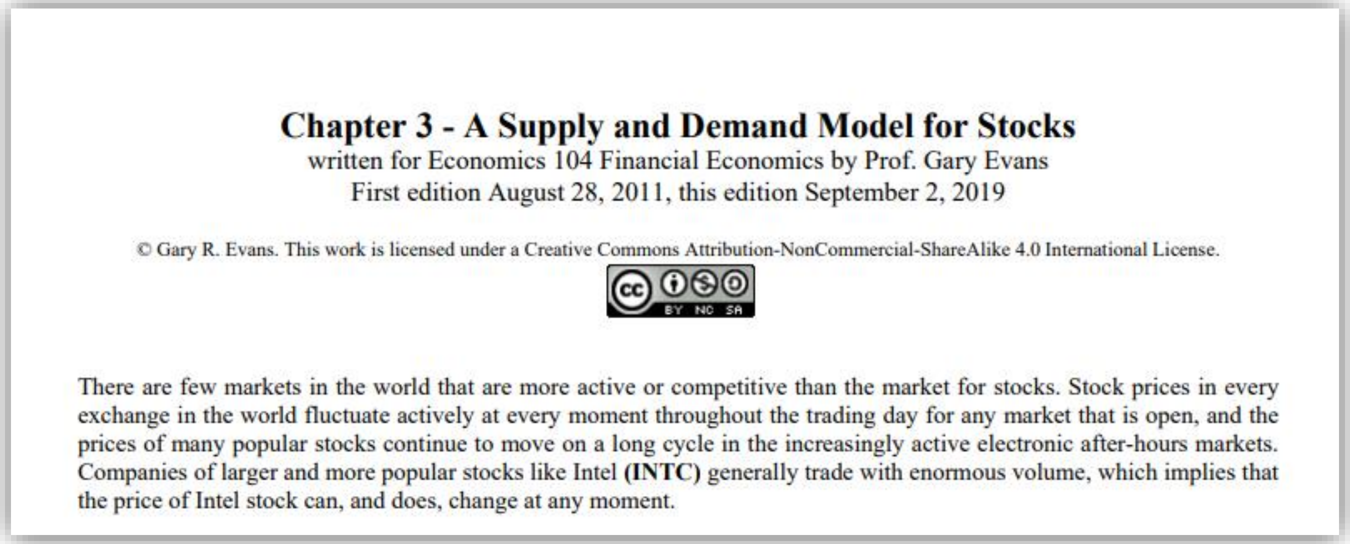
Stock Market Performance

Lessons from History
(that we seldom seem to remember)

About chapter 3 …



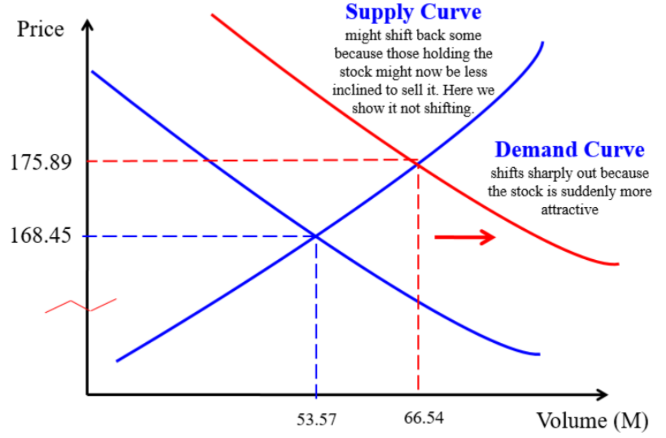
Chapter 3 - A Supply and Demand Model for Stocks

written for Economics 104 Financial Economics by Prof. Gary Evans

First edition August 28, 2011, this edition September 2, 2019

There are few markets in the world that are more active or competitive than the market for stocks. Stock prices in every exchange in the world fluctuate actively at every moment throughout the trading day for any market that is open, and the prices of many popular stocks continue to move on a long cycle in the increasingly active electronic after-hours markets. Companies of larger and more popular stocks like Intel **(INTC)** generally trade with enormous volume, which implies that the price of Intel stock can, and does, change at any moment.

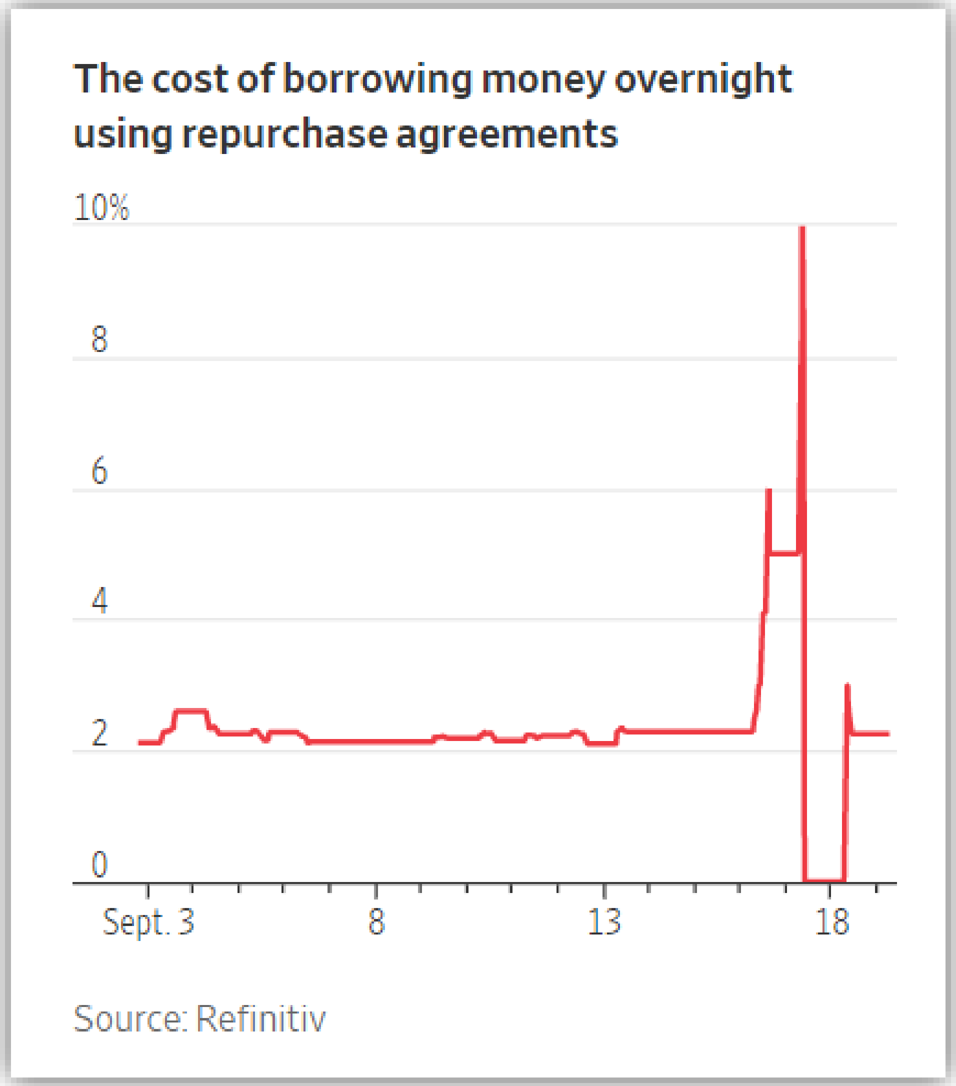
Figure 2 – (Actual) AAPL surprises the market with an unexpected increase in earnings, causing a demand curve shift (blue to red) and increasing the price of AAPL



… this material is not covered at all in the lectures. It is background material that may prove useful when we build these models.

Topical weirdness ...

DWBH!!



This is really not supposed to happen, but it did. Equally alarming is that no-one has explained it. It may be a very strange one-off, but if it repeats ...

... and this was not ended by the market, but by FRS intervention.

My Robinhood comments ... DWBH!

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Robinhood Built Satan's Playground in the Middle of Wall Street

Trading Strategies September 19, 2018 Michael Carr

Robinhood Gets Rich

All brokers report how much they make by selling orders. TD Ameritrade, for example makes $0.0016 per share, on average, from one HFT firm. Robinhood makes an average of $0.00026 per dollar of order flow from that same HFT firm.

For some reason, Robinhood uses a nonstandard way of reporting this metric. But we can see that Robinhood makes about $0.078 per share in a $300 stock like Tesla, or 48 times more money than the $0.0016 per share TD Ameritrade makes.

Robinhood makes more than other brokers on almost any stock.

	Average Cost per Share of Order Flow at Robinhood	Average Cost per Share of Order Flow at TD Ameritrade
AAPL at $220	$0.057	$0.0016
GE at $12.50	$0.0033	$0.0016
AMZN at $1,930	$0.50	$0.0016

Maybe the extra costs are why Robinhood is using a different reporting metric. But there must be a reason order flow from Robinhood is worth so much. The HFT firms must be making more money from the firm's customers than they do from other brokers.

[–] ProfEpsilon 1 point 6 hours ago

Trading firms that specialize in spread arbitrage are willing to pay for order-flow from Robin Hood because a high percentage of the orders are market orders rather than limit orders. If these HFT firms are effectively at Best Bid and/or Best Ask their in-house limit orders get cleared. This is basically a market-makers dream.

But that has no disadvantage to the small trader sending market orders to Robin Hood instead of, say, TDAmeritrade.

It is no real disadvantage to small traders to use market orders through Robin Hood except they might be able to get a better price had they used limit orders properly.

And if you use limit orders at Robin Hood, none of this is relevant - you don't care if the order is routed or where the order is routed.

Takeaway: Use limit orders when trading at Robin Hood.

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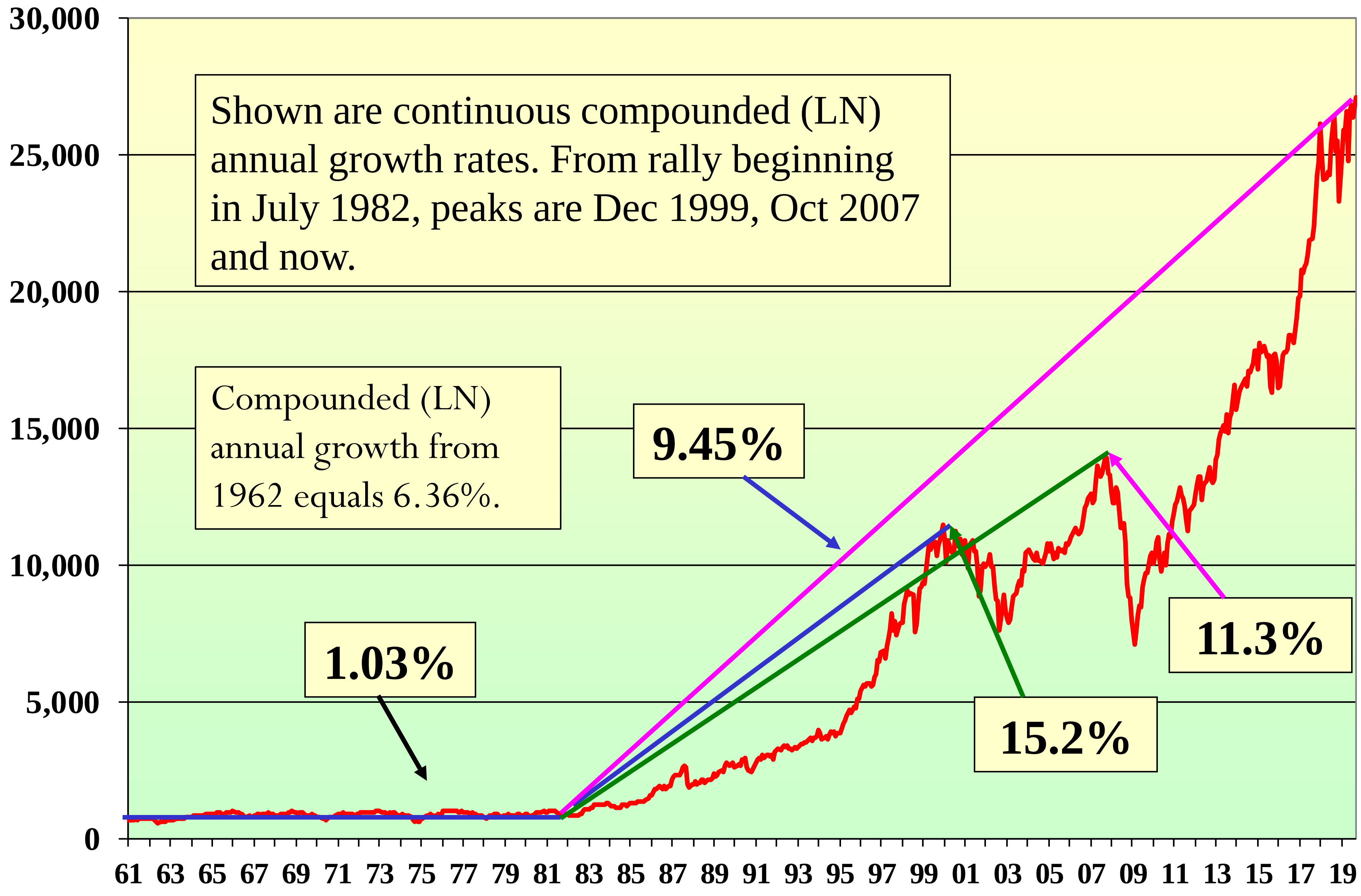
Dow Jones Industrial Average: 1962 - Now (monthly)



The S&P 500

Jan 4, 1999 to Sep 19, 2019

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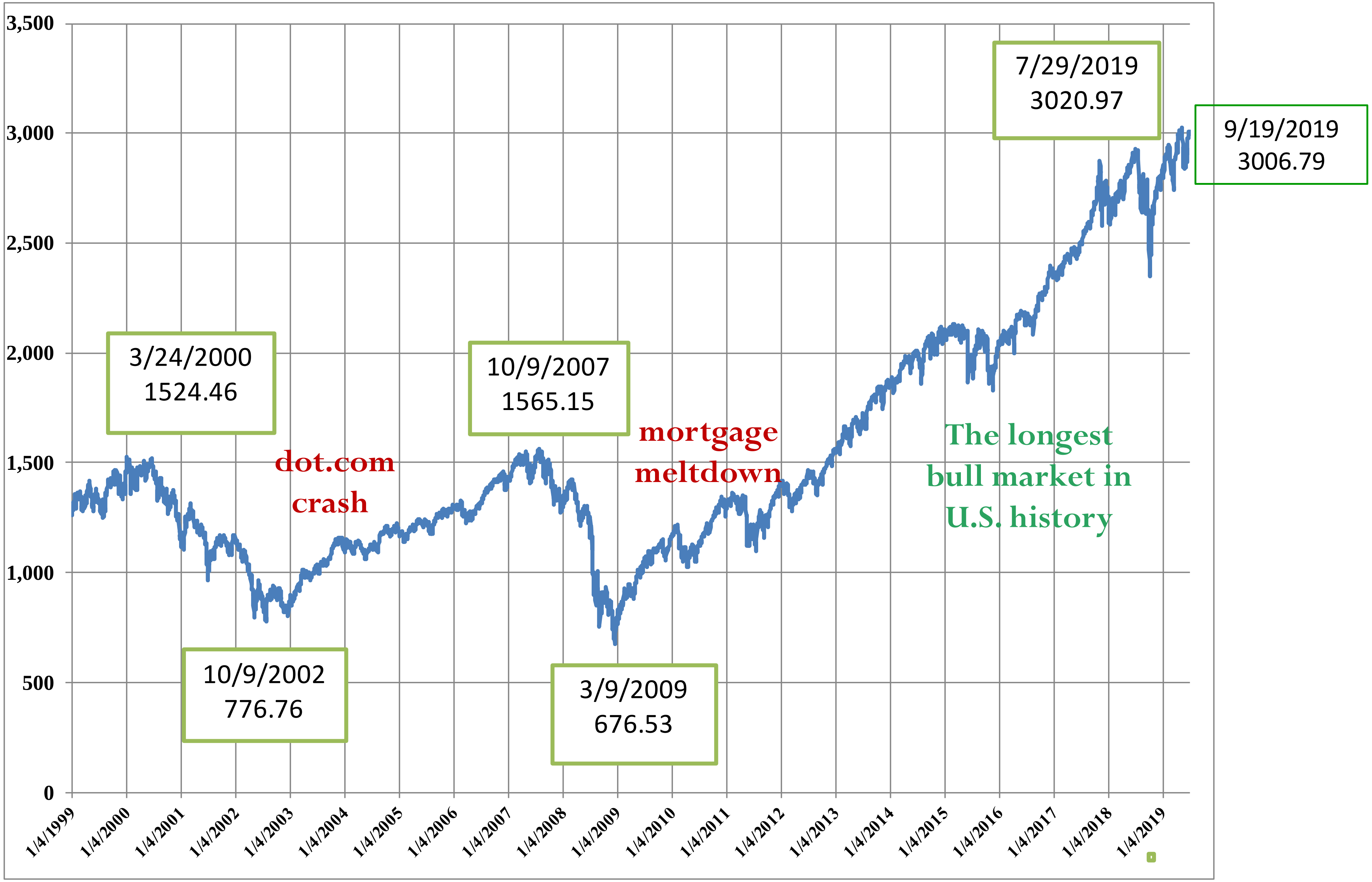
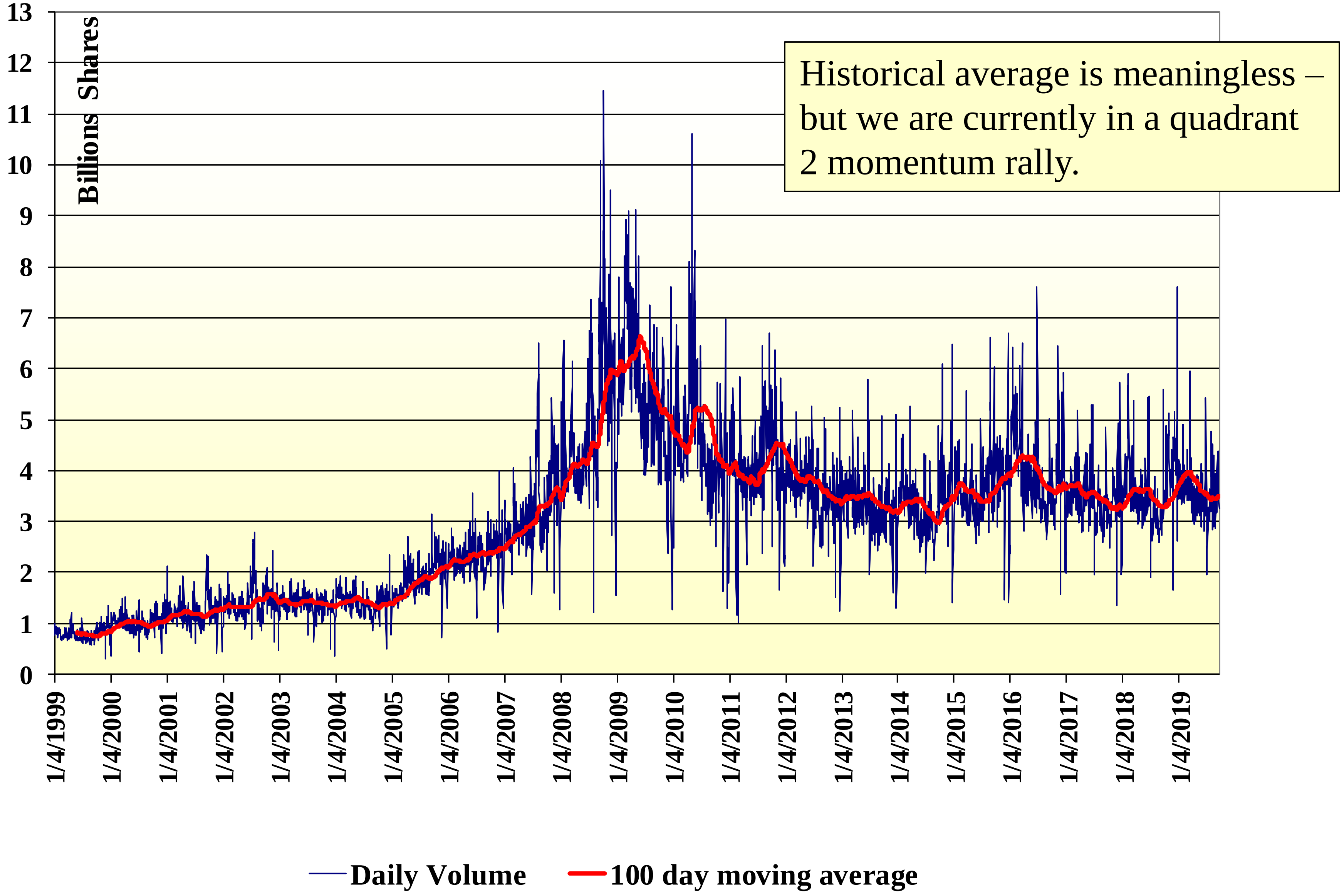


S&P500 Daily Volume

and 100-day moving average, 1/4/99 to 9/19/2019



Bull/Bear Markets

- Bull market defined to have ended when stocks fall about 20% from peak
- Average duration this century: 27 months
- Very high variance, however
- Bull market of 1990s lasted more than 10 years
- Can't predict from this statistic alone.
- By this definition, we are in the longest bull market in recorded history (beginning on March 9, 2009)

Stock Market Performance

What seems to matter ...

- The stock market likes
  - High growth in earnings/revenues or expectations of high growth in earnings/revenues
  - Meeting those expectations
  - The River of Money (mutual funds and ETPs)
  - Price stability
  - Momentum
  - Enthusiasm from foreign investors
  - **and now, supportive policy like tax policy**

Stock Market Performance

What seems to matter ...

- The stock market does not like
  - Missed earnings or performance expectations
  - Inflation
  - High interest rates
- The stock market seems indifferent to
  - mild recessions, but not major recessions
  - fiscal policy

Correlation between S&P 500 Index and Quarterly Operating Earnings per-share of S&P 500 companies, quarterly, Q1 88 to Q1 2019

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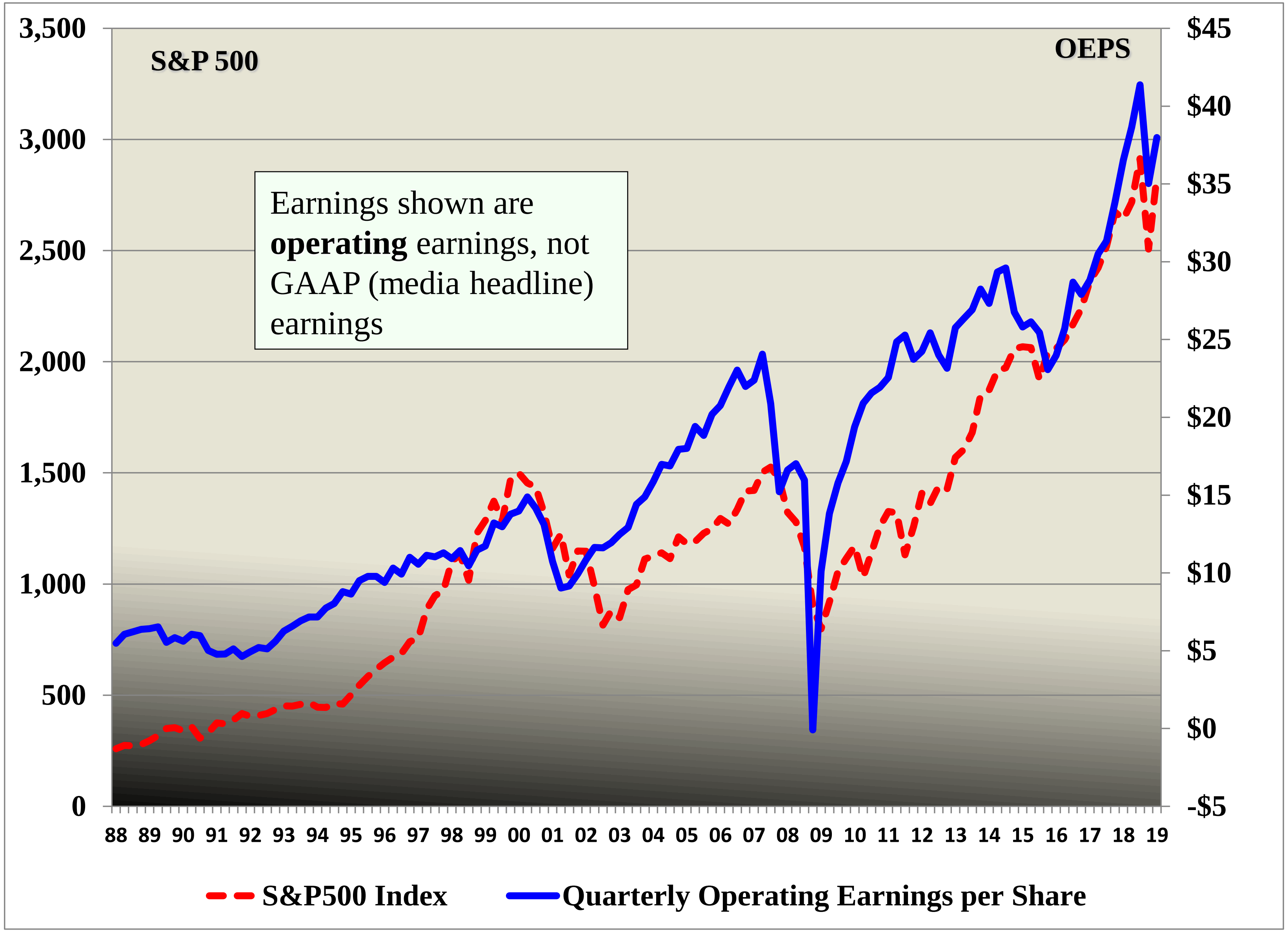

Source: Data for this are taken from ***Standard and Poor's Index Services*** downloads at http://us.spindices.com/indices/equity/sp-500

Qualifications to the Earnings/Performance relationship

- Stock market players really are ***forward looking*, which** implies that a ***rational expectations*** forecast of ***future earnings*** matters more than current or past earnings
  - but current and past earnings and their trends will contribute strongly to estimates of future earnings, so that is why they matter
  - ***but*** so will multiple other indicators, like key economic indicators, other corp performance statistics such as "same store sales, and various "headline" news items
  - ***and*** unlike historical or current earnings, these forward looking estimates are ***prone to considerable error*** and hence reconsideration and during periods of ***uncertainty***, are very ***volatile***, which can lead in turn to volatile markets, and this does not show up in the data
  - ***which implies*** that a market may turn down before reported earnings as it did in the 2000 crash, but we should not infer that the market turn is what ***caused*** the downturn in earnings

Other Qualifications to the Earnings/Performance relationship

DWBH!!

- Partly because of what was said on the previous slide and because of the uncertain high-stakes environment in which these guesses are made and because other variables would also matter,
  - the statistical connection between the index and ***observed*** earnings per share of the index companies, especially when de-trended, is far less than the media implies (for those of you who know statistics, when the data are de-trended, it is hard to get a statistically significant R-squared without introducing lagged dependent variables and the correlation coefficient for even aggressively smoothed growth rates is no higher than 50%).
- If the relationship between earnings and performance was stable, the P/E ratio of S&P 500 stocks would be fairly stable, and it is not!

Price-to-Earnings (P/E) Ratios

The Price-to-Earnings ratio at any moment is the price per share of a stock now divided by its annual earnings [operating profit] (***trailing*** twelve months: ttm), either actual, or the most recent quarter annualized (mrq).

Example: INTC on September 20, 2019 – Closing price $50.72, earnings per share (ttm) was $4.30, so P/E = 50.72/4.30 = 11.8

A ***forward*** P/E ratio uses the current price divided by *estimated* future earnings. Current stock market prices are more influenced by ***expected*** earnings than ***current*** earnings. If ***estimated future earnings*** begin to rise because of good news, then ***trailing*** P/E will typically rise, and that is a logical reaction to the news (up to a point).

Companies with high growth rates typically have higher trailing P/Es than slow-growing companies.

Historical Price-to-Earnings (P/E) Ratio

S&P 500 stocks quarterly Q4 88 to Q12 2019

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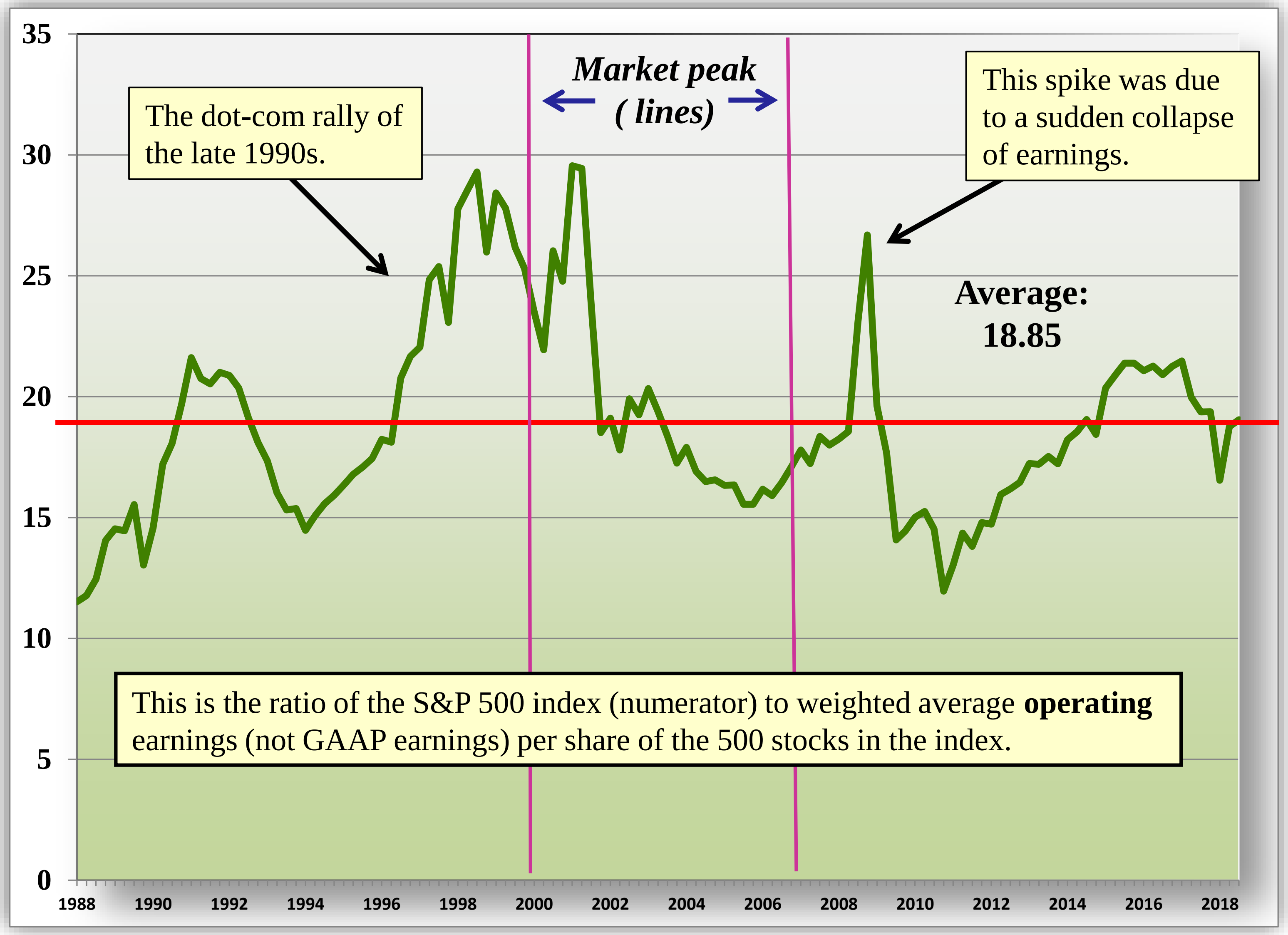

Source: Data for this are taken from ***Standard and Poor's Index Services*** downloads at http://us.spindices.com/indices/equity/sp-500

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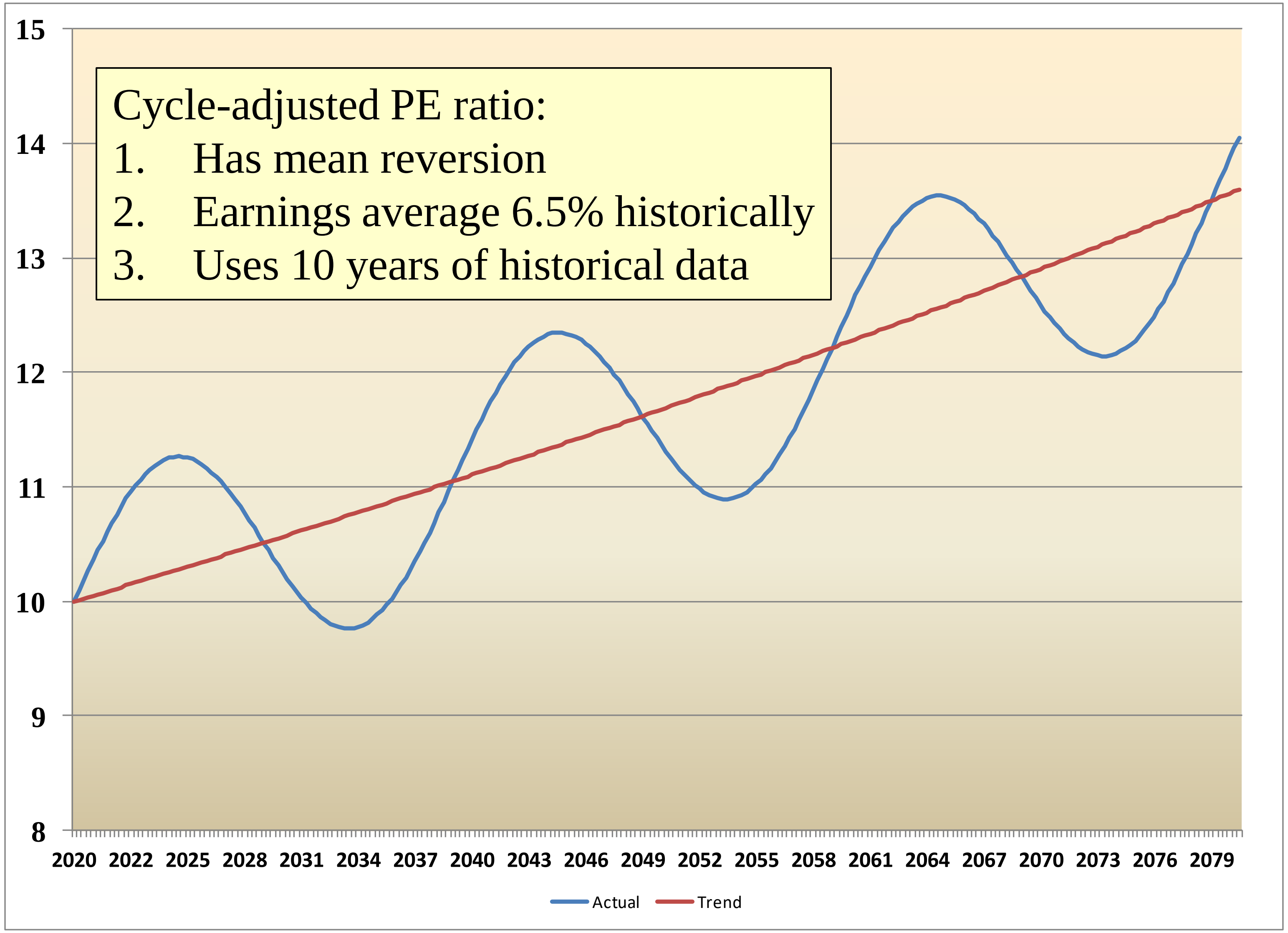
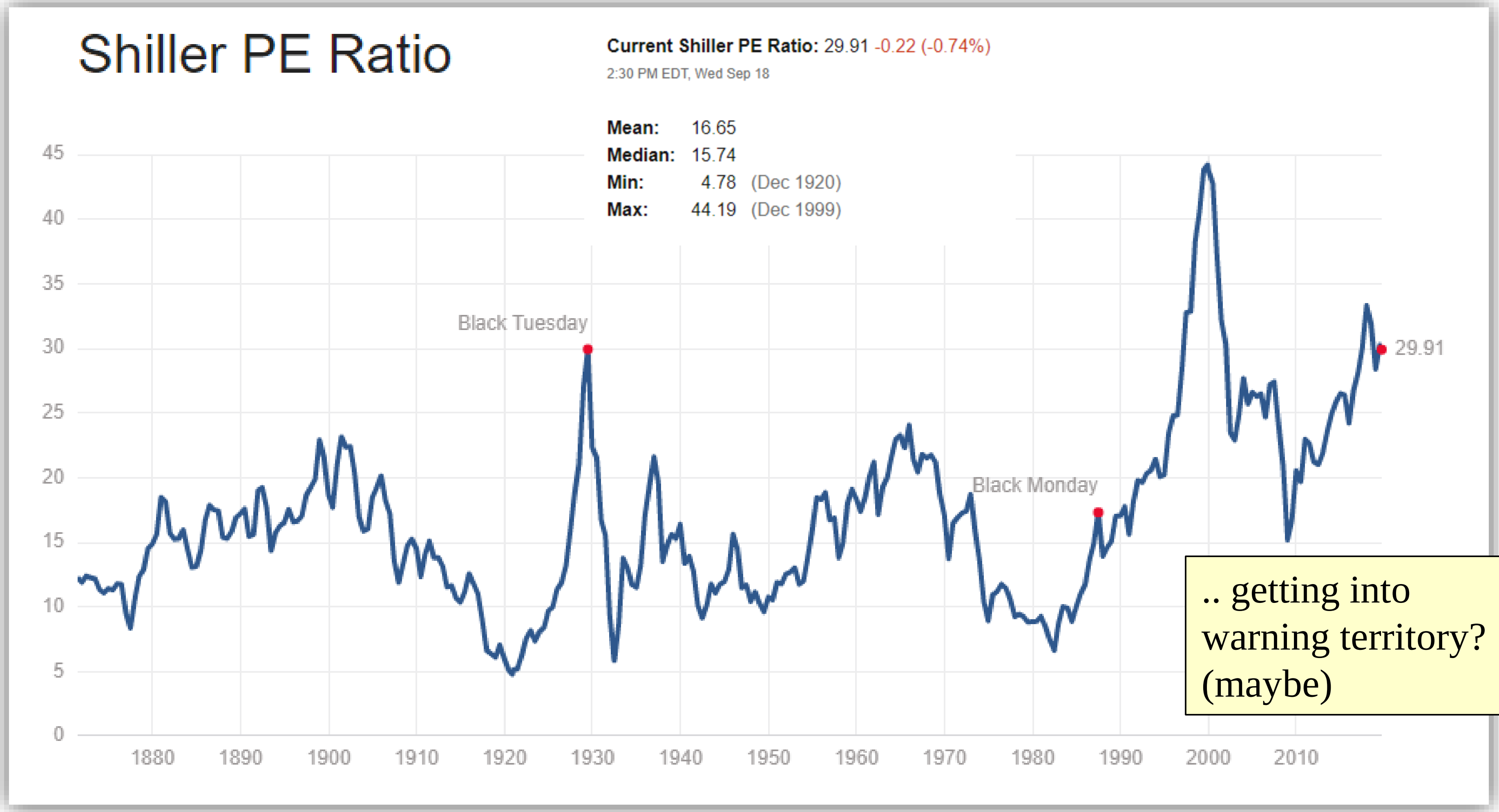
The Schiller Cape Hypothesis
represented here as a forecast ideal ...



The current Shiller/CAPE data ...



.. getting into warning territory? (maybe)

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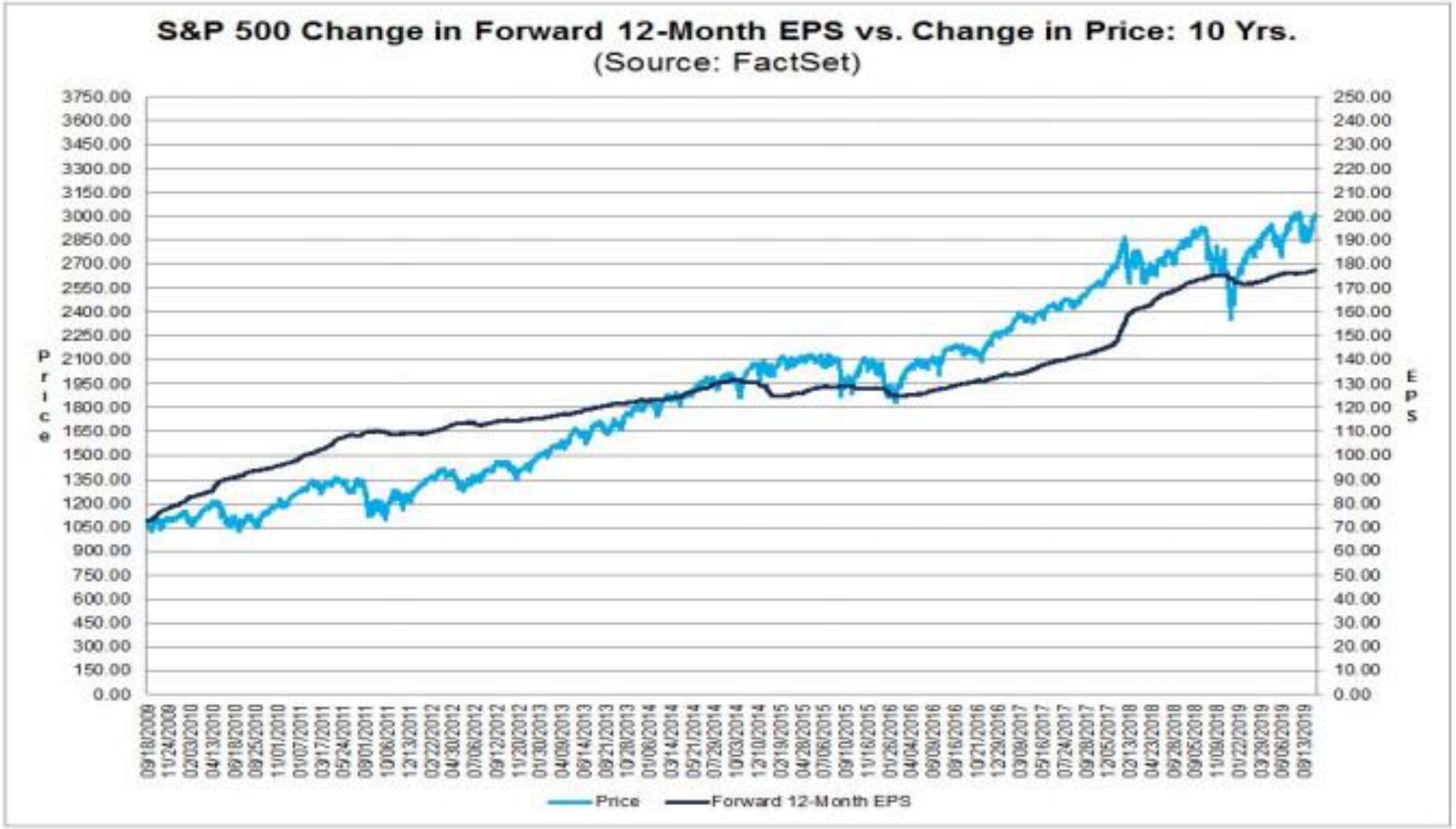
Controversy: Forward-looking earnings instead of trailing earnings



Source of graph: FactSet Earnings Insight, September 20, 2019

So what does one do?? Maybe take both into account.

... also, many analysts regard "***forward-looking earnings***" as a more reliable guide (even though an estimate) and by that standard in 2019 stocks are not as hot.

... and when companies disappoint!

See this story in chapter 4.

Figure 5 – Facebook (FB) plunges on forward guidance

... and when companies surprise to the upside: GOOG on July 25, 2019

BARRON'S

Photograph by Gabriel Bouys/AFP/Getty Images

Text size

In the latest demonstration of the strength of the internet advertising business, Alphabet (GOOGL), the parent company of Google, posted better-than-expected second quarter financial results, with growth picking up from what had been a disappointing first quarter.

For the second quarter, Google's parent company posted revenue of $38.9 billion, up 19% as reported and 22% in constant currency, and well ahead of the Street consensus at $38.2 billion.

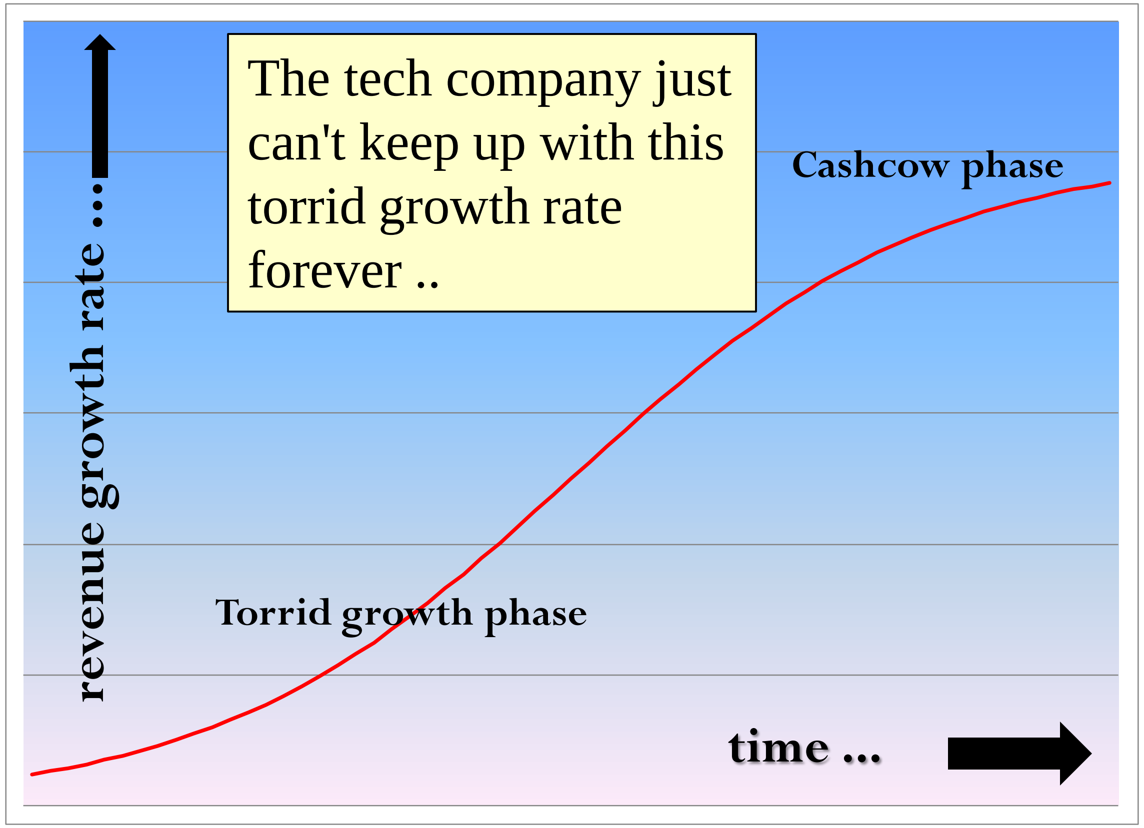
... and other issues – Apple drops their huge lawsuit against Qualcomm [April 16, 2019]

… but revenue growth matters too?

Sometimes the market will value revenue growth or market share more than profits or even *instead of profits* for high-growth companies. This is especially true of young technology companies. In the eyes of some investors, market share in a new market is more important than early profits. Once the company dominates, then profit margins can be fattened and the profits will follow.

Snap on May 22, 2018, plunging due to a revenue shortfall disappointment in an earnings report.

Solving the [tech] flattening growth rate ..

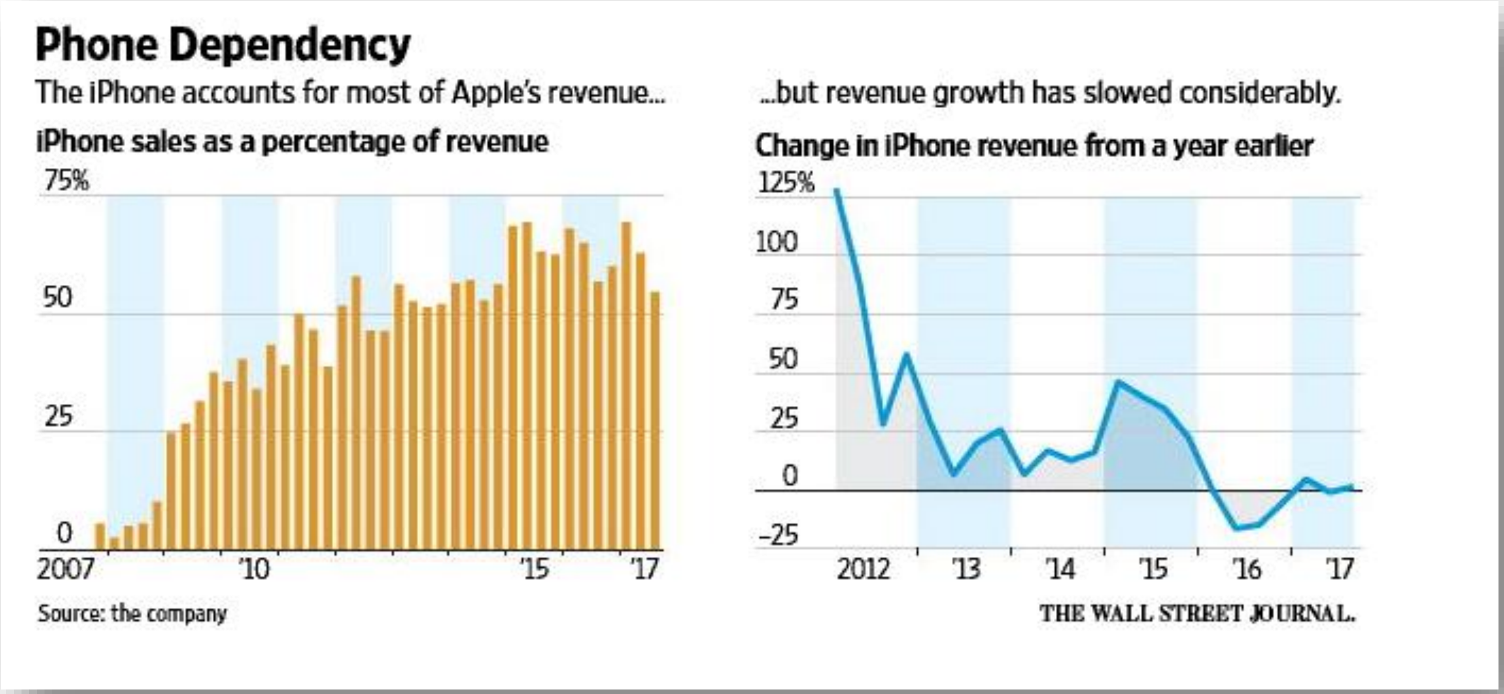


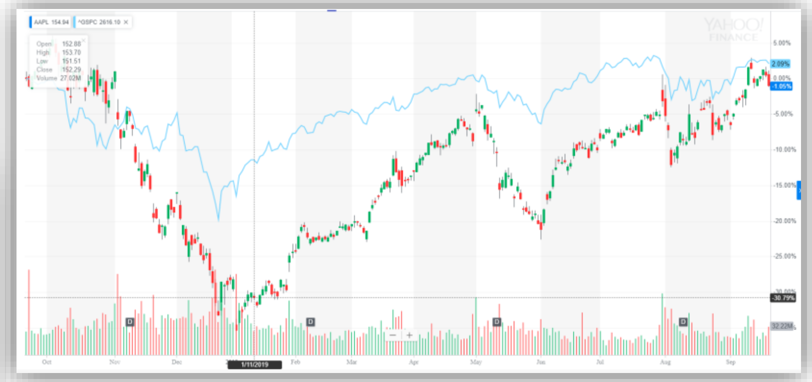
Solutions:
✓Dividends
✓Mergers
✓Stock buybacks

Warning: The market can go through a long period of disappointment before it is willing to accept this transition.

Slide from last year:

Is AAPL a Sigmoid???

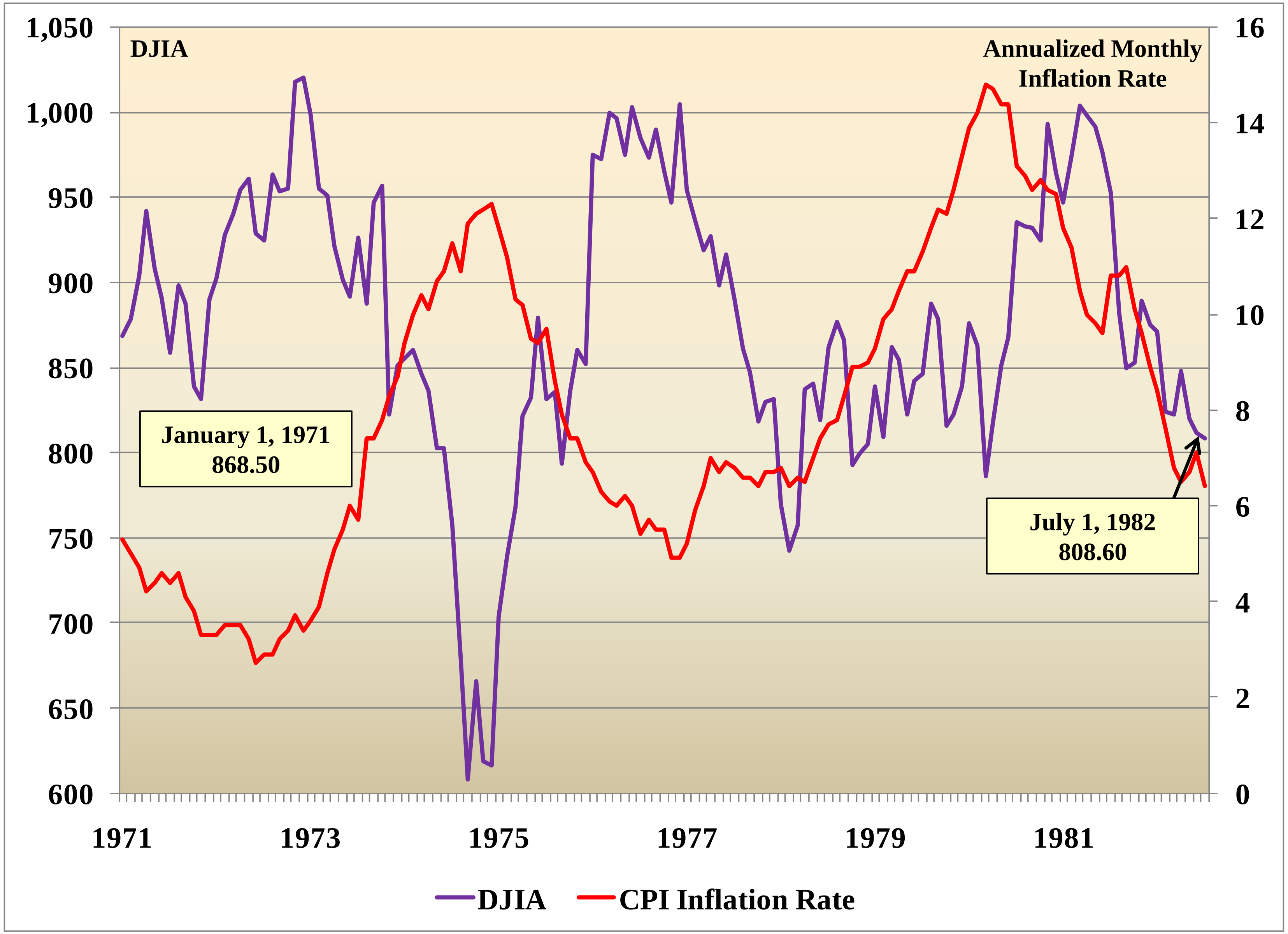




Wall Street Journal front page, September 13, 2017, the day after the iPhone X announcement.

This slide with this question was posed in this class *last year* right after the iPhone 10 launch and yet AAPL had a good year ... but the question is still valid.

The DJIA during the inflation years



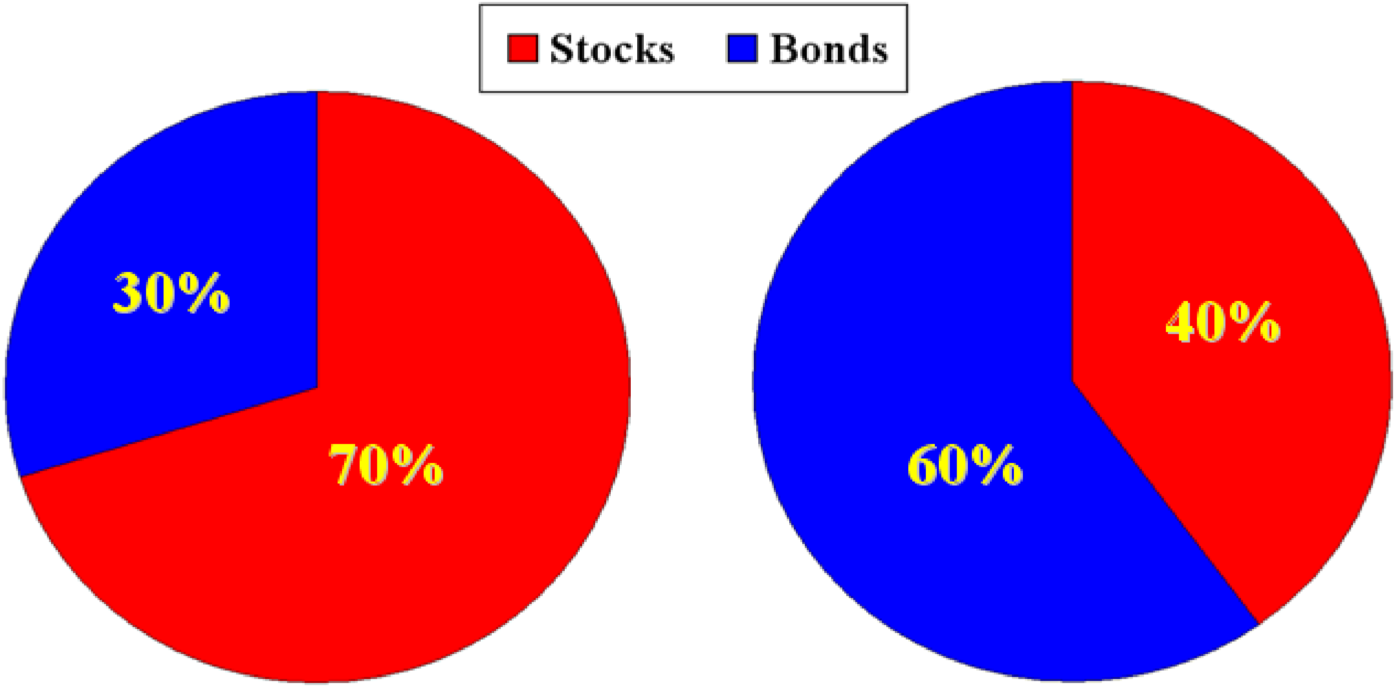
The issue:

The impact of inflation and inflationary expectations.

The portfolio effect during inflation:

You need to understand this theory and the theory represented in the next slide.

Figure 7 – The Portfolio Effect Showing a Shift in Preference from Stocks to Bonds in a Hypothetical Portfolio



In normal times, investors might favor stocks over bonds in their investment portfolios because of higher yields ….

… but during inflationary periods when nominal yields are high on bonds ***or*** during periods of serious economic uncertainty, investors may rebalance their portfolios in favor of safer bonds.

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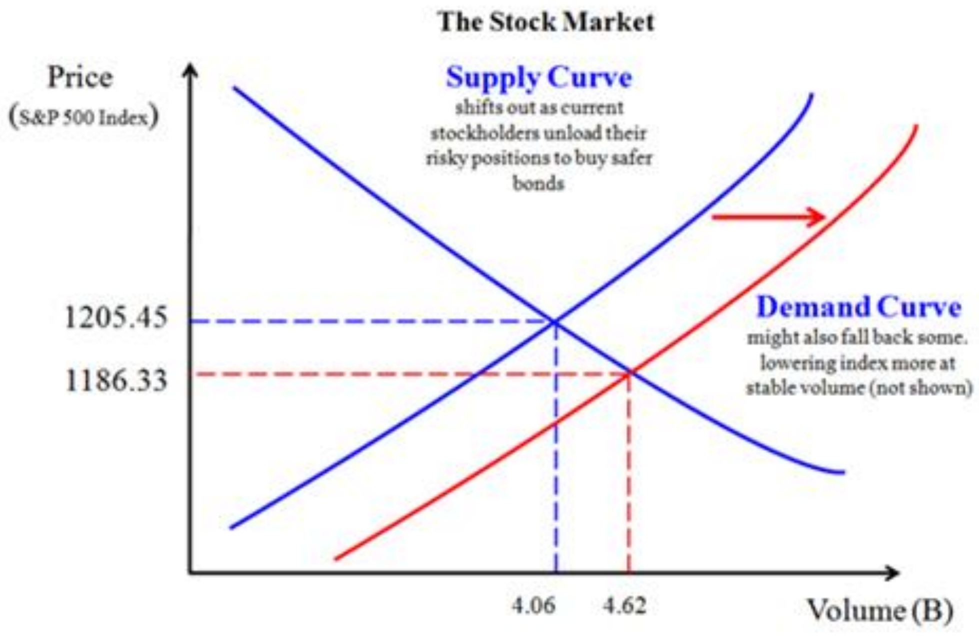
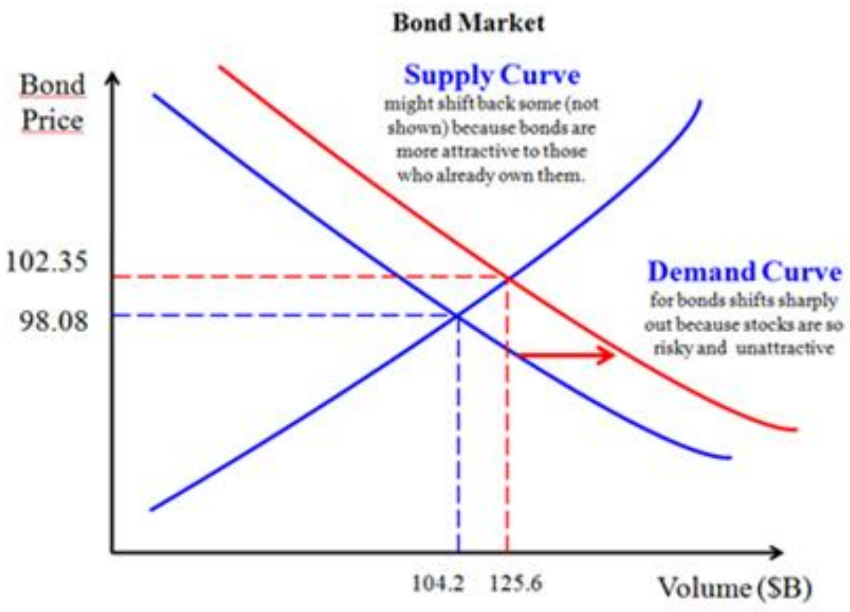
The Portfolio Effect as Seen in the Stock Market Supply/Demand Model





As investors rebalance portfolios away from stocks to higher-yielding bonds, supply of stocks shift outward (lowering values) as shown as does demand for bonds (raising values and lowering yields).

The River of Money

Net New Cash Flow to Mutual Funds

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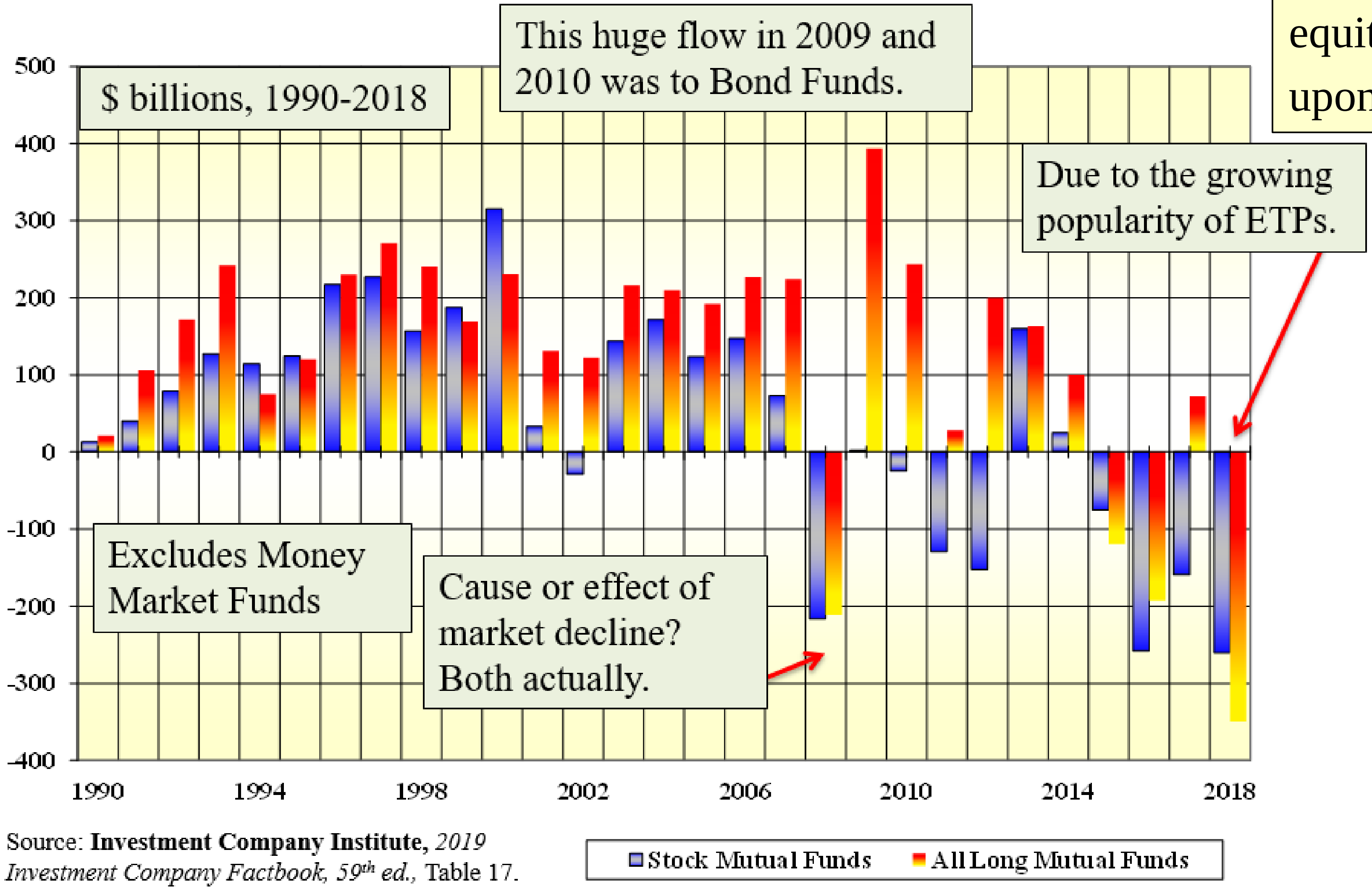
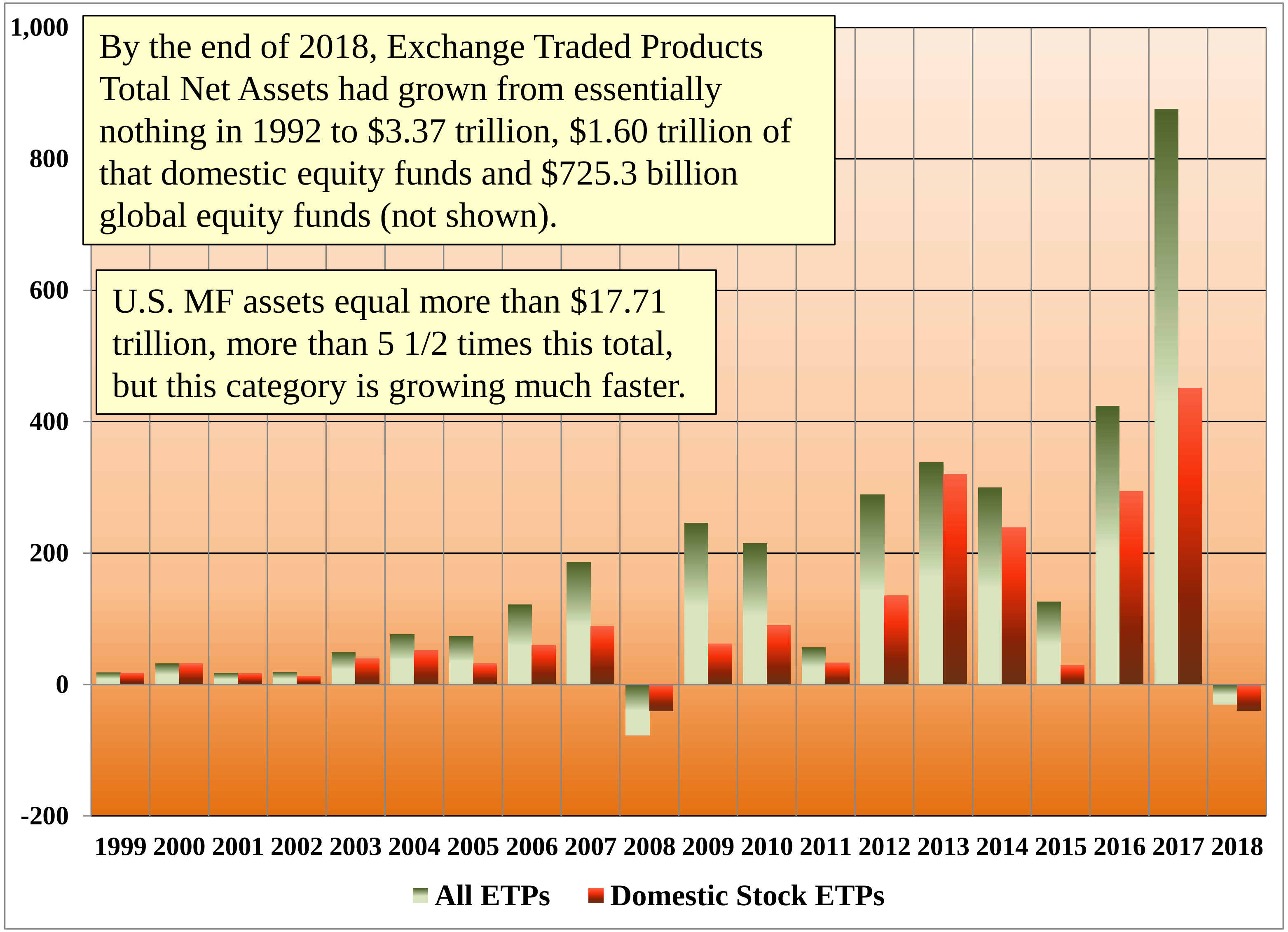
The issue:
The impact of new new flows into equity mutual funds and ETFs upon the demand for stocks.



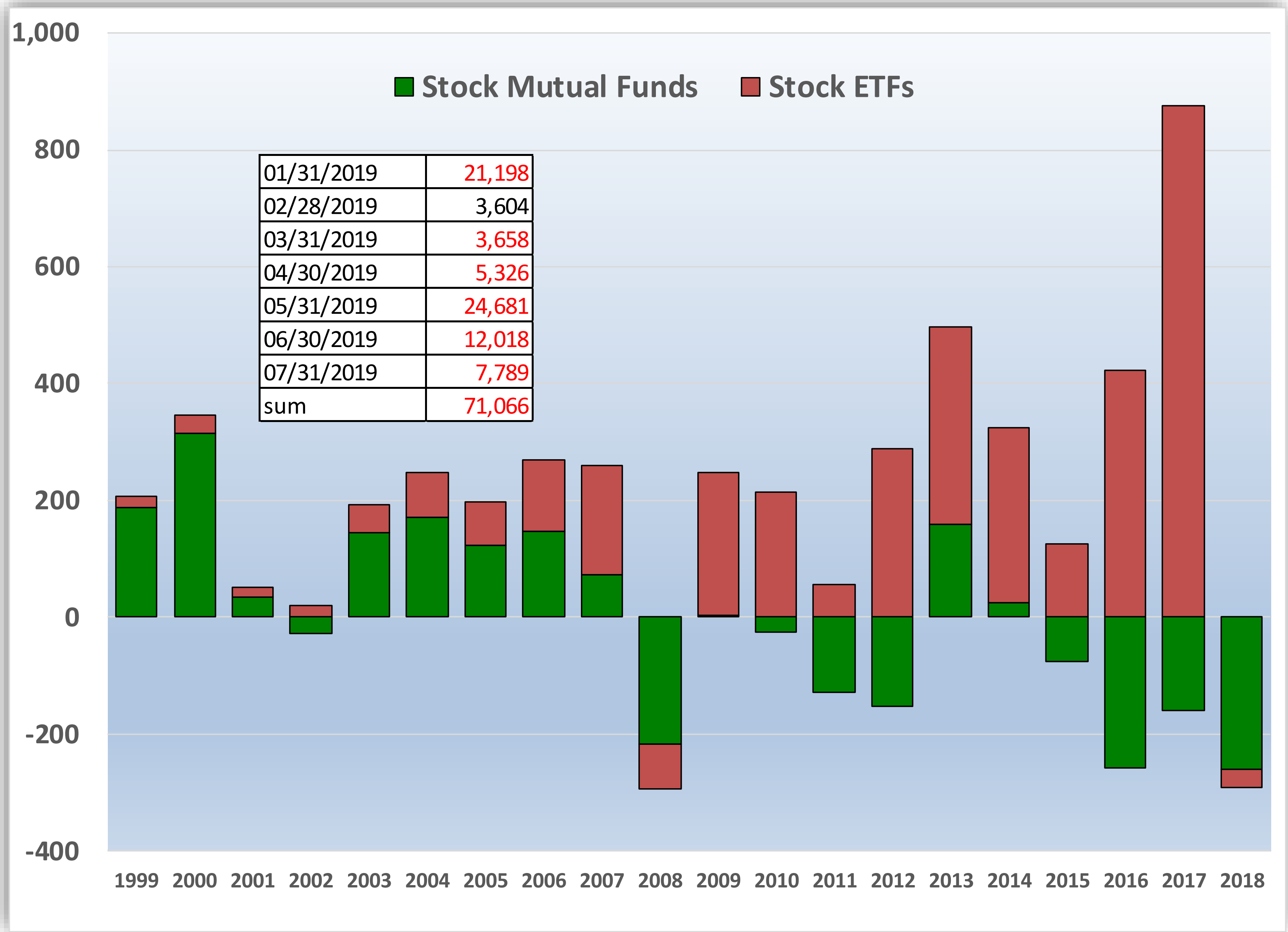
Source: **Investment Company Institute**, *2019 Investment Company Factbook, 59th ed.*, Table 17.

The Exchange Traded Product (ETP) River of Money (delta)



Source: Investment Company Institute, *2019 Investment Company Factbook, 59th edition*, Table 11.

When summed ...



01/31/2019	21,198
02/28/2019	3,604
03/31/2019	3,658
04/30/2019	5,326
05/31/2019	24,681
06/30/2019	12,018
07/31/2019	7,789
sum	71,066

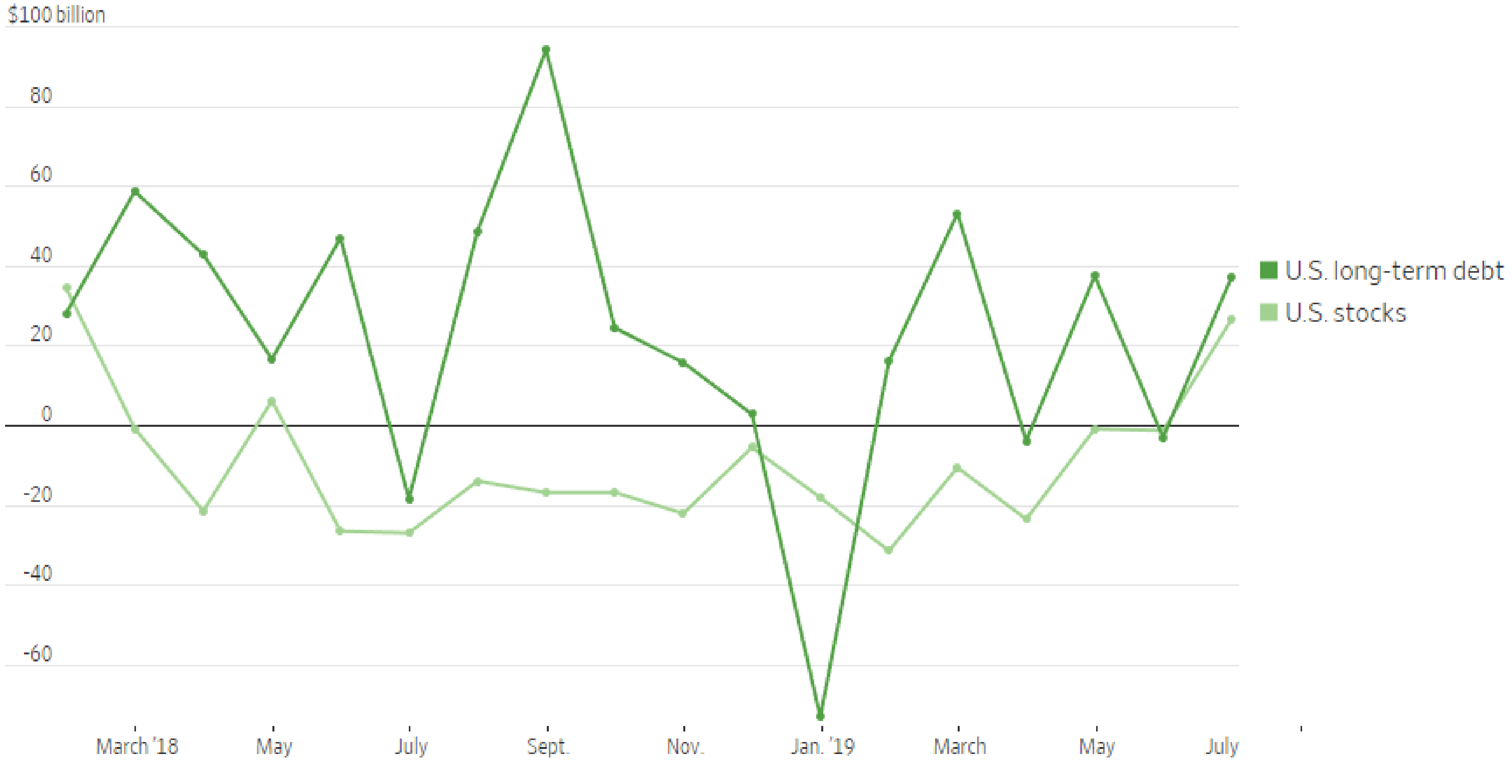
2017 makes sense, but 2018 would indicate a large market decline, and 2019 ...??

Foreign Demand? This doesn't look like enough!

There's No Place Like U.S. in Hunt for Yield

Foreign investors pile into America's stocks and bonds at fastest pace in about a year

Foreign investors' purchases of U.S. stocks and bonds, by month



Source: Treasury Department data compiled by Deutsche Bank

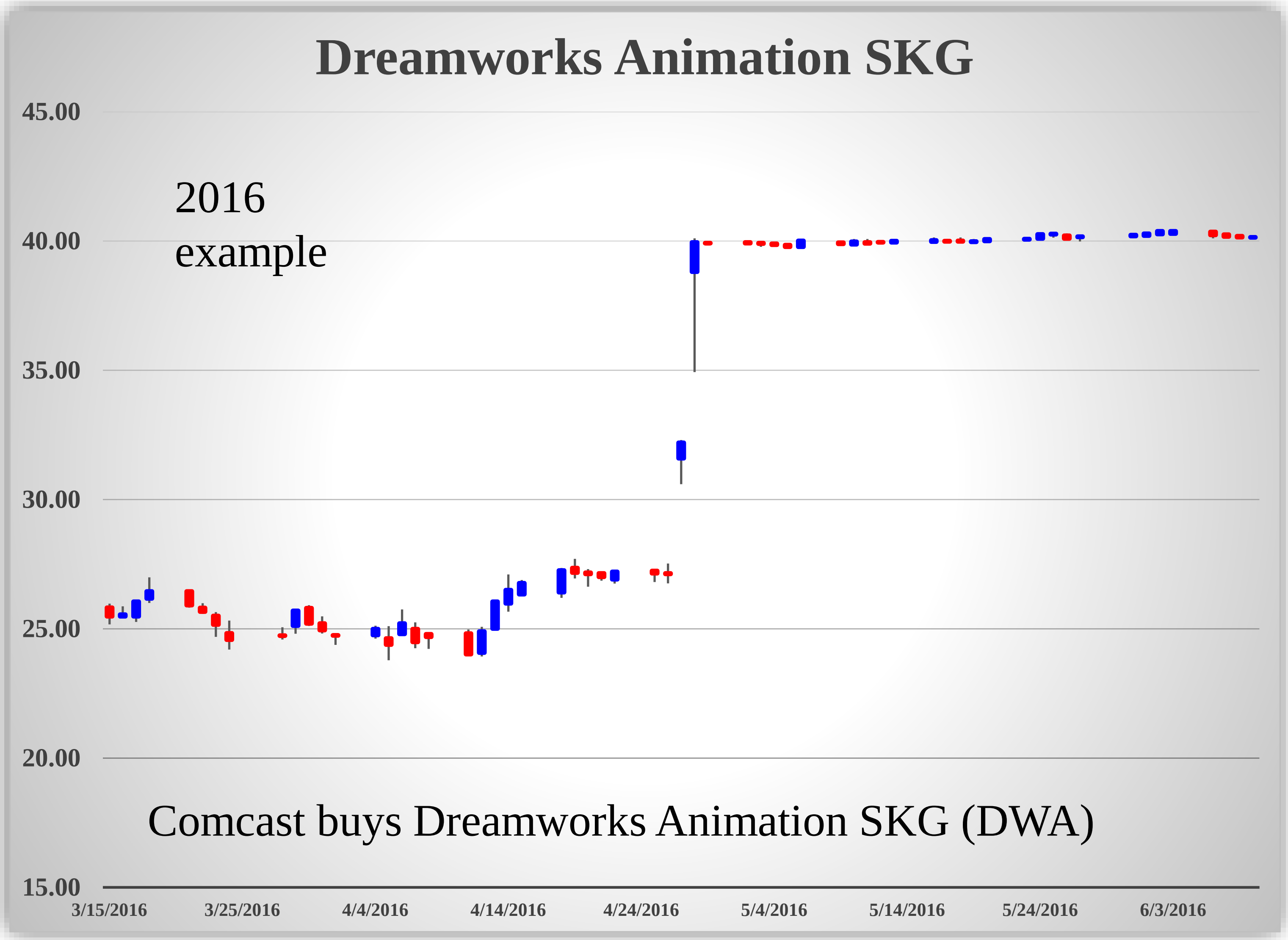
By *Michael Wursthorn*

Updated Aug. 29, 2019 8:09 pm ET

The topical issue:

If we can't explain 2019 with the River of Money, how can we explain it?

Mergers and Aquisitions (see text)



The issue:
The role of mergers and aquisitions.

Dividends

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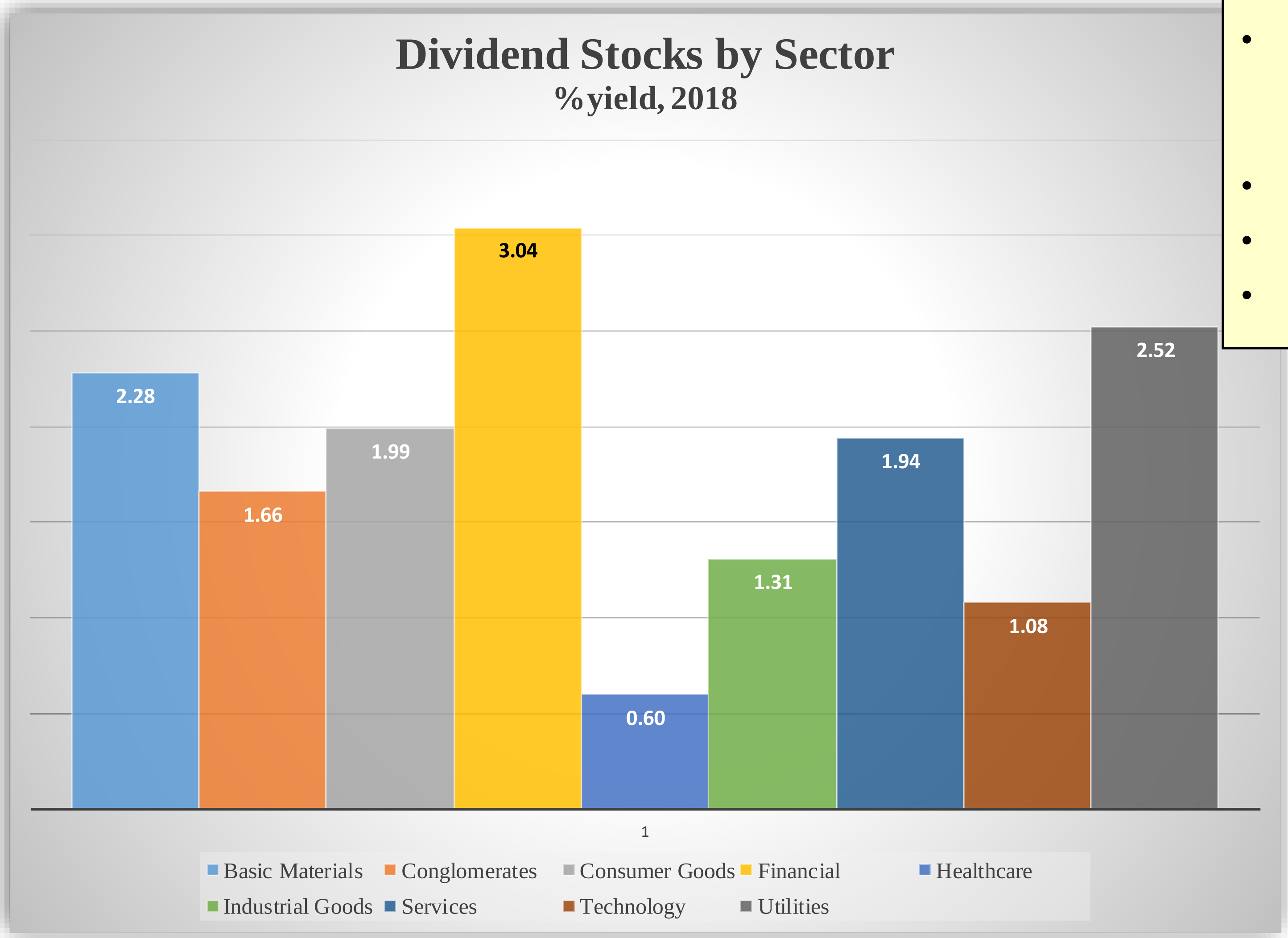

Source: dividend.com

- Dividends will supplement yields
- Individual company Boards of Directors determine a company dividend, and may change or suspend at any time. Dividends are paid quarterly.
- 424 of the S&P500 paid dividends as of August 30, 2019.
- Dividend yield averaged about **2.45%** in summer 2019.
- Small caps are less likely to pay dividends.

Source: S&P Dow Jones Indices, https://us.spindices.com/indices/strategy/sp-500-dividend-aristocrats

The issue:
The role played by dividends

S&P 500 Dividend Yields

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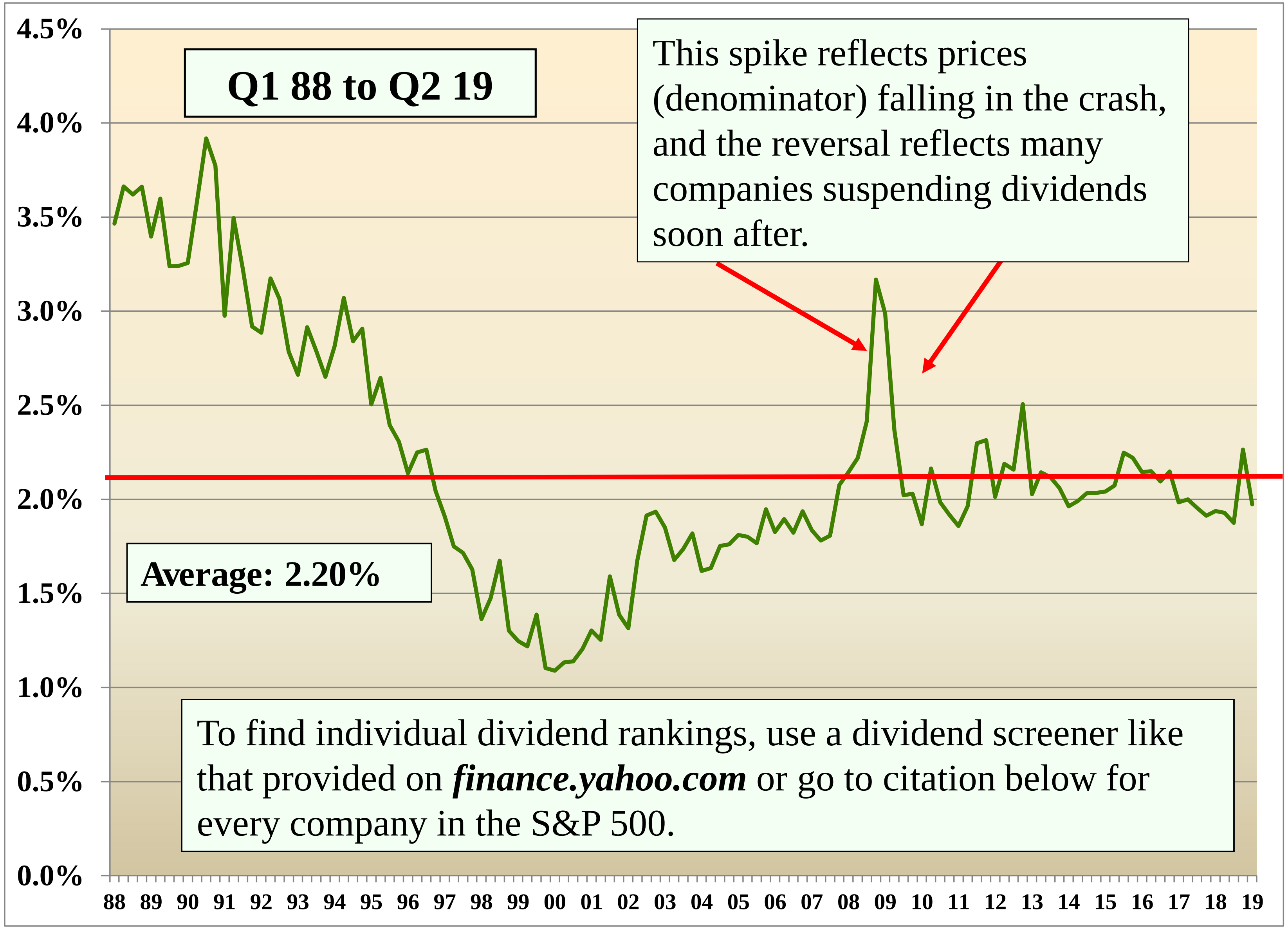


Terms:

dividend yield (rate)

payment date

record date

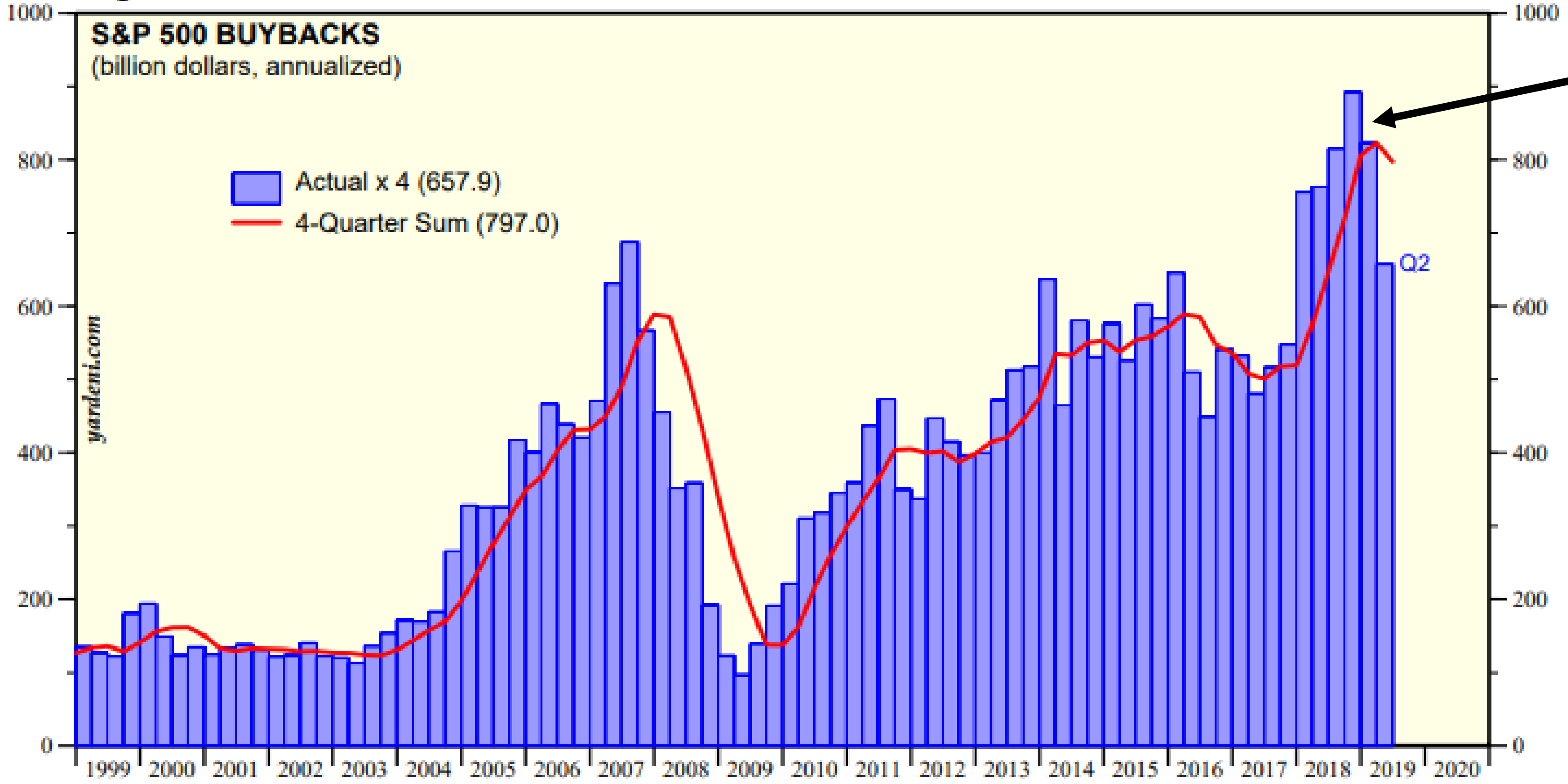
ex-dividend

Source: Data for this are taken from ***Standard and Poor's Index Services*** downloads at http://us.spindices.com/indices/equity/sp-500

Stock buy-backs (see Chapter 4)

The issue:
The effect of companies buying their own stock.

Figure 1.



Source: Standard & Poor's.

This explosion we see here in 2018 is due to the corporate tax cuts (in 2017, the Trump administration reduced the federal corporate tax rate from 35% to 21%)

Source: "Stock Market Indicators" S&P 500 Buybacks and Dividends," Yardeni Research, Inc., September 19, 2019

Who is buying back the most??

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Find a Company

2019 Stock Buyback Announcements

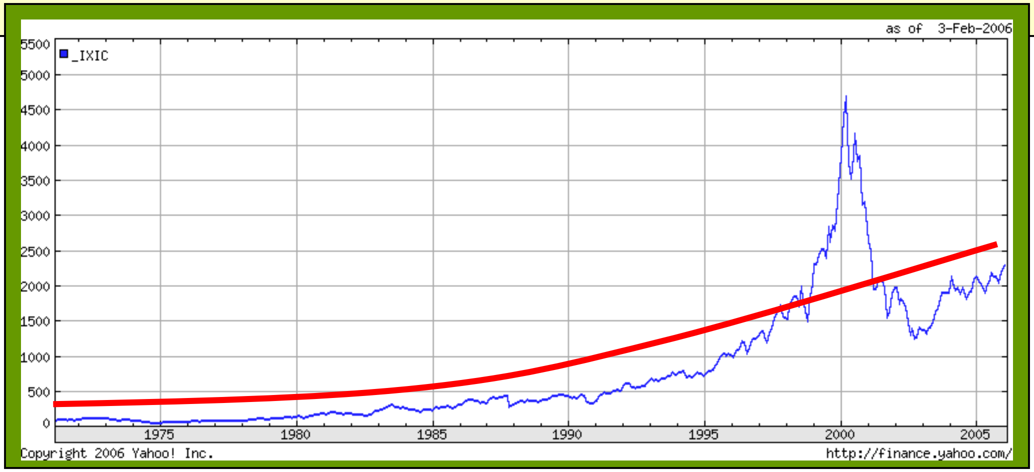
Below you will find a list of companies that have recently announced share buyback programs. Publicly-traded companies often buyback shares of their stock when they believe their company's stock is undervalued. Learn more.

Date	Company	Percent of Shares	Buyback Amount	Offer Type	Buyback Type	Current Price	52-Week Range
9/18/2019	Microsoft (MSFT)	3.8%	$40 billion	Open Market	New	$139.44	$93.96 - $142.37
9/17/2019	Masco (MAS)	16.2%	$2 billion	Open Market		$40.63	$27.03 - $43.59
9/11/2019	Wolverine World Wide (WWW)	17.1%	$400 million	Open Market	New	$27.93	$23.05 - $39.77
9/11/2019	Oracle (ORCL)	8.4%	$15 billion	Open Market	Additional	$53.47	$42.40 - $60.50
8/19/2019	Avnet (AVT)	11.0%	$500 million	Open Market		$43.30	$33.55 - $49.03
8/14/2019	Service Co. International (SCI)	2.8%	$246 million	Open Market		$46.92	$37.52 - $48.69
8/8/2019	Callaway Golf (ELY)	5.9%	$100 million	Open Market	New	$19.63	$14.44 - $24.67
8/2/2019	ManpowerGroup (MAN)		6 million shs	Open Market	New	$85.90	$61.57 - $97.96
8/1/2019	Teradata (TDC)	11.7%	$500 million	Open Market	Additional	$31.63	$29.61 - $49.42
7/31/2019	Vertex Pharmaceuticals (VRTX)	1.2%	$500 million	Open Market		$178.12	$151.80 - $195.81

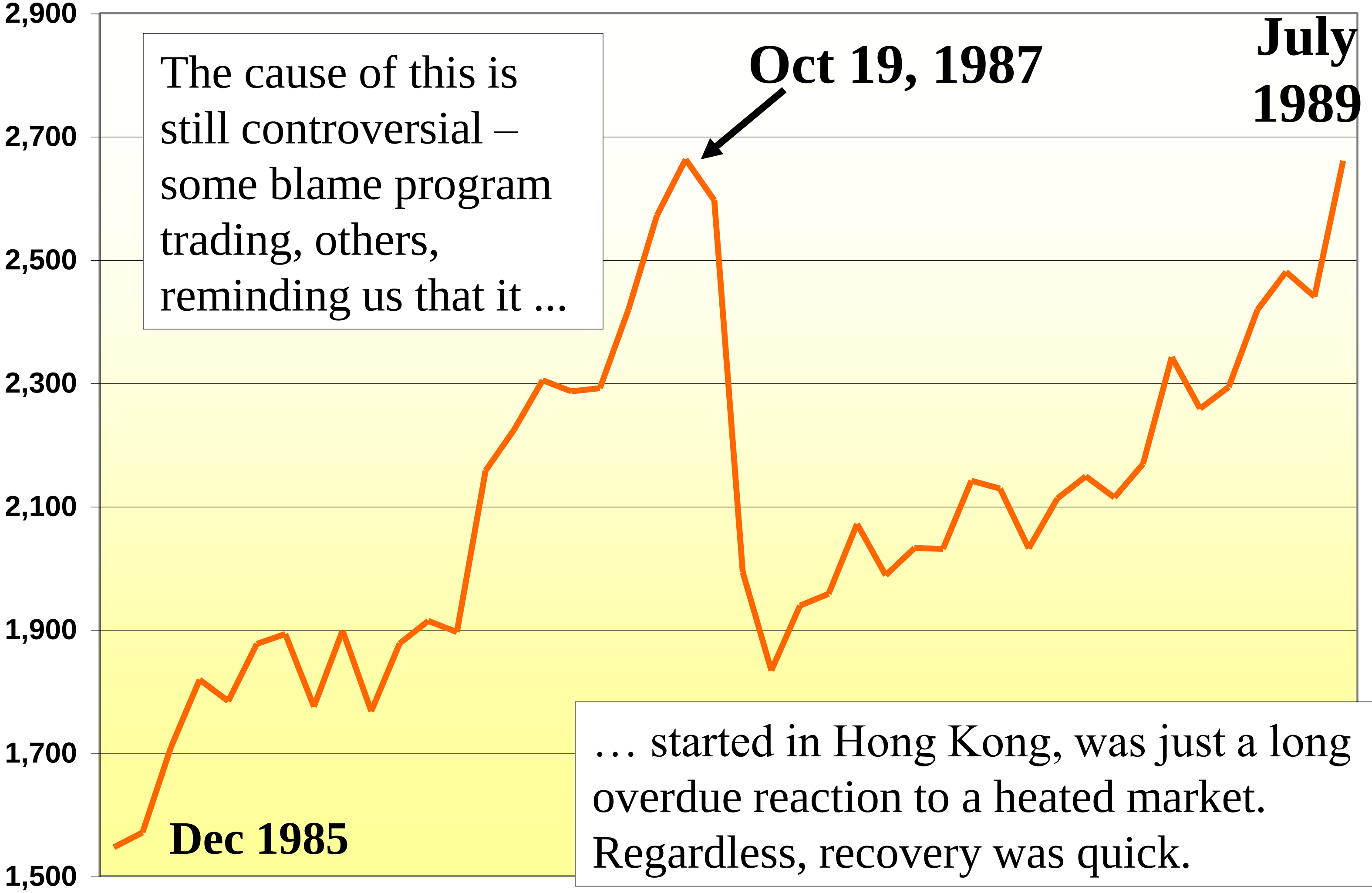
Look for yourself at
https://www.marketbeat.com/stock-buybacks/

Momentum markets

Substantial excess speculation can push stocks up at exponential rates into ranges that economically make no sense. This can happen for an individual stock, an entire industry, or an entire market. For the stock market as a whole, such a cycle usually begins when stocks are truly undervalued, justifying a rapid rise, which begins to happen. Then heavy and immediate capital gains produces a market euphoria where speculative investments, in part from unsophisticated investors (even institutional investors) blows the market higher and higher. In the final phase of the market explosion, the only operative variable is ***momentum***. The clear, obvious, and well-publicized profits being made attracts more money which, results in more demand, which causes prices to accelerate. Sometimes the rise is exponential in the final phase before the *correction*, which is sometimes a collapse.



The 1987 program trade crash



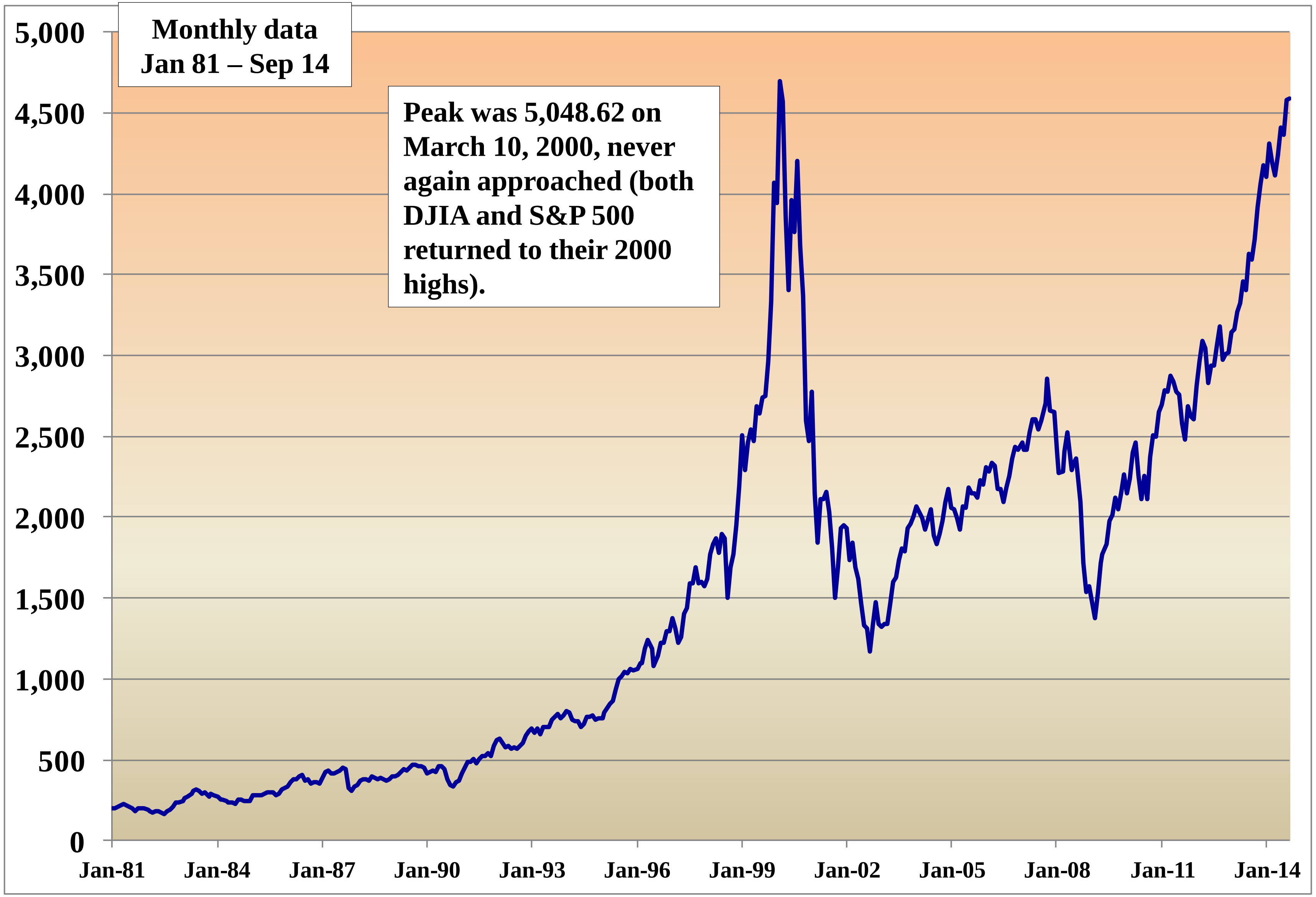
The cause of this is still controversial – some blame program trading, others, reminding us that it ...

… started in Hong Kong, was just a long overdue reaction to a heated market. Regardless, recovery was quick.

The Millenium (2000) *dot.com* Selloff

- Markets in a spec frenzy because of the promise of the internet and all-things internet, including companies
- NASDAQ has spectacular rally in Q1
- Selloff begins with Micro Strategies warning
- NASDAQ falls 39% for year, 50% from peak
- Selloff gets stronger in Nov/Dec because of tax related selling.
- S&P 500 more or less holds its own
- Huge ***dot.com*** casualties – the Tulip Bulb scandal revisited

Tech-heavy NASDAQ is clobbered …



Event-based pricing reactions

Aside from underlying fundamentals, like expected earnings and dividend rates, stock prices will reflect conditions imposed by economic and political events (e.g. FRS policy, the situation in the mid-East, elections) and are often very sensitive to news events.

Of course if stock prices respond to expected earnings estimates, those obviously change with single news events.

Also at work sometimes are market-specific forces like momentum and Ricardian events (over-reactions to stressful news).

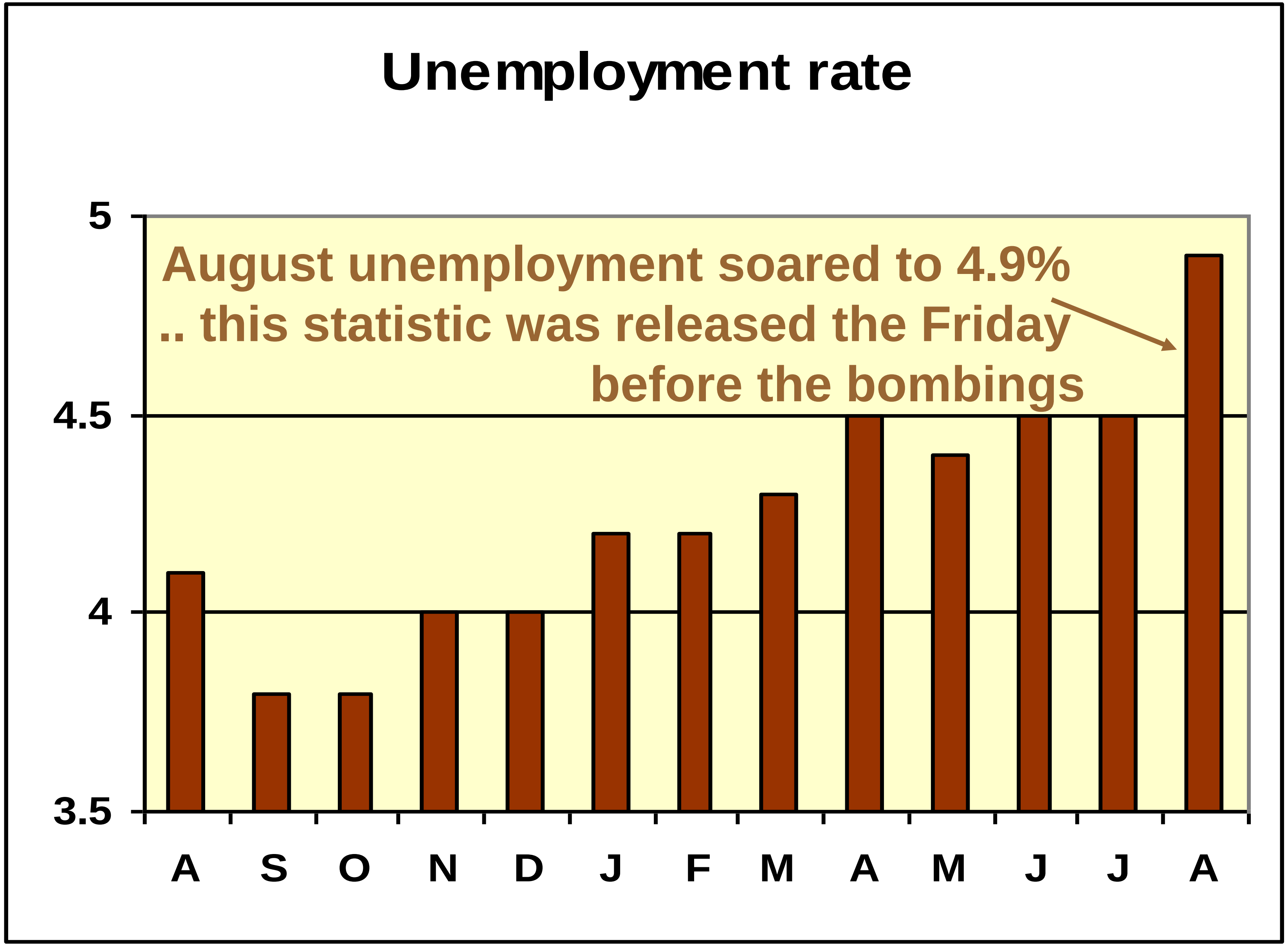
The next two slides show how the market was hugely impacted by an event 10 years ago.

Prelude to disaster

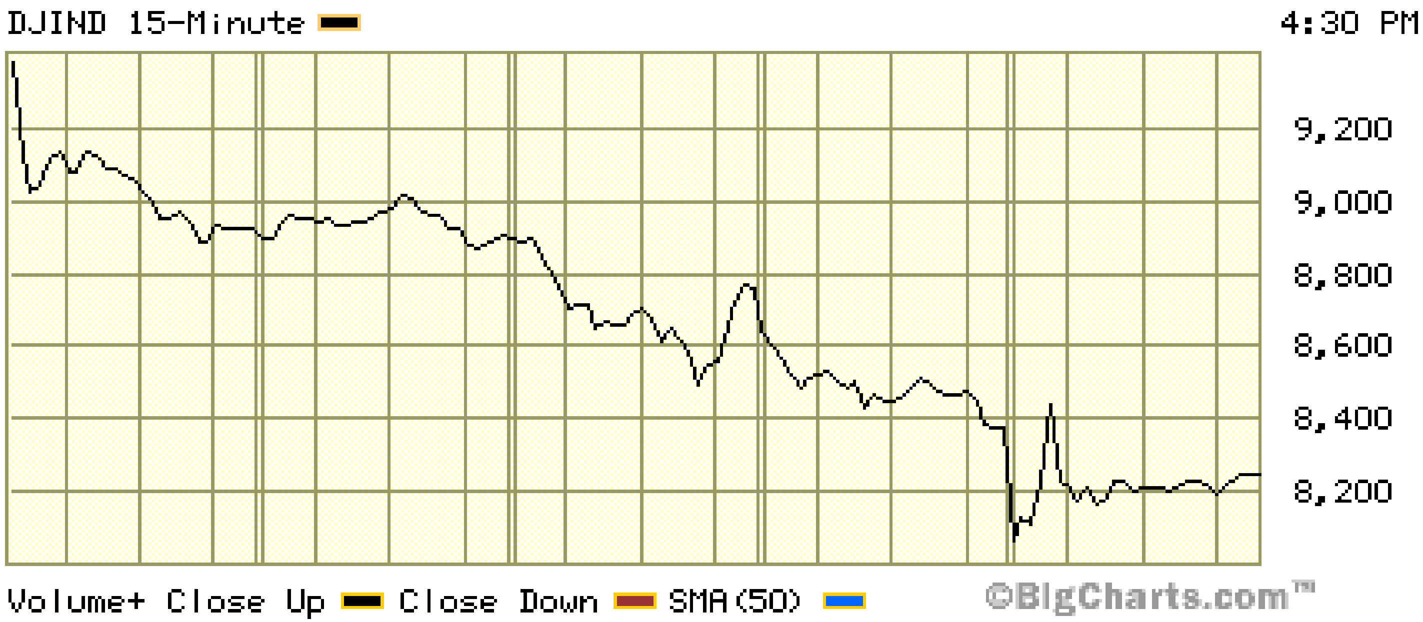
Event Risk

- September 11, 2001, terrorists fly hijacked jets into WTC and Pentagon, killing 4,500.
- U.S. equity markets are closed until September 17. European markets down sharply, U.S. Bond markets are open and show a huge "flight to quality."
- Economy was showing signs of accelerating decay just in the week before Sept 11; unemployment rate shot up from 4.5% to 4.9% – timing of disaster could not have been worse.
- A ***Ricardian Event,*** named after classical economist David Ricardo, reflects his belief that when investment assets are at stake, "***people over-react to distressing news***."

(An old slide from 15-year-old lectures)



A Ricardian Event: Sept 11 – 20, 2001



Market closed
Sept 11-15

- Dow loses 14.3% of its value, greatest one-week loss since July 21, 1933.
- S&P loses 11.6%, NASDAQ Comp 16.1%; losses in Europe and Asia are even greater
- Total market volume on Sep 17 was staggering 2.3 billion.

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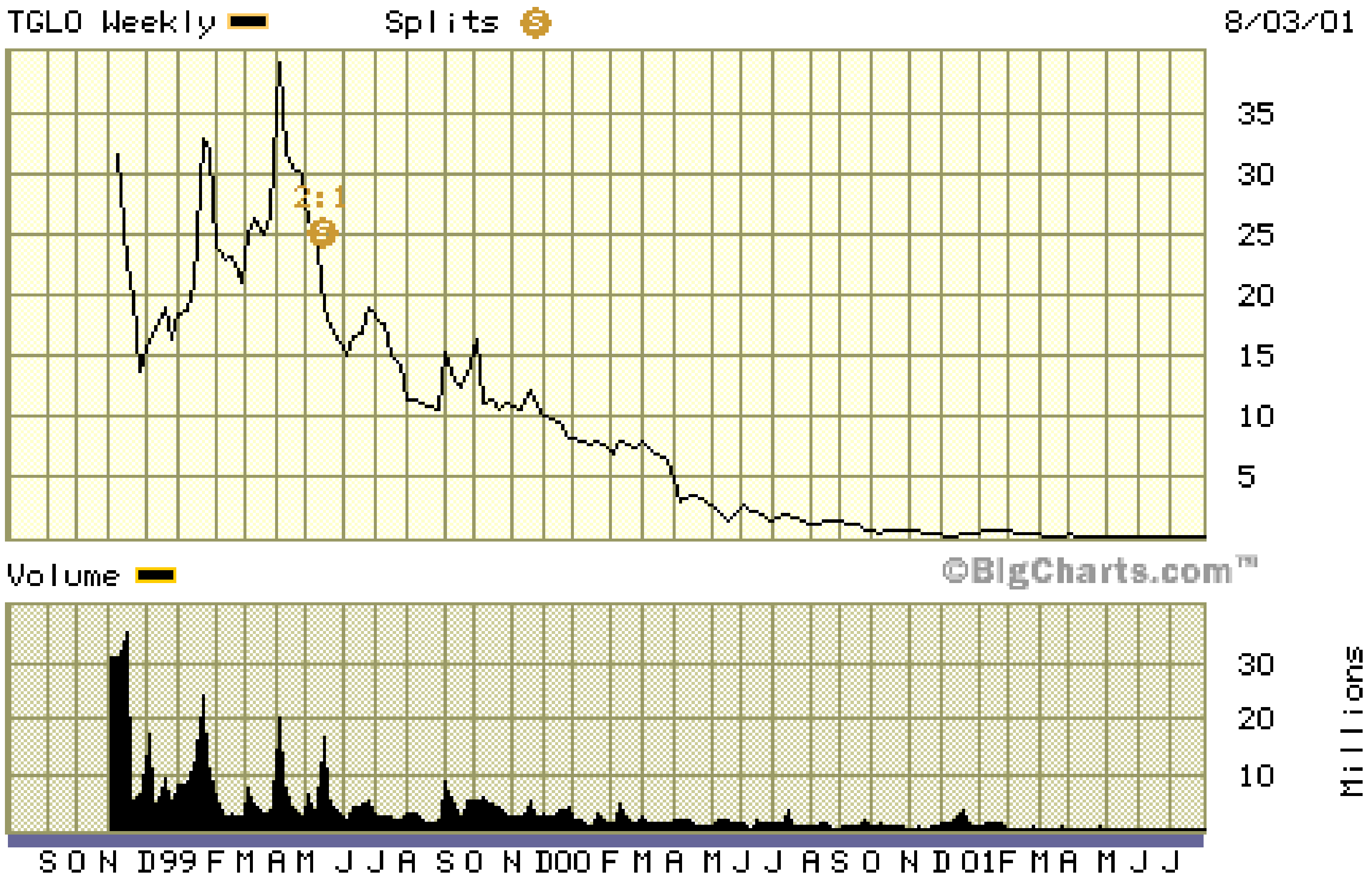
The original 1998 darling .. TheGlobe.com



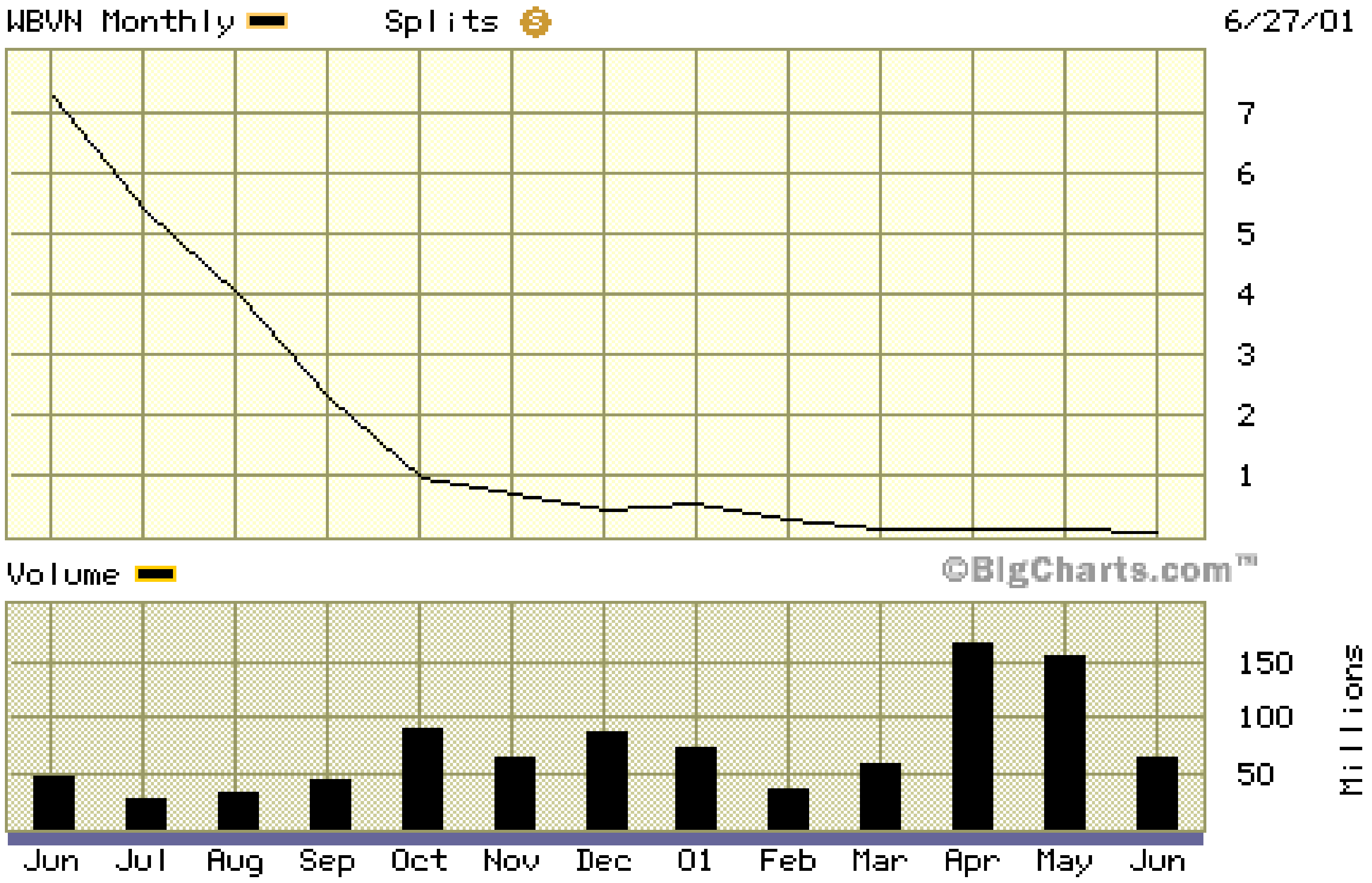
This stock IPOd in November 1998 and rose 600% on its first day of trading to $87 (it later split). The company was founded in a Cornell dorm room in 1994 by Todd Krizelman and Stephan Paternot. They were fired in August 2000. This stock was was delisted in late 2000. On August 6, 2001, the stock was trading for 6 cents per share.

Problems of the on-line catalogs (b2c)

Examples: EToys, Webvan, Verde.com, Amazon

1. Huge customer acquisition costs
2. High branding costs
3. Returns of unwanted merchandise
4. Payment inconveniences
5. Security concerns
6. Poor customer support (sometimes)
7. Delayed orders (sometimes)

WebVan

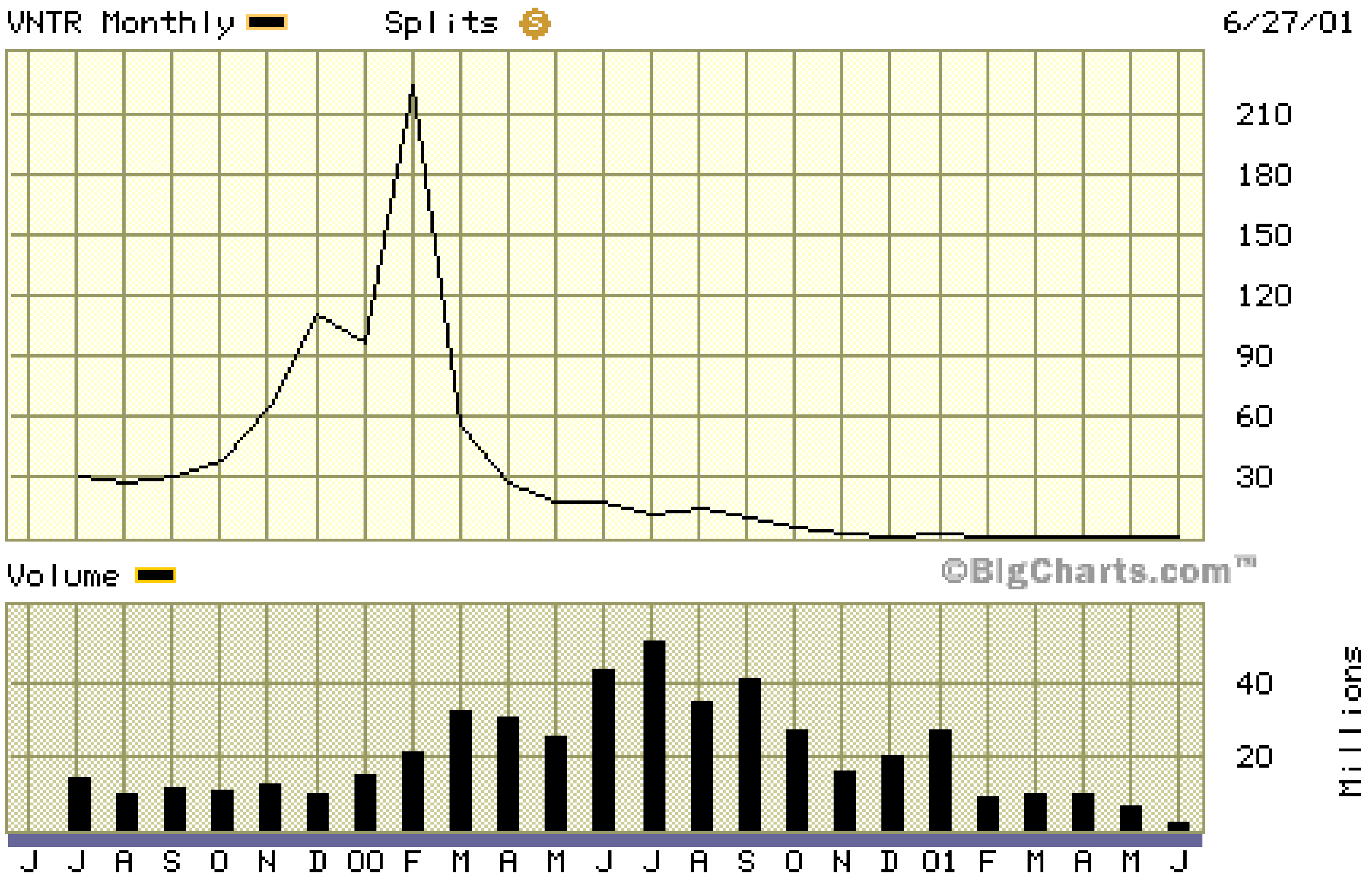

WBVN Monthly
Splits
6/27/01
7
6
5
4
3
2
1
Volume
©BigCharts.com™
150
100
50
Millions
Jun
Jul
Aug
Sep
Oct
Nov
Dec
01
Feb
Mar
Apr
May
Jun

Problems of the B2B "platforms"

Example: Ventro

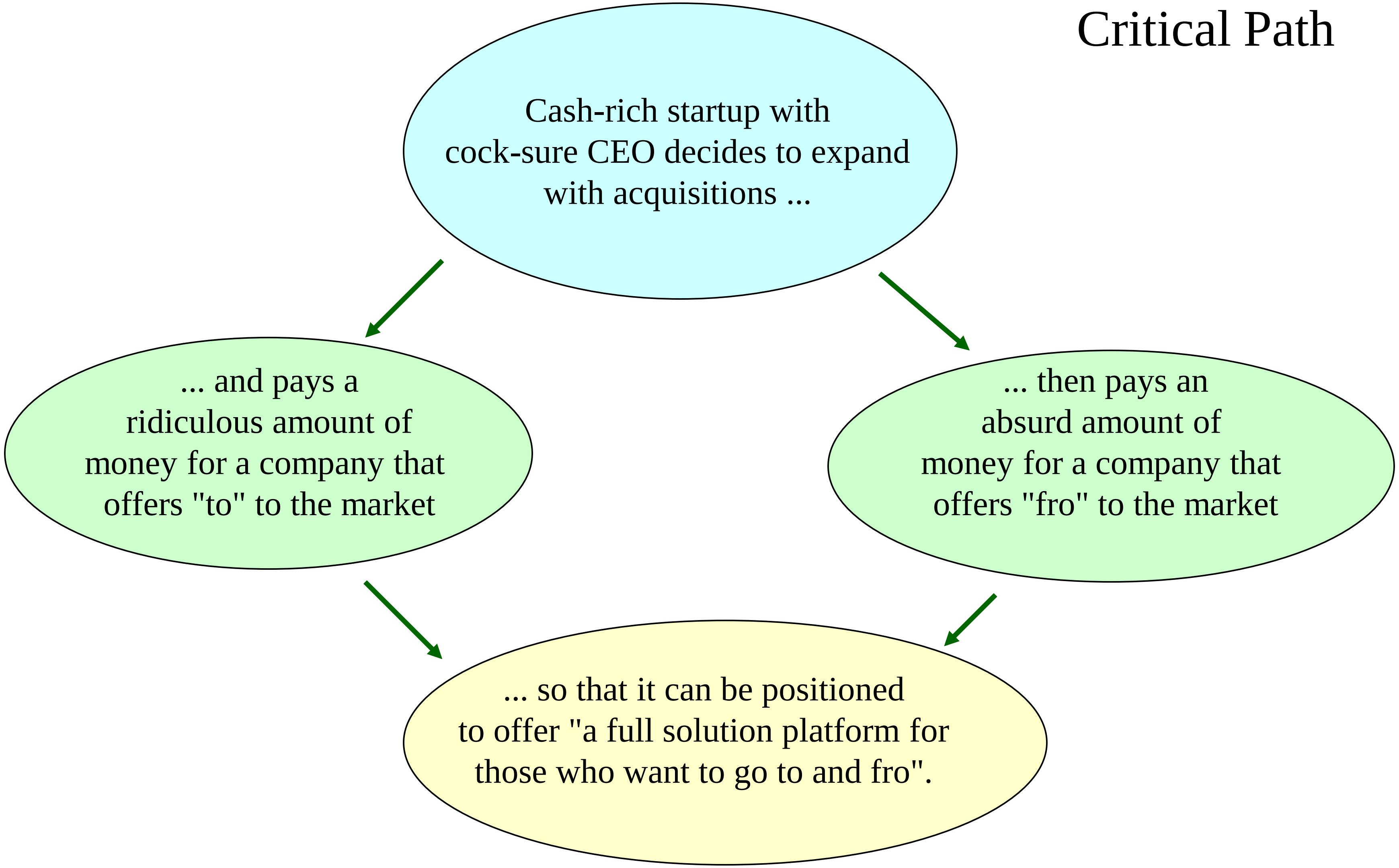
1. Very expensive developments costs.
2. Huge "marketing" costs.
3. Pricing yielding negative gross margins.
4. Software didn´t work well.
5. Resistance from sales and procurement personnel.
6. "DuPont doesn´t need Chemdex (a B2B facilitator) to find Dow."

Ventro

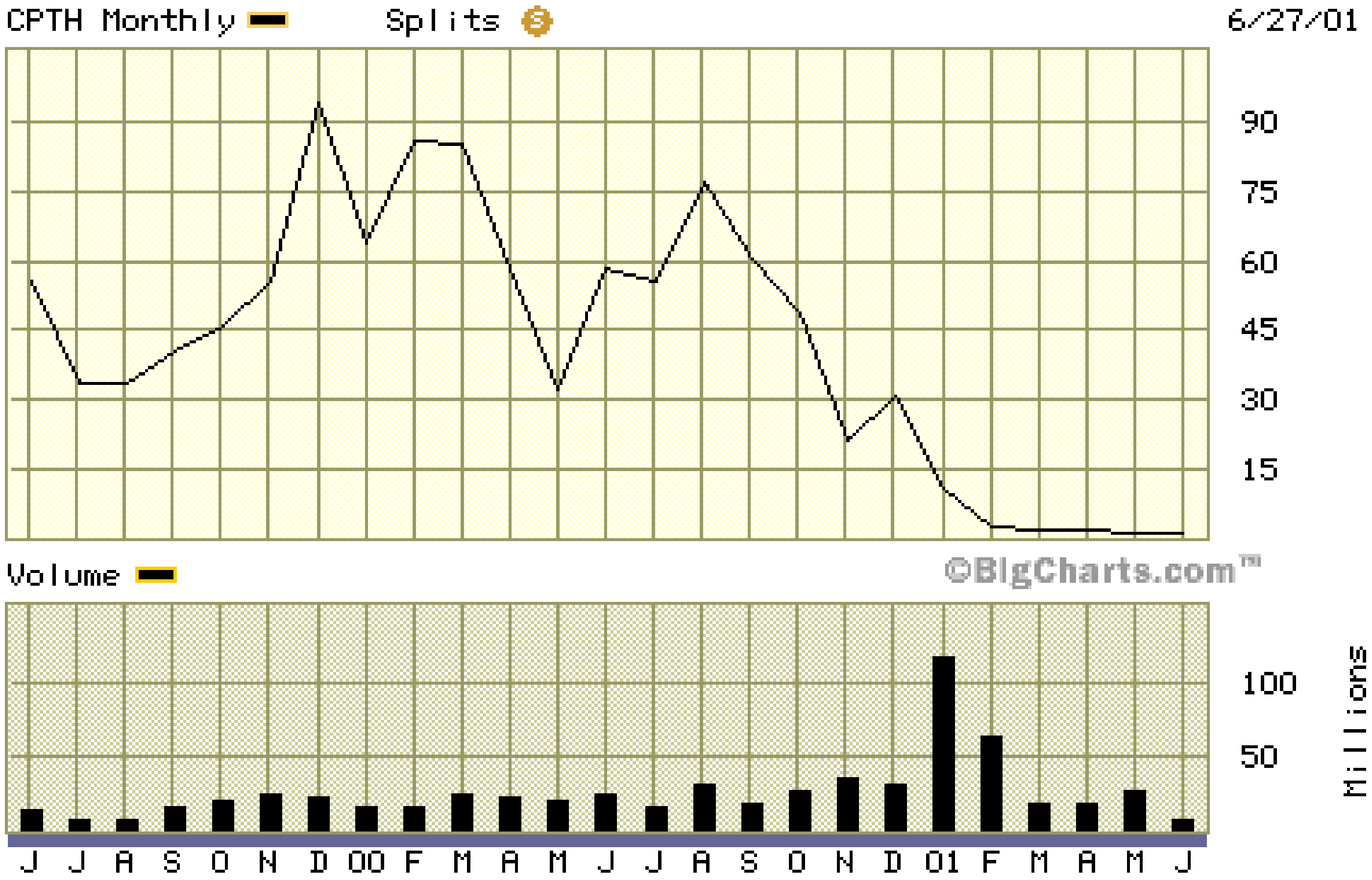

VNTR Monthly
Splits
6/27/01
210
180
150
120
90
60
30
Volume
©BigCharts.com™
40
20
Millions
J J A S O N D 00 F M A M J J A S O N D 01 F M A M J

Over-priced acquisitions

Example:
Critical Path



Critical Path



Critical Path's 1999 and 2000 acquisitions

Our interview with the Critical Path director of biz dev ... [hot tub salesman]

- Amplitude, for $214 m, $45 m cash
  - got calendaring and event scheduling technology
- RemarQ, for $267 m, no cash
  - got internet collaboration services
- FaxNet, for $187 m, $20 m cash
  - got internet fax technology
- … and 7 others, for a total of $1.79 b, $130 m cash