The Longest Pictures

A picture guide to financial markets since 1800

The Longest Pictures illustrate long-run trends in financial markets.

We plot almost 100 charts on asset price returns, correlations, volatility, valuations and many other market and macro factors for the US, UK, Europe, Japan and Emerging Markets.

Investors can view US equity prices since 1871, Dutch bond yields since 1517, the oil price since 1861, risk premia since 1900 and German dividend yields since 1869 among many other charts.

The study shows the historical significance of today’s asset markets with 2012 seeing multi-century lows in government bond yields in Developed Markets, the cheapest European equities since the 1920s and the conclusion of the greatest US real estate bear market since the early 1990s.

Secular trends in bonds, equities and other asset classes allow us to advise what the long-term contrarian investor should do. We believe a secular contrarian should be buying Equities, European assets, Japan and Financial & Telecom stocks and selling Gold, Bonds, Emerging Markets and Resources & Consumer Staples stocks.

We nonetheless remain of the view that the catalyst for a decisive change in secular market leadership (or “Great Rotation”) awaits a “good” bear market in bonds caused by real estate, labor and banking markets ending the current Era of Deleveraging (Chart 1).

Chart 1: Equity prices & bond yields since 1900

Source: BofA Merrill Lynch Global Equity Strategy, Bloomberg, Haver
1.45%: the yield of US 10 year Treasuries on June 1, 2012; a 220-year low
1958: the last time US AAA corporate bond yields were this as low as they are today
1517: Dutch government bond yields currently at lowest level in almost 500 years
320bps: the current spread between European dividend yields and German bund yields, an all-time high
63x: the amount EM equities are up since the late 1960s
$1900/oz: record high gold price reached in September 2011
43%: the drop in US real home prices since the 2006 peak, making the current US real estate bear market the greatest since 1921
8%: Japan’s share of global equity market cap; close to an all-time low and down from 44% in 1988
$3,642,000: What $1 invested in US large company stocks in 1824 would be worth today with dividends reinvested
1 out of 2: the number of years since 1871 that the S&P 500 has had a negative real price return in
44%: the share of US Treasuries owned by foreigners; up from just 1% in 1945
280mn: the number of people India’s working age population will grow by over the next 25 years; this is more than the current working age population in the US and Germany combined
“Those classes of investments considered ‘best’ change from period to period. The pathetic fallacy is what are thought to be the best are in truth only the most popular—the most active, the most talked of, the most boosted, and consequently, the highest in price at that time.”

-Fred Schwed, Where are the Customer’s Yachts?

“History does not repeat itself but it does rhyme.”

-Mark Twain

“The four most dangerous words in investing are ‘This time it’s different.’”

-John Templeton

“There are no new eras—excesses are never permanent.”

-Bob Farrell

“The average long-term experience in investing is never surprising, but the short term experience is always surprising.”

-Charles Ellis

“We simply attempt to be fearful when others are greedy and to be greedy only when others are fearful.”

-Warren Buffett

“Buy on the cannons, sell on the trumpets.”

-Old French Proverb

“Buy when there’s blood in the streets.”

-Baron Rothschild
The long-run in years

- 1602: the Dutch East India Company becomes the first company to issue stocks and bonds on the Amsterdam Stock Exchange
- 1685: Germany establishes the second stock exchange in the world
- 1790: an $80 million U.S. Government bond offering to refinance Revolutionary War debt becomes the first publicly traded security in the US
- 1792: the NYSE is organized and the Bank of New York becomes the first company listed
- 1810: Russia is the first “emerging market” country to establish a stock market
- 1879: US stocks record their best year ever, returning 57%*
- 1891: the first US equity bear market (>20% loss) is caused by the “Baring Brothers Crisis”
- 1918: US Inflation hits an all-time high of 20.4%
- 1931: US stocks record their worst year ever, declining 43%*
- 1932: the most volatile year ever for US stocks as volatility hits 68%
- 1981: monthly US 10 year Treasury yields hit an all-time high of 15.8%
- 1982: the best year of total return for long-term Treasuries of 40%*
- 1987: on “Black Monday,” October 19th, the Dow falls 23%, the largest daily drop ever
- 2009: the worst year for long-term Treasury returns with losses of 15%*
- 2012: a year marked by multi-century lows in many DM government bond yields (including the Netherlands, France, US)

*Figures are based on annual total returns
Source: BofA Merrill Lynch Global Equity Strategy, Ibbotson, Dimson, Marsh, and Staunton, Triumph of the Optimists, Haver
The Dow Jones Industrials & long-term US Treasury yields back to 1900.

The chart shows equities are in their 4th secular trading range while bonds are enjoying their 2nd great secular bull market of the past 110 years.

Every equity breakout from a long-run trading range has coincided with a secular inflection point in the bond market.

This was the case after WWI, after WWII, and during the war against inflation in the early 1980s.

A new secular bull market in equities in coming years therefore requires a secular bear market in bonds and a “good” rise in interest rates.
In the long-run stock prices rise.

$1 invested in US large company stocks in 1824 would be worth roughly $376 today in nominal terms.

An even better stat for the bulls: $1 invested in US large company stocks in 1824 would be worth close to $3,642,000 with dividends reinvested, illustrating the power of compounding.

When were the great equity bull markets?

- 1860-1872 = 332% total return
- 1920-1928 = 423% total return
- and (the greatest of them all) 1982-1999 = 1654% total return

Annual data. Shading denotes great bull markets
Source: BofA Merrill Lynch Global Equity Strategy, Ibbotson
Long-run stock prices adjusted for inflation illustrate a more nuanced picture of equity returns.

Two good stats for the bears. First, the S&P 500 has had a negative real price return in nearly 1 out of every 2 years since 1871. Second, equity prices in real terms last peaked in August 2000; after prior secular tops in 1907, 1929 and 1968, stocks took 20-30 years to recover back to their old highs.
Japanese equity prices soared 138X between the end of WWII and their all-time high in December 1989.

But since their 1989 peak, Japanese equities are down 60% (in USD terms).

Japan’s two-decade bear market is currently the longest of the major equity markets.

Monthly data. No data available: September 1945 – June 1946
Source: BofA Merrill Lynch Global Equity Strategy, Global Financial Data
German equity prices since 1924

- German equity prices soared over 3100% between the end of WWII and their all-time high in December 2007.
- German equity prices are down 45% in USD terms from December 2007.
- And since the introduction of the Euro in January 1999, German equities are down about 3% in USD terms.

Monthly data. No data available: October 1931 – March 1932. In January 1943 price limits were placed on trading which essentially froze share prices at their existing levels. These price limits continued until July 1948 when prices were allowed to seek market levels as part of the currency stabilization process.
Source: BofA Merrill Lynch Global Equity Strategy, Global Financial Data
Unlike Japan & Germany, French equities did not experience massive post-war upside in the 50s, 60s & 70s.

The strongest returns from French equities were seen in the 80s & 90s, a period during which French interest rates collapsed (see page 19).

French equities are currently 53% lower than their October 2007 peak.
UK equity returns were poor over the first half of the last century, damaged by two vicious bear markets during the 1930s (a 65% drop 1929-1932 and a 63% drop 1936-1940).

Like other stock markets, UK equities rose dramatically over the second half of the last century, interrupted by the 74% collapse in stock prices in the 1972-74 bear market.

The UK’s three great bear markets of the 1900s was rivaled by the recent 62% decline during the 2007-2009 Financial Crisis.

UK equities are currently 41% from their all-time high set in October 2007.

Monthly data
Source: BofA Merrill Lynch Global Equity Strategy, Global Financial Data
Emerging Market equities since 1920

- Emerging Market equities were notably out in the wilderness after WWII and the creation of the Bretton Woods system of fixed exchange rates.

- The great bull market in Emerging Market equities began as the Bretton Woods system and the gold peg started to unravel in the late-1960s. Since then to today, EM equities are up 63X.

- In contrast to developed markets, EM equities have trended higher in the past 15 years but are still down 32% from their October 2007 peak (in USD terms).

---

EM Equity Price Index (USD), log scale

Monthly data
Source: BoA Merrill Lynch Global Equity Strategy, Global Financial Data, Bloomberg
The US 10 year Treasury yields fell to a 220 year low of 1.45% in June 2012.

US bonds have had the following distinct secular bull and bear markets:

- **1790-1902**: erratic yield fluctuations and then a sustained decline in yields to below 3%.
- **1902-1920**: the First Bear Bond Market, yields rise from 3% to 5-6%.
- **1920-1946**: the Great Bull Bond Market, yields decline from 5-6% to below 2%.
- **1946-1981**: the Second Bear Bond Market, yields soar from 2% to above 15% during 1981.
- **1981-today**: the Greatest Bull Bond Market, as yields tumble from 15% to 1.5% today.
The US 3-month Treasury bill yields 0.07% today.

The last time short rates were this low was during the 1930s-40s, when rates stayed near zero for roughly 15 years.

The all-time low for 3-month Treasury yields was 0.02% in 1940.

Between 1940 and 1980, 3-month Treasury yields rose to an all-time daily high of 17.1% in December 1980.
Moody’s AAA US corporate bond yields is currently 3.6%.

The long-run trend in corporate bond yields largely follows that of government bonds.

In October 1981, Moody’s AAA corporate bond yields rose to an all-time high of 15.5%.

Today, corporate bond yields are at their lowest levels since 1958, and just 1.1ppt away from their all-time low in March 1946 (2.5%).
Japanese 10 year government bond yields

- Japanese 10 year government bond yields surged higher after WWII rising to a peak of almost 15% in December 1961.
- For the past 50 years, Japanese interest rates have headed decisively lower, interrupted briefly by oil shocks and the last-1980s Japanese equity bubble.
- Japanese bond yields fell to an all-time low in May 2003. Since then Japanese yields have been remained exceptionally low and stable.
- Today the Japanese 10-year bond yield of 0.82% is only 30bp above its 140-year low.

Monthly data. Data was unavailable during February 1915 - December 1915; August 1931 - March 1932; July 1936 - November 1940; December 1943 - December 1945
Source: BofA Merrill Lynch Global Equity Strategy, Global Financial Data, Bloomberg
UK bond yields since 1730

- After WWII, UK bond yields rose from 2.5% in 1946 to an all-time high of 17.1% in December 1974.
- As with almost all developed bond markets, a major inflection point in the trend of UK long-term interest rates occurred in the early-80s. This happened as policy makers won their War against Inflation.
- Following in the path of inflation, UK and other bond yields have fallen sharply in the past 30 years.
- UK bond yields are currently 3.6%, the lowest yield since January 1951.
German 10 year bund yields recently tumbled to 1.2% in May 2012, the lowest in the past 200 years (bar the volatile hyperinflation period of 1923 & 1924).

The post-WWII high for German bond yields was 10.8% in July 1974 and following the 1973 oil shock.

Monthly data. Data was unavailable from August 1931 – March 1932 and December 1943 – December 1945
Source: BofA Merrill Lynch Global Equity Strategy, Global Financial Data, Bloomberg
Like most other major bond markets, French 10-year government bond yields also recently fell to historic lows.

Following their peak of 17.3% in June 1981, French yields fell to a 260 year low of 2.3% in June 2012.
In June 2012, Dutch government bonds yielded just 1.53%, the lowest in 500 years.

Dutch 10-year government bond yields peaked at 12.5% in August 1981.

With the notable exception of Peripheral European bond yields, long-term interest rates in the US, UK and Core Europe have experienced “Japanification” in recent years.

Asset allocators must now grapple with the reality of low expected returns from government bonds in coming years. Bonds look unattractive to a long-run contrarian investor.
The trend of Indian interest rates for much of the past two centuries has been linked to the fortunes of the sterling bloc and the London money market.

Over the past 100 years the trends in Indian yields are similar to the UK and Europe but they have diverged in recent decades.

For example, the all-time high in Indian yields was 15.8% in October 1994, much later than the early-80s peak in Developed Markets.

And in the past 10 years, Indian yields have risen rather than fallen to all-time lows, as Indian inflation has risen. Indeed, the 3.4% annual return from Indian government bonds in the past decade is very low compared to other bond markets (see page 32).
As with India, the long run trend of South African interest rates for much of the past two centuries has been linked to the UK.

South African government bond yields have been relatively stable for long periods but during the 1980s South Africa became a country of relatively high interest rates.

South African yields peaked at 18.4% in September 1998, during the Asia crisis and 5 months prior to the secular low in commodity prices.

Since then South African yields have dropped to below 8% and are currently close to their lowest levels since 1966. Indeed, the 12.5% annualized returns from South African government bonds in the past decade is close to historic highs.
Since the 2006 high, US housing prices in real terms have fallen 43% and are now at the same price level as in 1998.

This makes the current bear market in housing the greatest since 1894-1921, when real home prices fell 47%.

After the greatest housing bear market in history, prices went sideways until the end of WWII in 1945 and then jumped 21% in 1946 alone.

Home prices moved modestly upward throughout much of the post-war period with periods of strength that were then dwarfed by a housing bubble that began in 1997.

During the 1997-2006 housing bubble, home prices in the United States soared 85%.

In 2012, US home prices have stabilized and in April rose in year over year terms for the first time since 2007.
Until 1933 the price of gold was fixed at $20/oz under the Gold Standard Act.

In the midst of the Great Depression, under the Gold Reserve Act of 1934, Roosevelt revalued gold (devaluing the dollar) from $20 to $35.

In 1944 the Bretton Woods Agreement established a system of fixed exchange rates in terms of gold for major currencies. In 1971, the US abandoned Bretton Woods and gold became a floating asset.

From 1976-1980, stagflation lifted gold from $100/oz to over $660/oz; the bull market was ended by successful anti-inflationary monetary policy in the early 80s.

Today zero interest rate policies across the G7 are fueling another bull market in gold: in the past five years gold prices have soared from $600/oz to as high as $1900/oz in September 2011.

*ZIRP = Zero interest rate policy; QE = Quantitative easing
Log scale of monthly gold spot price ($/oz)
Source: BofA Merrill Lynch Global Equity Strategy, Bloomberg, World Gold Council
In 1861, a barrel of oil cost 49 cents, its all-time low.

In 1960, OPEC was founded to stabilize oil prices. Since then, political disruptions in the Middle East have intermittently caused volatility in world oil markets.

In 1973-4 during the Arab oil embargo, the oil price quadrupled. Then during the Iranian oil crisis in 1979, the oil price more than doubled.

The all-time high in oil prices was $145/bbl on July 3rd 2008, before prices plummeted below $40/bbl during the credit crisis.

In the past 18 months, WTI crude has twice topped $100/bbl but currently the oil price is $80/bbl.
The US dollar since 1967

- The US dollar came off the Gold Standard after the Bretton Woods Agreement in 1944.
- Since 1967, on a trade-weighted basis the USD has fallen over 30%. Over that period the USD has enjoyed two bull markets.
- The first was during the Reagan era of the early 1980s, when we saw tight monetary and loose fiscal policy. The US dollar index hit an all-time high of 160 in February 1985 and USD approached parity with the British Pound.
- The second bull market occurred in the Asia Crisis and Tech Bubble of the late 1990s.
- Since its 2001 high, just prior to the events of 9/11, the US dollar has primarily been in a bear market, and hit an all-time low in March 2008 during the financial crisis.
- The US dollar looks very attractive to a long-run contrarian investor.
The average annual price return of Growth stocks has been 12.4% since 1926, versus a 16.7% return from Value stocks.

Since 1926 Value has outperformed Growth in roughly 3 out of every 5 years.

Growth has tended to outperform during periods of depression, recession and below-trend growth. Note the outperformance of growth was marked during the 1930s.

Periods of normal expansion tend to favor Value stocks.

Since December 2006, Growth stocks have outperformed Value stocks, making this one of the longer relative bull markets in Growth stocks.
Small cap versus Large since 1926

- Small-cap’s annual average total return has been 16.5% since 1926 versus 11.8% for large-cap stocks.
- Since 1926 small-cap has outperformed large in almost 3 out of every 5 years.
- The outperformance of large-cap was marked during the 1930s. Large-cap has also outperformed over long stretches of time: May 1946 to January 1964; July 1983 to March 1999.
- In recent years, despite a financial crisis, deleveraging and massive policy stimulus, large-cap and small-cap stocks have largely performed in-line with each other.

Monthly data. The 1933 Small Company Stocks total return was 142.9%. Source: BofA Merrill Lynch Global Equity Strategy, Bloomberg, Ibbotson
Rolling equity returns (or compound annual total returns) over the past 10 years and since 1926 are shown in the table.

The strongest equity returns over the past 10 years have come from Emerging Markets. Indeed, EM is the only region in the past 10 years where returns (13.1% p.a.) exceed their long-term average (12.1% p.a.).

In contrast, 10-year rolling returns in the US, UK, Germany & France are in the 4-6% range, all below their long-term averages.

And holders of Japanese equities in the past 10-years have averaged a return of just 1.8% p.a., well below their 11.9% historic average.

<table>
<thead>
<tr>
<th>Country</th>
<th>10 year Annualized Return (%)</th>
<th>Average Annual Return since 1926 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM</td>
<td>13.1</td>
<td>12.1</td>
</tr>
<tr>
<td>Germany</td>
<td>6.3</td>
<td>13.7</td>
</tr>
<tr>
<td>UK</td>
<td>5.3</td>
<td>12.0</td>
</tr>
<tr>
<td>US</td>
<td>4.1</td>
<td>11.8</td>
</tr>
<tr>
<td>France</td>
<td>4.0</td>
<td>12.3</td>
</tr>
<tr>
<td>Japan</td>
<td>1.8</td>
<td>11.9</td>
</tr>
</tbody>
</table>

Annualized monthly total returns, USD
Source: BofA Merrill Lynch Global Equity Strategy, Ibbotson, Bloomberg, Global Financial Data
US equity rolling returns are on the rise.

This chart argues that in the absence of a Japan-like deflationary economy in coming years, the 5-7 year outlook for equities looks fairly promising.

Large-cap equities have averaged a return of roughly 10-12% per annum since 1926. But at its low point in February 2009, the rolling return had collapsed to -3.4%, the worst holding period return since 1940.

But the vigorous rise in equity prices since 2009 has boosted the rolling return to its current 4.1%.

Source: BofA Merrill Lynch Global Equity Strategy, Ibbotson, Bloomberg
EM equities have averaged a return of roughly 12% per annum since 1926.

In the past ten years, the annualized total return from EM equities has been 13.1%.

While the rolling return from EM equities has peaked in recent years, they remain much stronger than US and global equity rolling returns.

Source: BoFA Merrill Lynch Global Equity Strategy, Global Financial Data, Bloomberg
Rolling fixed income returns (or compound annual total returns from government bonds) over the past 10 years and since 1933 are shown in the table.

Government bond returns pretty much everywhere, but especially in Europe and South Africa, have exceeded long run averages in the past 10 years.

<table>
<thead>
<tr>
<th>Country</th>
<th>10 year Annualized Return (%)</th>
<th>Average Annual Return since 1933 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Africa</td>
<td>12.5</td>
<td>6.7</td>
</tr>
<tr>
<td>Germany</td>
<td>10.0</td>
<td>7.2</td>
</tr>
<tr>
<td>Netherlands</td>
<td>9.9</td>
<td>7.7</td>
</tr>
<tr>
<td>France</td>
<td>9.3</td>
<td>5.4</td>
</tr>
<tr>
<td>US</td>
<td>6.9</td>
<td>5.9</td>
</tr>
<tr>
<td>Japan</td>
<td>6.7</td>
<td>6.7</td>
</tr>
<tr>
<td>UK</td>
<td>6.6</td>
<td>6.7</td>
</tr>
<tr>
<td>India</td>
<td>3.4</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Annualized monthly total returns of 10 year government bonds, USD
Source: BofA Merrill Lynch Global Equity Strategy, Global Financial Data
The 10-year rolling return from long-term US government bonds is 9.3%, well in excess of equity returns over the same holding period.

Indeed, the rolling returns from Treasuries has rarely been less than 7-8% in the past three decades.
The 10-year rolling return from long-term US corporate bonds is 8.4%, well in excess of equity returns.

Government and corporate bond returns have been strong for a number of years, and as a result fixed income is still seeing substantial inflows.

Fixed income funds have received roughly $540 billion of inflows since the beginning of 2009. In fact, in 2010 alone bonds had more inflows than they had in the six years from 2003-2008.

Source: BofA Merrill Lynch Global Equity Strategy, Ibbotson, DataStream
The annualized return from cash has been 1.8% in the past 10 years.

The 10-year rolling return on cash is currently the lowest it has been in over 50 years, unsurprising given that short-rates are close to zero.

Source: BofA Merrill Lynch Global Equity Strategy, Ibbotson, DataStream
In stark contrast to the rolling return from holding cash, investors in commodities in the past 10 years have experienced very strong returns.

The rolling return from copper reached a 90-year high of 20.5% in July 2011 and the current rolling return of 16.5% is well above copper’s long-term average annual price return of 7%.

Source: BofA Merrill Lynch Global Equity Strategy, Ibbotson, Bloomberg
In decades of deflation (1930s), bonds outperform stocks.

In decades of reflation (1940s), stocks outperform bonds.

In decades of high inflation/stagflation (1970s), real returns from stocks and bonds are poor.

In decades of disinflation (1980s, 1990s), real returns from stocks and bonds are very good.
Asset returns can look very different when adjusted for inflation. The chart shows real annualized returns for US bonds and equities since the 1930s.

In the 40s, 50s, 60s & 70s, US government bonds has negative returns when adjusted for inflation. But that was followed by over three decades of very positive real returns.

Meanwhile, inflation-adjusted equity returns have only been negative in the 1970s and 2000s.

Real annualized US equity & government bond returns by decade
How did asset markets perform during different decades?

The 1930s were a decade of economic depression and deflation, the Smoot-Hawley Tariff Act, Britain abandoning the gold standard, Glass-Steagall, widespread debt defaults, the New Deal and the beginning of World War II.

Annual US GDP growth averaged -0.2% and inflation -2%, i.e. the 1930s = deflation.

Winners: bonds and notably growth stocks.

Losers: commodities, value stocks, real estate.

The decade of World War II, massive defense spending, Pearl Harbor, atomic bombs, the Marshall Plan, nationalization and restoration of collective bargaining and the beginning of the Cold War.

There was a surge in nominal economic growth; annual US GDP growth averaged 11.7% and inflation jumped to a rate of 5.4% per annum.

Winners: equities, especially small-cap and value stocks.

Losers: cash, bonds.

Asset returns in the 1950’s

- The decade of the Korean War, the Warsaw Pact, the formation of the EEC (European Economic Community), and the economic recovery of a war-torn Europe.

- There was a very favorable economic climate with strong average annual US GDP growth of 6.7% and much lower inflation of 2.2% per annum.

- Winners: equities, especially large-cap & value stocks and copper.

- Losers: cash, bonds.

A decade which began with US political and economic preeminence and ended with the “American Century” unraveling with Vietnam, social dissent and monetary instability.

Annual US GDP growth averaged a strong 6.9% and inflation averaged a low 2.5%; but from 1965 onward a dangerous inflationary spiral began.

Winners: equities, especially small-cap and value stocks.

Losers: commodities, bonds, real estate.

The decade of great and protracted inflation, monetary instability, large budget and trade deficits, wage and price controls, OPEC-induced spikes in oil prices, Watergate and the Soviet invasion of Afghanistan.

“Stagflation” arrived with average annual US GDP growth of 10.1% and inflation of 7.4%.

Winners: small-cap & value stocks, commodities, REITS, real estate.

Losers: large-cap & growth stocks, bonds.

The decade started with a second oil shock and the LatAm debt crisis, ended with the savings and loan crisis, Black Monday, the fall of the Berlin Wall and an asset bubble in Japan. But critically, the 1980’s saw a major peak in global inflation and interest rates and thereafter a sustained economic expansion.

Annual US GDP growth averaged 7.9% and an era of disinflation began with inflation rates declining sharply to average 5.1% for the decade as a whole.

Winners: equities, particularly large-cap and value stocks, REITs, bonds.

Losers: commodities.

The decade in which Japan bubble burst, the Maastricht Treaty, NAFTA, and Uruguay Round of GATT were all signed, balanced budgets, the Tequila & Asian financial crises, the introduction of Euro and the Tech Bubble.

- Annual US GDP growth averaged a healthy 5.5% and inflation was a low and stable 2.9%.
- Winners: equities, especially large-cap & growth stocks, REITS & bonds.
- Losers: real estate, commodities.

The decade of the Tech Bubble burst, the 9/11 terrorist attacks, China becoming a WTO member, wars in Afghanistan & Iraq, China’s equity market bubble & burst, the subprime mortgage crisis and the massive global financial crisis.

US GDP growth averaged 4.1%, the weakest since the 1930s, and inflation declined further, averaging 2.5%. CPI actually turns negative (deflation) in 2009.

Winners: copper, REITS, bonds, commodities.

Losers: equities, especially large-cap & growth stocks.
Thus far, the 2010’s have been a very good period of return for most asset classes.

All asset classes bar real estate have been “inflated” by central bank quantitative easing, zero rates and the near-miss experience of depression.

Winners: high-yielding REITS, government and corporate bonds, high beta small cap, Growth stocks.

Losers: cash, commodities, real estate.

### Summary Statistics of Annual Total Returns of US Assets (1926-2011)

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Arithmetic Mean (%)</th>
<th>Standard Deviation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Company Stocks</td>
<td>11.8</td>
<td>20.3</td>
</tr>
<tr>
<td>Small Company Stocks*</td>
<td>16.5</td>
<td>32.5</td>
</tr>
<tr>
<td>Long-term Corporate Bonds</td>
<td>6.4</td>
<td>8.4</td>
</tr>
<tr>
<td>Long-term Government Bonds</td>
<td>6.1</td>
<td>9.8</td>
</tr>
<tr>
<td>Intermediate-Term Government Bonds</td>
<td>5.5</td>
<td>5.7</td>
</tr>
<tr>
<td>US Treasury Bills</td>
<td>3.6</td>
<td>3.1</td>
</tr>
<tr>
<td>Inflation</td>
<td>3.1</td>
<td>4.2</td>
</tr>
</tbody>
</table>

*The 1933 Small Company Stocks total return was 142.9%
Source: BofA Merrill Lynch Global Equity Strategy, Ibbotson

- This table shows the mean return of US asset classes with the standard deviation (or volatility or “risk”) of those returns.
- In the long-run, the data shows the higher the risk of the asset class, the higher the return.
- All asset classes, including cash, have generated a positive real return as inflation has averaged 3% over the period.
### Summary Statistics of Annual Total Returns (1926-2011)

<table>
<thead>
<tr>
<th>Country</th>
<th>Average Return (%)</th>
<th>St. Deviation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>11.8</td>
<td>20.3</td>
</tr>
<tr>
<td>UK</td>
<td>12.0</td>
<td>26.7</td>
</tr>
<tr>
<td>Germany</td>
<td>13.7</td>
<td>35.9</td>
</tr>
<tr>
<td>France</td>
<td>12.3</td>
<td>36.4</td>
</tr>
<tr>
<td>Japan</td>
<td>11.9</td>
<td>34.8</td>
</tr>
<tr>
<td>EM</td>
<td>12.1</td>
<td>24.9</td>
</tr>
</tbody>
</table>

Equity total returns, USD  
Source: BofA Merrill Lynch Global Equity Strategy, Global Financial Data, Bloomberg

- Since 1926, returns from US, UK and EM equities have had comparable returns but with considerably less volatility than the returns from German, French and Japanese stock prices.
Since 1933, Dutch 10-year government bonds have had the highest return, while the standard deviation of the returns has been fairly modest in comparison to Japan, France and Germany.

US 10-year government bond returns have been the least volatile over this period.
The 5-year rolling standard deviation of US equities and government bond returns are both currently high by historical standards (although in the case of equities, still well below the levels reached in the 1930s).

The standard deviation of US bonds is now approaching its all-time high, which was in October 1984.

US equities have almost always been more volatile than bonds based on 5yr rolling standard deviations.

The exceptions were 1983-1986 and 2007-2008. In those years the volatility of returns from government bonds exceeded those of equities.
US & EAFE stocks: volatility of returns

- The volatility of returns from both US and international equity returns are currently at historic highs.
- The last time US equity returns were this volatile over a 5-year period was 1990 and 2003.
- The last time EAFE equity returns were this volatile over a 5-year period was 1991.

5yr rolling average standard deviation US & international stocks

5 year rolling standard deviations of monthly returns
Source: BofA Merrill Lynch Global Equity Strategy, Bloomberg, Ibbotson
This chart shows that the correlation between equity and US Treasury returns has flipped over time.

- Bond and equity returns are currently negatively correlated.
- In the 1970s, 1980s and 1990s higher bond prices went hand-in-hand with higher equity prices.
- In the 1950s-1960s and during the past decade, higher government bond prices (or lower bond yields) have gone hand-in-hand with lower equity prices.
The returns from US and international equities have always been positively correlated but the correlation was relatively low between 1980 and 1997.

Since the Asia Crisis of the late-90s and the internet bubble, the correlation has risen sharply and has remained consistently high in recent years.

The correlation between US equities and both developed and Emerging Market equities is fairly similar.
This table shows the correlation of various asset classes’ total returns with the S&P 500.

- By and large over this period equity and bond returns have been more positively correlated. But in recent years, the correlation between equities and bonds has been very negative.
- Today, equities and commodities are very highly correlated by historical standards.
- Currently real estate & cash have low correlations with equities.
The most volatile month in equity history was October 1987, the month of “Black Monday”, when the Dow fell 23% in one day. That month volatility reached 91%.

A two standard deviation event would be associated with volatility in excess of 37%. On average, such an event has occurred once every 25 months in the past 90 years.

Note that monthly volatility exceeded 50% on 15 different occasions during the 1930s.

Since the 1930s there have been only 5 such occasions: September 1946, October 1987 and September, October & November 2008.

Today, the VIX index is at 18%, slightly below its long-term average of 20%.
The great equity bear markets

<table>
<thead>
<tr>
<th>Date of Market Peak</th>
<th>Date of Market Trough</th>
<th>Peak to Trough Performance</th>
<th>Duration of Bear Market (mos)</th>
<th>Recovery One Year from Trough</th>
<th>Recovery 39 Months from Trough*</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/16/29</td>
<td>6/1/32</td>
<td>-86%</td>
<td>33</td>
<td>121%</td>
<td>155%</td>
</tr>
<tr>
<td>3/10/37</td>
<td>3/31/38</td>
<td>-54%</td>
<td>13</td>
<td>29%</td>
<td>16%</td>
</tr>
<tr>
<td>5/29/46</td>
<td>6/13/49</td>
<td>-30%</td>
<td>37</td>
<td>42%</td>
<td>82%</td>
</tr>
<tr>
<td>8/2/56</td>
<td>10/22/57</td>
<td>-22%</td>
<td>15</td>
<td>31%</td>
<td>55%</td>
</tr>
<tr>
<td>12/12/61</td>
<td>6/26/62</td>
<td>-28%</td>
<td>7</td>
<td>33%</td>
<td>73%</td>
</tr>
<tr>
<td>11/29/68</td>
<td>5/26/70</td>
<td>-36%</td>
<td>18</td>
<td>44%</td>
<td>48%</td>
</tr>
<tr>
<td>1/11/73</td>
<td>10/3/74</td>
<td>-48%</td>
<td>21</td>
<td>38%</td>
<td>51%</td>
</tr>
<tr>
<td>11/28/80</td>
<td>8/12/82</td>
<td>-27%</td>
<td>21</td>
<td>58%</td>
<td>93%</td>
</tr>
<tr>
<td>7/16/90</td>
<td>10/11/90</td>
<td>-20%</td>
<td>3</td>
<td>29%</td>
<td>60%</td>
</tr>
<tr>
<td>3/24/00</td>
<td>10/9/02</td>
<td>-49%</td>
<td>31</td>
<td>34%</td>
<td>66%</td>
</tr>
<tr>
<td>10/9/07</td>
<td>3/9/09</td>
<td>-57%</td>
<td>17</td>
<td>65%</td>
<td>96%</td>
</tr>
</tbody>
</table>

*Today we are 39 months from the March 2009 low
Source: BofA Merrill Lynch Global Research, Ibbotson, Bloomberg

- There have been 11 bear markets in the S&P 500 since 1929.
- The longest (1946-1949) lasted 37 months, the shortest (1990) lasted 3 months.
- The rally from a bear market low tends to be extremely powerful.
- The most recent bear market (-57%) and equity price recovery (+96%) have been exceeded once before during the 1929-34 period.
Today we are 39 months from the March 2009 low. During this period we have seen the second greatest post-recessionary gain since the 1930s, with markets gaining 96%.

The greatest recovery after a recession followed the bear market in the early years of the Great Depression. Equities surged 121% in 12 months from the June 1932 lows. Indeed 1933, the year in the US unemployment rate touched 25%, was the best year ever for US stock returns.
The Equity Risk Premium (ERP) is the difference between earnings and bond yields, and represents the return demanded by investors to hold equities over Treasuries.

At 7.8%, the return demanded by investors to hold equities over Treasuries is the highest since 1979, and well above the long-term average of 5%.

**Spread of US large company stock earnings yield over real 10yr Treasury yield**

Annual data
Source: BofA Merrill Lynch Global Research, Cowles Commission Indices, Livingston Survey
Spread of US equity dividend yield over 10 year US Treasury yields (ppt)

- This chart shows the percentage point spread between the dividend yield of the S&P 500 and the 10 year US Treasury yield since 1871.
- Before WWII S&P 500 dividend yields were in excess of the 10 year Treasury yield, with an average premium of 136bps.
- But in most of the post-war period, 10 year Treasuries have on average yielded 227bps more than equity dividends.
- The widest spread of Treasuries over dividend yields was 1023bps in 1981.
- Today, in a sign that equity valuations are becoming more competitive versus fixed income, the spread between dividend yields and Treasury yields is close to its narrowest since the late 1950s.

Monthly data
Source: BofA Merrill Lynch Global Equity Strategy, Global Financial Data, Bloomberg
The spread of European equity dividend yields over 10 year German bund yields has hit an all-time high of 320bp in May 2012 as dividend yields have increased and government bond yields have fallen to historic lows.

In short, relative to German bonds, European equities are the cheapest they have been in 90 years.

---

**Spread of European equity dividend yield over 10 year German bund yields (ppt)**

- Source: BofA Merrill Lynch Global Equity Strategy, Global Financial Data, Bloomberg, DataStream.
US price-earnings ratio since 1900

The 12-month trailing Price-to-Earnings Ratio

- Turning to valuation, this chart shows the trailing price-to-earnings ratio of the S&P 500 since 1900.
- The average trailing P/E ratio since 1900 is 14.6X, so today’s ratio of 14.3X* is in line with the long-run average.
- The all-time P/E high was 29.7X in June 1999.
- The all-time low was 5.9X in June 1949.
- The cheapest years to buy equities were 1916 to 1917, 1948 to 1950, 1974 and 1980. During these years the S&P 500 could have been bought for a trailing P/E ratio of less than 7X. Great bull markets in equities followed these buying opportunities.

*As of 1Q12. Annual data through 1935, quarterly thereafter
Source: BofA Merrill Lynch US Equity & Quant Strategy
US dividend yield since 1871

- The S&P 500 dividend yield hit an all time high of 9.6% in 1932.
- The S&P 500 dividend yield hit an all-time low near 1.1% in 2000.
- Dividend yields are currently 2.2%, on the rise but still below the long-term average of 4.3%.
- Note that the dividend yield was much higher in the period before WWII (average was 4.9%) than in the post-war era (when the average has been 3.5%).

The Dividend Yield, %

Monthly data. Nominal dividend yield
Source: BofA Merrill Lynch Global Research, Global Financial Data, Bloomberg
The inflation adjusted S&P 500 dividend yield hit an all-time high of 18.9% in 1931.

The inflation adjusted S&P 500 dividend yield hit an all-time low of -11.4% in 1946.

Note that the real dividend yield was much higher in the period before WWII (average was 4.4%) than in the post-war era (when the average has been -0.4%).

Today, real dividend yields are currently -0.8%, below the long-term average of 2%.

Annual data. Inflation data is from GFD prior to 1914, and Bloomberg thereafter. Source: BofA Merrill Lynch Global Research, Global Financial Data, Bloomberg
The dividend yield on global equities fell to an all-time low of 1.29% in 2000, in the midst of the Tech bubble.

Since then, dividend yields have remained below their long-term average of 3.7%, but have steadily been on the rise.

Today, global equities yield 3.0%.

Monthly data. Dividend yields from GFD prior to October 1995, MSCI All Country World Index thereafter.
Source: BofA Merrill Lynch Global Equity Strategy, Global Financial Data, DataStream
European equity dividend yields have been fairly volatile over the past 85 years.

But similar to the trend of global dividend yields, European yields have been on the rise after having fallen to a record low of 1.7% during the Tech Bubble.

Today, European equities yield 4.4%, above the long-term average of 3.9%. Europe is clearly the most attractive region right now for value investors.
German dividend yield since 1869

- The dividend yield on German equities is currently 3.9%, well above the 10 year bund yield of 1.2%.

Monthly data. Dividend yields from GFD prior to December 1969, MSCI Germany thereafter.
Source: BofA Merrill Lynch Global Equity Strategy, Global Financial Data
Dividend yields in Japan fell close to zero in 1988, and were relatively flat for well over a decade.

Japanese equity dividend yields have been on the rise in recent years and today yield 2.6%. But they remain very low by historic standards and relative to other equity markets, despite the 20-year bear market in Tokyo.

---

Japanese dividend yield since 1886

Annual data through 1925, monthly thereafter
Source: BofA Merrill Lynch Global Equity Strategy, Global Financial Data
Who owns the $10.7 trillion US Treasury market?

In 1945 foreigners owned 1% of the US Treasury market; today foreigners own 44%.

In contrast, the holdings of the financial & household sectors have shrunk from almost 80% to 27%. 

*State & local governments, GSEs, Federal retirement funds, State & local retirement funds
**Financial includes insurance, mutual funds, commercial & savings banks, credit unions, REITs, brokers & dealers, funding corps
***Private pension funds, nonfinancial corporate business, nonfarm noncorporate business

Source: BofA Merrill Lynch Global Equity Strategy, Federal Reserve Board Flow of Funds, Factset, Haver
Who owns the $25.2 trillion corporate equity market?

- In 1945 over 90% of equities were owned by households; now it’s 37%.
- Over time the financial sector has steadily become one of the largest owners of US equities.
- Since 1980 the share of equities owned by the US government and foreigners has risen to over 20%.
Corporate bond ownership since 1945

- Who owns the $11.4 trillion US corporate bond market?
- The financial sector is the largest owner, accounting for over 50% of the outstanding value.
- The rest of the world is now the second largest owner of corporate bonds, accounting for 21%, and up from 2% back in 1945.

*State & local governments, GSEs, Federal retirement funds, state & local retirement funds
**Financial includes insurance, mutual funds, commercial & savings banks, credit unions, REITs, brokers & dealers, funding corps
Source: BofA Merrill Lynch Global Equity Strategy, Federal Reserve Board Flow of Funds, Factset, Haver
How has the composition of the equity market changed over time?

- Industrials, led by railroads, was the largest equity sector in 1899.
- Note that in 1950 Financials represented just 1% of the US equity market.
- Unsurprisingly in 2000, the peak of the Tech Bubble, Tech was the largest sector in the US.

### US Equity Sector Weights

<table>
<thead>
<tr>
<th>Sector</th>
<th>1899</th>
<th>1950</th>
<th>2000</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials</td>
<td>6%</td>
<td>15%</td>
<td>2%</td>
<td>4%</td>
</tr>
<tr>
<td>Industrials</td>
<td>67%</td>
<td>5%</td>
<td>1%</td>
<td>10%</td>
</tr>
<tr>
<td>Cons. Disc.</td>
<td>1%</td>
<td>8%</td>
<td>6%</td>
<td>12%</td>
</tr>
<tr>
<td>Staples</td>
<td>7%</td>
<td>4%</td>
<td>2%</td>
<td>11%</td>
</tr>
<tr>
<td>Financials</td>
<td>7%</td>
<td>1%</td>
<td>18%</td>
<td>14%</td>
</tr>
<tr>
<td>Telecom</td>
<td>4%</td>
<td>6%</td>
<td>6%</td>
<td>3%</td>
</tr>
<tr>
<td>Utilities</td>
<td>5%</td>
<td>8%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Small in 1900: Energy, Healthcare, &amp; IT</td>
<td>5%</td>
<td>53%</td>
<td>62%</td>
<td>42%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Figures may not sum to 100% due to rounding. 2012 data as of May 2012.
Despite being 22% of the world economy, the US is still far and away the largest equity market.

The US share of world market capitalization rose steadily from a low of 29% in November 1988 to a peak of 55% in March 2003 (the US dollar had peaked about one year earlier).

Since then the US equity market steadily lost market share. But this trend has reversed in recent years thanks to the cheap dollar, the safe-haven status of the US & the perception that deleveraging in the US is closer to an end.

The US is currently a very large 48% of the world equity market capitalization.
In 1988 Japan’s equity market was the largest in the world, with a market cap that represented 44% of the MSCI All-Country World Index.

Japan’s share began its epic collapse in 1990, and its share of world market capitalization fell to below 10% in less than ten years.

Japan’s share is roughly 35bps away from its all-time low of global equity market cap of 7.45% reached in 2003.

Japan is a secular contrarian buy (but has been for the past decade).
Europe as a % of world market capitalization

- Back in 1988 Europe’s share of world market capitalization was 21%.
- Europe’s high water mark in terms of market cap came in August 1998 at the height of the Asia crisis and just months before the euro was introduced. Back then Europe represented 35% of world market cap.
- The past 13 years have seen Europe’s share decline to a low point of 22% in May of 2012, the lowest since 1989.
- **Europe is a secular contrarian buy.**
In 1988 the market cap of equities in the Emerging Markets and Asia Pacific ex-Japan was a mere 3%. It is now 17%.

The secular rise of Emerging Markets and Asia Pacific has been marred by two brutal bear markets: 1997-98 and in 2008.

**EM is a secular contrarian sell**, assuming the important catalyst of a sharp step-change lower in Chinese economic growth comes to pass.
Over a shorter seventeen year span, this chart shows the global Financial sector as a share of world equity market cap.

From a secular perspective, Financials might not be as oversold as shorter-term data may indicate.

Financials have undergone huge swings in capitalization, falling to 16% of the world total as the Tech Bubble peaked in 2000, and peaking at 26% in 2007 with the global real estate market before the recent Global Financial Crisis caused the sector’s share to plunge back to 16%.

Financials made a significant recovery from their post-financial crisis low of 16%.

But in the past two years, Financials have again experienced de-rating and the sector would certainly be a contrarian long-term buy in the Developed Markets.
Technology over the past 17 years has demonstrated a classic bubble pattern. Boom...bust...sideways.

- From a mere 6% in 1994, Tech rose rapidly to a high of 24% in 2000, making it the largest sector in the world at the time.
- After the Tech Bubble burst, market share fell to 11%.
- At 13%, it roughly in line with its 17-year average, but the trend is certainly up.
In 1994 Industrials were 14% of world equity market capitalization, and were the third biggest sector.

Industrials fell to a low of 9% of world equity market cap in 2003, and since then they have moderately risen to 11% of world market cap.

Monthly data
Source: BofA Merrill Lynch Global Equity Strategy, MSCI, DataStream
The global Energy sector’s market cap rose from 5% in 2000 to 14% in 2008, reflecting the boom in commodity prices and Emerging Markets in the past decade.

Energy’s share of global market cap has waned since the 2008 peak, but at 11% it remains above its 17-year average of 8%.

Energy is a long-term contrarian sell.
During the Tech Bubble, investors rapidly moved out of defensive sectors causing the global Consumer Staples sector to drop from 10% to 5% of world market capitalization.

In contrast, the Global Financial Crisis caused Staples to rise to a high of 11% of market capitalization in 2008-2009.

Today, the share of staples (10.8%) is once again on the rise amid sovereign debt concerns in Europe and the US.

Staples are a long-term contrarian sell.

Monthly data
Source: BofA Merrill Lynch Global Equity Strategy, MSCI, DataStream
The biggest loser in the past 17 years has been global Consumer Discretionary.

Back in 1994 it was the world’s second largest sector, accounting for 15% of total equity market cap. Fourteen years later the share of Consumer Discretionary stocks fell to a low of 8%, reflecting higher commodity prices and the end of a credit boom.

Over the past few years the share of Consumer Discretionary has risen. The sector continues to be the mirror-image of the secular trend in the Energy sector.
The current share of global Materials stocks (8%) is close to the recent high of almost 10% in 2008.

If the Materials sector were to reach a new high in the next 12 months, we would know that the resources bull market is still on.

Materials are a long-term contrarian sell.

---

Monthly data
Source: BofA Merrill Lynch Global Equity Strategy, MSCI, DataStream
The market capitalization of the global Healthcare sector has been up and down since 1994.

- The peak was roughly 13%, reached in 2001. The sector’s share surged during the Global Financial Crisis.

- Recently, Healthcare has seen a bounce, and today it represents 9% of world equity market capitalization.

---

**Global Healthcare market cap as % of total world**

Monthly data
Source: BofA Merrill Lynch Global Equity Strategy, MSCI, DataStream
Like Technology, Telecom demonstrated a classic bubble pattern over the past 17 years.

Telecom grew from just over 5% in 1994 to 12% in 2000. Thereafter its market capitalization tumbled and the sector never recovered from the bubble burst in the early 2000’s.

Contrarians should note in March 2012 the share of Telecom stocks as a percentage of world market cap fell to its lowest level of all time. The share is currently under 5%.

Monthly data
Source: BofA Merrill Lynch Global Equity Strategy, MSCI, DataStream
Utilities as a % of world market capitalization

- Utilities today are near their historical low in terms of global equity market cap.
- Utilities are the smallest global sector and have traded between 3-6% of world market cap since 1994.
- Like telecom, the utilities sector looks to be fertile ground for long-term contrarian investors.

Monthly data
Source: BofA Merrill Lynch Global Equity Strategy, MSCI, DataStream
Which economies have grown the most?

- Turning to the world economy, this chart shows the share regional economies contribute to global GDP in 1900 vs today, and highlights which regions have expanded or contracted the most since 1900.

- Europe, the UK and the Russia-dominated EMEA region have seen the greatest declines in their contributions to global GDP over the past 111 years in nominal terms.

- In contrast, North America, Japan, Asia and Latin America have seen their economies grow as a share of the world economy.

Annual data. Nominal GDP
Source: BofA Merrill Lynch Global Equity Strategy, Dimson, Marsh, and Staunton, Triumph of the Optimists (1900 data), IMF (2011 data)
The world’s population today is 6.9 billion.

According to the UN, there will be 3.1bn more people on the planet in 2099, and most of them will be in EM.

From 2011-2099, EM populations are expected to grow by 3,000,000,000, or by 53%. By contrast DM populations will grow by just 90,000,000, or 8%.

By 2099 almost 90% of the world will live in EM.

The US is one of the only DM countries estimated to have population growth. The US will expand by over 150mn from 2011-2099, while Germany’s population will contract by 12mn and Japan’s by 35mn.

Source: BofA Merrill Lynch Global Equity Strategy, UN Population Database, Haver
This chart shows UN estimates for the growth in working age population (15-64) in the 45 constituent countries of the MSCI All-Country World Index, our global equity market benchmark.

By 2036, the UN estimates that working age population will grow by 35% in India, while the working age population is set to shrink in Russia, Korea, and China.

The US is one of the few developed market countries whose working-age population is still growing.

Note that working age population is a key input in most models of long-term potential growth (e.g. Solow’s).
In 2025, India will overtake China with the world’s largest working age population.

In the next 25 years, the working age population in India is set to grow by almost 300 million, more than the current working age population in the US and Germany combined.
DM & EM dependency ratios

EM have historically had a greater proportion of dependents to working-age citizens than DM.

But 2016 will be an inflection point - the dependency ratio in Developed Markets will exceed that of Emerging Markets.

Dependency ratio = number of elderly (65+) and children (<15) per 100 working-age (15-64)

Source: BofA Merrill Lynch Global Equity Strategy, UN Population Database, Haver
<table>
<thead>
<tr>
<th>Time Period</th>
<th>City</th>
<th>Building Name</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>1899-1908</td>
<td>New York</td>
<td>Park Row</td>
<td>386 feet</td>
</tr>
<tr>
<td>1908-1909</td>
<td>New York</td>
<td>Singer Building</td>
<td>612 feet</td>
</tr>
<tr>
<td>1909-1913</td>
<td>New York</td>
<td>Met Life</td>
<td>700 feet</td>
</tr>
<tr>
<td>1913-1930</td>
<td>New York</td>
<td>Woolworth Building</td>
<td>792 feet</td>
</tr>
<tr>
<td>1930-1931</td>
<td>New York</td>
<td>Chrysler Building</td>
<td>1046 feet</td>
</tr>
<tr>
<td>1931-1970</td>
<td>New York</td>
<td>Empire State Building</td>
<td>1250 feet</td>
</tr>
<tr>
<td>1970-1974</td>
<td>New York</td>
<td>World Trade Center</td>
<td>1386 feet</td>
</tr>
<tr>
<td>1974-1996</td>
<td>Chicago</td>
<td>Sears Tower</td>
<td>1454 feet</td>
</tr>
<tr>
<td>1996-2003</td>
<td>Kuala Lumpur</td>
<td>Petronas Towers</td>
<td>1483 feet</td>
</tr>
<tr>
<td>2004-2010</td>
<td>Taiwan</td>
<td>Taipei 101</td>
<td>1667 feet</td>
</tr>
<tr>
<td>2010-present</td>
<td>UAE</td>
<td>Burj Khalifa</td>
<td>2717 feet</td>
</tr>
</tbody>
</table>

Source: BofA Merrill Lynch Global Equity Strategy, Council on Tall Buildings and Urban Habitat, BBC
### Skyscrapers as a “bubble” indicator

The table above highlights the world’s tallest skyscrapers and related financial crises.

- The competition to build the world’s tallest structure can be a warning sign of hubris.
- Some of the tallest buildings under construction today are in India and China.

<table>
<thead>
<tr>
<th>Building</th>
<th>Location (Year Completed)</th>
<th>Height</th>
<th>Financial Crisis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Park Row</td>
<td>New York (1899)</td>
<td>386 ft.</td>
<td>Panic of 1907</td>
</tr>
<tr>
<td>Singer Building</td>
<td>New York (1908)</td>
<td>612 ft.</td>
<td>Panic of 1907</td>
</tr>
<tr>
<td>Met Life</td>
<td>New York (1909)</td>
<td>700 ft.</td>
<td>Panic of 1907</td>
</tr>
<tr>
<td>Woolworth Building</td>
<td>New York (1913)</td>
<td>792 ft.</td>
<td>Panic of 1907</td>
</tr>
<tr>
<td>Chrysler Building</td>
<td>New York (1930)</td>
<td>1046 ft.</td>
<td>Great Depression</td>
</tr>
<tr>
<td>Empire State Building</td>
<td>New York (1931)</td>
<td>1250 ft.</td>
<td>Great Depression</td>
</tr>
<tr>
<td>Sears Tower</td>
<td>Chicago (1974)</td>
<td>1454 ft.</td>
<td>1970s Stagflation</td>
</tr>
<tr>
<td>Taipei 101</td>
<td>Taiwan (2004)</td>
<td>1667 ft.</td>
<td>Tech Bubble</td>
</tr>
<tr>
<td>Burj Khalifa</td>
<td>UAE (2010)</td>
<td>2717 ft.</td>
<td>Great Recession</td>
</tr>
</tbody>
</table>

Source: BofA Merrill Lynch Global Research, Vikram Manasharamani, *Boombustology*
We are in a period of rapidly rising US Federal debt. In the nine years between 2008 and 2017, gross Federal debt will rise by over $11 trillion, more than it did in the 63 years from 1945 to 2008.

- The Curse of the Reserve Currency (the consistent demand from global reserve managers to hold US$) means Washington won’t act to reduce debt until inflation causes the bond market to blow-up.
At 99% of GDP, gross government debt has only been higher after WWII.

Historically, US debt/GDP has spiked during times of war and major economic downturns.

The largest and longest jump was the period surrounding the Great Depression and WWII.

After decreasing for the second half of the 1990s, US debt/GDP has been on the rise since 2001.

Source: BoFA Merrill Lynch Global Equity Strategy, Reinhart & Rogoff, “From Financial Crash to Debt Crisis”, Haver, Office of Management and Budget
Excess debt & financial crisis tends to cause a period of low economic growth.

Debt, Deleveraging and Deflation ailed Japan for even longer than they did Asia. What’s worrying is that Europe shares Japan’s demographics (Germany’s working age population is projected to fall from 54 to 43 million over the next 25 years - see pages 89-90).

The global investment backdrop of high liquidity and low growth is unlikely to end anytime soon.
Excess debt & financial crisis tends to increase the likelihood of sovereign debt defaults and reschedulings, which history shows are not uncommon.

Greece has spent almost half of the past 210 years in default or rescheduling debt.

But even Germany has spent over 25 years in debt default or rescheduling.
Excess debt & financial crisis tends to increase the likelihood of inflation, as the chart of inflation & debt default since 1900 indicates.
Link to Definitions
Macro

Click here for definitions of commonly used terms.
Important Disclosures

FUNDAMENTAL EQUITY OPINION KEY: Opinions include a Volatility Risk Rating, an Investment Rating and an Income Rating. Volatility Risk Ratings, indicators of potential price fluctuation, are: A - Low, B - Medium and C - High. Investment Ratings reflect the analyst’s assessment of a stock’s: (i) absolute total return potential and (ii) attractiveness for investment relative to other stocks within its Coverage Cluster (defined below). There are three investment ratings: 1 - Buy stocks are expected to have a total return of at least 10% and are the most attractive stocks in the coverage cluster; 2 - Neutral stocks are expected to remain flat or increase in value and are less attractive than Buy rated stocks and 3 - Underperform stocks are the least attractive stocks in a coverage cluster. Analysts assign investment ratings considering, among other things, the 0-12 month total return expectation for a stock and the firm’s guidelines for ratings dispersions (shown in the table below). The current price objective for a stock should be referenced to better understand the total return expectation at any given time. The price objective reflects the analyst’s view of the potential price appreciation (depreciation).

<table>
<thead>
<tr>
<th>Investment rating</th>
<th>Total return expectation (within 12-month period of date of initial rating)</th>
<th>Ratings dispersion guidelines for coverage cluster*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buy</td>
<td>≥ 10%</td>
<td>≤ 70%</td>
</tr>
<tr>
<td>Neutral</td>
<td>≥ 0%</td>
<td>≤ 30%</td>
</tr>
<tr>
<td>Underperform</td>
<td></td>
<td>≥ 20%</td>
</tr>
</tbody>
</table>

*Ratings dispersions may vary from time to time where BoA Merrill Lynch Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

Income Ratings, indicators of potential cash dividends, are: 7 - same/higher (dividend considered to be secure), 8 - same/lower (dividend not considered to be secure) and 9 - pays no cash dividend. Coverage Cluster is comprised of stocks covered by a single analyst or two or more analysts sharing a common industry, sector, region or other classification(s). A stock’s coverage cluster is included in the most recent BoA Merrill Lynch Comment referencing the stock.

Due to the nature of strategic analysis, the issuers or securities recommended or discussed in this report are not continuously followed. Accordingly, investors must regard this report as providing stand-alone analysis and should not expect continuing analysis or additional reports relating to such issuers and/or securities.

BoA Merrill Lynch Research personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking revenues.

Other Important Disclosures

Offices of MLPFS or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.

BoA Merrill Lynch Global Research policies relating to conflicts of interest are described at http://www.ml.com/media/43347.pdf.

"BoA Merrill Lynch" includes Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") and its affiliates. Investors should contact their BoA Merrill Lynch representative or Merrill Lynch Global Wealth Management financial advisor if they have questions concerning this report.

Information relating to Non-US affiliates of BoA Merrill Lynch and Distribution of Affiliate Research Reports:

MLPF&S distributes, or may in the future distribute, research reports of the following non-US affiliates in the US (short name: legal name): Merrill Lynch (France); Merrill Lynch Capital Markets (France) SAS; Merrill Lynch (Frankfurt); Merrill Lynch International Bank Ltd., Frankfurt Branch; Merrill Lynch (South Africa); Merrill Lynch South Africa (Pty) Ltd.; Merrill Lynch (Milan): Merrill Lynch International Bank Limited; MLI (UK): Merrill Lynch International; Merrill Lynch (Australia); Merrill Lynch Equities (Australia) Limited; Merrill Lynch (Hong Kong); Merrill Lynch (Asia Pacific) Limited; Merrill Lynch (Singapore); Merrill Lynch (Singapore) Pte Ltd.; Merrill Lynch (Canada); Merrill Lynch Canada Inc; Merrill Lynch (Mexico); Merrill Lynch Mexico, SA de CV, Casa de Bolsa; Merrill Lynch (Argentina); Merrill Lynch Argentina SA; Merrill Lynch (Japan); Merrill Lynch Japan Securities Co., Ltd.; Merrill Lynch (Seoul); Merrill Lynch International Incorporated (Seoul Branch); Merrill Lynch (Taiwan); Merrill Lynch Securities (Taiwan) Ltd.; DSP Merrill Lynch (India); DSP Merrill Lynch Limited; PT Merrill Lynch Indonesia; PT Merrill Lynch (Israel); Merrill Lynch Israel Limited; Merrill Lynch (Russia); Merrill Lynch CIS Limited, Moscow; Merrill Lynch (Turkey I.B.); Merrill Lynch Yatirim Bank A.S.; Merrill Lynch (Turkey Broker); Merrill Lynch Menkul Değerler A.S.; Merrill Lynch (Dubai); Merrill Lynch International, Dubai Branch; MLPFS (Zurich) representative office; Merrill Lynch (Spain): Merrill Lynch Capital Markets España, S.A.S.V.; Merrill Lynch (Brazil): Bank of America Merrill Lynch Banco Multiplo S.A.

This research project has been approved for publication and is distributed in the United Kingdom to professional clients and eligible counterparties (as each is defined in the rules of the Financial Services Authority) by Merrill Lynch International and Bank of America Securities Limited (BAL), which are authorized and regulated by the Financial Services Authority and has been approved for publication and is distributed in the United Kingdom to retail clients (as defined in the rules of the Financial Services Authority) by Merrill Lynch International Bank Limited, London Branch, which is authorized by the Central Bank of Ireland and is subject to limited regulation by the Financial Services Authority – details about the extent of its regulation by the Financial Services Authority are available from it on request; has been considered and distributed in Japan by Merrill Lynch Japan Securities Co., Ltd., a registered securities dealer under the Financial Instruments and Exchange Act in Japan; is distributed in Hong Kong by Merrill Lynch (Asia Pacific) Limited, which is regulated by the Hong Kong SFC and the Hong Kong Monetary Authority; is issued and distributed in Taiwan by Merrill Lynch Securities (Taiwan) Ltd.; is issued and distributed in India by DSP Merrill Lynch Limited; and is issued and distributed in Singapore by Merrill Lynch International Bank Limited (Merchant Bank) and Merrill Lynch (Singapore) Pte Ltd. (Company Registration No. s F 06872E and 198602683D respectively) and Bank of America Singapore Limited (Merchant Bank). Merrill Lynch International Bank Limited (Merchant Bank) and Merrill Lynch (Singapore) Pte Ltd. are regulated by the Monetary Authority of Singapore. Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFSL License 235132 provides this report in Australia in accordance with section 911B of the Corporations Act 2001 and neither it nor any of its affiliates involved in preparing this research report is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this report in Brazil. Merrill Lynch (Dubai) is authorized and regulated by the Dubai Financial Services Authority (DFSA). Research reports prepared and issued by Merrill Lynch (Dubai) are prepared and issued in accordance with the requirements of the DFSAs conduct of business rules.

Merrill Lynch (Frankfurt) distributes this report in Germany. Merrill Lynch (Frankfurt) is regulated by BaFin.
This research report has been prepared and issued by MLPF&S and/or one or more of its non-US affiliates. MLPF&S is the distributor of this research report in the US and accepts full responsibility for research reports of its non-US affiliates distributed to MLPF&S clients in the US. Any US person receiving this research report and wishing to effect any transaction in any security discussed in the report should do so through MLPF&S and not such foreign affiliates.

General Investment Related Disclosures:

This research report provides general information only. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This report is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of any specific person. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this report and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this report.

Securities and other financial instruments discussed in this report, or recommended, offered or sold by Merrill Lynch, are not insured by the Federal Deposit Insurance Corporation and are not other obligations of any insured depository institution (including, Bank of America, N.A.). Investments in general and, derivatives, in particular, involve numerous risks, including, among others, market risk, counterparty default risk and liquidity risk. No security, financial instrument or derivative is suitable for all investors. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or financial instrument may be difficult to obtain. Investors should note that income from such securities and other financial instruments, if any, may fluctuate and that price or value of such securities and instruments may rise or fall and, in some cases, investors may lose their entire principal investment. Past performance is not necessarily a guide to future performance. Levels and basis for taxation may change.

This report may contain a short-term trading idea or recommendation, which highlights a specific near-term catalyst or event impacting the company or the market that is anticipated to have a short-term price impact on the equity securities of the company. Short-term trading ideas and recommendations are different from and do not affect a stock’s fundamental equity rating, which reflects both a longer term total return expectation and attractiveness for investment relative to other stocks within its Coverage Cluster. Short-term trading ideas and recommendations may be more or less positive than a stock’s fundamental equity rating.

BoA Merrill Lynch is aware that the implementation of the ideas expressed in this report may depend upon an investor’s ability to “short” securities or other financial instruments and that such action may be limited by regulations prohibiting or restricting “shortselling” in many jurisdictions. Investors are urged to seek advice regarding the applicability of such regulations prior to executing any short idea contained in this report.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned in this report. Investors in such securities and instruments, including ADRs, effectively assume currency risk.

UK Readers: The protections provided by the U.K. regulatory regime, including the Financial Services Scheme, do not apply in general to business coordinated by BoA Merrill Lynch entities located outside of the United Kingdom. BoA Merrill Lynch Global Research policies relating to conflicts of interest are described at http://www.ml.com/media/43347.pdf.

Officers of MLPF&S or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments:

MLPF&S or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. MLPF&S or one of its affiliates may, at any time, hold a trading position (long or short) in the securities and financial instruments discussed in this report.

BoA Merrill Lynch, through business units other than BoA Merrill Lynch Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented in this report. Such ideas or recommendations reflect the different time frames, assumptions, views and analytical methods of the persons who prepared them, and BoA Merrill Lynch is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this report.

In the event that the recipient received this report pursuant to a contract between the recipient and MLPF&S for the provision of research services for a separate fee, and in connection therewith MLPF&S may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom MLPF&S has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by MLPF&S). MLPF&S is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities mentioned in this report.

Copyright and General Information regarding Research Reports:

Copyright 2012 Merrill Lynch, Pierce, Fenner & Smith Incorporated. All rights reserved. iQmethod, iQmethod 2.0, iQprofile, iQtoolkit, iQworks are service marks of Merrill Lynch & Co., Inc. iQanalysts®, iQcustom®, iQdatabase® are registered service marks of Merrill Lynch & Co., Inc. This research report is prepared for the use of BoA Merrill Lynch clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BoA Merrill Lynch. BoA Merrill Lynch Global Research reports are distributed simultaneously to internal and client websites and other portals by BoA Merrill Lynch. Policy available at http://www.ml.com/policies. This research report constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained in this report (including any investment recommendations, estimates or price targets) without first obtaining express permission from an authorized officer of BoA Merrill Lynch.

Materials prepared by BoA Merrill Lynch Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BoA Merrill Lynch, including investment banking personnel. BoA Merrill Lynch has established information barriers between BoA Merrill Lynch Global Research and certain business groups. As a result, BoA Merrill Lynch does not disclose certain client relationships with, or compensation received from, such companies in research reports. To the extent this report discusses any legal proceedings or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisors regarding issues of law relating to the subject matter of this report. BoA Merrill Lynch Global Research personnel's knowledge of legal proceedings in which any BoA Merrill Lynch entity and/or its directors, officers and employees may be involved, defendants, co-defendants or co-claimants with or involving companies mentioned in this report is based on public information. Facts and views presented in this material that relate to any such proceedings have not been reviewed by, discussed with, and may not reflect information known to, professionals in other business areas of BoA Merrill Lynch in connection with the legal proceedings or matters relevant to such proceedings.

This report has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of MLPF&S, any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BoA Merrill Lynch Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.

Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

The information in this research report was obtained from various sources and we do not guarantee its accuracy. This report may contain links to third-party websites. BoA Merrill Lynch is not responsible for the content of any third-party website or any linked content contained in a third-party website. Content contained on such third-party websites is not part of this report and is not incorporated by reference into this report. The inclusion of a link in this report does not imply any endorsement by or any affiliation with BoA Merrill Lynch. Access to any third-party website is at your own risk, and you should always review the terms and privacy policies at third-party websites before submitting any personal information to them. BoA Merrill Lynch is not responsible for such terms and privacy policies and expressly disclaims any liability for them.
Certain outstanding reports may contain discussions and/or investment opinions relating to securities, financial instruments and/or issuers that are no longer current. Always refer to the most recent research report relating to a company or issuer prior to making an investment decision.

In some cases, a company or issuer may be classified as Restricted or may be Under Review or Extended Review. In each case, investors should consider any investment opinion relating to such company or issuer (or its security and/or financial instruments) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities and/or financial instruments) nor should the analyses or opinion(s) be considered a solicitation of any kind. Sales persons and financial advisors affiliated with MLPF&S or any of its affiliates may not solicit purchases of securities or financial instruments that are Restricted or Under Review and may only solicit securities under Extended Review in accordance with firm policies.

Neither BoA Merrill Lynch nor any officer or employee of BoA Merrill Lynch accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this report or its contents.