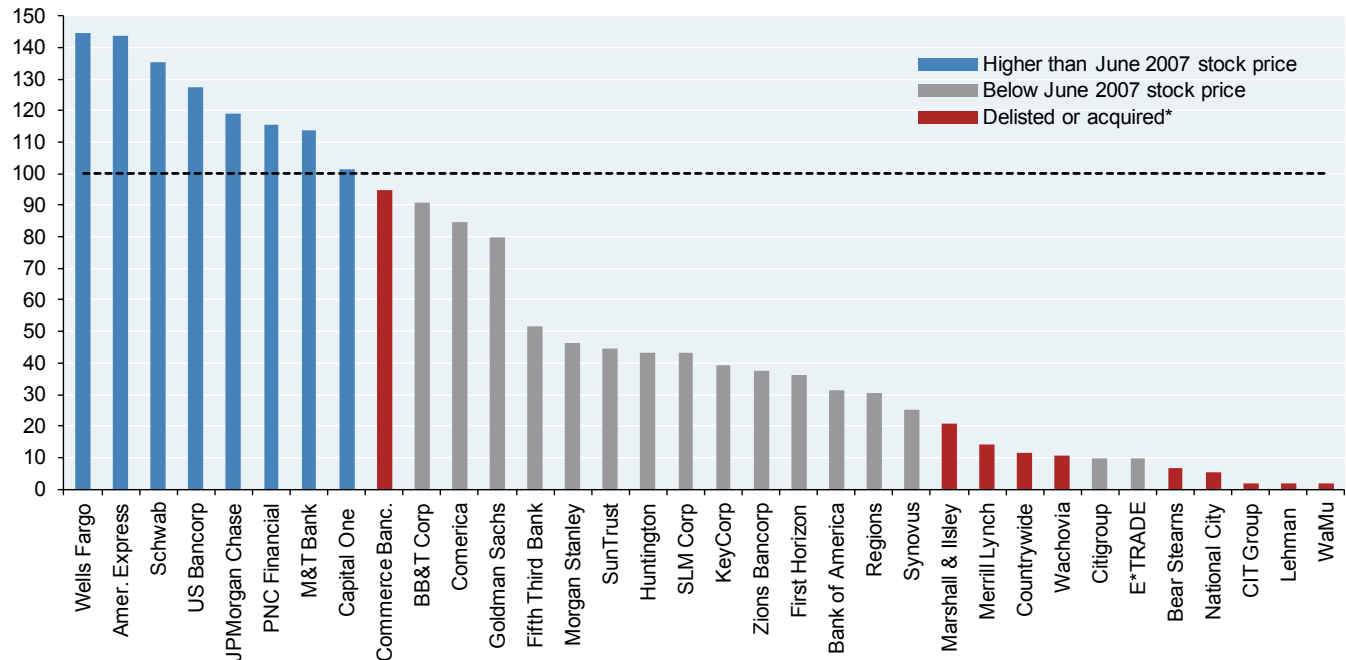
In 2003, the private sector found a way to compete: the deepening of private mortgage backed securities markets. Home prices surged further, and the mortgage market doubled in size vs. 2002. The private sector regained market share, mostly through subprime and Alt A loans which rose to 40% of annual origination. To be clear, private sector defaults and losses per dollar on subprime were much worse than on GSE loans, particularly when related to malignant derivative offshoots.

**Another large part of the financial crisis resulted from under-capitalized risk-taking at the 5 large broker-dealers.** As background, in the mid 1970's, broker-dealers like Merrill Lynch, DLJ and A.G. Edwards were leveraged from 5-to-1 to 8-to-1. Most of their activities were "brokering" (acting as agent), not "dealing" (acting as principal). Commission deregulation then reduced their core profitability (commissions declined from 61% of industry revenues in 1965, to 40% in 1976, to 16% in 1990), leading many firms to push for ways to take on higher leverage and higher risk. In 2004, the SEC eliminated the Net Capital Rule that had limited broker-dealer leverage at 12-1 since 1975. As shown in the chart, broker-dealer balance sheets soared after this took place. By 2006, broker-dealers were leveraged around 30/35-1, with the 5 largest balance sheets comprising \$4.2 trillion in assets, and the rest is history.



In terms of what has happened since, the chart below shows the degree to which stock prices of the largest S&P 500 banks and capital markets firms recovered relative to June 2007 levels. Surviving firms are now adhering to stricter capital standards not only via higher minimum requirements, but also in improved quality of capital (more reliance on loss-bearing capital like tangible common equity and the exclusion of trust preferreds from Tier 1 capital altogether). Furthermore, US banks have made a substantial transition away from wholesale (interbank) liquidity, which has fallen from 47% to 27% of all funding. All things being equal, these steps should reduce event risk in the financial system. However, banks are still highly exposed to the business cycle, credit losses and changes in monetary policy; substantial risks of concentrated ownership remain.

**S&P 500 Banks, Brokers and Consumer Finance firms: changes in stock price vs. June 2007**  
Current index level, 6/30/2007=100



Source: Bloomberg. J.P. Morgan Asset Management. July 31, 2014. \*Delisted or acquired stocks shown as of last reported price before delisting or acquisition.

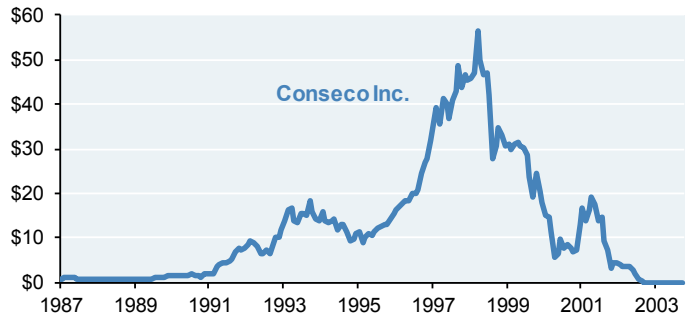
As for Financial concentration risk before 2008, there was a spike in distress in banks and thrifts during the consumer-led recession of the late 1980's. What's more interesting as part of a discussion on concentration risk are the Financial sector business models that are presumably more stable: insurance companies, companies acting as fee-based transaction agents, REITS and asset managers. History provides quite a few examples of how overly aggressive insurance companies, without access to the Fed's Discount Window, can experience substantial distress when the business cycle turns. While many financial institutions have made substantial changes to their approach to leverage since the credit crisis, REIT capital structures look pretty similar, with most leveraging via bond markets instead of through syndicated bank loans. As a result (and given their cash flow distribution requirements), equity and mortgage REITs implicitly assume that credit and equity markets will remain open, even during a recession. The REIT stresses during 2008-2009 were in some ways the first big test for the sector, since they were much less prevalent during the prior commercial real estate recession in 1990-1991.

**There are a million flavors of derivatives, and some of them taste terrible**



Source: Bloomberg. July 2014.

**Sometimes short-sellers are right: a leveraged, acquisition-based insurance company makes little sense, and became the 3rd largest bankruptcy in history**



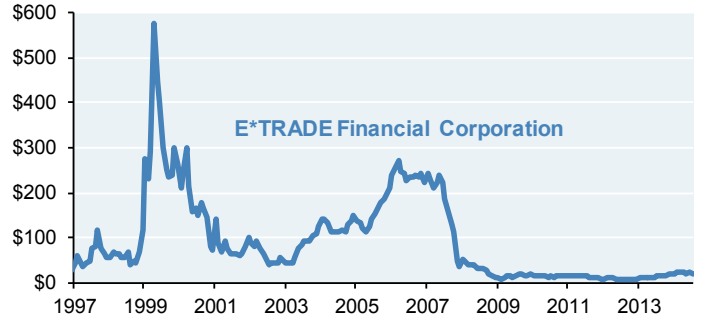
Source: Bloomberg. September 2003.

**An overly aggressive investment strategy (i.e., 45% of Executive Life's assets in HY bonds) can attract attention of regulators and scare policyholders**



Source: FactSet. April 1991.

**Diversifying a low-margin business (discount brokerage) with a cyclical one (home equity lending) can be hazardous to your wealth**



Source: Bloomberg. July 2014.

**Asset managers who are concentrated by style (Janus) or with a handful of star managers (like Legg Mason in 2006-08) can suffer radical changes of fortune**



Source: Bloomberg. July 2014.

**Most REITs came back from 2009 lows, but are still exposed to credit crises given 90% income distribution, no access to Fed discount window and preference for bonds > more easily negotiable syndicated bank loans**



Source: Bloomberg. July 2014.



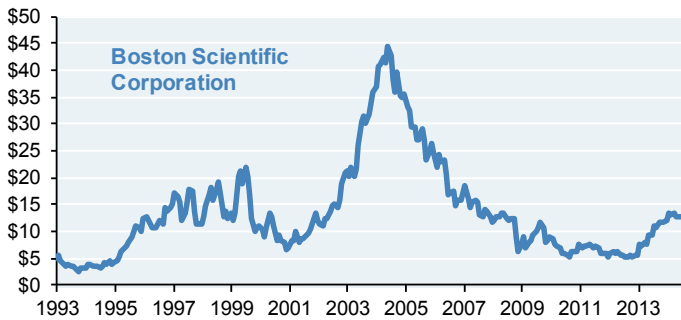
Within Healthcare, which is one of the most diverse sectors, biotech is revealing, where over 100 companies in the Russell 3000 have collapsed since the boom/bust cycle of 2001 and 2002, and the risk of failure is still as high as ever.



**Health Care**

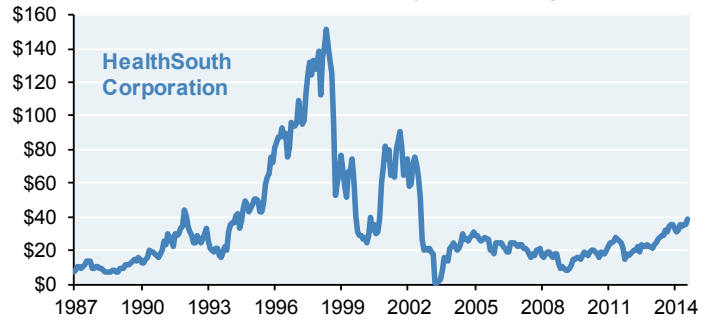
Health Care includes pharmaceutical companies, biotech, medical devices, hospitals and assorted service providers. As you might expect, relative business risks differ. On large-cap pharma, generic drugs took their toll: from 2003 to 2012, generic drug consumption generated \$1.2 trillion in savings for the US health care system, much of which represented lost revenue for branded pharmaceutical companies. The highest event risk in the sector is of course related to Biotechnology. According to Harvard's Gary Pisano, even when a drug finally gets to Phase 3 trials, the probability of failure can still be as high as 50%. Pisano also found that the R&D process at biotech firms has been no better than at big pharma companies; a study in the Journal of Health Economics actually found that larger firms had *better* performance in drug discovery. One irony about the biotech boom-bust of 2000: part of it was based on the promise of mapping the human genome, which is now finally paying dividends (timing is everything). While 2000-2001 was the peak in biotech distress, there have been over 100 catastrophic failures of Russell 3000 biotech/life sciences companies since 2002 (see Appendix II).

**Device companies heavily reliant on one product (drug-coated stents, in this case) are like concentrated stock portfolios themselves**



Source: Bloomberg. July 2014.

**Note to CEOs selling a company for stock in a roll-up: due diligence on buyers is important; largest outpatient rehab roll-up was fueled in part by accounting fraud**



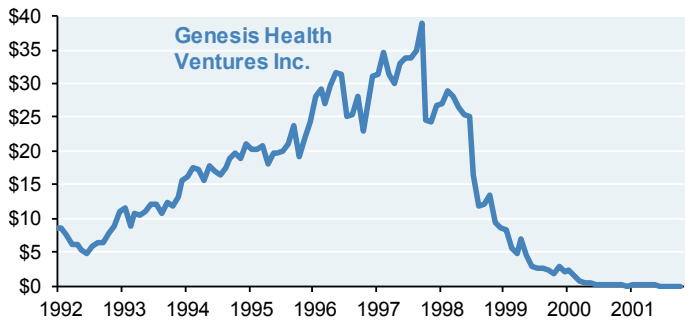
Source: Bloomberg. July 2014.

**Prostate cancer wonder drug? Sometimes FDA approval is not enough, customer demand has to materialize as well**



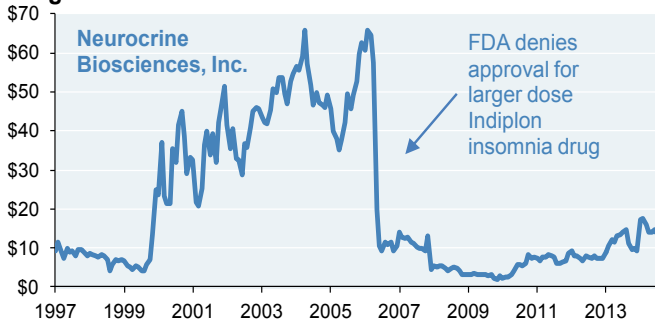
Source: Bloomberg. July 2014.

**Unanticipated sharp declines in Medicare reimbursements render GHV (nursing home) capital structure inoperable; contagion spreads to other providers**



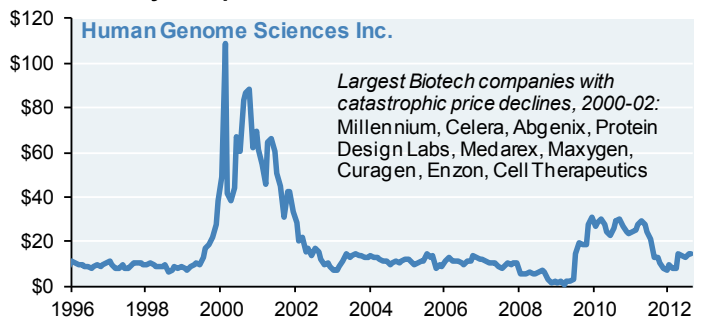
Source: Bloomberg. October 2001.

**FDA approval tolerance can shift over time, particularly if approved competitors (Lunesta, Ambien) show signs of negative side effects**



Source: Bloomberg. July 2014.

**Advanced scientific breakthroughs (even mapping human DNA sequences) do not necessarily translate immediately into profitable business models**

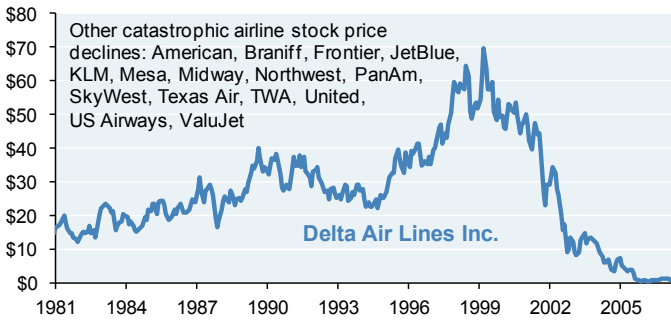


Source: Bloomberg. August 2012.

**Industrials**

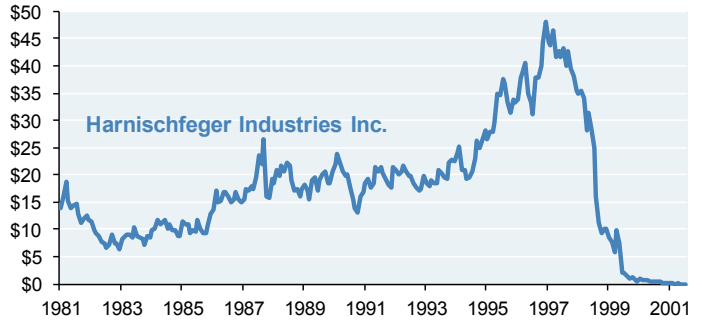
Most Industrial failures that people remember are airlines, which is understandable since there have been so many (162 airline bankruptcies from 1978 to 2005 as per the US GAO). There have been other Industrial distress cases as well. Many thrived for a long period of time, sometimes multiple decades, perhaps convincing concentrated holders that event risk was minimal. Then, something changed: Asian growth, asbestos litigation, competitive forces resulting from China's entry into the World Trade Organization, declining demand for postage equipment in the internet era (Pitney Bowes), an unfavorable ruling by the Nuclear Regulatory Commission regarding the use of decommissioning funds (EnergySolutions), a state government terminating alternative energy subsidies (Foster Wheeler), etc. Regarding the latter company, there's a broader paradigm of business risk for industrial companies involved with the various aspects of renewable energy (photovoltaic equipment, wind turbines, fuel cells and related services). See A123 Systems below, and pages 37-38 for more details.

**Slow responses to low-fare competition and high salary workers, coupled with a spike in jet fuel costs, forced the airline to file for bankruptcy**



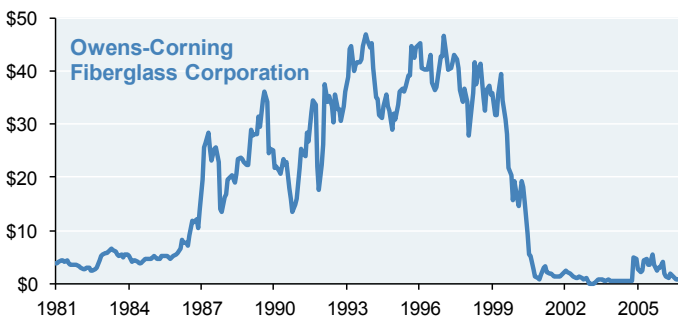
Source: Bloomberg. April 2007.

**Debt-fueled expansion and reliance on overseas consumption can be risky: reduction in orders from Indonesia in 1998 when its GDP fell 17%**



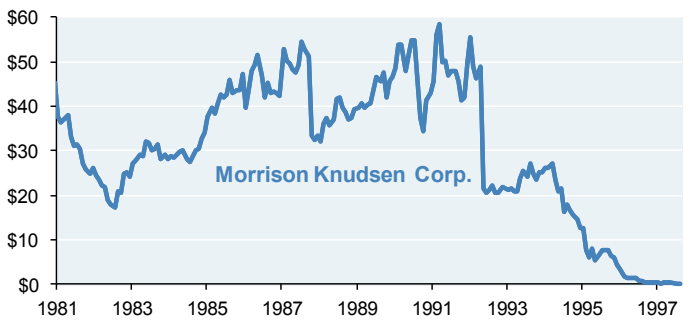
Source: Bloomberg. July 2001.

**In 90 AD, Pliny the Younger wrote of medical problems associated with asbestos mining; 2,000 years later, nearly 100 asbestos producers filed Chapter 11**



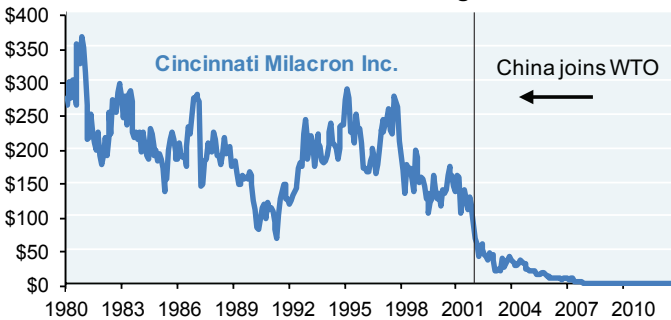
Source: Bloomberg. October 2006.

**Preeminent civil engineering and heavy construction firm overextends itself financially while aggressively expanding into non-core areas like mass transit**



Source: Bloomberg. August 1997.

**One of the world's largest machine tool manufacturers struggled to compete with cheaper foreign competition and the slowdown in US manufacturing**



Source: Bloomberg. February 2013.

**The government can sponsor the idea of electric cars, but cannot make people buy them, or the lithium ion batteries that A123 made**



Source: Bloomberg. July 2013.



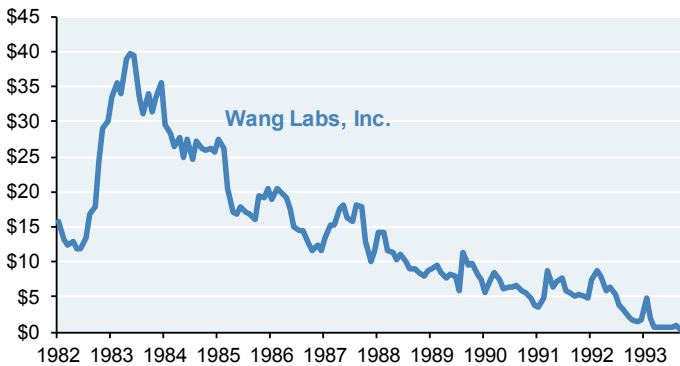
In the rapidly changing world of technology, some industry leaders were able to adapt to change, and others, presumably run by some of the smartest people in the industry, were not.

**Information Technology**

The tech sector has generated some of the most spectacular gains in the history of US equity markets. Google, Apple, Qualcomm, salesforce.com, eBay, Adobe Systems, Oracle, etc. are some of the most successful public companies in the world. As shown on page 7, however, only 6% of all tech companies turned out to be extreme winners; the median tech company substantially underperformed the market; 70% underperformed the Russell 3000; and over 50% generated negative absolute returns. Furthermore, almost 60% of all technology companies in the history of the Russell 3000 Index fell by 70% from their peak price and did not recover.

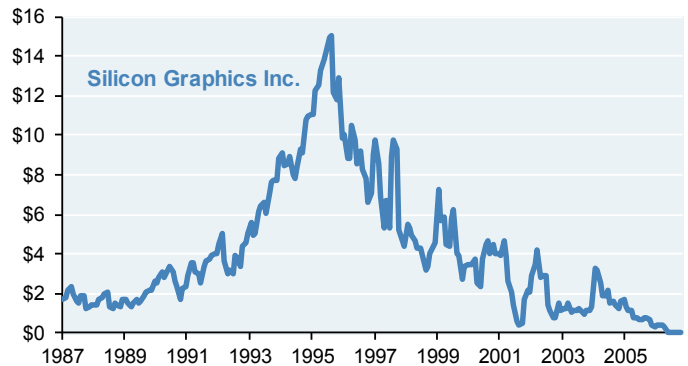
The story of the tech sector is a long narrative about disruptive technologies which are themselves disrupted by changes that follow. Wang Labs, Silicon Graphics, Digital Equipment Corporation<sup>4</sup> and Commodore are some of the earlier casualties, unable to adapt to the shift away from dedicated word processors and 3D graphics servers and towards PC platforms based on Microsoft’s Operating System. Similar fates were eventually in store for Cray Supercomputer, Prime Computer, Data General, Atari, Maxtor, DEC, Borland International and other tech stalwarts of the 1980’s and 1990’s. They were all industry leaders at their peak, run by some of the smartest teams in the business world that would presumably adapt to changing technologies and circumstances. Most of them, however, did not.

**Dedicated word processing equipment**



Source: FactSet. September 1993.

**Dedicated 3D graphics servers**



Source: Bloomberg. October 2006.

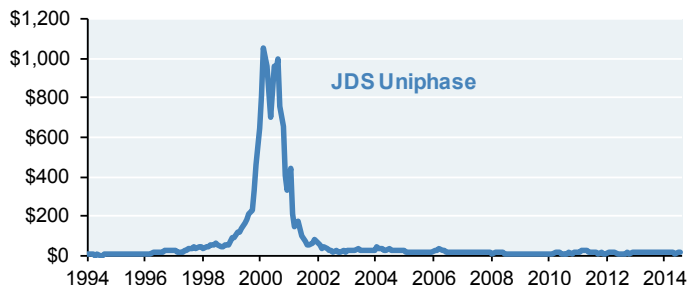
The next phase in the tech sector came in the late 1990’s, when internet use began to rise sharply. The dot-com era was fueled by this enthusiasm, as well as by opportunities in the business-to-business space. As global internet users rose ten-fold from 32 million in 1995 to 320 million by 2000, markets assumed that profitable business models would emerge around it. However, while global internet use did keep growing at a rapid clip, many technology companies weren’t making enough money to survive what turned out to be a mild recession in 2001, and required even more exponential internet/broadband uptake than what was occurring in order to be profitable.

**Data center provider cannot survive collapse of its tech customer base and the eventual migration from simple co-location to full-service managed hosting**



Source: Bloomberg. June 2002.

**JDS’ customer base for optical equipment (Alcatel, Ciena, Cisco, Corning, Juniper, Lucent, Marconi, Motorola, Nortel, Scientific Atlanta, Siemens, Sycamore) all suffered a collapse in demand at the same time**

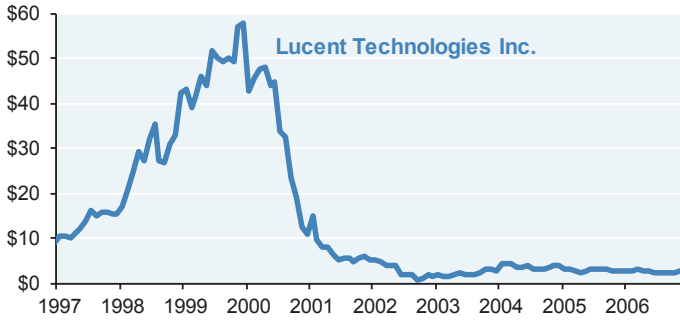


Source: Bloomberg. July 2014.

<sup>4</sup> “The personal computer will fall flat on its face in business”, Ken Olsen, CEO Digital Equipment Corporation, who was proclaimed “America’s most successful entrepreneur” by Fortune magazine in 1986.

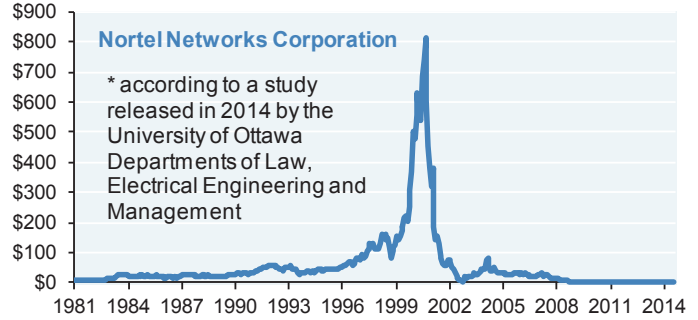
As the tech bust rolled on through 2001 and 2002, dozens of technology companies ended up seeing their highest stock prices in the rearview mirror (for example, of 212 Internet & Software Service companies with stock prices in February 2000, only 17 ever saw higher stock prices at any time between March 2000 and February 2014). Some of the largest declines appear below; the first three each had a peak market cap over \$100 billion. While some companies survived (EMC, Intel, Cisco, Broadcom), others did not adapt to industry changes, adapted temporarily, or did not adapt in time<sup>5</sup>.

**The world's largest telecom equipment company in 1999 with \$38 billion in sales; relied excessively on its incumbent position and did not adapt**



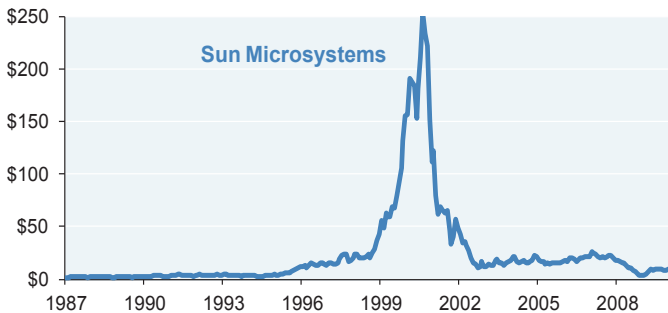
Source: Bloomberg. November 2006.

**Lucent's Canadian competitor, drowning in a sea of overpriced, ill-chosen, poorly integrated acquisitions; suffered from a "culture of arrogance and hubris"**\*



Source: Bloomberg. July 2014.

**Industry shifted away from Sun on hardware (to x86 processor machines), and on software (away from proprietary licensing); see footnote #5**



Source: Bloomberg. January 2010.

**Supply chain management software leader runs into Germany's SAP, which decides to compete and abandon JV; 2008 IP judgment against SAP was too little, too late**



Source: Bloomberg. January 2010.

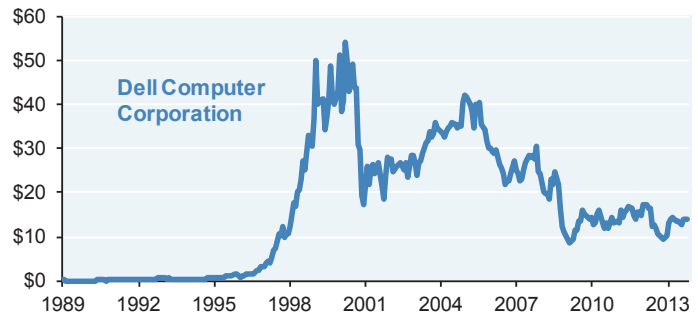
As for computer hardware, cheaper component parts and migration to smartphones and tablets eventually pulled down several manufacturers' stocks.

**Too slow moving into portable computers, and from retail to enterprise customers**



Source: Bloomberg. October 2007.

**World's #1 computer system provider experiences declining need for customized hardware and a bruising price war, difficulty executing on transition to mobile**



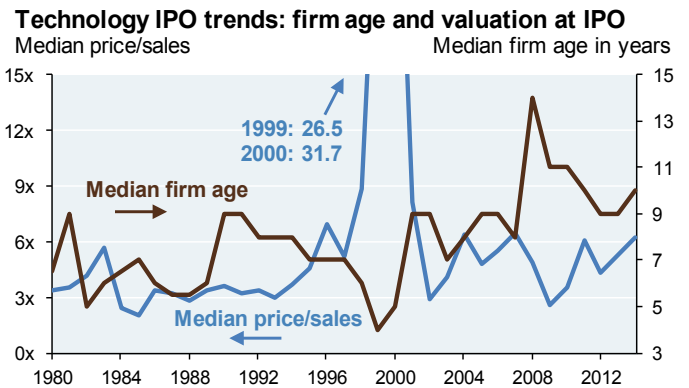
Source: Bloomberg. October 2013.

<sup>5</sup> Sun Microsystems CEO Scott McNealy in 2011, on the conundrum of proprietary vs open-source code: "The mistake we made was putting it on our own hardware. If we hadn't metal-wrapped it, it would have been more widely adopted. If we had put Solaris early on an Intel box, Linux never would have happened. We would have been the operating system for all those startups." [Information Week, February 25, 2011].

After the dust cleared, the steady drumbeat of substantial tech stock price declines continued over the next few years, even on stocks linked to rapidly growing wireless and video communications (each example shows the company; the date of its peak price before the decline; and the magnitude of the stock price decline through July 31, 2014 or the last quoted price, according to Bloomberg):

- Travelzoo (largest publisher of travel, entertainment and local deals): December 2004, -82%
- Avid Technology (commercial audio and video production software): February 2005, -89%
- Intermec (automated identification and data capture, barcode scanners): September 2005, -71%
- Sirf Technologies (GPS for consumer applications): February 2006, -89%
- Trident Microsystems (digital processors for LCD TVs): March 2006, -99%
- Brightpoint (distributor of mobile phones and other wireless products): April 2006, -68%
- Digital River (e-commerce sites for software and other tech companies): November 2006, -76%
- Imation Corp. (DVDs, flash drives and magnetic tapes): December 2006, -93%
- THQ (video games such as *Dawn of War* and *Company of Heroes*): March 2007, -100%

Fast forward to today. Some people view the Technology sector as changed, and believe that companies brought to market via initial public offerings are more robust. **Can this be substantiated?** It depends how you define your parameters. As shown in the next chart, the median age of tech IPOs has been rising since the height of the dot.com era; the median age has risen from 4 to 10 years. This does suggest a maturation of tech companies going public, perhaps a result of deeper pre-IPO financing capital pools which allow companies to stay private longer. As for valuations, nothing will probably ever match the pricing of tech IPOs in 1999 and 2000 when average price/sales ratios were 27x and 32x, respectively. More recent valuations have been creeping up again, however, and are roughly where they were before the onset of the financial crisis.

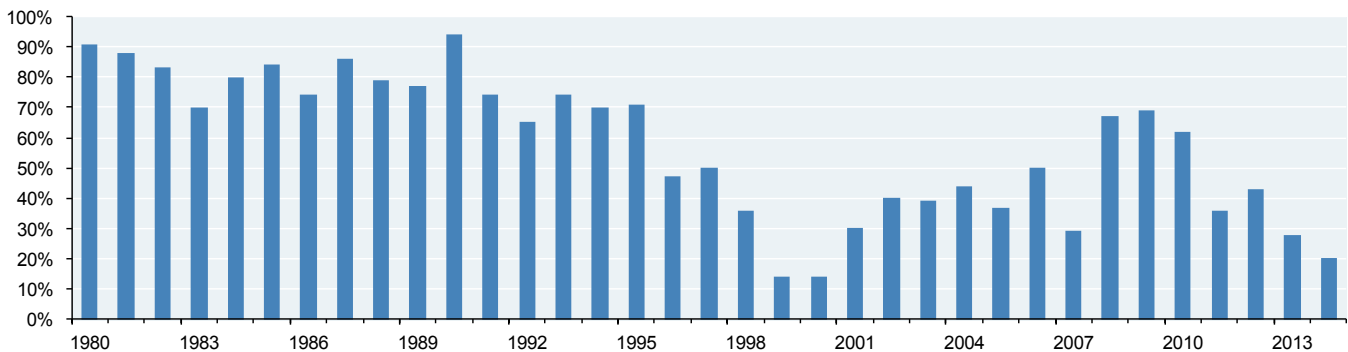


Source: "Initial Public Offerings: Technology Stock IPOs". Ritter (Univ. of Florida). July 2014.

There's one area showing clear signs of rising investor risk appetite: the falling percentage of tech IPOs that are profitable at issuance. **In the last couple of years, this measure has declined almost back to where it was during the dot.com era.** From this perspective, there's a lot of business risk being brought to market via companies whose profitability has not yet been established. All things considered, the business risk of today's tech IPO may be only moderately lower than it was 15 years ago. For more on IPOs and their performance relative to a diversified basket of stocks, see page 41.

**Remembrance of things past: low percentage of technology company IPOs with profits**

Percent of technology companies with positive net income at IPO



Source: "Initial Public Offerings: Technology Stock IPOs". Ritter (University of Florida). July 2014.

To complete the tech sector review, we conclude with a few recent cases where there have been substantial reversals of fortune. To reiterate a theme, the fact that a certain segment of the industry is skyrocketing (e.g., the 220% growth in mobile search and display advertising since 2012) does not lift all boats. On gaming, many mobile game developers have struggled to establish the kind of brand loyalty that exists in traditional gaming (*Madden NFL*, *World of Warcraft*, *Call of Duty*) which keeps players coming back for more. There's also "piggy-backing" risk: companies like Zynga and Demand Media rely to a great extent on how Facebook and Google integrate them; changes in the latter can have very large impacts on the former. We conclude with BlackBerry. Innovation in handheld devices and mobile phones garners a lot of interest, but these companies can be rapidly eclipsed by competitors and changing technology. Palm, the company that pioneered personal digital assistants and first popularized the smartphone, collapsed in 2001; then Motorola could not maintain the advantage it had in 2006 with its revolutionary Razzr phone; BlackBerry is just the latest casualty.

**Google finally gets wise to "content farms" like Demand Media, and changes algorithms to avoid them**



Source: Bloomberg. July 2014.

**Big data flash storage leader's customer base too concentrated (loss in pricing power); low barriers to entry invite intense competition**



Source: Bloomberg. July 2014.

**Buying the next big hit proves to be much harder than developing it; acquisition writeoffs, falling subscribers, bloated management and lots of competition**



Source: Bloomberg. July 2014.

**Pioneer of mobile advertising gets squeezed out once the mega-platforms (Google, Facebook) compete with them; not every little fish gets bought**



Source: Bloomberg. July 2014.

**Extreme revenue concentration for smaller technology companies (in this case, software-defined networking) causes problems when big customers cut back**



Source: Bloomberg. July 2014.

**Stale technology (no touch screen), operating system problems, worldwide outages, too much focus on corp customers; mine is constantly re-booting for no reason**

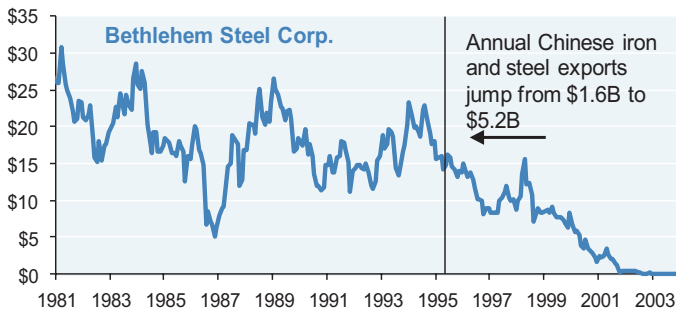


Source: Bloomberg. July 2014.

**Materials**

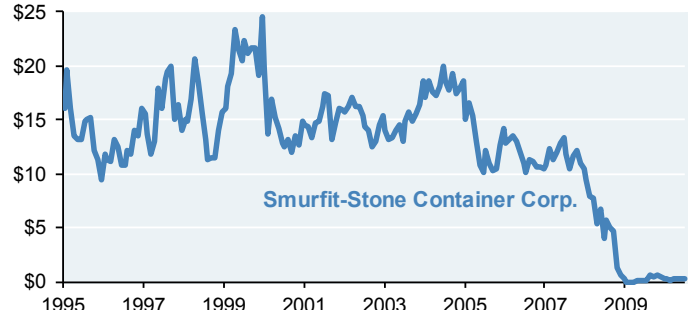
The Deng reforms in China and the Rao reforms in India are among the most momentous shifts in relative economic power in centuries. In both countries, capital and energy-intensive industries like iron and steel benefited from very generous government subsidies (see Appendix I). As these state-sponsored companies became more profitable, their earnings were reinvested, creating expansion of capacity and production well beyond their domestic markets' ability to absorb. This resulted in a structural change in global export markets, and intense competition for US firms. Other secular, permanent shifts: the decline in US newspaper readership from 62 million daily (1990) to 52 million (2006), a problem for newspaper companies and the Materials companies that sell newsprint to them. As for cyclical risks, many Metals & Mining companies were not well positioned for the 20% collapse in global trade which took place in 2009, the largest decline in 50 years (e.g., Alcoa, US Steel, AK Steel, Intrepid Potash all suffered sharp declines and have not yet substantially recovered).

**Deng reforms in China reshape steel export market, management did not reduce labor costs or increase plant productivity in time**



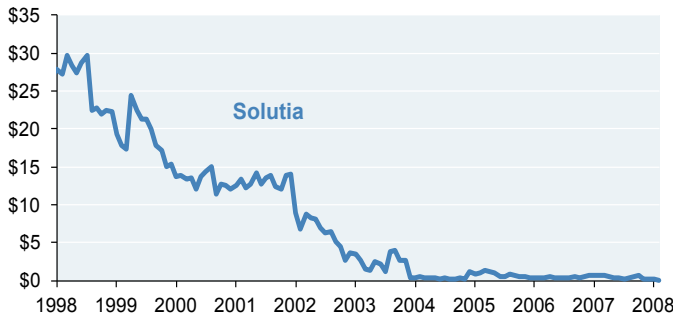
Source: Bloomberg, January 2004.

**Low margin packaging business with too much leverage suffers from a collapse in trade during the global recession**



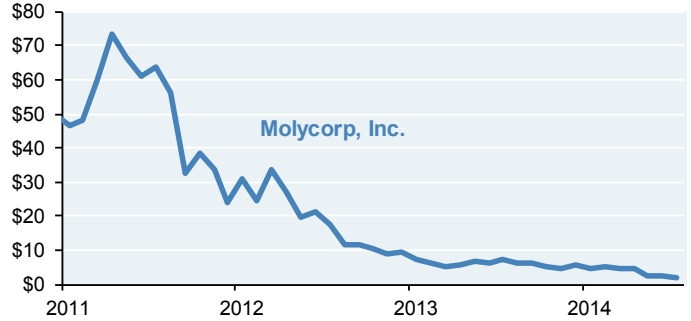
Source: Bloomberg, June 2010.

**No statute of limitations: environmental misdeeds, even 2-3 decades after they take place, can threaten a company's solvency**



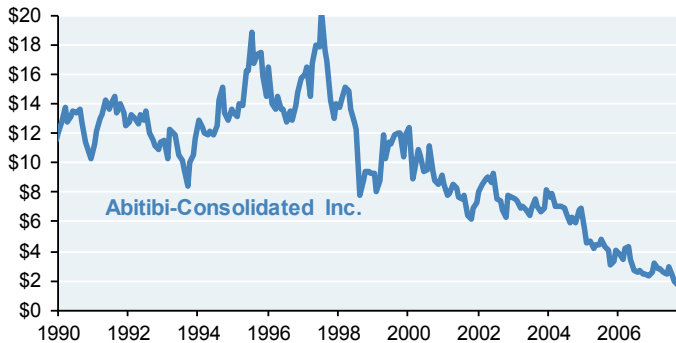
Source: Bloomberg, February 2008.

**"Rare earth demand is insatiable since the entire electronics and renewable energy industry depends on them!!" That is, until workarounds are found**



Source: Bloomberg, July 2014.

**An indirect internet casualty: declining newspaper demand leads to collapse in the demand for newsprint**



Source: Bloomberg, October 2007.

**Alcoa's fortunes hurt by global over-expansion of capacity which drags down producer profits; a leveraged reflection of global growth and capex**



Source: Bloomberg, July 2014.





Our study reveals that a changing regulatory environment can increase the risks for concentrated holders in both the Telecommunications and Utilities sectors.

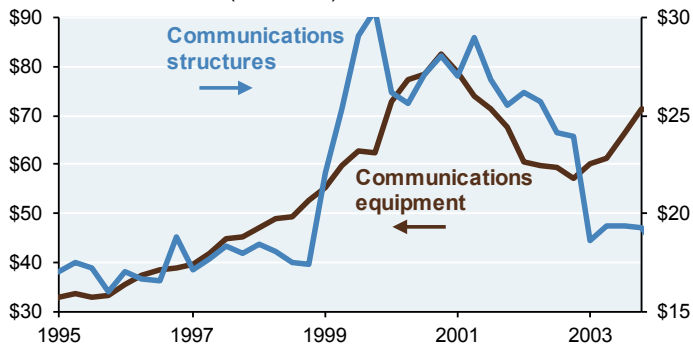
## Telecommunications

While the period from 1999-2001 is often referred to as the dot-com bust, the telecommunications industry accounted for much more equity market capitalization both gained and then lost. The lesson: regulatory shifts can make it difficult to forecast supply and demand. The catalyst for change was the Telecommunications Act of 1996, which was designed to bring competition to the local exchange level (by 1996, long distance service was already subject to competition, although the Act also allowed incumbent local carriers to compete in long distance markets). The combination of deregulation and advances in fiber optic technology resulted in the belief that a single firm could provide all of a given household's or company's telecom needs. Demand for bandwidth proliferated; from 1994 to 1996, internet traffic in the US increased from 16 to 1,500 terabytes per month. Meanwhile, the Act was constantly tied up in the courts since the FCC left many of the Act's clauses open to interpretation or dispute (in particular, disputes over the FCC's jurisdiction regarding forced co-location and other rules requiring incumbents to make room for new competitors).

A gold rush of investment followed: at the peak of the cycle, telecom capital spending was skyrocketing and industry profitability was negative. In hindsight, a buoyant IPO market and the willingness of telecom equipment sellers (Lucent, Nortel, Motorola, Alcatel and Cisco) to provide vendor financing were signs of industry weakness. In the early 2000's, end-user demand for long-haul fiber did not rise as quickly as telecom companies projected. As a result, a glut of excess capacity, lower tolling rates and too much debt caused a collapse in telecom stock prices by 2003 and a wave of bankruptcies (see box, below). Video streaming and other data-heavy trends that the telecom giants expected eventually appeared, several years later; however, leveraged capital structures could not wait that long. The importance of this episode for concentrated stockholders is not that a telecom boom-bust will necessarily repeat itself, but that the paradigm might take place elsewhere.

**Private fixed investment in communications**

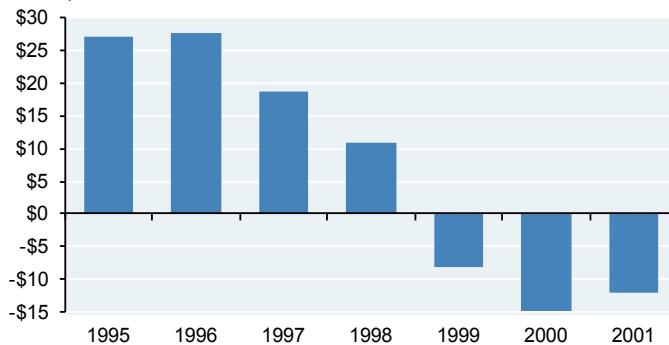
Billions of 2009 USD (both axes)



Source: Bureau of Economic Analysis. December 2003.

**Communication industry after-tax profits**

USD, billions



Source: Bureau of Economic Analysis, J.P. Morgan Asset Management. 2001.

### **2000-2003 Telecom bankruptcy wave (partial)**

*Long distance/wholesale fiber carriers:* Global Crossing, GTS, 360Networks, Impsat, Network Plus, Star, Touch America, Viatel, WorldCom

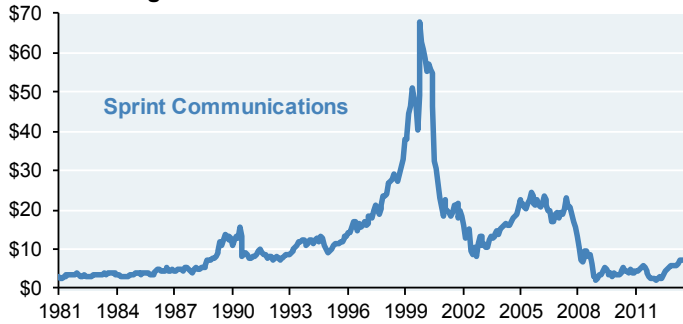
*Competitive local exchange carriers:* Convergent, Covad, Focal, ICG, McLeod, Northpoint, NTL, Rhythms Net, Telcove, XO (After FCC rulings that originally favored the new competitive local exchange carriers, an FCC ruling in 2000 on pricing methodology went against them)

*Wireless carriers:* GlobalStar, Leap, Metricom, OmniSky, StarBand, Teligent, Winstar

*Diversified/Other:* Excite@Home

The box on the prior page lists the companies that filed Chapter 11. Others survived the telecom bust, but their stock prices look like Sprint (below) which only recaptured a fraction of its lost market cap (in the case of Sprint, it was acquired in July 2013 by Japan’s SoftBank). Other examples of partial stock price recoveries include Qwest, US Cellular, Level 3 and Arch Wireless. Only a handful of telecom survivors look like Bell South, Alltel and SBA Communications, whose stock prices declined during the telecom crash and then rebounded substantially, reaching or surpassing prior stock price peaks.

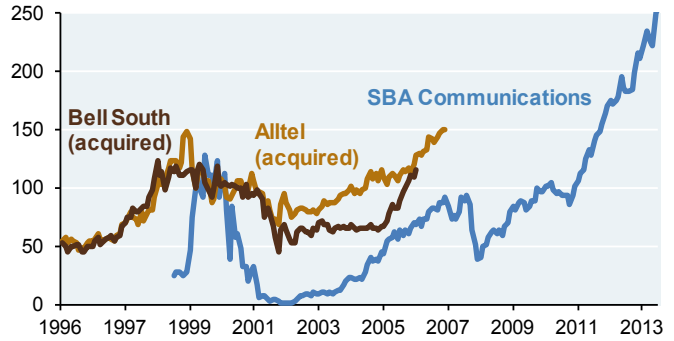
**Third largest wireless and wireline company barely survived telecom boom-bust and a failed 2004 \$36 billion merger with Nextel**



Source: Bloomberg. July 2013.

**Examples of recovering telecom stocks**

Index = 100 at February 2000



Source: Bloomberg. July 2014.

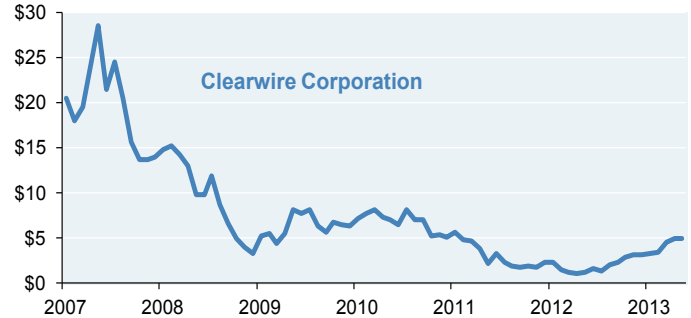
**There were also telecom declines that took place after the telecom boom-bust that are worth reviewing.** Like biotech and internet stocks, while the period of *peak* business failure was 2000-2002, telecom companies are still subject to traditional business cycle and management risks.

**Differentiated product (unlimited minutes for low-end customers) attracts competition from proxies funded by large wireless companies using superior 4G technology**



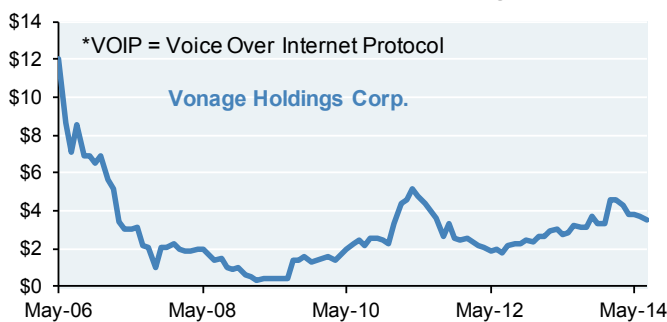
Source: Bloomberg. March 2014.

**Not all wireless service created equal: higher frequency spectrum has shorter coverage areas and weaker penetration strength; eventually surpassed by broadband**



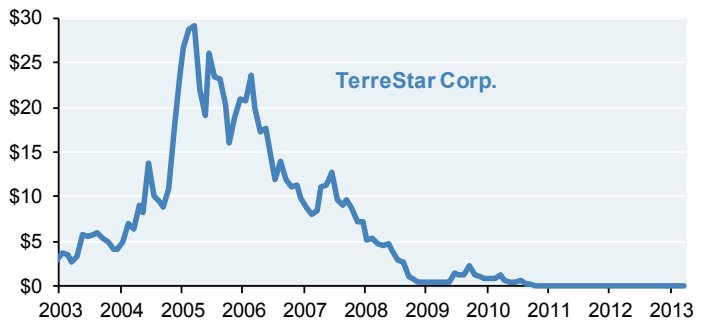
Source: Bloomberg. July 2013.

**VOIP\*: revolutionary idea gets old fast when Skype offers basic service for free, cable companies compete and wireless companies file patent infringement suits**



Source: Bloomberg. July 2014.

**Iridium failure ten years prior was the template for satellite phone technology that did not live up to expectations**



Source: Bloomberg. March 2013.

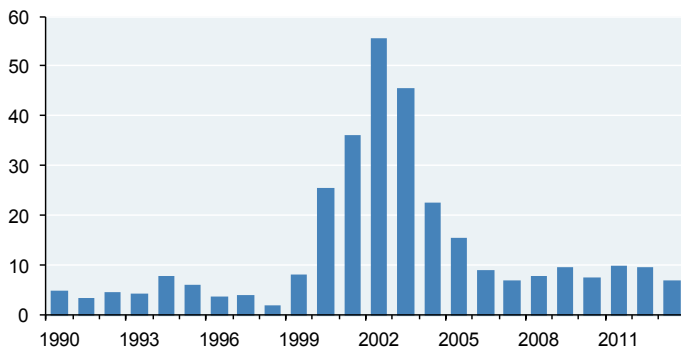
**Utilities (power generation, transmission and distribution)**

Utility catastrophic stock price declines are less frequent than in other sectors (there were no private sector utility defaults between the Great Depression and a New Hampshire utility failure in 1988). However, when they happen, they tend to be large. The largest was of course Enron, the catalyst for Sarbanes-Oxley and other regulations that followed. The distraction of Enron in a concentrated stock discussion is that accounting fraud is generally not the biggest risk for utilities. Instead, **there are parallels with telecommunications**: (a) deregulation led to a variety of unanticipated market outcomes and business failures, and (b) there was a poorly timed capacity glut financed with leverage. At times, mismatches between reimbursement mechanisms and changing commodity prices and electricity demand were the cause of severe declines (e.g., PG&E bankruptcy in 2001, when the state of California required the company to sell power at fixed prices regardless of its rising out-of-state electricity acquisition costs). The separation of generation from transmission in many states also took away a degree of income stability from formerly diversified utilities.

The first chart shows the increase in natural gas capacity at the end of the 1990's. Much of it was fueled by the view that coal plant de-commissioning would accelerate, either due to voluntary decisions by utilities that owned them, or due to EPA regulations. However, when natural gas prices rose from their lows in 2001, utilities did not de-commission coal plants that quickly. Furthermore, electricity price spikes in the year 2000 led many companies to make massive additions to future natural gas capacity, financed with debt; this was a mis-read of underlying supply/demand conditions, as electricity prices soon corrected, particularly in California. The glut of unused plants and a sharp decline in electricity prices in the summer of 2001 (due to increased capacity, mild weather and weaker demand) led to sharply declining utility stock prices. The subsequent rise in natural gas input costs from 2001 to 2006 eventually pushed some companies into bankruptcy (Calpine, NRG, Mirant, NEG) and heavily damaged others (Dynergy) when their contracts did not adjust sufficiently for rising gas input prices.

**Natural gas powered capacity additions**

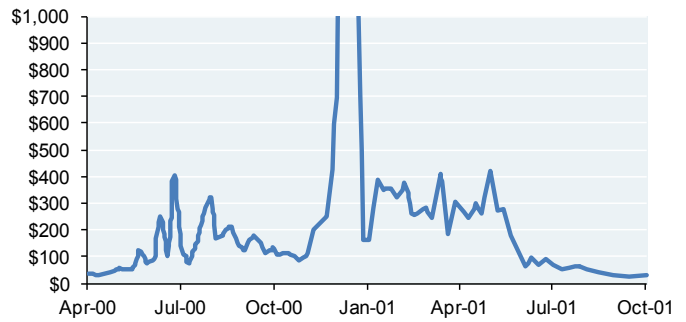
Gigawatts of electricity generating capacity additions



Source: Energy Information Administration. 2013.

**Spike in California wholesale spot electricity prices was not a reflection of a permanent supply shortage**

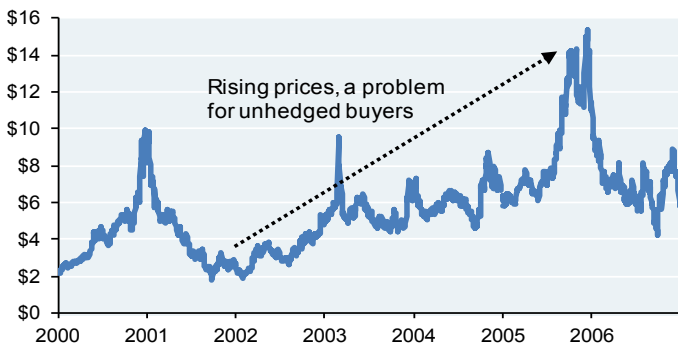
Dollars per MWh



Source: Western Price Survey, Energy NewsData Corporation. October 2001.

**US natural gas prices**

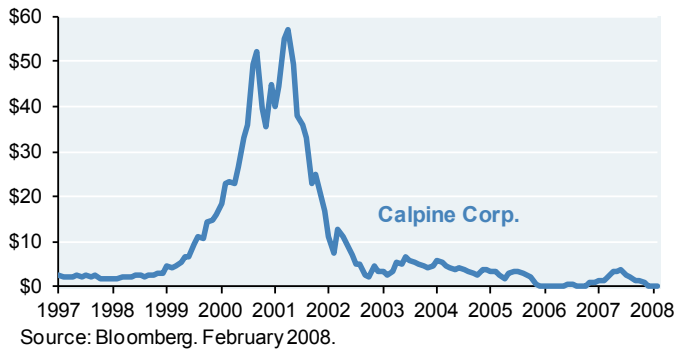
Dollars per MMBtu, generic front month US natural gas price



Source: Bloomberg. December 2006.

In the charts below, Calpine and Reliant are proxies for utility distress that took place as a result of the 1999-2003 capacity expansion in natural gas plants. There were other reasons for utility distress outside this period, such as under-appreciation of emerging market risks (AES). In the case of Exelon, changing energy policies and commodity supply created a formidable headwind: its nuclear-heavy generation portfolio is in less demand since the natural gas boom and renewable energy production tax credits make other forms of generation cheaper. In addition, renewable portfolio standards drive grid operators towards more wind/solar. As for Constellation Energy, we might have included it in the Financials section given its January 2007 launch of an energy trading business that created huge problems: the company had to arrange a fire sale when a pending downgrade could have required a collateral posting of \$4 billion. This was not the first time that utilities suffered from outsized energy trading operations: problems earlier in the decade at Dynegy, Williams, Aquila and El Paso were similar.

**Over-reliance on leverage (85%) despite a transition from fixed price contracts to merchant pricing; at one point, 115% of capacity under construction**



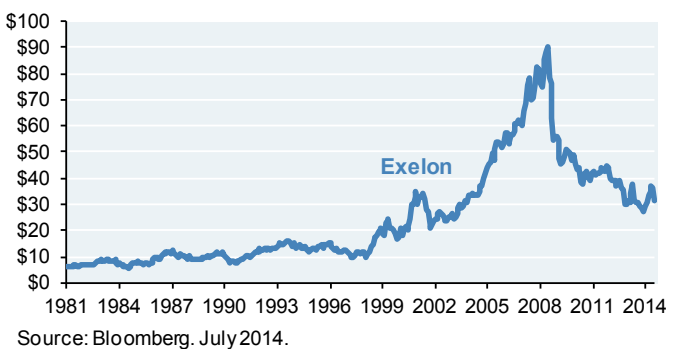
**First leg: rising fuel input costs combined with \$5bn debt increase from 2002 to 2003; Second leg: asset sales not completed fast enough before recession/liquidity crisis**



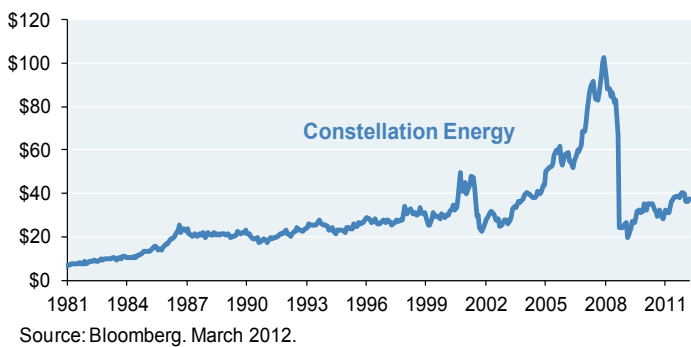
**Massive overseas expansion (esp. Latin America) backfires after 65%-75% currency declines, adverse regulatory rulings in Brazil and falling global demand**



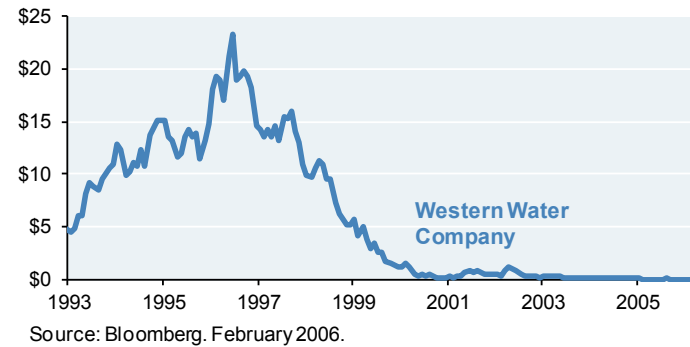
**Exelon portfolio: 55% nuclear at a time of rising nuclear maintenance costs, and falling prices of natural gas and wind-powered electricity**



**Consequence of energy trading becoming a primary strategic focus, rather than the generation of wholesale power**



**Wholesale ownership and distribution of water was an immature market, limited ability to recapture capital spending outlays**





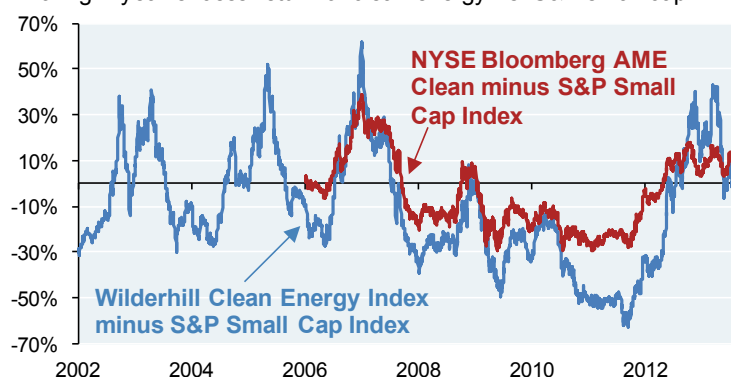
While it's clear the world is on a path toward renewable energy, which business models work and which ones don't is far from certain.

## Subsector focus on alternative energy stocks

In our 2014 annual energy paper, we write about the practical certainty of the world's eventual transition to renewable energy. This transition will be the fourth of the last few hundred years, with the first three being coal (early 1800's), oil (early 1900's) and natural gas (mid 1900's). However, the journey to a renewable energy world will be long, and subject to fits and starts regarding what works and what doesn't. The next chart is one way of visualizing the risks and opportunities for concentrated holders. It shows how the returns on two diversified clean energy indexes have usually underperformed the S&P Small Cap Index. The peaks and valleys are huge, with more valleys than peaks; new ideas often generate tremendous excitement, but only a few work out in the long run.

### Renewable energy stocks fall in and out of favor

Rolling 1-year excess return of clean energy vs. S&P small cap



Source: Bloomberg. July 31, 2014.

The table below shows a few more comparisons. Clean energy stocks have struggled versus both the broad market and versus the oil & gas stocks which make up the majority of energy-specific S&P sub-indices. The relative returns are similar when starting the analysis in 2002, 2005 or 2008, or when using different clean/alternative energy indices.

### The underperformance of alternative energy stocks

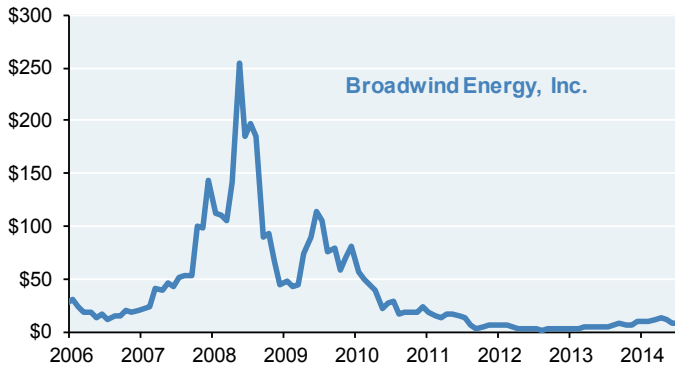
#### Annualized Total Returns

Index	Since 2002	Since 2005	Since 2008
<b>Clean Energy Indices:</b>			
Wilderhill Clean Energy Index	-3.04%	-10.08%	-4.11%
NYSE Bloomberg Americas Clean Energy Index	**	4.61%	11.82%
FTSE Environmental Opps. Renewable & Alternative Energy Index	**	**	1.90%
<b>Benchmark Indices:</b>			
S&P Small Cap	12.01%	8.60%	18.39%
S&P Small Cap Energy	20.01%	12.49%	25.04%
S&P Mid Cap	12.04%	9.03%	19.98%
S&P Mid Cap Energy	12.19%	5.59%	18.41%
S&P 500	9.21%	7.47%	17.06%
S&P Large Cap Energy	14.64%	9.87%	13.71%

Source: Bloomberg. July 31, 2014. \*\* represents indexes prior to their inception.

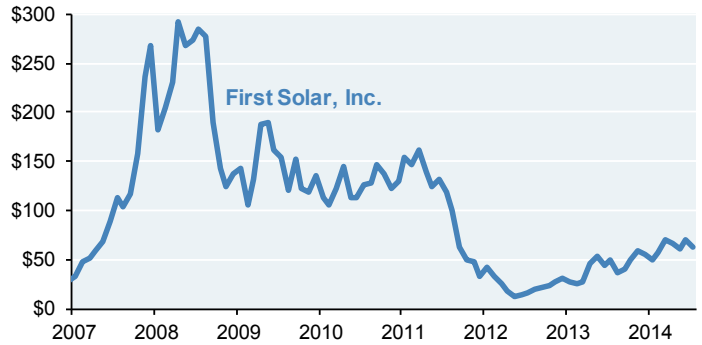
There may be no sector whose stocks have more true believers than alternative energy and related services/products. This category includes companies developing wind and solar equipment, fuel cells and biofuel processes. It also includes companies in search of superconductor materials, which would save the world enormous amounts of energy by reducing the 6%-10% of electricity that is lost on alternating current transmission lines and across other synapses. Unfortunately, while each of the ideas below may one day become integral and indispensable, there are issues related to pricing, subsidies, government regulations, overseas competition, raw materials costs, carbon emission taxes (or the lack thereof), capacity factors/efficiency and the practical limits of science that can get in the way. We chose some of the better known examples below; each was seen in its day as a "magic bullet", only to see dramatic reversals of fortune.

**Wind turbine manufacturing and services**



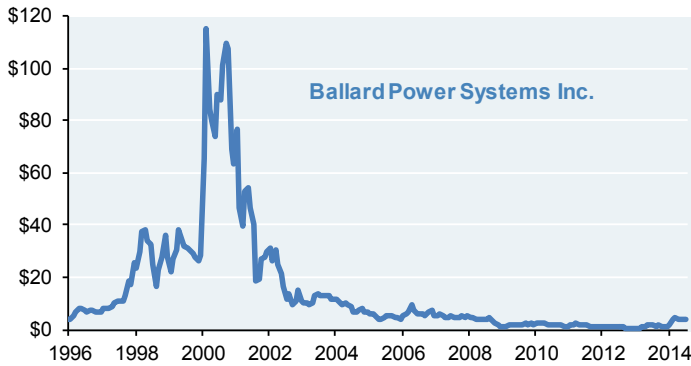
Source: Bloomberg. July 2014.

**Manufacturer of thin film photovoltaic solar panels, provider of PV power plants/services**



Source: Bloomberg. July 2014.

**Hydrogen fuel cells**



Source: Bloomberg. July 2014.

**Superconductors**



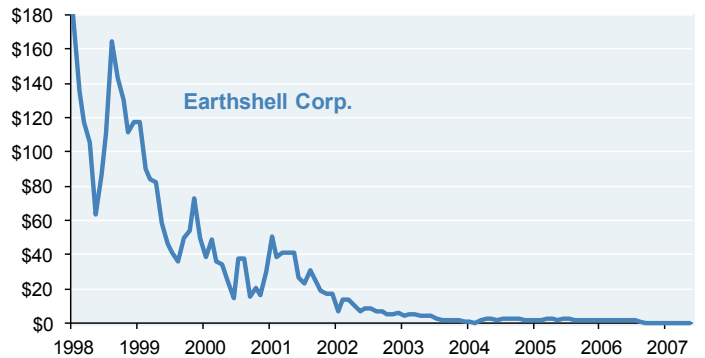
Source: Bloomberg. July 2014.

**Next generation renewable biofuels**



Source: Bloomberg. July 2014.

**Environmentally friendly fast-food containers**



Source: Bloomberg. August 2007.



### **A look at the winners (The Ecstasy)**

We include an exhibit on the following page that shows the historical extreme winners. As explained earlier, we defined these winners as having generated more than a two standard deviation return over the Russell 3000 Index since their inception. There are several hundred of them in our database, which is too many to list here. Instead, we show a subset: stocks that generated the highest excess lifetime returns over the Russell 3000 Index, which are currently active (i.e., excluding inactive stocks that generated outsized returns before being acquired, merged etc.), and which have a current market capitalization over \$5 billion.

This is a very heterogeneous list of companies. Some have been quite volatile; many technology companies suffered substantial declines during the tech bust, and have been on a tear since then (eBay, Qualcomm, Amazon). Some took decades to generate substantial wealth, while others accomplished it in a few short years. Some have not generated substantial returns to holders in many years, and instead experienced rapid appreciation during the 1990's. **Despite their differences, over the long haul, all of them generated substantial excess returns relative to their initial reported public stock price (excluding any pre-IPO wealth creation).** Consumer Discretionary and Technology show a large number of success stories; these are the survivors, since both sectors also generated the largest number of catastrophic declines.

We prepared this list at the time this document was drafted, in the summer of 2014. If history is any guide, the drumbeat of business distress outlined on pages 3-5 will eventually ensnare some of them.

**Historical Winners list (see prior page for details); sector designations as per FactSet****Consumer Discretionary**

Amazon.com, Inc.  
 AutoZone, Inc.  
 Bed Bath & Beyond Inc.  
 Best Buy Co., Inc.  
 Comcast Corporation  
 Dillard Inc.  
 Dish Network Corp.  
 Dollar Tree Inc.  
 Family Dollar Stores, Inc.  
 Fossil Inc.  
 Gap, Inc.  
 Harley-Davidson, Inc.  
 Hasbro, Inc.  
 Home Depot, Inc.  
 L Brands Inc.  
 Lowe's Companies, Inc.  
 McDonald's Corporation  
 Netflix, Inc.  
 NIKE, Inc.  
 Nordstrom, Inc.  
 O'Reilly Automotive, Inc.  
 Polaris Industries Inc.  
 PVH Corp.  
 Ross Stores, Inc.  
 Starbucks Corporation  
 Target Corp.  
 Tiffany & Co.  
 Time Warner Inc.  
 TJX Companies, Inc.  
 Toll Brothers, Inc.  
 Tractor Supply Company  
 V.F. Corporation  
 Walt Disney Company  
 Williams-Sonoma, Inc.  
 Wynn Resorts, Limited

**Consumer Staples**

Brown-Forman Corporation  
 Church & Dwight Co., Inc.  
 Clorox Company  
 Colgate-Palmolive Company  
 Constellation Brands  
 Hershey Company  
 Hormel Foods Corporation  
 J. M. Smucker Company  
 Keurig Green Mountain Inc.  
 Monster Beverage Corp.  
 Sysco Corporation  
 Tyson Foods, Inc.  
 Walgreen Co.  
 Wal-Mart Stores, Inc.  
 Whole Foods Market, Inc.

**Energy**

Cheniere Energy, Inc.  
 Core Laboratories NV  
 Energen Corporation  
 EOG Resources  
 EQT Corp.  
 HollyFrontier Corp.  
 Patterson-UTI Energy, Inc.

**Financials**

AFLAC Inc.  
 Berkshire Hathaway Inc.  
 BlackRock, Inc.  
 Charles Schwab Corporation  
 Franklin Resources, Inc.  
 Leucadia National Corporation  
 M&T Bank Corp.  
 Markel Corporation  
 Northern Trust Corporation  
 Progressive Corporation  
 Raymond James Financial, Inc.  
 SEI Investments Company  
 State Street Boston Corporation  
 SVB Financial Group  
 T. Rowe Price Group Inc.  
 TD Ameritrade Holding Corp.  
 Torchmark Corporation  
 W. R. Berkley Corporation

**Health Care**

Actavis PLC  
 Alexion Pharmaceuticals, Inc.  
 Amgen Inc.  
 Biogen IDEC Inc.  
 C. R. Bard, Inc.  
 Cardinal Distribution, Inc.  
 Catamaran Corporation  
 Celgene Corporation  
 Cerner Corporation  
 DENTSPLY International Inc.  
 Express Scripts Holding Company  
 Forest Laboratories, Inc.  
 Gilead Sciences, Inc.  
 IDEXX Laboratories, Inc.  
 Incyte Corporation  
 Intuitive Surgical, Inc.  
 Medivation, Inc.  
 Medtronic, Inc.  
 Mylan Inc.  
 ResMed Inc.  
 Salix Pharmaceuticals, Ltd.  
 St. Jude Medical, Inc.  
 Stryker Corporation  
 United HealthCare Corporation  
 Universal Health Services, Inc.  
 Waters Corporation

**Industrials**

Cintas Corporation  
 Danaher Corporation  
 Donaldson Company, Inc.  
 Equifax Inc.  
 Expeditors International of Washington  
 Fastenal Company  
 Genesee & Wyoming, Inc.  
 Illinois Tool Works Inc.  
 Jacobs Engineering Group Inc.  
 Precision Castparts Corp.  
 Roper Industries, Inc.  
 Southwest Airlines Co.  
 Stericycle, Inc.

**Information Technology**

Adobe Systems Incorporated  
 Alliance Data Systems Corporation  
 Altera Corporation  
 Amphenol Corporation  
 Analog Devices, Inc.  
 ANSYS, Inc.  
 Apple Inc.  
 Applied Materials, Inc.  
 Autodesk, Inc.  
 Automatic Data Processing, Inc.  
 CA Inc.  
 Cisco Systems, Inc.  
 Cognizant Technology Solutions Corp.  
 Cree Inc.  
 eBay Inc.  
 Electronic Arts Inc.  
 EMC Corporation  
 FactSet Research Systems Inc.  
 Fiserv Inc.  
 Intel Corporation  
 Intuit Inc.  
 Linear Technology Corporation  
 MasterCard Incorporated  
 Maxim Integrated Products, Inc.  
 Microchip Technology Inc.  
 MICROS Systems, Inc.  
 Microsoft Corporation  
 Oracle Corporation  
 Paychex, Inc.  
 QUALCOMM Incorporated  
 salesforce.com inc.  
 Total System Services, Inc.  
 Xilinx, Inc.  
 Yahoo! Inc.

**Materials**

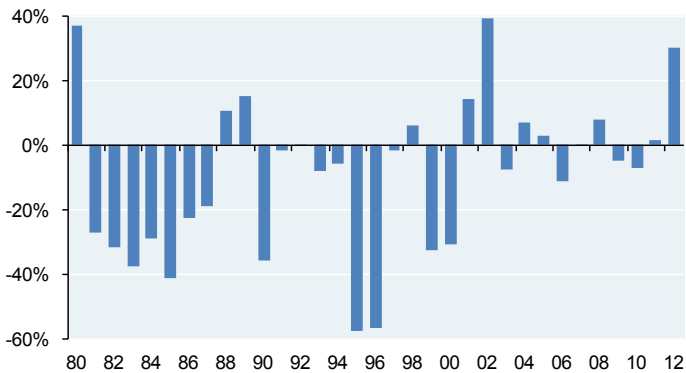
Airgas, Inc.  
 Ball Corporation  
 CF Industries Holdings, Inc.  
 Ecolab Inc.  
 FMC Corporation  
 Sherwin-Williams Company  
 Sigma-Aldrich Corporation  
 Valspar Corporation

## The performance of IPOs vs. the broad market

While results obviously vary by stock, there are some observations one can make regarding the aggregate performance of IPOs after they are issued. Using over 7,000 IPOs since 1980, one can evaluate post-IPO performance (i.e., after the first day's close) for 3 years and compare it to the broad market, and also to a group of stocks with similar market cap and book-to-market ratios. The charts below show the results based on the year of the IPO. There are obviously large differences between individual stocks, but overall, **the results do not point to consistently outsized post-IPO performance when compared to diversified equity market alternatives.**

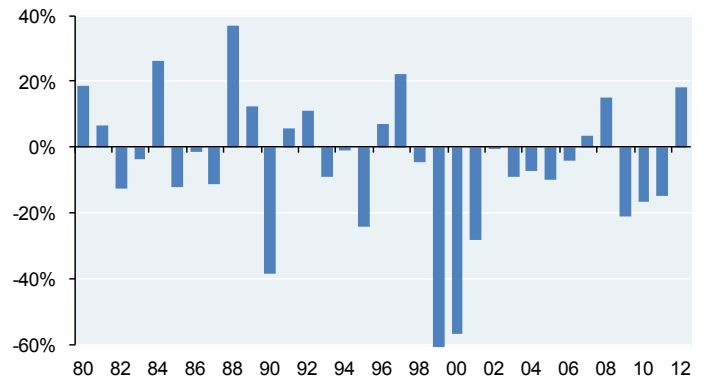
### Post-IPO returns vs. the market

Average 3-year buy and hold IPO return vs. the market



### Post-IPO returns vs. similar style firms

Average 3-year buy and hold IPO return vs. the similar style firms



Source: "Initial Public Offerings: Updated Statistics on Long-run Performance". Ritter (Univ. of Florida). April 2014.

Note: Returns for stocks within 3 years of IPO are through 12/31/2013. Ritter defines the broad market using an index from the Chicago Booth School (Center for Research in Security Prices) which incorporates all stocks on the Amex, Nasdaq and NYSE exchanges.

A closer look at the results shows that small firm IPOs tend to perform worse than larger ones, with the cutoff for "small" being \$50 million in sales (in 2011 dollars). This is particularly true in technology and biotech IPOs.

### **On being an insider, and other issues related to concentrated ownership**

Concentrated holders have some important decisions to make: the situs where the stock is held, and the entity in which the stock is held (for example, a grantor or non-grantor trust). There are also choices between lifetime gifting and a step-up in basis at death that impact family wealth differently. Non-insider holders seeking to reduce exposure may want to explore options-based strategies as alternatives to outright selling. When the latter course is chosen, there are a range of decisions that holders should be familiar with (exchange funds, issues related to charitable giving to family foundations, and how to structure a selling program in terms of volume, order type and primary/secondary offerings).

There are often restrictions on insiders selling their positions; however, there are means by which insiders can reduce exposure over time. For example, rule 10b5-1 allows for carefully planned trading programs that may protect the insider from a claim of having made an investment decision while in possession of material inside information. Such a program, once established, allows trades to be made at any time, thereby freeing insiders from the prohibitions on trading during "closed window periods" that normally apply. When executed properly, they have the potential to mitigate signaling issues generally associated with sales by insiders.

## What about taxes?

It usually does not make sense to let the tax tail wag the dog; in other words, good and bad investment ideas rarely distinguish themselves based on taxes. In the case of concentrated stock positions, this is usually (but not always true): taxes need to be considered given the treatment of low-basis stock upon death (it receives a step-up in basis). As a result, older owners of concentrated stock interested in reducing exposure have to take into account the potential tax freight involved with diversification. There are a lot of scenarios one can assume; based on our findings, in most of them, taxes do not have a large impact on the outcome.

Let's assume the following. A concentrated holder wants to reduce exposure, has a basis that is 20% of the current stock price, and has no unrealized losses available to mitigate the gain. Including taxes related to the Affordable Care Act (Medicare surtax), the total Federal long-term capital gains rate would be 23.8%. The owner wants to maintain exposure to equity markets, just not in concentrated form, and intends to invest the sales proceeds in the Russell 3000 Index. To maximize the amount in the diversified portfolio, the owner sells the stock, invests in the Russell 3000 and borrows the proceeds to pay taxes due at an interest rate of 4%. The loan is repaid at the end of the holding period.

The grid below shows two variables that affect the outcome: how the stock performs relative to the Russell 3000 Index after the sale, and the time horizon, which reflects how long the owner would have held the stock otherwise (until a step-up in basis at death). As shown, the primary driver is how well the stock performs vs. the market. If the stock outperforms, then with 20-20 hindsight, selling is negative. On the other hand, if the stock underperforms the market after the sale, there would almost always be a benefit to selling. **Only in a small number of cases (shown in red) would the impact of taxation on its own negate the benefits of selling**, if in fact the stock underperforms the market. As a result, for most concentrated holders (excluding those at a very advanced age), we do not believe that the tax issue should drive the diversification discussion.

### Annualized gain (loss) from disposition of concentrated stock and purchase of Russell 3000 Index

		Holding period until step-up in basis (years)							
		3	6	9	12	15	18	21	24
Excess annual return of Russell 3000 Index over concentrated stock position	-15.0%	-21.5%	-17.9%	-16.7%	-16.2%	-15.8%	-15.6%	-15.5%	-15.4%
	-12.5%	-19.0%	-15.4%	-14.2%	-13.7%	-13.3%	-13.1%	-13.0%	-12.9%
	-10.0%	-16.5%	-12.9%	-11.7%	-11.2%	-10.8%	-10.6%	-10.5%	-10.4%
	-7.5%	-14.0%	-10.4%	-9.2%	-8.7%	-8.3%	-8.1%	-8.0%	-7.9%
	-5.0%	-11.5%	-7.9%	-6.7%	-6.2%	-5.8%	-5.6%	-5.5%	-5.4%
	-2.5%	-9.0%	-5.4%	-4.2%	-3.7%	-3.3%	-3.1%	-3.0%	-2.9%
	0.0%	-6.5%	-2.9%	-1.7%	-1.2%	-0.8%	-0.6%	-0.5%	-0.4%
	2.5%	-4.0%	-0.4%	0.8%	1.3%	1.7%	1.9%	2.0%	2.1%
	5.0%	-1.5%	2.1%	3.3%	3.8%	4.2%	4.4%	4.5%	4.6%
	7.5%	1.0%	4.6%	5.8%	6.3%	6.7%	6.9%	7.0%	7.1%
	10.0%	3.5%	7.1%	8.3%	8.8%	9.2%	9.4%	9.5%	9.6%
	12.5%	6.0%	9.6%	10.8%	11.3%	11.7%	11.9%	12.0%	12.1%
	15.0%	8.5%	12.1%	13.3%	13.8%	14.2%	14.4%	14.5%	14.6%

Note: assuming an annualized return on the Russell 3000 Index of 8%

The number of shaded red cells in the table above would not change much if we were to assume a lower annual return on the Russell 3000 Index; the inclusion of state capital gains taxes; or the absence of a loan (i.e., paying the tax on capital gains when due). Finally, there are strategies which involve diversification via charitable giving, derivatives and other security arrangements which do not entail the current recognition of taxable gains.

### **Some final thoughts on managing concentrated stock positions**

Great fortunes have been created by visionaries who seized a unique opportunity and work single-mindedly to realize their ambition. Concentration is an effective engine of wealth creation: it helped drive the success of all 10 of the top 10 on the Forbes magazine list of world billionaires in 2014. In the US, the top 10 of the “Forbes 400” also made their fortunes through concentration.

As difficult as it is to build a company and amass wealth, it is just as difficult to keep fortunes aloft. Our analysis (and others before it) demonstrates the hard reality that, all too often, continued concentration may ultimately destroy wealth. Since the early 1980’s, 40% of all companies experienced a severe loss and never recovered, with higher loss rates in Technology, Biotech and Consumer Discretionary. As this study lays out, no matter how well you know your industry and your company, no one is impervious to event risk and industry changes. **The factors outside management control shown on page 11 are a formidable list, and have grown in complexity since we first drafted this report 10 years ago.** This is perhaps the most important epiphany we gained from the study: that exogenous forces may overwhelm the things we can control.

Despite this, often the natural impulse is to leave well enough alone. After all, if concentration’s rewards have been so enormous, why not stay concentrated? Some may be concerned that “diversification” translates directly into “selling the business.” It does not. While you could sell all or part of your business, you might also consider taking some capital out of your business or use leverage to create a complementary portfolio. In doing so, a concentrated owner can take out some insurance against the unknown.

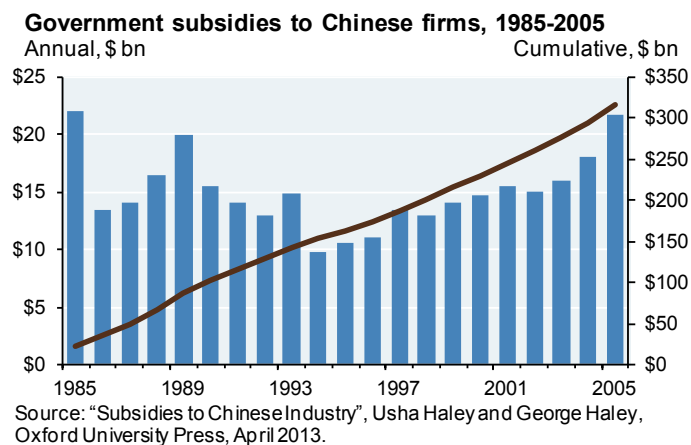
The process of addressing concentration starts with some personal choices about risk and the fate of future generations. While no plan is ever perfect, taking no action may be worse. The first step in the journey is to look at the overarching question of what you want to achieve in the long run, now that the wealth has been created. If you want your fortune to be enjoyed by your family for generations, you will need to create a plan that encourages guided consumption, as well as wealth preservation. A charitable legacy requires substantial planning as well.

While each business and owner is unique, certain patterns and truths are universal. During the 170 years J.P. Morgan has been advising wealthy families around the world, we have had the privilege of assisting business owners in every phase of their operations and through all market conditions. At whatever stage you may be in the shift from wealth generation to wealth preservation, and whatever your hopes for your business, fortune and family, it would be our privilege to share the benefit of our experience with you.

## Appendix I: Chinese government subsidies

Government subsidies are often an under-appreciated contributor to the challenges that businesses face. Sometimes, an industry leader in the OECD ends up facing stiff competition from government-supported firms in other countries. **Here's a look at the impact of Chinese subsidies<sup>6</sup>:**

- At most Chinese solar, steel, glass, paper and auto parts companies, labor costs only make up 2% to 7% of total production costs. Nevertheless, intense competition from China often comes from small Chinese firms in these sectors with limited economies of scale, and whose products sell in international markets at 25% to 30% discounts to world prices.
- How can this be explained? In all likelihood, by subsidies received from the Chinese government. Subsidies take the form of free or low-cost loans; artificially cheap raw materials, components, energy or land; support for R&D; and a heavily managed (i.e., cheap) exchange rate. Land grants for office or factory construction are particularly valuable, since companies can develop excess parcels and use the proceeds to pay for R&D. The bar chart shows estimates of these subsidies through 2005 from the China Statistical Yearbook; the series was discontinued in 2006.
- Another data provider estimates Chinese government subsidies to public companies, and according to their findings, these subsidies are still growing rapidly. As per a June 2013 article in The Wall Street Journal citing this source, Chinese government subsidies grew 23% y/y in 2012 (following on 24% y/y growth in 2011), benefiting 90% of all listed Chinese companies.
- Example: in 2000, China was a net importer of steel. By 2007, China became the world's largest steel producer, consumer, and exporter. Energy subsidies to Chinese steel manufacturers were \$27 billion from 2000-2007. Even though its fragmented steel industry has limited economies of scale and not much of a technological edge, Chinese steel sells for 25% less than US and European steel.
- A similar outcome is seen in the Chinese paper industry, which received \$33 billion in subsidies from 2002 to 2009. As solar PV, the 5 largest Chinese companies received the equivalent of \$31 billion in low-interest loans from the state-owned China Development Bank, and other subsidies from national and provincial governments. These amounts dwarf the amounts provided by the US government to its solar companies.



China is not the only country that provides subsidies to domestic industry; the US does as well (particularly to its auto industry), and the entire OECD engages in substantial subsidies for agricultural firms<sup>7</sup>. But in our view, **the China case has no equal in terms of scope, breadth and impact.**

Another aspect of the China competitive story: **copyright and IP infringement.** According to a 2011 report from the United States International Trade Commission, US IP-intensive firms conducting business in China in 2009 reported losses of \$48.2 billion in lost global sales, royalties and license fees due to intellectual property right infringement in China.

<sup>6</sup> From "How Chinese Subsidies Changed the World", Usha Haley (West Virginia University) and George T. Haley, Harvard Business Review, April 2013.

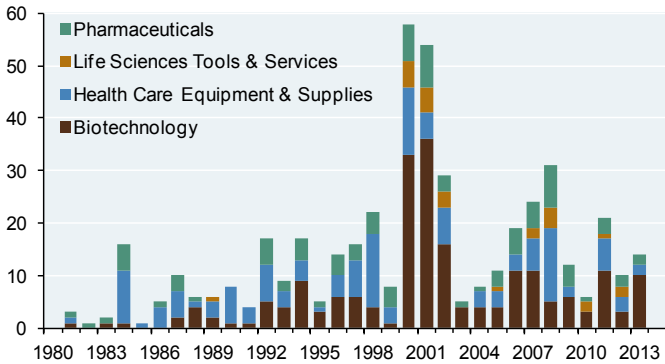
<sup>7</sup> According to an article in The Economist in September 2012, countries like Norway, Switzerland, Japan and South Korea provide subsidies to their agricultural sectors equal to 45% - 60% of gross farm receipts. The EU registers at 20% and the US at 8%.

**Appendix II: Biotech and Life Sciences**

As mentioned in the Health Care section on page 23, while 2000-2001 was the peak distress period for biotech and life science companies, there has been a steady drumbeat since, with over 100 biotech and life science catastrophic loss events since 2002 (see bar chart). We referenced earlier research showing that even when a drug finally gets to Phase 3 trials, the probability of failure can still be as high as 50%. One possible emerging challenge for the biotech industry: patent trolls. For funding and other reasons, some universities are under pressure to monetize their patents by transferring rights to “assertion entities”. As per a 2014 paper from the University of California Hastings College of Law, as these patent sales take place, the risk to biotech and pharmaceutical companies with existing products on the market increases dramatically. Such patents can cover active ingredients of drugs, methods of treatment, screening methods to identify new drugs, manufacturing methods and dosage forms.

In the table, we show some of the more recent catastrophic losses (companies reaching the 70% decline threshold in 2012 or 2013). Biotech companies can experience periods of depressed stock prices as trials fail or have to be rerun, with some surging when/if success eventually occurs, or when they are bought by larger companies. As a result, the table below captures catastrophic loss at a point in time (Spring 2014), and does not represent a final assessment of each firm’s future prospects.

**Health Care companies that reached the 70% loss threshold in a given year, 1980-2014, Number of stocks**



Source: JPMAM, FactSet. February 2014.

**A Partial List of Russell 3000 Index Biotech and Life Science Companies reaching catastrophic loss thresholds in 2012 and 2013**

Company	Product / Treatment	Disease / Condition
Affymax	Omontys	Chronic kidney disease
Anthera	Varesplaib, Blisibimod	Heart disease, Lupus
AVEO	Tivozanib	Kidney cancer
BG Medicine	Galectin-3 Test	Heart failure
Coronado	TSO	Crohn's disease
Cytori	Athena	Coronary heart disease
Dynavax	Hepelisav	Hepatitis B
Infinity	IPI-145	Blood cancer
Myrexix	Azixa	Brain cancer

Source: FactSet, J.P. Morgan Asset Management.

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**Acronyms**

BEA: Bureau of Economic Analysis  
CLEC: Competitive local exchange carrier  
CLTV: Combined Loan to Value  
CRSP: Center for Research in Security Prices  
DTI: Debt-To-Income; E&P: Exploration and Production  
EIA: Energy Information Administration  
EPA: Environmental Protection Agency  
FCC: Federal Communications Commission  
FDA: Food and Drug Administration  
FDIC: Federal Deposit Insurance Corporation  
FHA: Federal Housing Administration  
GAO: Government Accountability Office  
GDP: Gross Domestic Product  
GICS: Global Industry Classification Standard  
GSE: Government-Sponsored Enterprise  
HUD: US Department of Housing and Urban Development  
IP: Intellectual Property  
IPO: Initial Public Offering  
JPMAM: J.P. Morgan Asset Management  
LCD: Liquid Crystal Display  
MMbtu: Million British Thermal Units  
MWh: Megawatt-hour  
OECD: Organisation for Economic Co-operation and Development  
OPEC: Organization of the Petroleum Exporting Countries  
PV: Photovoltaic  
R&D: Research and Development  
REIT: Real Estate Investment Trust  
S&P: Standard & Poor's  
SEC: Securities and Exchange Commission



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