Stock Market Performance
Lessons from History
(that we never seem to learn)

Topical issues September 17, 2013

- QE3 tapering decision tomorrow
  - FRS is monetizing our budget deficits and recovery with QE3, which monthly buys $45b of U.S. government debt and $40b of mortgages.
  - Has already affected bond market because this will raise rates causing capital losses in current bonds.
  - How will mortgage market react?
- MSFT declared a new dividend today
  - 21 cents Q to 28 cents, about 3.4% at current MSFT price.
  - also buying back $40 billion of their own stock, which can raise the stock value (a common tactic)
  - this all ahead of what may be heated shareholder meeting
- Debt ceiling crisis
  - Looming and to be explained later
Shown are continuous compounded (LN) annual growth rates. From rally beginning in July 1982, peaks are Dec 1999, Oct 2007 and now (Sep 2013).

Compounded (LN) annual growth from 1961 equals 6%.

1.03%

15.2%

9.45%

11.3%

The S&P 500
Jan 4, 1999 to Aug 29, 2013

The dot.com crash

The Greenspan easy-credit false rally

The mortgage-collapse crash

The monetization / deficit recovery
S&P500 Daily Volume
and 100-day moving average, 5/26/99 to 8/29/13

Historical average is meaningless given this chart – but we are currently in a quadrant 4 rally.

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.
**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
  - Price stability
  - Momentum
  - Enthusiasm from foreign investors
  - and now, supportive policy like QE3

- 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
  - anything that impacts corporate earnings too much
Correlation between S&P 500 Index and Quarterly Operating Earnings per-share of S&P 500 companies, quarterly, Q1 88 to Q1 13

Lead?  
Lag?

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

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

Cycle-adjusted PE ratio:
1. Has mean reversion
2. Earnings average 6.5% historically
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

- 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] \(\text{(trailing twelve months: ttm)}\), either actual, or the most recent quarter annualized (mrq).

Example: INTC on Sept. 14, 2012 – Closing price $23.37, earnings per share (ttm) was $2.36, so \(\text{P/E} = 23.37/2.36 = 9.90\) (low!)

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 Q1 2013

This is the ratio of the S&P 500 index (numerator) to weighted average operating earnings (not GAAP earnings) per share of the 500 stocks in the index.

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

- 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.
- Dividend yield averaged about 2.18% in summer 2013.
- The larger the company, the more likely they are to pay dividends, tech and growth companies are less inclined to pay (large) dividends.

S&P 500 Dividend Yields

This spike reflects prices (denominator) falling in the crash, and the reversal reflects many companies suspending dividends soon after

Average: 2.23%

To find individual dividend rankings, use a dividend screener like that provided on finance.yahoo.com or go to citation below for every company in the S&P 500.

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

[Graph showing DJIA and CPI inflation rate from 1971 to 1981]

The portfolio effect during inflation:

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.
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).
Net New Mutual Funds Flows in 2012
(monthly, estimated, $ billions, U.S. Funds)

Last year’s slide ...

Clearly mutual fund money continues to flow out of domestic stocks and into bonds, contributing to a weak stock market.

Note: Data are estimates subject to substantial revision.


Net New Mutual Funds Flows in 2013
(monthly, estimated, $ billions, U.S. Funds)

This year’s slide ...

In the final months of 2013, because the FRS has indicated that it will slowly end ("taper") QE3, money flows out of bonds to escape capital losses.

Note: Data are estimates subject to substantial revision.

Source: Investment Company Institute, *Summary: Estimated Long-Term Mutual Funds Flow Data*, September 17, 2013
By the end of 2012, Exchange Traded Products Total Net Assets had grown from essentially nothing in 1992 to $1.337 trillion, $644 billion of that domestic equity funds and $328 billion global equity funds (not shown).

Remember, though, U.S. MF assets equal more than $13 trillion, more than 10 times this total.

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 ...

Oct 19, 1987
July 1989

… 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 …

Peak was 5,048.62 on March 10, 2000, never again approached (both DJIA and S&P 500 returned to their 2000 highs).

News-driven markets (including the current market)

"We're in a very day-to-day, news-driven market," said Scott Wren, equity strategist for A.G. Edwards and Sons. "One day we are worrying about inflation. The next day we're worrying about slower growth. The next day it's good earnings. In general there's more good news than bad news, but we are paying attention to the negative stuff for now.

In the words of another analyst, "Right now the market climbs a staircase and descends in an elevator."

And then beginning in the summer of 2006, the market starts riding up in an elevator and descending a staircase. In late 2007 it switches again – elevator down."
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.”
A Ricardian Event: Sept 11 – 20, 2001

- 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.