# Twitter Thread by Corry Wang

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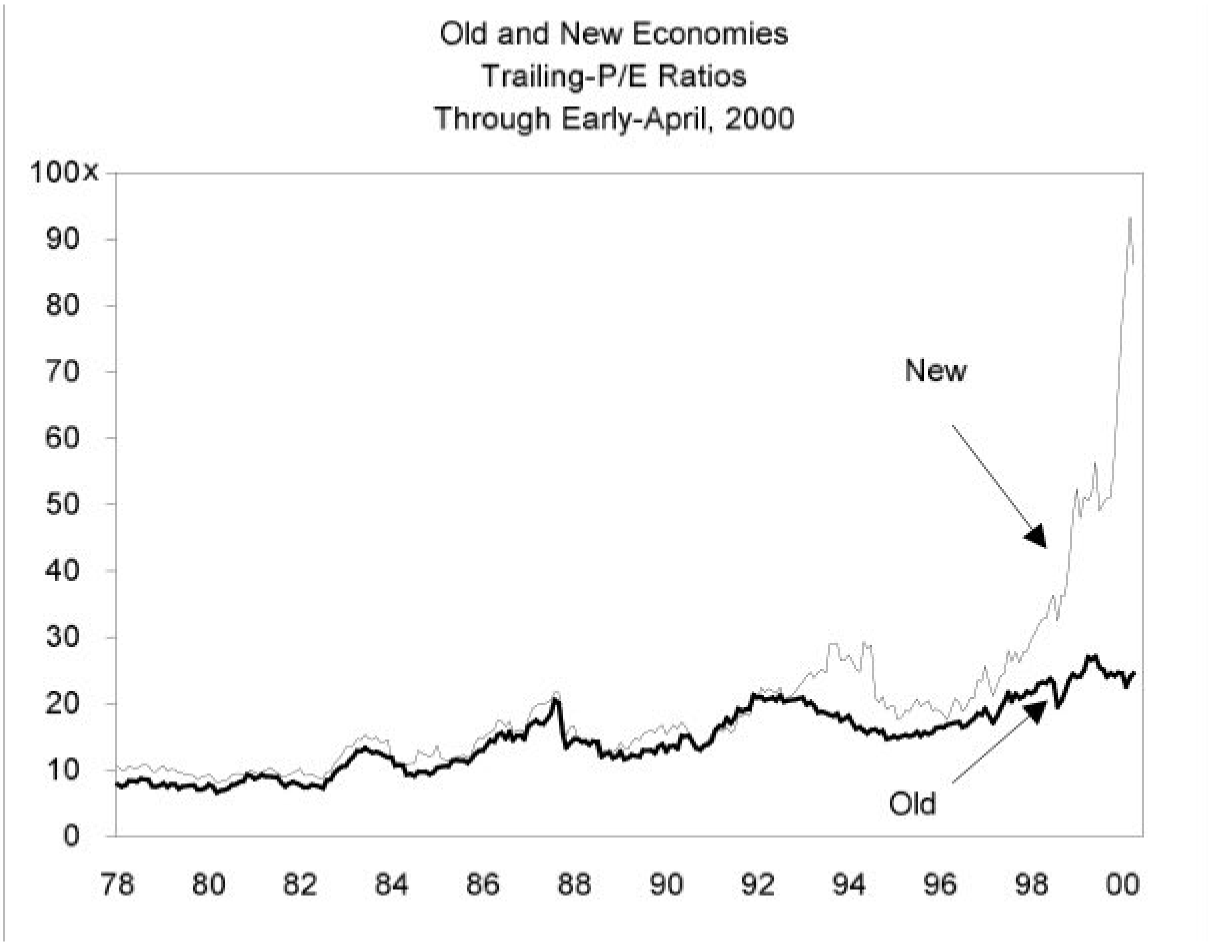
**1/ Lessons From The Tech Bubble:**

**Last year, I spent my winter holiday reading hundreds of pages of equity research from the 1999/2000 era, to try to understand what it was like investing during the bubble**

**A few people recently asked me for my takeaways. Here they are -**




2/ Every document hereon comes from my former employer Bernstein Research's internal research archive, which extend back to 1994

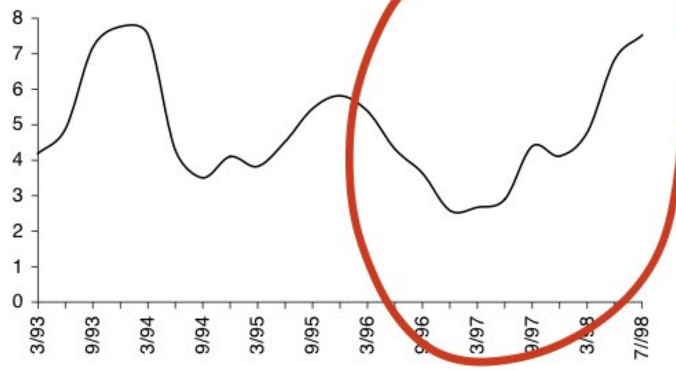
Unfortunately, they're not available to the public (even Bernstein's client website cuts off at 2003), but happy to give more details if necessary

3/ LESSON #1: Everybody knew it was a bubble

Unfortunately, the quip "it's not a bubble if everyone says it is" just isn't true

Investors were comparing the internet sector to tulip mania as early as mid-98. Bernstein held an entire conference on it in June 99!

**Exhibit 1 Internet Stocks: Price/Sales**




**Note:** Price/sales calculated relative to the S&P 500 price/sales.

Source: FactSet, corporate reports and Bernstein analysis.

**Internet's quest for control of distribution**

The recent runup in the stocks of Internet companies has created a wave of envy and disbelief. As a group, Internet stocks are up roughly 140% since the beginning of the year, and are currently trading at astronomical multiples of both sales and earnings. The expanding valuations (see Exhibit 1) are causing many to draw the inevitable comparisons with the 17th century tulip speculation and the more recent (early 1980s) biotech frenzy.

Despite the obvious similarities of being able to excite investors' imagination and draw substantial amounts of capital, there are critical differences

4/ LESSON #2: Calling bubbles is easy, making money is hard

In truth, the hard part about the tech bubble wasn't noticing it. The hard part was timing it

Our equity strategist tried in January 99... he was off by 14 months (and another 30 point gap in value vs growth)

# BERNSTEIN RESEARCH CALL

*Strategy*

FAX Problems Only: 212-756-4263

## Equity Portfolio Strategy Update: As of the End-of-January, 1999

M. Goldstein, B. Cho, A. Larson, W. Cheung, I. Krutov — February 9, 1999

- The performance of momentum anomalies continues to set records. Companies with strong price momentum led by 5% last month, which was the best performance in a January since the 1950s. Earnings revisions performance also set a record. The only precedent for the type of trend following behavior seen in recent months was the 1979 oil shock. The extreme nature of this behavior suggests it could reverse abruptly.

- Valued at 55x forward earnings, the technology sector now discounts the expectation of 15% secular earnings growth. In both the recent and distant past, the sector has actually produced top and bottom line growth of 10-13%. At present, investors believe we are at a major inflection point, and that future rates of growth will exceed historical norms by roughly 50%. Near-term estimates also envision very strong earnings gains, with over 60% of stocks expected to produce yr./yr. increases above 30%. In the past, expectations at that high level have led to disappointments and underperformance. Technology weights should be reduced.

5/ LESSON #3: Nobody knew the bubble popped until months after it did

Nobody noticed in March 2000 when it finally popped. Our equity strategist (who bet his career on it!) didn't catch on until June

# BERNSTEIN RESEARCH CALL

## *Strategy*

**FAX Problems Only: 212-756-4263**

## Equity Portfolio Strategy Update: As of End-March, 2000

M. Goldstein, B. Cho, A. Larson, W. Cheung, I. Krutov, L. Schrager

April 12, 2000

In retrospect, March 2000 was the peak... but nobody knew it at the time

- The new economy sells at 86x trailing earnings, or 3.5x the P/E of the old one. The new economy stocks discount an expectation of high-teens long-term earnings growth, while the old economy discounts about 4%. We examined these expectations by answering two questions: First, if the market is right in its forecasts, can the old economy spend enough to allow the new one to meet its sales growth targets? We concluded it couldn't and the forecasts for the new economy are too high and those for the old economy are probably too low. Second, we asked: What share of technology companies have ever grown over an extended period at the rate discounted by the entire new economy? We found over the past 25- and 50-year periods the odds of being a 20% grower for 10-15 years were about 1 in 14. The failure rates built into the new economy sectors are too low.

- We updated our work on capital spending as a leading indicator of stock performance. While this factor failed last year in the wake of the new economy phenomena, we are optimistic about its prospects. Machinery, farm equipment, chemicals and energy all have reduced their capital spending-to-deprecation ratios and have appealing valuations.

- Bell Atlantic Corp. was added to our diversified-value portfolio as of the end-of-March, while Bank One Corp., Cardinal Health Inc. and SBC Communications Inc. have rising weights. Harris Corp., Litton Industries Inc., and Unisys Corp. were deleted. Our diversified-value portfolio outperformed by 195 basis points in March and has outperformed by 80 basis points through early April. The sector-neutral version of this strategy outperformed by 241 basis points in the month and 191 basis points YTD. The Value Focus Portfolio, an equally-weighted list of undervalued stocks with improving fundamentals, produced a premium of 528 basis points in March and 257 basis points YTD. The Value Focus Portfolio has outperformed by 8.6% a year since its inception nine years ago. Certain value portfolios are beginning to outperform

6/ LESSON #4: "Tech" bubble was a misnomer... it was really a large cap growth bubble

See the valuation table below, 1 year before the top

Yes, Microsoft traded at 70x earnings. But Coca Cola was 43x. Pfizer was 92x. Every stock here was a disaster over the next 10 years...

Table 2
The Largest 20 Growth Stocks
Valuation Characteristics
As of the End-of-March, 1999

| Symbol | Company | Recent Price | Price/ Sales Ratio | Price/ Trailing Earnings Ratio | Net Profit Margins | Discounted 10-Year Growth Rate | Average Earnings Revision* |
|---|---|---|---|---|---|---|---|
| AOL | America Online Inc | $147.00 | 41.3 x | 537.9 x | 7.7 % | +29.3 % | +2.79 % |
| AIG | American Intl Group | 120.63 | 4.1 | 33.6 | 12.2 | 12.3 | 0.00 |
| BMY | Bristol Myers Squibb | 64.13 | 7.0 | 40.6 | 17.2 | 11.1 | 0.00 |
| CSCO | Cisco Systems Inc | 109.56 | 17.5 | 128.1 | 13.6 | 19.9 | 0.26 |
| C | Citigroup Inc | 63.88 | 1.9 | 24.7 | 7.6 | 4.3 | 0.96 |
| KO | Coca-Cola Co | 61.38 | 8.0 | 42.8 | 18.8 | 13.2 | (1.63) |
| DELL | Dell Computer Corp | 40.88 | 5.7 | 71.2 | 8.0 | 17.6 | 0.15 |
| GE | General Electric Co | 110.63 | 3.6 | 38.9 | 9.3 | 12.6 | 0.09 |
| INTC | Intel Corp | 118.88 | 7.5 | 32.5 | 23.1 | 9.1 | 1.53 |
| JNJ | Johnson & Johnson | 93.50 | 5.3 | 41.1 | 12.9 | 10.5 | 0.00 |
| LLY | Lilly (Eli) & Co | 84.88 | 10.1 | 44.4 | 22.7 | 15.2 | (0.16) |
| LU | Lucent Technologies Inc | 108.00 | 4.6 | 90.1 | 5.2 | 15.2 | 3.29 |
| WCOM | MCI Worldcom Inc | 88.56 | 9.2 | na | na | 17.3 | (0.18) |
| MRK | Merck & Co | 80.13 | 7.0 | 36.0 | 19.5 | 10.4 | (0.21) |
| MSFT | Microsoft Corp | 89.63 | 27.0 | 70.7 | 38.2 | 19.3 | 2.65 |
| PFE | Pfizer Inc | 138.75 | 13.3 | 92.3 | 14.4 | 15.1 | 0.00 |
| MO | Philip Morris Cos Inc | 35.19 | 1.5 | 15.9 | 9.3 | (3.2) | (0.56) |
| PG | Procter & Gamble Co | 97.94 | 3.5 | 32.8 | 10.5 | 11.9 | 0.05 |
| SGP | Schering-Plough | 55.25 | 10.1 | 46.3 | 21.7 | 15.4 | 0.00 |
| WMT | Wal-Mart Stores | 92.19 | 1.5 | 46.7 | 3.2 | 17.2 | 1.06 |
| | Average/Total | | 10.8 x | 68.0 x | 14.9 % | 14.4 % | 0.51 % |
| Memo: | | | | | | | |
| Remainder of S&P 500 | | | | 28.5 x | 6.0 % | 3.0 % | (1.12) % |

* % change in estimate smoothed over last three months.

7/ LESSON #5: Most large cap tech stocks in the bubble had real businesses with strong fundamentals

The internet stocks were a sideshow. In 2000, the software sector had a $1 trillion market cap, 20% net margins, 20% annual growth

The problem? It was trading at 16x sales

Table 5
The New Economy
Capitalization, Sales, Operating Earnings, Foreign Share, and Implied Growth Rates
($ Billion)

| | No. of Companies | Current Capital-ization | 1999 Sales | 1999 Operating Earnings | 1999 Net Margin | 1999 Share of Sales Foreign | Implied 10-15-Year Earnings Growth Rate |
|---|---|---|---|---|---|---|---|
| Software | 61 | $1,004 | $62.8 | $12.6 | 20 % | 32 % | +19 % |
| Semiconductors | 40 | 970 | 71.1 | 11.4 | 16 | 20 | 18 |
| Telecommunications Hardware | 44 | 775 | 117.8 | 6.2 | 5 | 44 | 18 |
| Computers | 11 | 761 | 241.5 | 16.1 | 7 | 48 | 14 |
| Networking | 20 | 619 | 26.0 | 4.1 | 16 | 38 | 28 |
| Storage | 19 | 214 | 30.5 | 3.0 | 10 | 38 | 19 |
| Semiconductor Capital Equipment | 28 | 194 | 26.1 | 2.2 | 8 | 46 | 15 |
| Services | 28 | 182 | 56.6 | 4.0 | 7 | 25 | 11 |
| Components | 21 | 107 | 25.2 | 1.0 | 4 | 24 | 16 |
| Distributors | 6 | 17 | 64.8 | 0.8 | 1 | 27 | 4 |
| Subtotal | 278 | $4,843 | $722.4 | $61.4 | 8 | 38 | 18 |
| Telecommunications Providers | 62 | $1,267 | $311.3 | $25.4 | 8 % | 10 % | 12 % |
| Cellular Telephones | 18 | 149 | 12.7 | (4.9) | (39) | 5 | 20 |
| Internet | 88 | 648 | 14.5 | (5.4) | (37) | 3 | 35 |
| Total | 446 | $6,906 | $1,060.9 | $76.5 | 7 | 29 | 17 |

8/ LESSON #6: Fundamentals follow price, not vice versa

The bubble popped in Q1 2000. Fundamentals didn't decelerate until Q4 2000.

It was reflexivity at work. Lower stock prices = less capex spend = less revenue growth = lower stock prices. A vicious cycle

**Exhibit 5 Actual and Consensus Revenue Growth by Region for Software, Computer, and Comm Equipment Vendors**

| | 1Q99 | 2Q99 | 3Q99 | 4Q99 | 1Q00 | 2Q00 | 3Q00 | 4Q00 | 1Q01A | 2Q01E* | 3Q01E* | 4Q01E* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| YoY US | 16% | 21% | 16% | 12% | 16% | 16% | 17% | 7% | -1% | -3% | -3% | 1% |
| YoY Europe | 13% | 10% | 6% | 4% | 6% | 7% | 9% | 6% | 1% | 1% | -1% | 3% |
| YoY ROW | 10% | 17% | 26% | 20% | 34% | 30% | 35% | 20% | 11% | 11% | 9% | 12% |
| Total YoY | 14% | 17% | 15% | 12% | 17% | 17% | 19% | 10% | 3% | 1% | 1% | 4% |
| **Net Impact of Currency on:** | | | | | | | | | | | | |
| International Sales | 6.0% | 3.4% | 7.0% | -0.3% | -1.8% | 0.8% | -5.1% | -9.0% | -13.2% | -9.3% | -5.6% | -6% |
| Total Sales | 2.9% | 1.6% | 3.3% | -0.1% | -0.8% | 0.4% | -2.4% | -4.6% | -6.5% | -4.6% | -2.8% | -3.0% |

Note: Total YoY Growth shown does not match the overall technology sector sales due to inclusion of fewer companies.

*Projections of total sales for 2Q-4Q01 are based on First Call Estimates, while regional breakdown is based on historical patterns; Currency rates implied by futures

Source: Company Reports and Bernstein Analysis

9/ What's the takeaway here?

Be humble.

For bears, it's easy to call a bubble. Anybody can do that. Timing is the hard part

For bulls, it's easy to point to the fundamentals. Historical investors weren't dumb. The hard part is matching fundamentals with price...