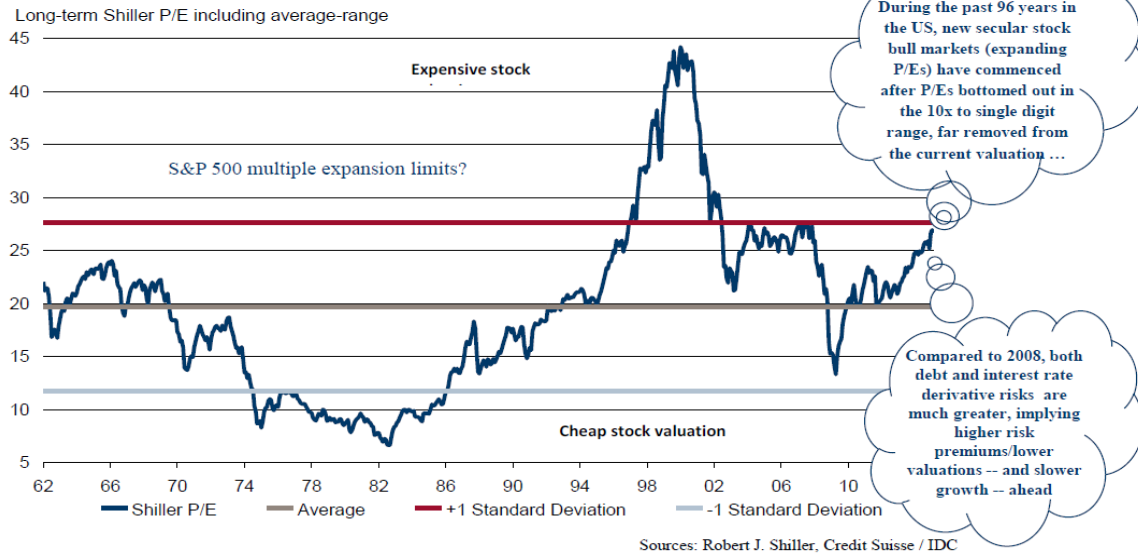


**Returns, valuations, and allocations March 2015 update -- with an energy focus; WTI: \$50.85**

Central bank-determined stock and bond valuations, “traditional asset” bubbles, widening global economic weakness, and contrarian opportunities continue to frame the investment landscape. To wit:

**Stocks getting more expensive, especially as recession “overdue”**  
**If earnings fell 50%, P/E would double at current S&P 500 level**



Meanwhile, junk bonds have been having a heck of a run, pointing to yet another asset bubble:

BofA Merrill Lynch US High Yield Master II Total Return Index Value



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And in Europe, there are \$2trn (!!!) worth of government bonds trading at a negative yield despite mounting solvency risks (please see below) and rising secular monetary inflation risks associated with the commencement of over \$1trn in ECB government bond purchases at the rate of \$70bn per month:



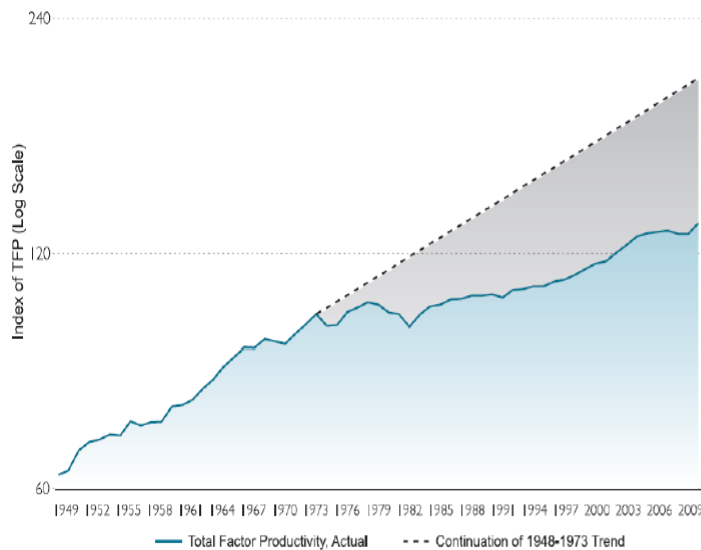
“So it goes without saying that this giant agglomeration of pay-to-own government debt is not reflective of an outbreak of fiscal rectitude or any other rational economic development. It’s purely an artificial trading result stemming from central bank destruction of every semblance of honest price discovery. In this case, the impending ECB purchase of \$70 billion of government debt and other securities per month for the next two years has transformed the financial casinos of Europe and elsewhere into a front runner’s paradise.”

<http://davidstockmanscontracorn.com/draghi/>

As regards the economic landscape, recent US headlines -- recall that the US economy was supposed to be the strongest major economy in the world; an economy that has weaned itself off “QE” -- point to gathering weakness:

- US productivity declined to 106.4 in Q4:14 from 107.1 in Q3:14 (“wealth of nations” determining total factor productivity remains under sustained pressure:

#### Total US factor productivity



Compensation per hour could be \$18 higher if the trend had continued.

#### US labor productivity in nonfarm business sector, 1947-2011. Avg.

percent change p.a.:

1947-1973: 2.8%

1973-1979: 1.2%

1979-1990: 1.5%

1990-2000: 2.2%

2000-2007: 2.6%

2007-2013: 1.6%

Last updated: 2/26/14

[www.bls.gov/lpe/prodybar.htm](http://www.bls.gov/lpe/prodybar.htm)

Sources: <http://fxmadness.com/wp-content/uploads/2009/09/long-term-gold.jpg>, BLS, Hamilton Project calculations

- Q1:15 real sales in US contracting at 2.6% (-2.6%) p.a. rate, worst showing since depths of economic collapse
- Workers’ real earnings were down for the month of February
- New home sales in protracted stagnation, existing sales trending lower into new year
- Durable goods orders in back-to-back quarterly contractions, both before and after consideration of commercial aircraft orders and inflation

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- February Year-to-Year Inflation: 0.0% (CPI-U), -0.6% (CPI-W), 7.6% (ShadowStats)

Sources: Bureau of Labor and [www.shadowstats.com](http://www.shadowstats.com)

Notwithstanding the aforesaid, the buck remains unbowed -- so far -- and the oil price remains on its back:

Trade Weighted U.S. Dollar Index: Major Currencies



Crude Oil Prices: West Texas Intermediate (WTI)



So where do we go from here as regards the dollar and the oil price? Both recent history -- the value of the dollar and the oil price tend to be strongly negatively correlated -- and our trajectory suggest a “return to trend” before all too long, implying a material strategic capital gains opportunity for oil investors. Moreover, the fiat dollar has been in a gradual secular decline against major currencies for over four decades, i.e., in essence since the dollar gold standard was terminated in 1971. Scarce oil, meanwhile, has been in a multi-decade bull market, albeit pierced by extreme price declines, the wellspring of outsized return prospects, such as now:

Crude Oil Prices: West Texas Intermediate (WTI)



Reserve depletion: from finding 4x oil used to using 3.5x oil found

Year	Bnof barrels of oil found globally	Bnof barrels of oil used globally	Annual surplus/deficit
1930	10.0	1.5	8.5
1964	48.0	12.0	36.0
1988	23.0	23.0	0.0
2005	5.5	30.5	-25.0
2010	6.0	32.0	-26.0
2013	12.4	33.0	-20.3

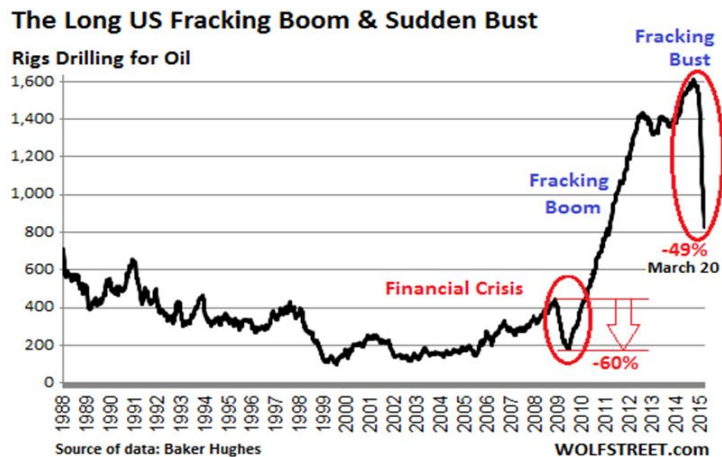
*Nearly \$700bn spent globally in 2013, all-time record*

And what does the all-important global oil demand versus global supply tell us? From 2013 to 2014, we went from demand exceeding supply by an average of 1.06m barrels per day (bpd) to demand exceeding supply by only .20m bpd (<http://dkanalytics.com/wp-content/uploads/2016/10/17>Returns-valuations-allocations-March-2015.pdf>, slide 13). Surely this year we will see weakening demand -- and we could well enter a supply surplus, something borne out by US crude and product inventories reaching 1.893bn barrels, up 159bn barrels from a year ago (EIA). Yet consider the following secular oil supply constraints, most of which have been exacerbated by the 50% plus decline in the price of oil since last summer:

- The fact that “oil majors,” who have spent record amounts on drilling (\$700bn industry-wide in 2013, up from \$300bn in 2005!), have been throttling back cap ex by 33% or more thanks to the poor returns on investment they achieved, even when oil was in the \$100 range.
- In the face of lower oil industry cap ex, the need to offset global oil production declines of 5 - 8% p.a., or some 2bn barrels p.a. out of a global supply of 33.6bn p.a., remains. For granularity, reflect on this:

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- ✓ Russia, the world's biggest oil extractor, is also a very mature producer. If one excludes all the drilling activity taking place every year, the organic decline rate is 19%. To compensate for that, Russia drills somewhere between 5000 and 6000 wells every year. (IEA and peakoil.com)
  - ✓ Quoting a 2006 Saudi article: "Without 'maintain potential' drilling to make up for production declines, Saudi oil fields would have a natural decline rate of a hypothetical 8%. As Saudi Aramco has an extensive drilling program with a budget running in the billions of dollars, the decline is mitigated to a number close to 2%." The article concludes that "Massive infill horizontal well drilling has made it a new ball game. This enables a country like Russia or Saudi Arabia to keep production from declining any great amount until its fields are around two-thirds depleted or more. But when the decline finally does set in, it will be steep, very steep." The same logic obviously applies to the Permian Basin in the U.S where production has been lifted by horizontal drilling. (<http://peakoil.com/geology/jodi-iraqi-reserves-and-ghawar>)
  - ✓ Dr. Sadad al-Husseini, former vice president of Saudi Aramco, said last fall that the rise in the Saudi Aramco oil rig count had been evolving over a long period -- (it has risen 15.6% p.a. since 2004). "You need to drill more wells if you are producing 10 million barrels per day (bpd) and maintaining your spare capacity. It is also a natural phenomenon in the oil business that the more you produce, the more you deplete your reserves and the more rapidly your field capacity declines. You need to drill more wells more frequently, simply to maintain production capacity." (<http://www.macrostrategy.co.uk/>)
  - ✓ Current OPEC oil production equates to over 40% of world supply. Six countries – Venezuela, Iran, the UEA, Kuwait, Iraq, and Saudi Arabia have produced 228bn barrels of oil between 1980 and 2010. Over the same 30-year period, reported reserves (economically accessible resources) by the same countries have risen by over 500bn barrels of oil, raising the question of whether this is "political" or geological reserve growth! ([http://dkanalytics.com/wp-content/uploads/2016/10/9-Dense-energy-November-2013\\_.pdf](http://dkanalytics.com/wp-content/uploads/2016/10/9-Dense-energy-November-2013_.pdf), p. 3)
- The shale oil (fracking) industry *as a whole*, which has increased US and thus world output oil output by some 4m bpd over a six year period (global production in 2014 amounted to 92m bpd; IEA), has required huge amounts of external financing, specifically more than \$210bn last year alone. Plus, the industry has never earned any money, even while oil traded around \$100 for roughly four years. That same industry is now idling drilling rigs in unprecedented numbers:



- For a more detailed look at a rapidly downsizing fracking industry and its capitalization, envisage the following:
- ✓ US April shale oil production (includes "gas liquids") will be 5.6m bpd, unchanged from March, although up 1.15m bpd from a year earlier. The annual rate of extraction growth has slowed in each of the last two months. The legacy decline rate has soared to 99.7% from 70.2% at the end of December, meaning that 99.7% of the gross new production that month was offsetting declines from existing wells. Both the Bakken and Eagle Ford have legacy decline rates in excess of 100%, indicating that their production is actually falling on a m/m basis, whereas Permian's is still 76.7%, which, combined with Utica, are the only two major fields below 100%.

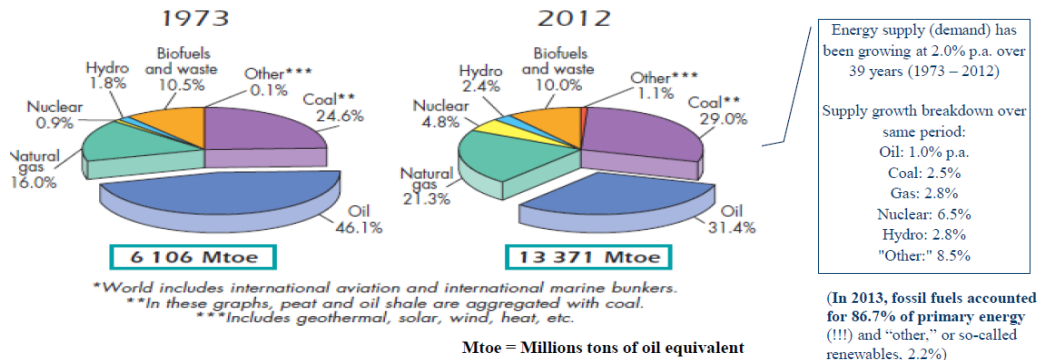
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The rising legacy decline rate infers that technological advancement and identification of sweet spots is no longer sufficient to fully compensate for the loss of rigs. All said, this portends sharply reduced production growth and eventually a decline. (<http://www.macrostrategy.co.uk/>)

- ✓ Dialogic calculates that banks earned \$31bn in fees from the US oil and gas industry over the past five years as loans to over-indebted junk rated companies soared from \$40bn in 2009 to \$210bn in 2014. For Wall Street it doesn't matter what happens to these junk bonds and leveraged loans after they've been moved on to mutual funds. Nor does it matter to Wall Street what happens to loans after they've been repackaged into highly rated Collateralized Loan Obligations that are then sold to others. What matters are the fees.
- ✓ Regarding the debt funded the fracking boom: now that oil and gas prices have collapsed, so has the ability to service that debt. The oil bust of the 1980s took down 700 banks, including 9 of the 10 largest in Texas. But this time, it's different. This time, bondholders are largely on the hook, yet the rapid decline in the oil price left the banks still holding large amounts of paper. These junk bonds are already caving. Busts start with small companies and proceed to larger ones. "Bankruptcy" and "restructuring" are the terms that wipe out stockholders and leave bondholders and other creditors to tussle over the scraps. (<http://wolfstreet.com/2015/03/05/default-monday-oil-gas-companies-face-their-creditors/>)
- ✓ Creditors' perspective is best summed up thusly, in our view: "The old money has been drilled into the ground. The new money is starting to dry up. Fracked wells, due to their horrendous decline rates, produce most of their oil and gas over the first two years. And if prices are low during that time, producers will never recuperate their investment in those wells, even if prices shoot up afterwards. And they'll never be able to pay off the debt from the cash flow of those wells. A chilling scenario that creditors were blind to before, but are now increasingly forced to contemplate."

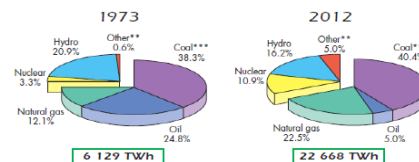
Upshot: look for very substantial pressure, both from the oil majors and fracking outfits, on the global oil supply, possibly as soon as later this year. Recall that the annual global oil production decline rate is between 5% - 8%, or roughly 6m bpd (barrels per day) compared to 92m bpd of supply on average last year. Six million bpd is roughly 50% more than what the fracking industry has been able to tease, with great expense thanks to high double-digit annual production decline rates/massive drilling, out of the ground over the past five to six years. Moreover, consider that global oil demand last year just above 92m bpd, a pinch ahead of supply. And that oil consumption grows, on average, 1% p.a. (please see below). Arguably, for the reasons we've reviewed above, it won't take much to tip the world back into an oil supply shortage position, which brings with it bullish implications for the oil price.

## Global primary energy supply breakdown: 81.7% fossil fuel-based; renewables ("other") generate only 1.1% of supply



Global composition of electricity by TWh in 2012 (on right)

Noteworthy: in 2012, fossil fuels, nuclear, & hydro = 95.0% of power generation; "other" accounted for 5.0%



Sources: IEA Key World Energy Statistics, BP, [www.2es.org/technology/overview/electricity](http://www.2es.org/technology/overview/electricity)

\*Excludes electricity generation from pumped storage.  
\*\*Includes geothermal, solar, wind, heat, etc.  
\*\*\*In these graphs, peat and oil shale are aggregated with coal.

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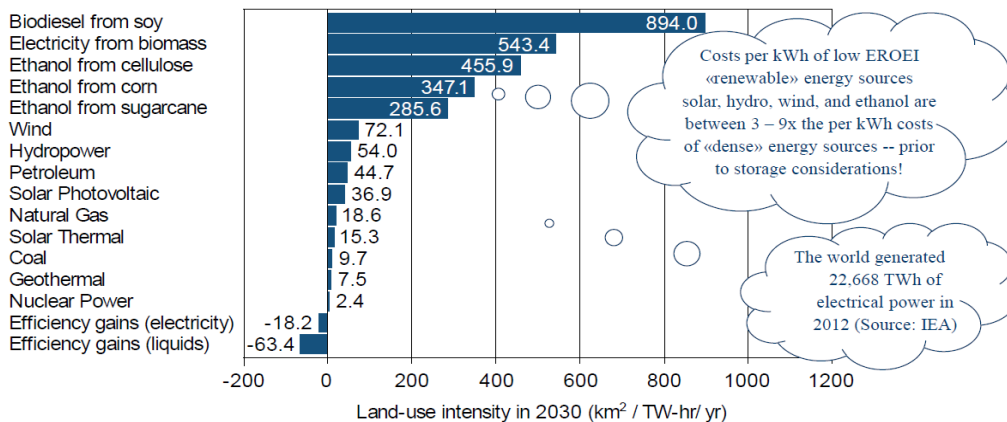
Let us shift away from the constructive supply side. Let's devote a few lines to global oil demand growth averaging 1% p.a. Dwell on the fact, if you would, that that leading energy contributor oil -- and energy rich fossil fuel cousins' natural gas and coal very much included -- is absolutely vital to the hugely energy-leveraged output that we achieve per capita. We have fossil fuel dependent, energy intensive lifestyles. Did you know that? Cases in point:

- One barrel of oil = 11.5 years of agricultural field work (assuming worker toiling 40 hours per week)!
- An average of 4.8 barrels of oil per capita consumed p.a. supplies only 31% of global per capita energy needs
- If Asia's per capita energy usage rose from 25% to 33% of efficient Europe's, global demand would rise 19%
- Harnessing dense energy (lots of heat from little volume displacement) = productivity or leveraged work!
- EM productivity can only reach OECD levels by sustained, material increases in capital/machinery deployment
- Sustainable global economic growth, esp. given our aging challenge, can only be achieved via productivity (BP, IEA, EWG, oil drum.com, Euan Mearns, J. David Hughes, DOE, OECD)

Can "other" or so-called "renewable energy solutions" negatively impact demand for fossil fuels? Did you know that so-called "renewable energy solutions," such as gigantic wind and solar structures, call for tremendous amounts of fossil fuels just to construct? And that they require huge and often costly acreage (are not dense sources of energy) to operate? Furthermore, that they don't offer the "24/7" power modern economies are built on, and would necessitate stupendous investments in storage facilities if they were to function as "stand-alone" energy sources (without mainstay fossil fuel or nuclear-based power production)? Is it any wonder that such "solutions" really aren't, and that future demand for oil, natural gas, and coal as affordable, "24/7" sources of energy remains bright?

(EROEI: energy returned on energy invested; the more dense and accessible energy forms have high EROEIs.)

### Projected land-use intensity per terawatt-hour per year (The lower the EROEI, the greater the land use intensity)



Source: <http://www.plosone.org/article/info:doi/10.1371/journal.pone.0006802>. Please note: values shown are for 2030, as measured in km<sup>2</sup> of impacted area in 2030 per terawatt-hour produced/conserved in that year. Numbers provided are the midpoint between the high and low estimates for different techniques. For liquid fuels, energy loss from internal combustion engines is not included in this calculation.

In conclusion, as a result of or thanks to:

- Rampant fiat money-based misallocations, very much including the destructive rise of crony capitalism
- Global financial repression (zero interest rate policies and QE) and the related broad-based asset mispricing
- The 50% plus oil price reduction since last summer (WTI-based oil currently trading at \$50.85 per barrel)
- The currency debasement-based hedge that scarce, vital oil represents
- Sharply reduced oil industry cap ex resulting in oil supply tightening (need to offset 6.5% output loss p.a.)
- Our global economic dependency on ample consumption of dense oil per capita, esp. as regards growth
- And the lack of viable oil/fossil fuel substitutes, ...

... I view the current oil price as a promising strategic purchasing opportunity.

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If you'd like an email discussion about how to best add oil (and, by extension, natural gas) to your strategic portfolio(s) within the context of your investment goals/needs/risk tolerance, shoot me an email. By best I mean: counterparty risk free, dividend-stream enriched, globally diversified, investment grade, devoid of costs associated with expiring futures (roll costs), and perhaps most important of all, when value\* is on offer (a moderate P/E compared to normalized earnings power). I believe such an opportunity, in the "teeth of a global recession," is currently at hand in the oil patch.

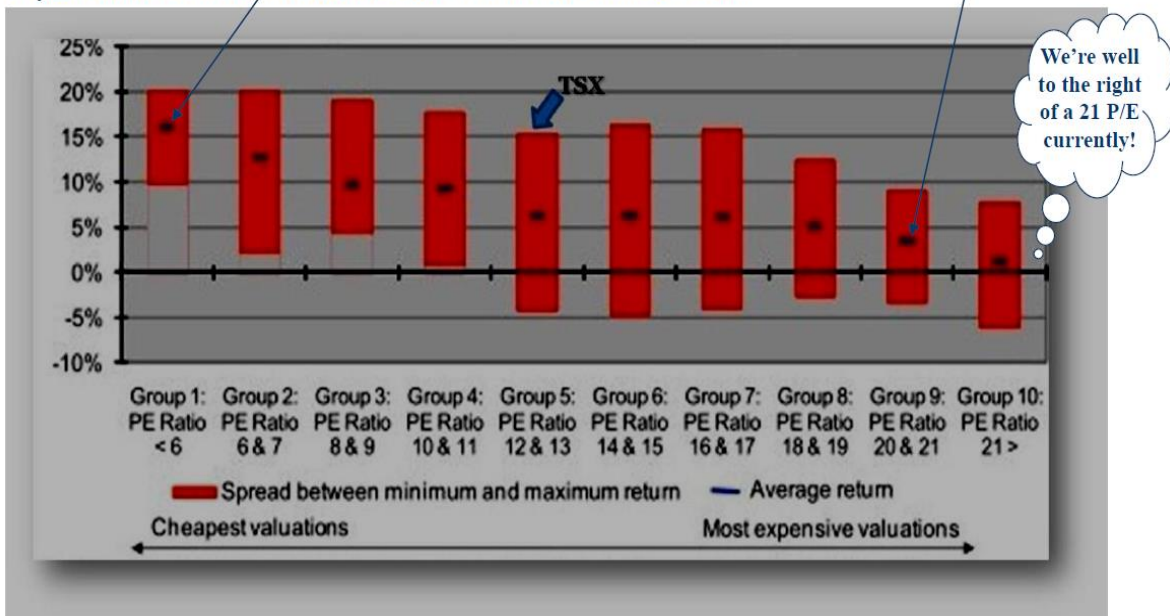
Dan Kurz, blogger

\*

## Strategic returns depend materially on acquisition P/E (valuation)

P/E of 6 or E/P of 16.7% (multiple expansion!); P/E of 20 or E/P of 5%

10-year forward real returns based on S&P 500 P/E ratios from 1871-2010



Sources: Plexus Asset Management (based on data from Prof Robert Shiller and I-Net Bridge per 9/30/2011)

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