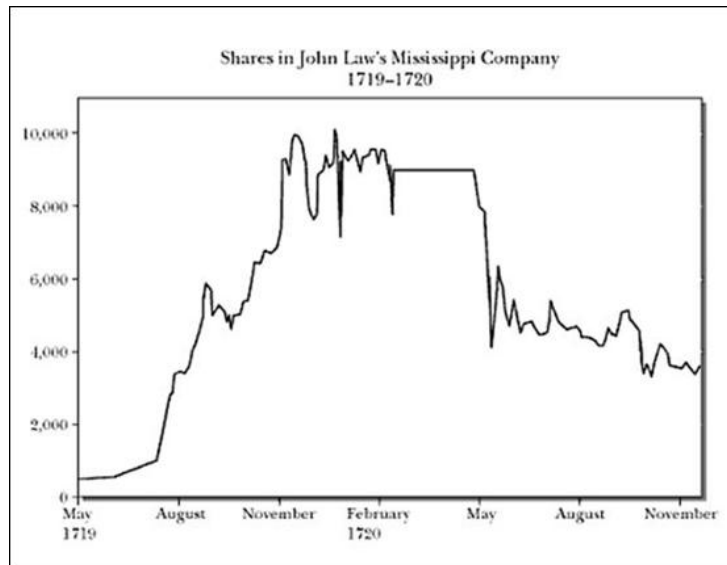


January 2016: the big picture as we kick off the new year

Headlines, timely charts, return prospects, portfolio construction slides

Today just like France's Mississippi Bubble of 1718-1720, except this time global? Risks and opportunities.



[www.thebubblebubble.com/mississippi-bubble](http://www.thebubblebubble.com/mississippi-bubble)

**Endure, Avoid, or Profit? How is your portfolio structured?**

**Dan Kurz, CFA, DK Analytics ([www.dkanalytics.com](http://www.dkanalytics.com); [dan@dkanalytics.com](mailto:dan@dkanalytics.com))**

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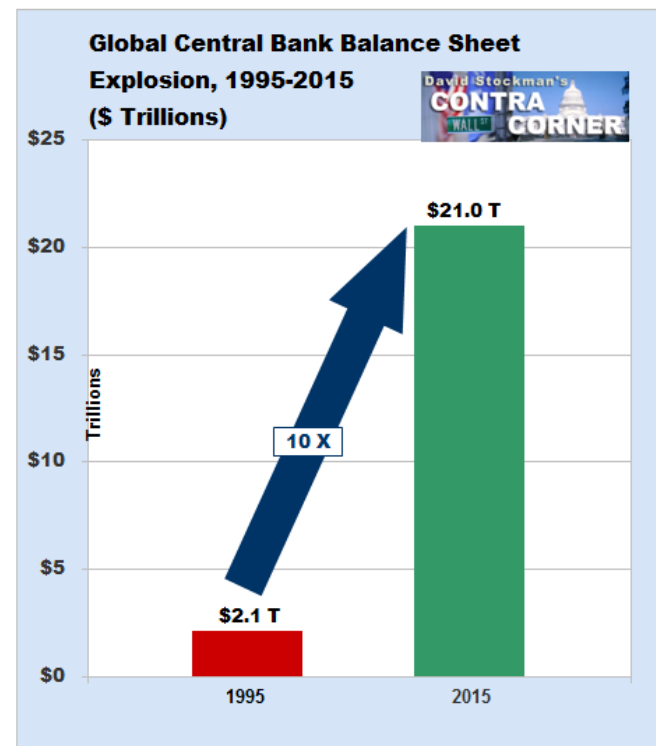


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Slide 1

# Introductory/”framing” food for thought:

- “Value in the financial markets is no longer a function of the discounted cash flow of future income, but instead is determined by the amount of money the central bank is printing, and especially by how much it intends to print in the coming months.
- Those who are closest to the money-printing, i.e., the financial markets, are the biggest beneficiaries of that printing. This is exactly what happened in 1720 in France during the Mississippi Bubble inflated by John Law. The end results were not pretty.
- These days, some 70% of market orders are generated by computers, and many of the rest by indexers. And computers do not think. As a result, I cannot remember a time when less thinking has ever been done in the financial markets.
- We are swimming in an ocean of ignorance, just like France in 1720. It seems all the painful economics lessons learned over the last 300 years have been forgotten.”



**Global central bank balance sheet CAGR: 12.2%, easily twice global nominal GDP growth p.a. over 20-yr period**

Sources: [www.zerohedge.com/news/2015-12-10/charles-gave-i-cannot-remember-time-when-less-thinking-has-ever-been-done-financial-](http://www.zerohedge.com/news/2015-12-10/charles-gave-i-cannot-remember-time-when-less-thinking-has-ever-been-done-financial-), <http://davidstockmanscontracorner.com/wp-content/uploads/2015/09/Capture20-432x480.png>

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# Recent developments/headlines in weakening global economy

- November 2015 initial jobless claims (228,000) in US surged to five-month highs
- 41% of net new American jobs in November were in government as the civilian labor force participation rate continued to plunge to a near four-decade low of 62.5%; a near record 94.4m Americans not in labor force!
- Obamacare putting economy on “life support;” law has consumers scrambling for affordable coverage in 2016 and firms “trimming” payrolls and full-time jobs (“49ers and 29ers”)
- From 2008 to 2014, food stamp recipients rose from 37.0m to 69.4m, up 87.6%; disability payments rose from \$34.1bn to \$46.3bn, up 35.7%; and young adults living with their parents rose from 28.1% to 31.8%.
- November 2015 existing-homes declined 3.8% year-over-year (down 34.5% from June 2005 high); November 2015 housing starts remained down by 57.9% compared to January 2006 high
- US industrial output had its biggest decline in 3.5 years in November, led lower by the crashing oil sector, which had been booming; meanwhile, “core” durable goods orders slumped 1.9% year-over-year, the 10<sup>th</sup> consecutive monthly decline
- Through Q3, S&P 500 GAAP earnings have declined over 11% compared to last year (our “recovery” is long in the tooth)
- (In light of above, how long will Fed be able to raise interest rates before reversing them and revisiting very robust QE?)

Sources: <http://www.bea.gov/>, <https://research.stlouisfed.org/> SGS, <http://www.regulations.gov/#!home>, <http://www.cnsnews.com/news/article/terence-p-jeffrey/41-net-new-jobs-november-were-government>, <http://finance.yahoo.com/news/obamacare-condition-gone-critical-life-113000762.html>, <http://www.thefiscaltimes.com/Columns/2015/11/19/Obamacare-s-Bait-and-Switch-Has-Left-Consumers-Scrambling>, Datastream, CS, <http://www.treasurydirect.gov/govt/reports/pd/mspd/mspd.htm>, [http://www.bis.org/statistics/d5\\_1.pdf](http://www.bis.org/statistics/d5_1.pdf), <http://www.zerohedge.com/news/2015-12-01/coming-great-recession-brought-you-healthcare-cartel>, [https://bea.gov/scb/pdf/2015/09%20September/0915\\_government\\_receipts\\_and\\_expenditures.pdf](https://bea.gov/scb/pdf/2015/09%20September/0915_government_receipts_and_expenditures.pdf), <https://www.ssa.gov/disability/>, [https://www.socialsecurity.gov/policy/docs/statcomps/ssi\\_asr/2014/sect01.pdf](https://www.socialsecurity.gov/policy/docs/statcomps/ssi_asr/2014/sect01.pdf), <http://www.macrostrategy.co.uk>, <http://www.zerohedge.com/news/2015-12-25/number-young-adults-living-their-parents-has-never-been-higher-it-could-be-worse> [https://www.socialsecurity.gov/policy/docs/statcomps/ssi\\_asr/2014/sect01.pdf](https://www.socialsecurity.gov/policy/docs/statcomps/ssi_asr/2014/sect01.pdf); <http://data.bls.gov/timeseries/LNS15000000>

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# Recent developments/headlines in weakening global economy, cont'd

- US declared debt rose by \$674bn in one month in November to \$18.8trn, or 5.5x the federal government's 2015 tax receipts (62% from individuals)
- During just the last 90 days, federal government posted 5,965 new regulations, a productivity-withering, economic "wet blanket;" regulatory compliance already costs the private sector \$2trn p.a. -- just think of the unproductive staffing requirements!
- Ongoing loss of rule of law (fiat gov't) and evisceration of property rights (fiat money, green crony capitalism, massive amnesty with welfare, redistributionist Obamacare, depositor confiscation schemes) economic "wet blankets" -- a toxic public policy stew!
- The ECB and the BOJ continue to print massive amounts of money, the PBOC has joined them, ZIRP and NIRP abound. Global toxic public policy cocktail sustained with financial repression. Global fiat currency supernova inevitable? Gold and silver bullish!
- Plus, over \$400trn in interest rate sensitive derivative contracts expose banks to trillions in losses if interest rates "normalize" (2008 financial meltdown risks, revisited?), implying sustained central bank "currency debasement" in offing
- The oil industry has deferred or cancelled about 150 projects that could unlock 125bn barrels of oil. At peak production, these projects represent 19m bpd of production, more than 20% of world daily consumption. The projects need a breakeven of at least \$95bbl – \$114bbl! In interim, over \$400bn worth of fracking junk bonds face huge or total losses.
- The CRB Commodity Index is at multi-decade lows as great "Chinese unwind" (over 50% of GDP "infrastructure") continues, war-torn ME lacks oil revenues, and Brazil faces political instability and "stagflation" -- global issues abound!

Sources: <http://finance.yahoo.com/news/obamacare-condition-gone-critical-life-113000762.html>, Datastream, Credit Suisse., [http://www.bis.org/statistics/d5\\_1.pdf](http://www.bis.org/statistics/d5_1.pdf), <http://www.regulations.gov/#>, <http://www.zerohedge.com/news/2015-12-01/coming-great-recession-brought-you-healthcare-cartel>, <http://dkanalytics.com/dkblog/index.php/2015/09/08/dk-analytics-blog-8-assaulted-property-rights-and-thus-liberty-fiat-money-focus-installment-1/>, <http://dkanalytics.com/dkblog/index.php/2015/09/28/dk-analytics-blog-9-assaulted-property-rights-and-thus-liberty-the-c02-global-warming-hoax-installment-2/>, <http://dkanalytics.com/dkblog/index.php/2015/10/17/dk-analytics-post-10-assaulted-property-rights-and-thus-liberty-massive-immigration-into-welfare-states-installment-3/>, <http://www.powerlineblog.com/archives/2015/12/high-stakes-in-the-coming-trump-cruz-clash.php>, <http://www.powerlineblog.com/archives/2015/12/high-stakes-in-the-coming-trump-cruz-clash.php>, [http://www.huffingtonpost.com/ellen-brown/banks-confiscation\\_b\\_2957937.html](http://www.huffingtonpost.com/ellen-brown/banks-confiscation_b_2957937.html), [www.zerohedge.com/news/2014-12-12/presenting-303-trillion-derivatives-us-taxpayers-are-now-hook](http://www.zerohedge.com/news/2014-12-12/presenting-303-trillion-derivatives-us-taxpayers-are-now-hook), <https://danieljmitchell.wordpress.com/2015/12/26/the-war-against-cash-part-i/>, <http://www.gold-eagle.com/article/why-war-cash-really-war-freedom#.VV0lBTiBEmM.mailto>

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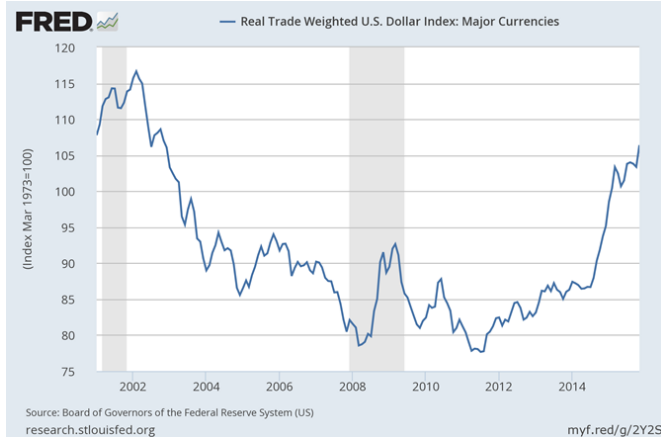


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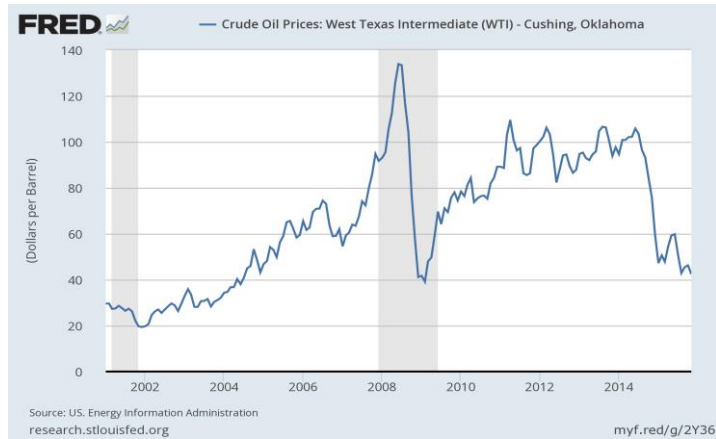
Slide 4

# Timely charts

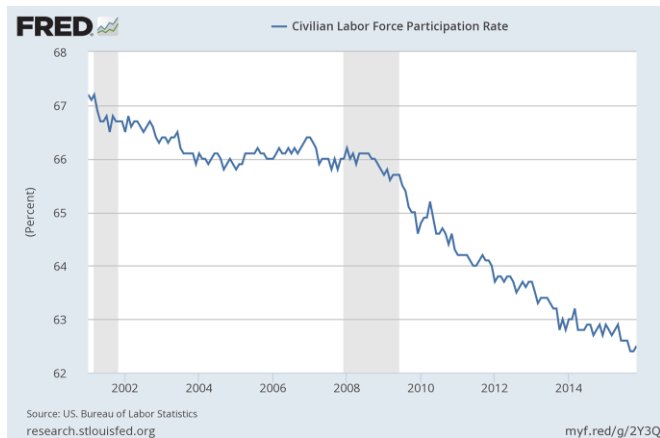
## Trade weighted USD index: major currencies



## Crude oil price: West Texas Intermediate (WTI)



## Civilian labor force participation rate



## Retailers' inventories to sales ratio

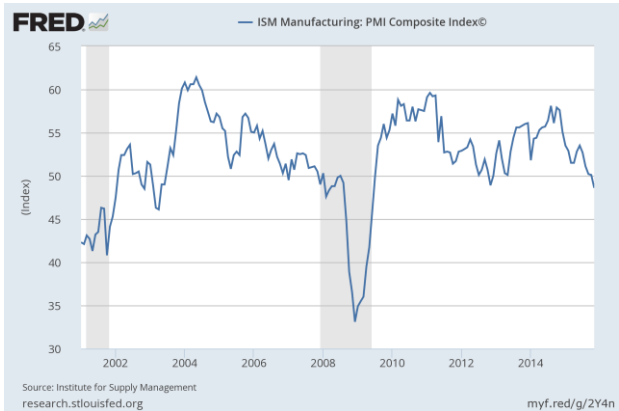


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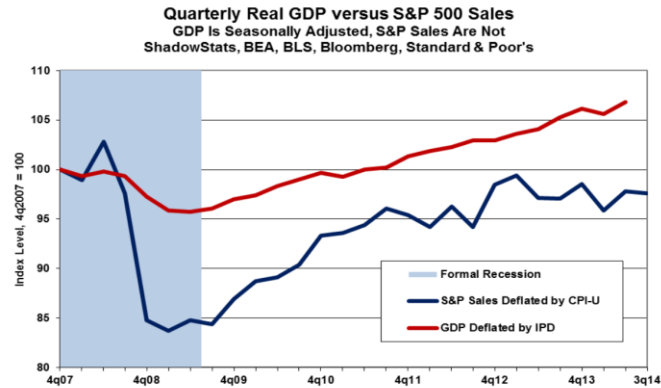


# Timely charts

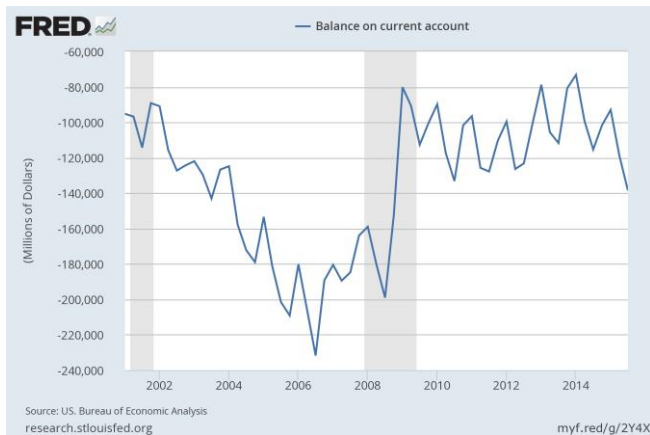
## ISM manufacturing PMI composite index



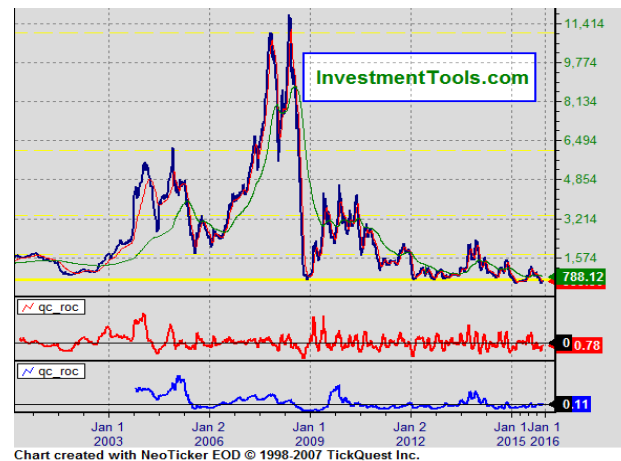
## No organic S&P 500 growth since last recession!



## Quarterly current account balance down \$60bn



## Baltic Dry Index at 2009 lows; global weakness



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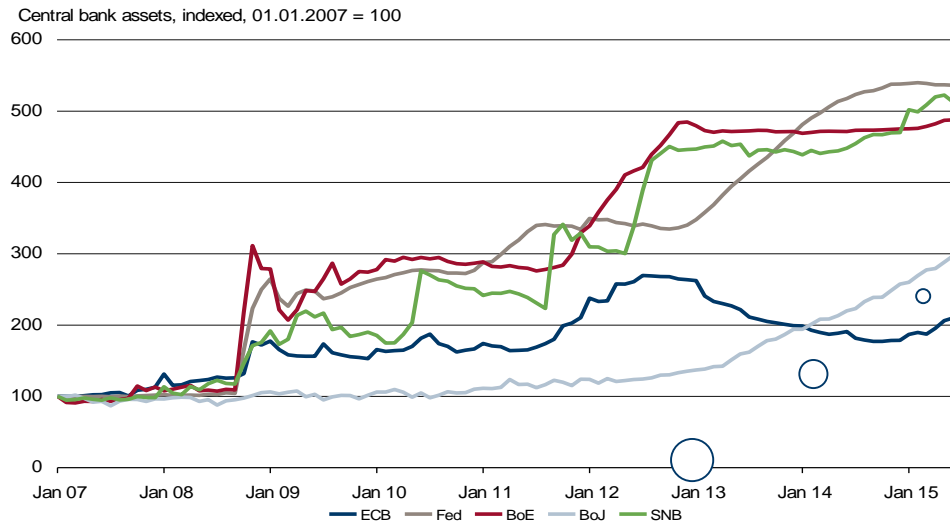


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# Timely charts

Central bank assets continue to grow, financing sustained outsized growth in global debt while, together with ZIRP and NIRP, holding down interest rates (Rising global debt/global GDP testament to lower productivity!)

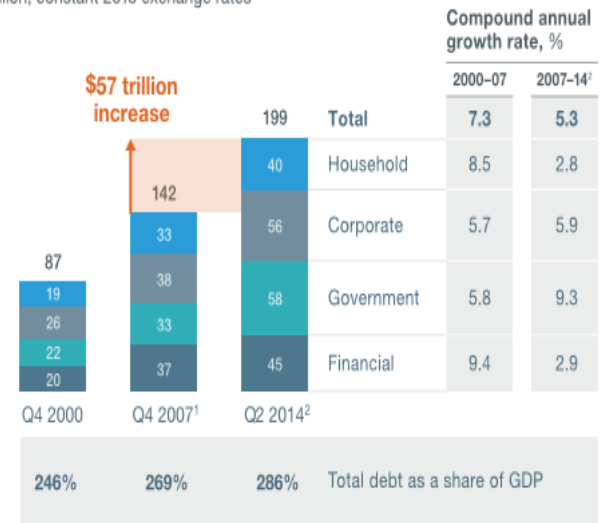


With a US and global recession likely upon us, how long until “Keynesian” government spending expands even more, deficits really mushroom, and the Fed and the other central banks buy record amounts of gov’t bonds? Gold and silver bullish!

Sources: Datastream, CS, Haver Analytics, BIS, IMF, [www.mckinsey.com/instights/economic\\_studies/debt\\_and\\_not\\_much\\_leveraging](http://www.mckinsey.com/instights/economic_studies/debt_and_not_much_leveraging), <http://www.marketwatch.com/story/global-stock-market-cap-has-doubled-since-qes-start-2015-02-12>

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Global stock of debt outstanding, \$ trillion, constant 2013 exchange rates



<sup>1</sup>Figures do not sum to total, because of rounding.

<sup>2</sup>Q2 2014 data for advanced economies and China; Q4 2013 data for other developing countries.



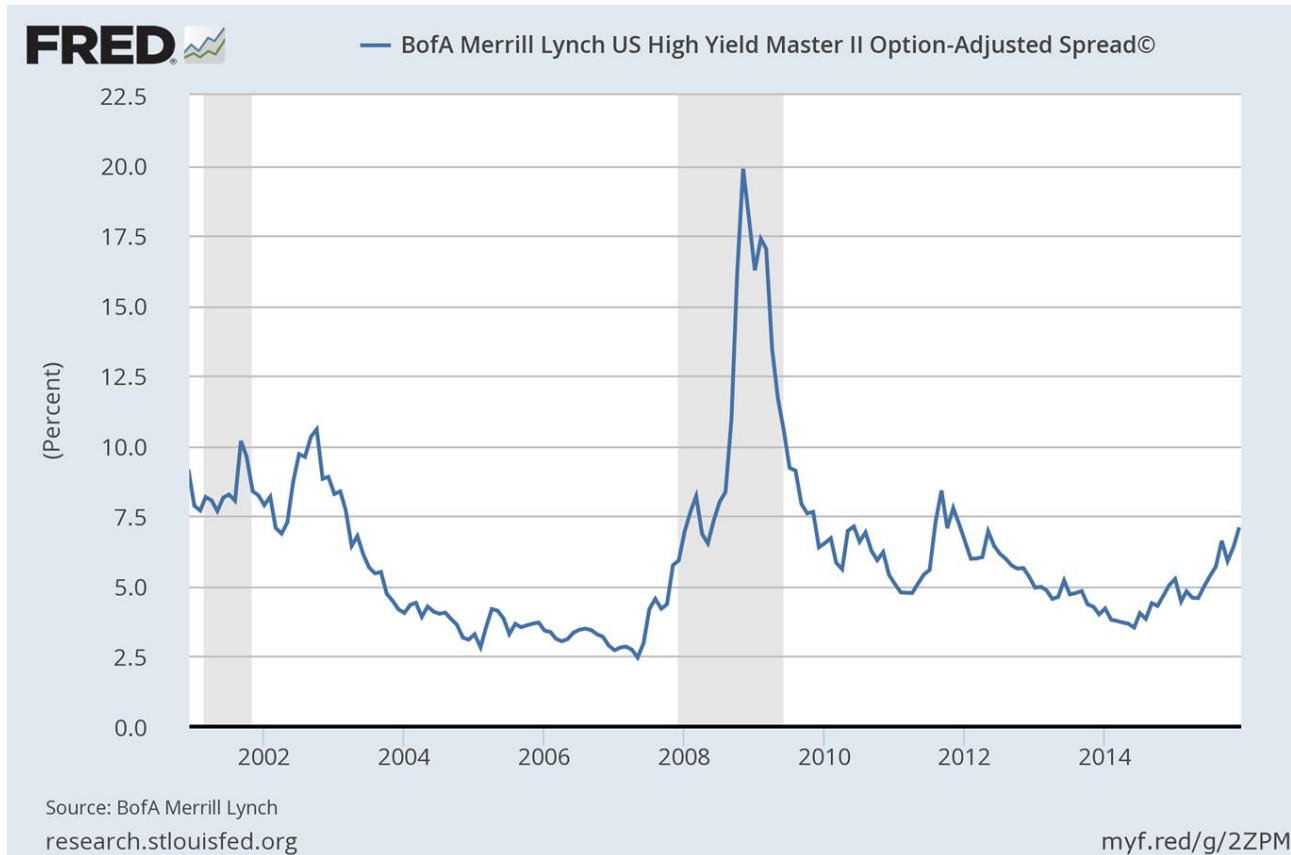
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# Timely chart: rapidly rising spread between Treasuries and junk bonds

- Canary in coal mine of upcoming recession or deepening recession, esp. as stock market appears to have become more of a coincident, if not lagging, indicator?
- And: will trillions of dollars in auto loans and student loans soon be new junk bonds requiring bailouts?



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# Timely chart: world's most important interest rate at inflection point?

- A 34-year old bull market in 10-year Treasuries continues despite rising solvency risks, huge monetary inflation risks (Fed's balance sheet is 4.2x larger than in Dec. '08), and widening misallocation risks (productivity issues)
- Is reversion beyond a 4% average gov't bond yield just a matter of time (Average gov't yield over 400 years: appr. 4%)?
- Reversion to or beyond the mean would very negatively impact valuations of long-duration assets such as bonds and stocks
- Investors should consider allocating for this eventuality while most bond and stock prices remain artificially elevated



**China has sold \$600 billion of US paper since 2014;  
foreigners sold record \$552bn Treasuries in October 2015**



[www.zerohedge.com/news/2015-12-15/foreigners-sell-record-552-billion-us-treasuries-october](http://www.zerohedge.com/news/2015-12-15/foreigners-sell-record-552-billion-us-treasuries-october)

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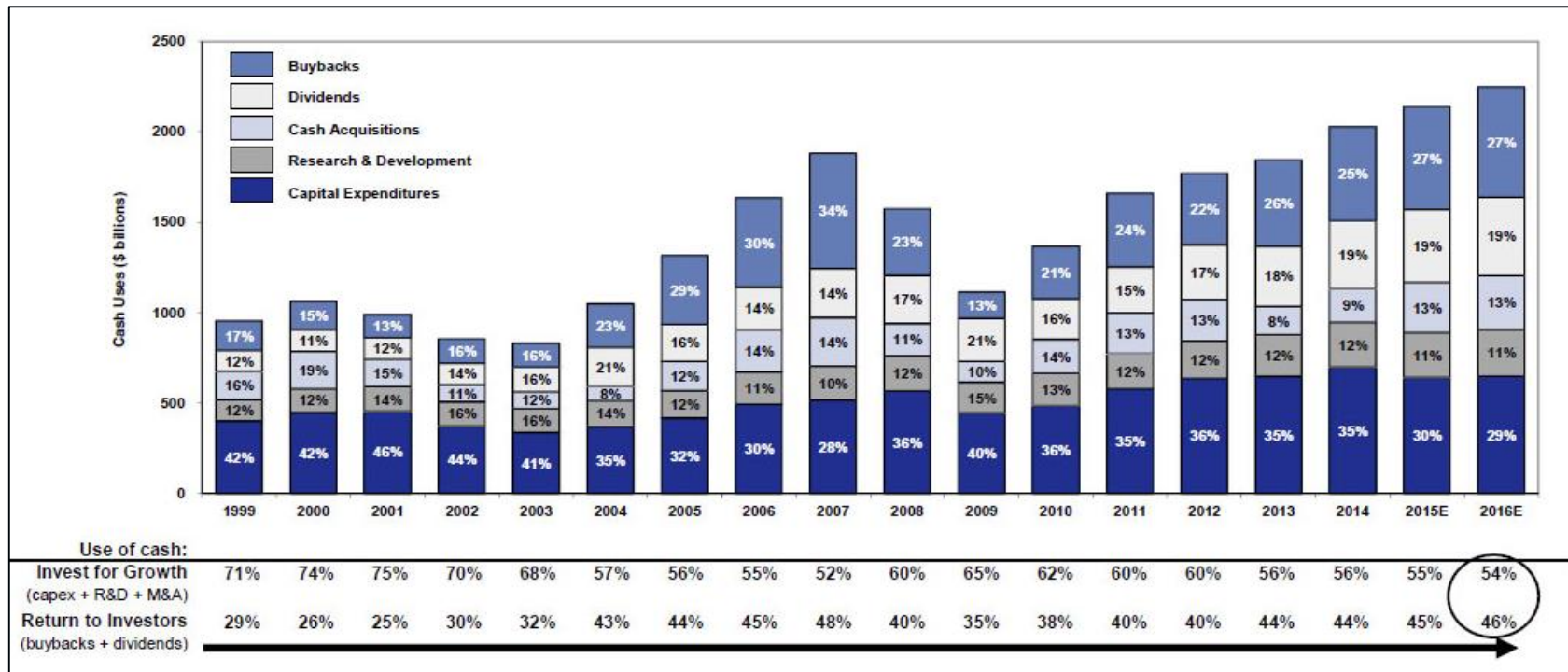
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Slide 9

# Corporate America hasn't been investing in organic growth

## Upshot: less robust earnings growth likely, “superimposed” on high P/Es

### Breakdown of aggregate S&P 500 corporate cash use with Goldman Sachs forecast for 2015 and 2016



Sources: Compustat and Goldman Sachs

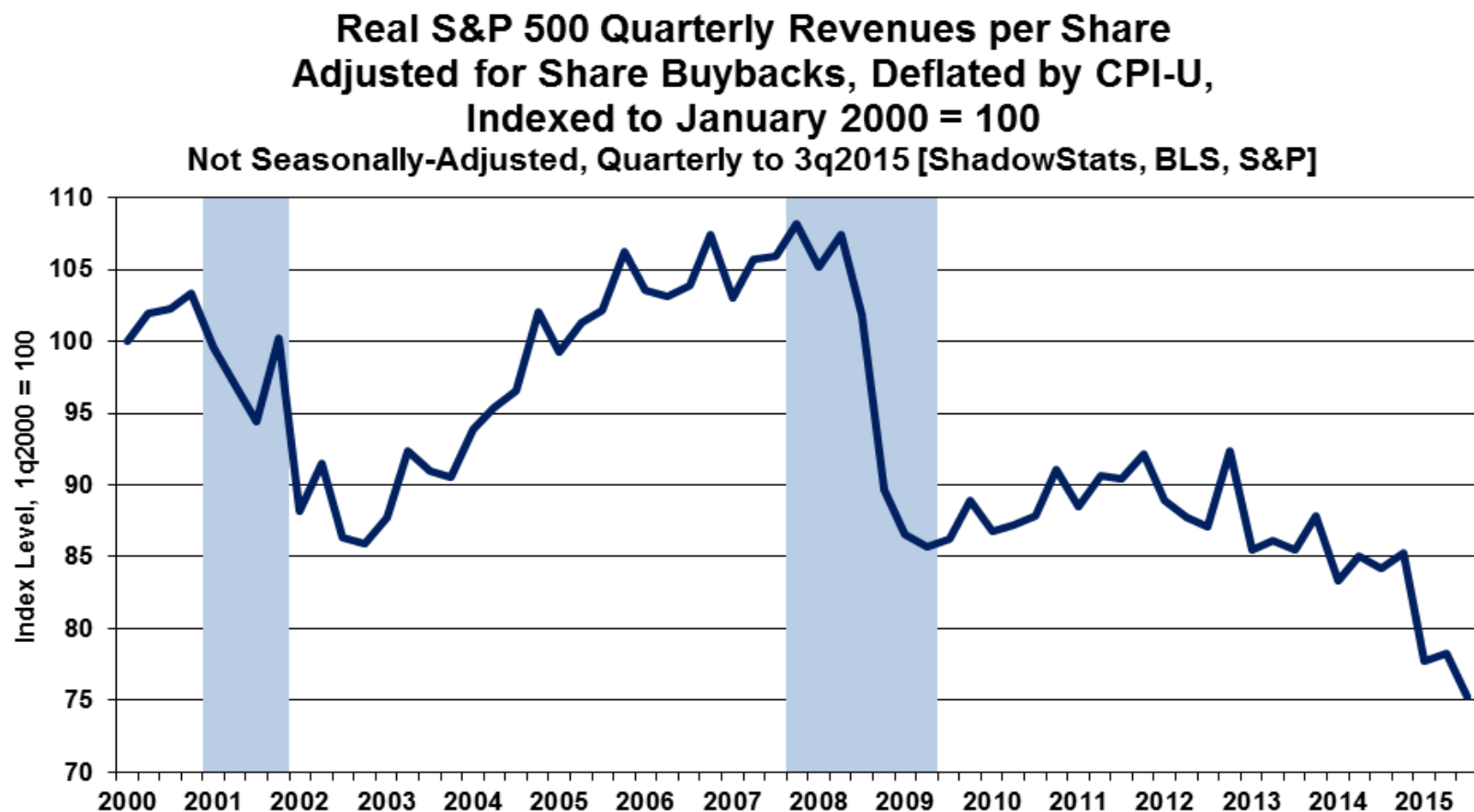
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# No organic (top-line) growth by Corporate America, revisited Can't sustainably grow earnings (bottom-line) or even EPS this way



Sources: ShadowStats, BLS, S&P

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# Long term nominal equity returns examined

- Long-term nominal equity returns p.a., whether in the US or other OECD nations, typically mirror nominal GDP growth p.a.
- As such, S&P 500 *bull market* decades were not GDP growth or earnings growth driven, rather they resulted principally from P/E (multiple) expansions in the '50s, '80s, and '90s -- the '80s and '90s valuation “bubble” was deflated in the '00 years:

Decade	Nominal Gross Domestic Product	S&P 500 EPS	Inflation (Deflation)	S&P 500 Total Return
1930-1940	-1.4%	-5.0%	-1.9%	0.0%
1940-1950	11.2%	7.7%	5.0%	8.9%
1950-1960	6.3%	5.4%	2.1%	19.3%
1960-1970	6.6%	5.6%	1.9%	7.8%
1970-1980	9.7%	7.9%	6.3%	5.8%
1980-1990	8.3%	5.5%	6.3%	17.3%
1990-2000	5.6%	7.1%	3.4%	18.0%
2000-2010	4.0%	4.5%	2.4%	1.4%

All table statistics are nominal p.a. growth rates

Sources: S&P, Bureau of Labor Statistics, Ibbotson, Crestmont Research

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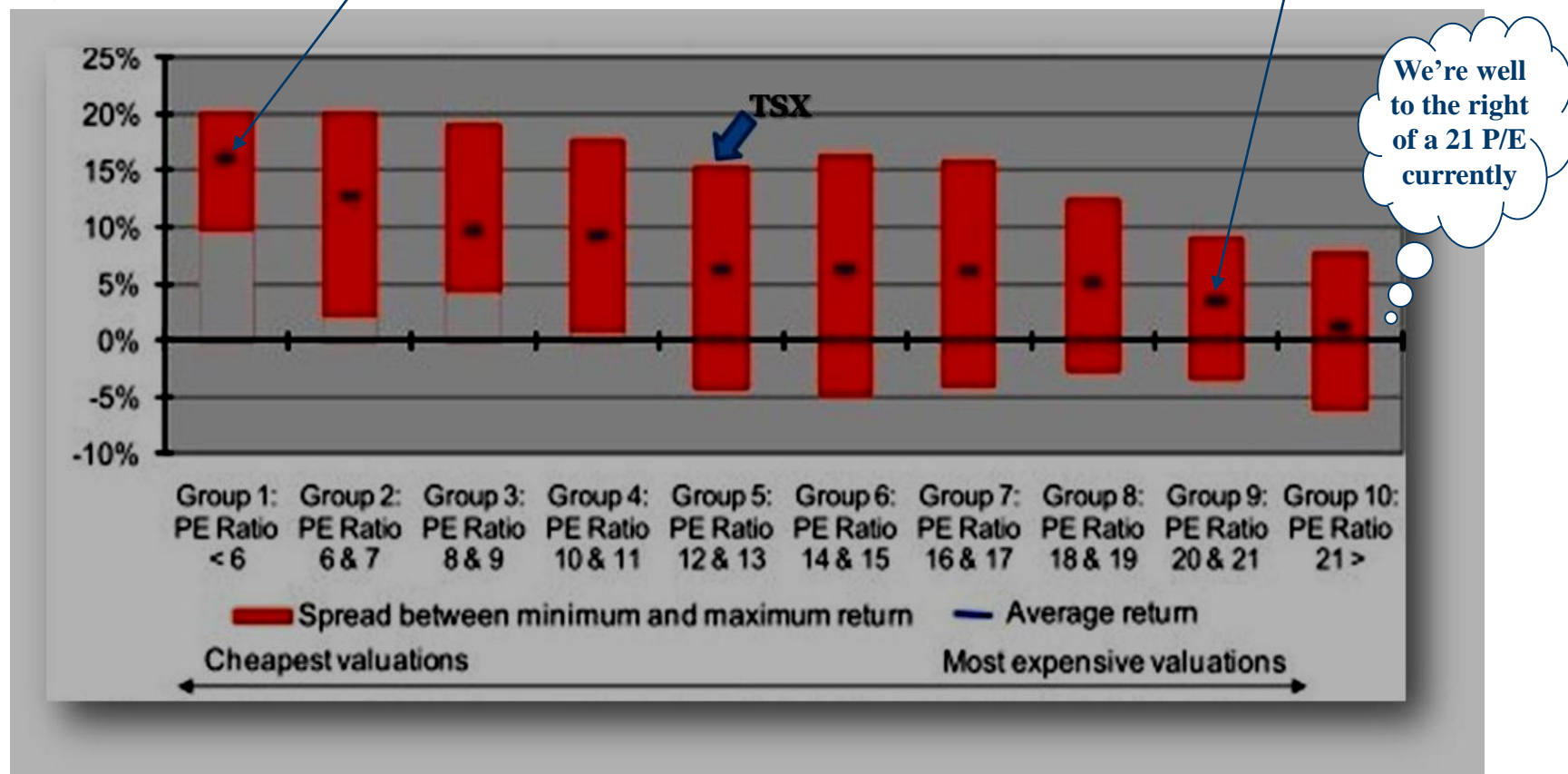
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# Strategic returns depend materially on acquisition P/E (valuation)

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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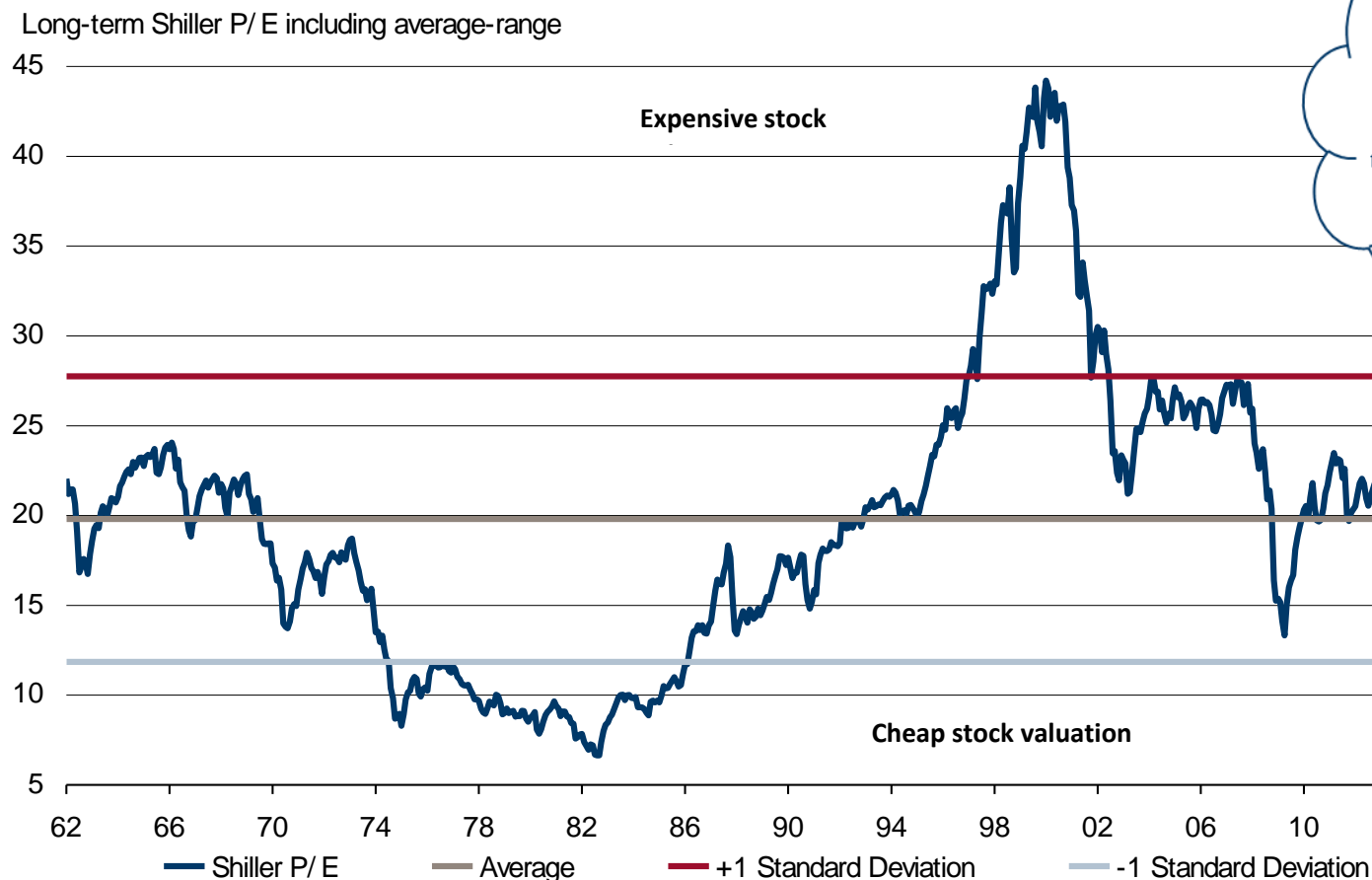


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# Stock market expensive, especially as recession “overdue”

## If earnings fell 50%, P/E would double at current S&P 500 level



During the past 97 years in the US, new secular stock bull markets (expanding P/Es) have commenced after P/Es bottomed out in the 10x to single digit range, far removed from the current valuation ...

Compared to 2008, both debt and interest rate derivative risks are much greater, implying higher risk premiums/lower valuations -- and slower growth -- ahead

Sources: Robert J. Shiller, Credit Suisse

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# Allocation food for thought: turning risks into opportunities ...

- Take profits on high P/E stocks and overvalued bonds, raise portfolio cash; cash to facilitate future asset purchases “on cheap”
- Consider putting some proceeds to work in generally lower P/E or “low correlation” scarce real assets such as energy, ag, & gold
- Consider shorting overvalued stocks & bonds (tactical): Ultrashort QQQ ETF (QID) & Pro-Shares Short High Yield ETF (SJB)
- In today’s valuation landscape, be less concerned with the return **on** your capital than with the return **of** your capital

Real asset correlations to generic bonds and stocks; correlations of 0.30 or less indicate differing historical price development

	Number of quarters	Gold	ILBs	High dividend yield stocks	Infrastructure	Alternative energy	Oil	Coal	Grains	Farm land	Timberland	Water	Cash	Global govt bonds	US corporate bonds	Global equities
London Fix Gold PM PR USD (gold)	178	1.00														
BarCap US Govt Intn Lkd TR USD (ILBs)	61	0.17	1.00													
Zacks Yld CHF Hog USD /(high div yield stocks)	23	-0.04	-0.03	1.00												
S&P Global Infrastructure TR USD (infrastructure)	42	0.11	-0.03	0.86	1.00											
Ardour Global Composite TR USD (alternative energy)	50	0.09	-0.20	0.71	0.81	1.00										
S&P GSCI Crude Oil Spot (oil)	106	0.34	0.13	0.62	0.43	0.41	1.00									
HSBC Global Coal Mining PR (coal)	106	0.07	-0.09	0.63	0.71	0.54	0.36	1.00								
DJ UBS Grains TR USD (grains)	86	0.21	0.23	0.26	0.36	0.30	0.10	0.21	1.00							
NCREIF Farmland (farmland)	77	0.17	-0.22	-0.28	0.06	0.04	-0.18	0.04	0.13	1.00						
NCREIF Timberland (timberland)	101	0.01	-0.02	-0.36	0.03	0.05	-0.10	-0.13	0.06	0.39	1.00					
MSCI World/Water Utilities GR USD (water)	70	0.07	-0.01	0.57	0.60	0.33	-0.04	0.23	0.12	0.21	0.11	1.00				
Citi USD EuroDep 3 Mon USD (cash)	138	-0.06	-0.10	-0.31	0.00	0.12	-0.04	-0.09	-0.03	0.02	0.40	-0.02	1.00			
Citi WGBI USD (global government bonds)	110	0.26	0.36	-0.04	0.20	-0.16	-0.08	-0.17	0.09	0.02	0.07	0.17	0.13	1.00		
BarCap US Intern Credit TR USD (US corporate bonds)	158	0.08	0.55	0.50	0.41	0.00	-0.09	0.02	0.09	-0.05	0.04	0.17	0.18	0.62	1.00	
MSCI AC World GR USD (global equities)	98	-0.03	-0.29	0.91	0.93	0.77	-0.02	0.49	0.23	0.12	0.05	0.27	-0.02	0.06	0.15	1.00

Grey block: correlation of so-called "traditional assets" (cash, Treasuries, corporate bonds, stocks) vs. real assets thru 12/2014 Sources: Ibbotson/Morningstar

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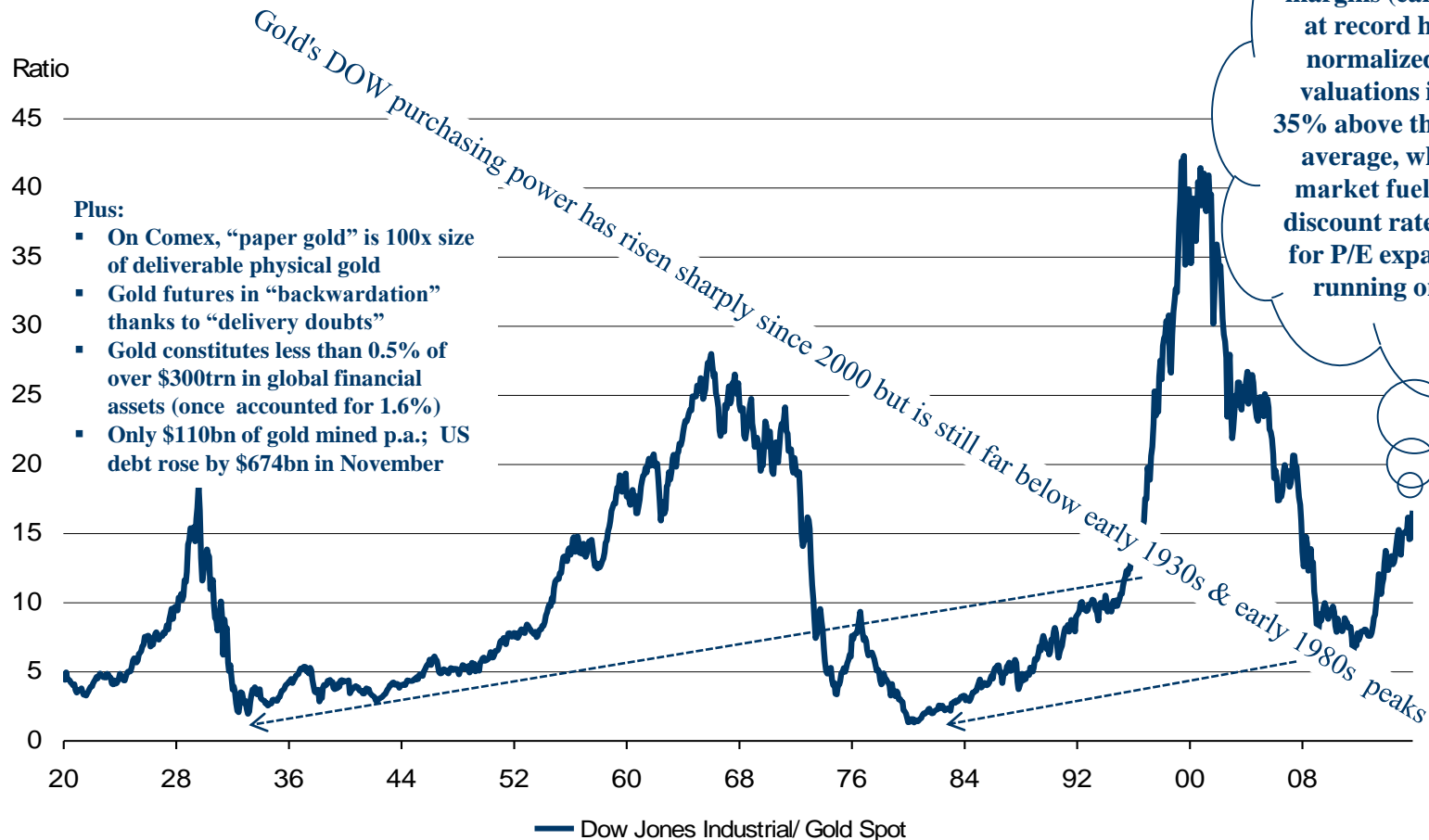


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# Gold valuation: DJII/gold spot price (long-term)



Meanwhile, corporate margins (earnings) are at record highs and normalized big cap valuations in US are 35% above the historical average, while “bull market fuel” -- lower discount rates allowing for P/E expansion -- is running on empty

Sources: Bloomberg, Credit Suisse, Comex, WGC, <http://www.marketwatch.com/story/global-stock-market-cap-has-doubled-since-qes-start-2015-02-12>, <http://www.zerohedge.com/news/2015-11-04/there-are-now-293-ounces-paper-gold-every-ounce-physical-comex-registered-gold-hits->, <http://www.jmbullion.com/investing-guide/pricing-payments/backwardation-contango/>, [www.mckinsey.com/insights/global\\_capital\\_markets/financial\\_globalization](http://www.mckinsey.com/insights/global_capital_markets/financial_globalization), <http://dkanalytics.com/pdfreports/wp-content/uploads/2015/05/Gold-update-slides-May-2015.pdf>

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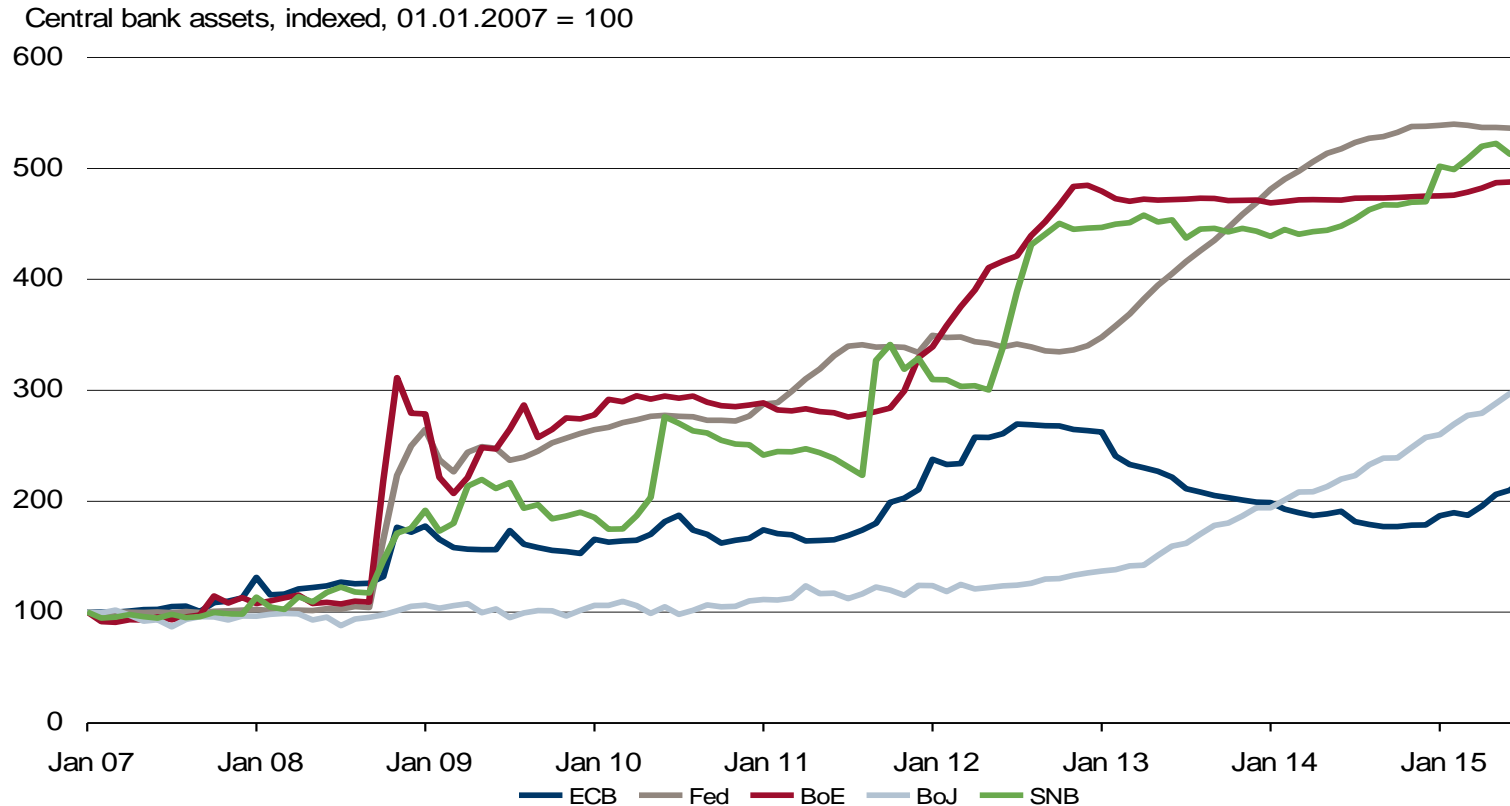


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# Appendix

## Real asset allocation callouts in “QE world”



Sources: Bloomberg, Datastream, Credit Suisse / IDC

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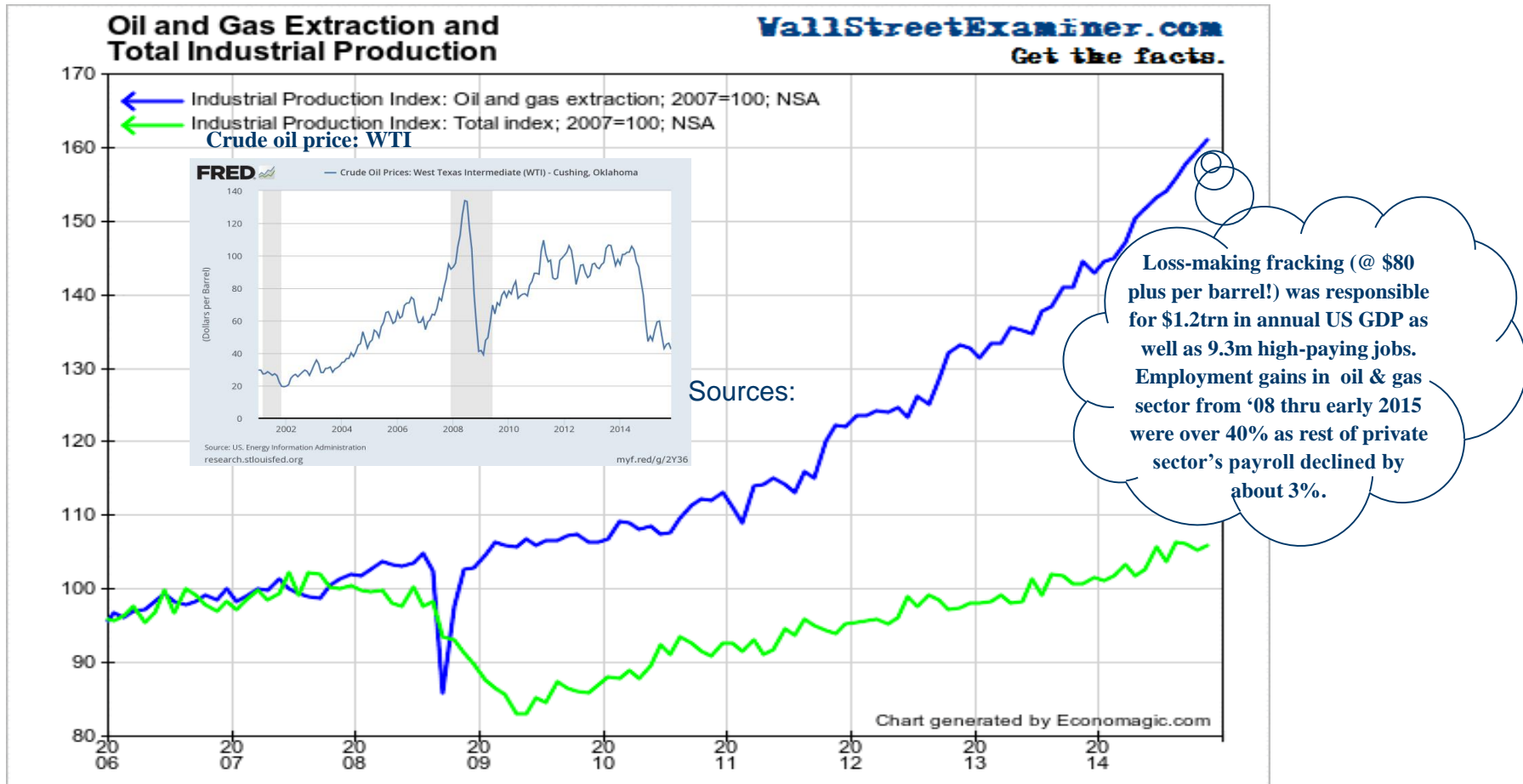


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# Lead in topic: oil & gas fracking and the economy

## 4m more bpd & huge economic lift for over 6 years going into reverse!



Sources: <http://wallstreetexaminer.com/wp-content/uploads/2014/12/M1080121022701161156596920979619.gif>, Perryman Group

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# Dense energy (fossil fuel) assets

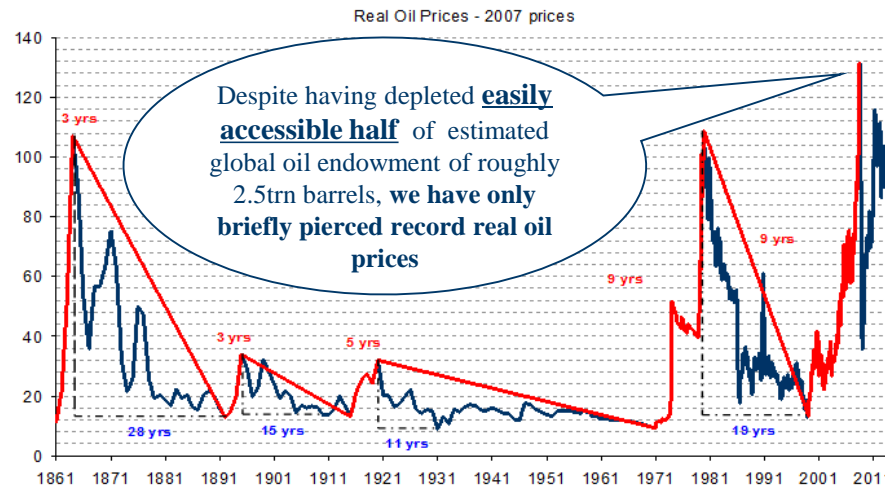
Capitalize on scarcity via real assets amidst unprecedented global “money printing”



## Fossil fuel assets: scarcity play

- Need to offset global oil production decline of 5% - 8% p.a. or 2bn barrels > than Iran's production (#4 producer)
- Fracking generating unsustainable losses; 4m bpd of crude oil supply out of 93.4m global bpd of supply at risk?
- High energy density coal harder to extract; coal = all net global energy supply growth over last decade!
- Fossil fuel dependency for energy-intensive lifestyles:
  - ✓ One barrel of oil = 11.5 years of ag field work!
  - ✓ 4.7 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, demand would rise 19%
  - ✓ Harnessing dense energy (lots of heat) = productivity!

Sources: DataStream, CS Global Strategy, <http://dkanalytics.com/pdfreports/wp-content/uploads/2015/06/Returns-valuations-energy-March-2015.pdf>



## Oilfield depletion: from finding 4x oil used to using 4x oil found

Year	Bn of barrels of oil found globally	Bn of 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

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# Global oil supply and demand balance

Just loss of fracking output would more than erase an est. 1.9m bpd oversupply

Global Oil Supply and Demand in million barrels per day											
Production	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015E
Non-OPEC Supply	49.6	49.8	50.1	49.9	50.5	52.1	52.5	53.0	54.4	56.9	58.1
Former Soviet Union	11.8	12.2	12.6	12.6	12.9	13.2	13.5	13.6	13.8	13.9	14.0
USA	8.3	8.3	8.5	8.6	9.1	9.7	10.1	11.1	12.4	14.1	14.9
OPEC Supply	34.8	34.6	34.2	35.5	33.9	35.3	36.0	37.5	36.4	36.4	37.4
Crude Oil Portion	30.8	30.5	30.1	31.3	29.1	29.8	30.0	31.1	30.1	30.1	31.0
Other Liquids	4.0	4.1	4.1	4.2	4.8	5.5	6.0	6.3	6.3	6.3	6.5
<b>Global oil production</b>	<b>84.4</b>	<b>84.4</b>	<b>84.3</b>	<b>85.4</b>	<b>84.3</b>	<b>87.4</b>	<b>88.5</b>	<b>90.4</b>	<b>91.1</b>	<b>93.4</b>	<b>95.7</b>
Consumption	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015E
OECD Demand	49.8	49.5	49.3	47.7	46.4	47.0	46.3	45.9	46.0	45.8	46.3
USA	20.8	20.7	20.7	19.5	18.8	19.2	18.9	18.5	19.0	19.1	19.4
Europe	16.4	16.4	16.3	16.2	15.4	15.3	14.9	14.4	14.3	14.2	14.4
Japan	5.3	5.2	5.0	4.8	4.4	4.4	4.4	4.7	4.5	4.3	4.2
Non-OECD Demand	34.2	35.6	36.5	37.8	38.4	40.4	42.8	44.5	45.3	46.7	47.5
China	6.7	7.3	7.5	8.0	8.5	9.3	9.5	10.2	10.5	10.9	11.2
Former Soviet Union	4.2	4.2	4.1	4.2	4.1	4.2	4.7	4.6	4.7	4.9	4.8
<b>Global oil consumption</b>	<b>84.1</b>	<b>85.1</b>	<b>85.8</b>	<b>85.5</b>	<b>84.8</b>	<b>87.4</b>	<b>89.1</b>	<b>90.3</b>	<b>91.3</b>	<b>92.5</b>	<b>93.8</b>
Market balance	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015E
<b>Stocks movements</b>	<b>0.3</b>	<b>-0.7</b>	<b>-1.6</b>	<b>-0.1</b>	<b>-0.4</b>	<b>0.0</b>	<b>-0.6</b>	<b>0.1</b>	<b>-0.2</b>	<b>0.9</b>	<b>1.9</b>

Sources: EIA, Credit Suisse

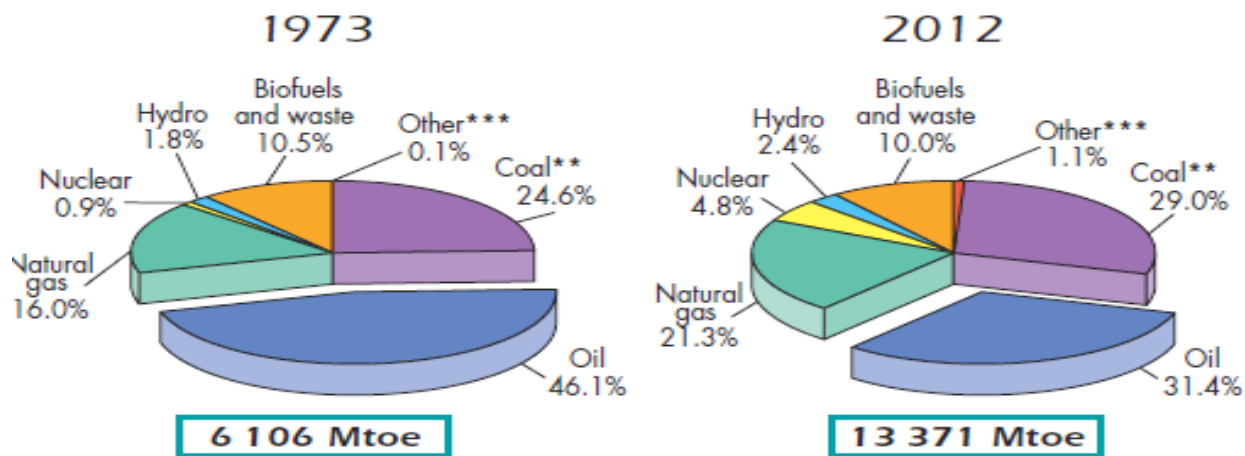
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# Global primary energy supply breakdown: 81.7% fossil fuel-based; renewables ("other") generate only 1.1% of supply



\*World includes international aviation and international marine bunkers.  
 \*\*In these graphs, peat and oil shale are aggregated with coal.  
 \*\*\*Includes geothermal, solar, wind, heat, etc.

Mtoe = Millions tons of oil equivalent

Energy supply (demand) has been growing at 2.0% p.a. over 39 years (1973 – 2012)

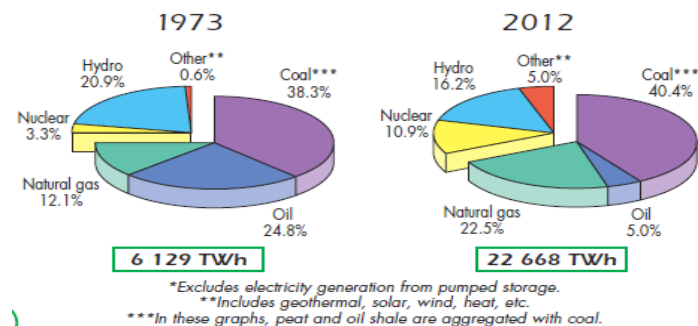
Supply growth breakdown over same period:

Oil: 1.0% p.a.  
 Coal: 2.5%  
 Gas: 2.8%  
 Nuclear: 6.5%  
 Hydro: 2.8%  
 "Other": 8.5%

(In 2013, fossil fuels accounted for 86.7% of primary energy (!!!) and "other," or so-called renewables, 2.2%)

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%



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

Sources: IEA Key World Energy Statistics, BP, [www.c2es.org/technology/overview/electricity](http://www.c2es.org/technology/overview/electricity)

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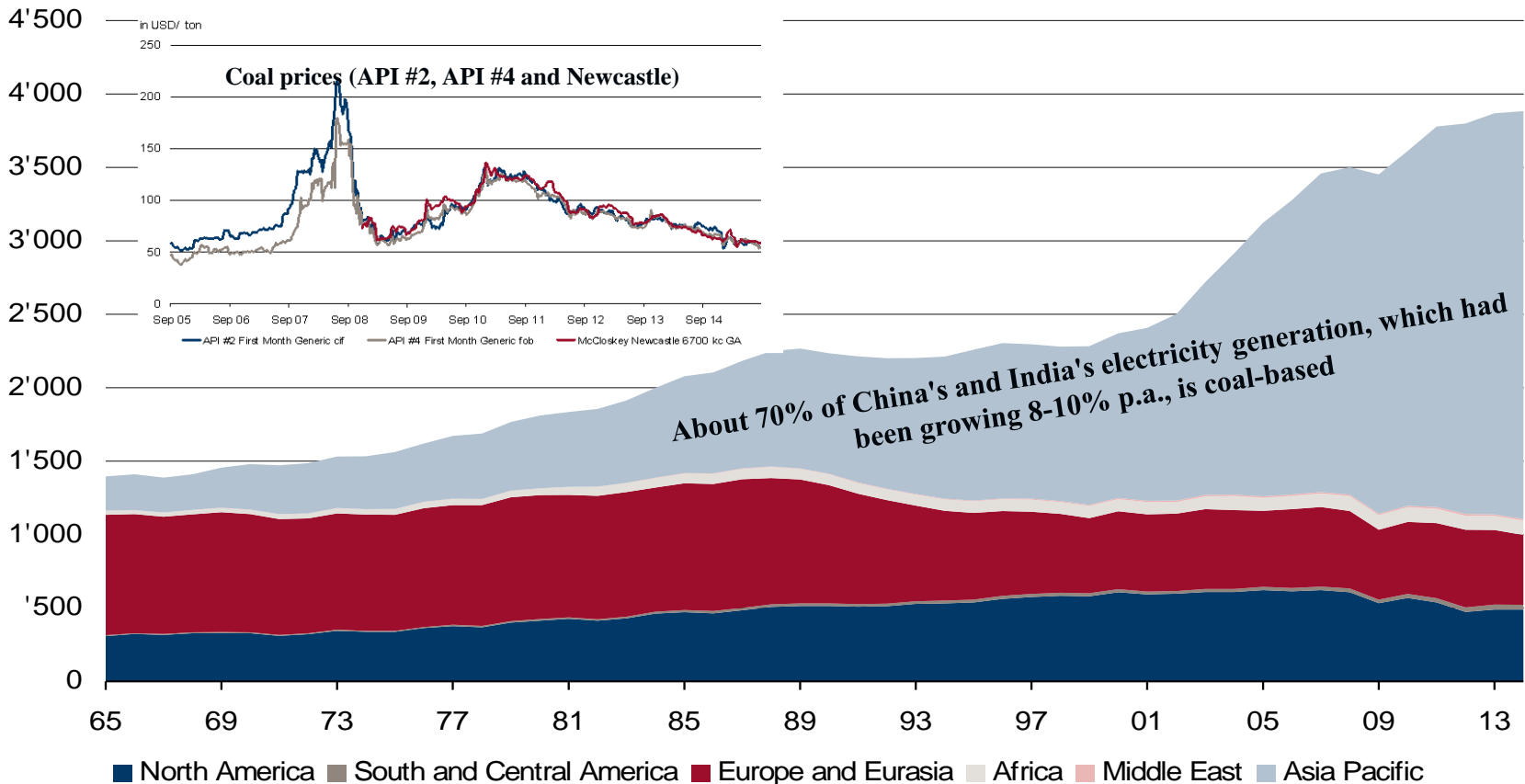
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# Global coal consumption

All net new energy over past decade from coal, which is even more affordable today

Global coal consumption, in million tons oil equivalent



Sources: BP Statistical Review, Credit Suisse

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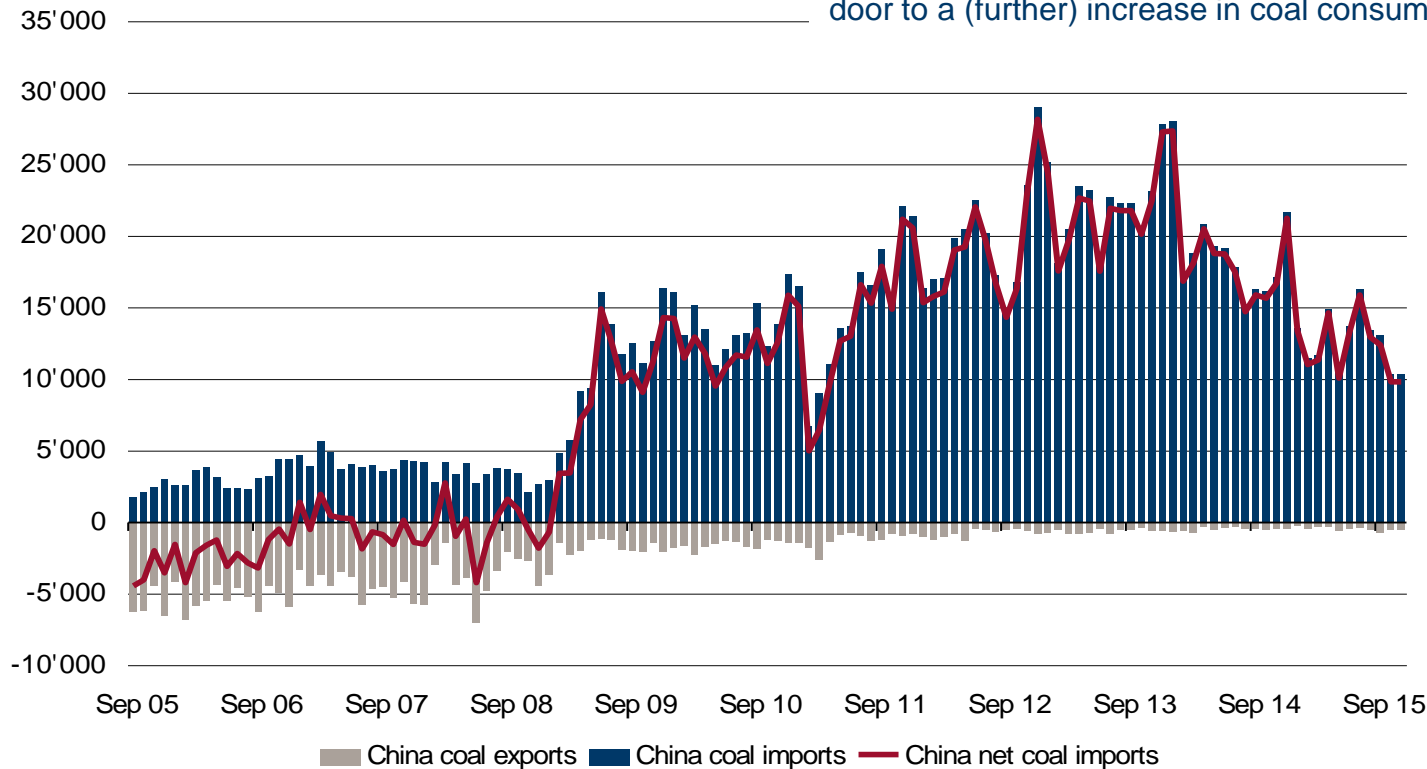


# Coal supply/demand trends in pivotal China and beyond

## China still big importer while G7 coal imports and coal energy use have grown

### China coal trade balance

in kt



“The arbitrary decision to close Germany’s nuclear sector after Japan’s Fukushima disaster opens the door to a (further) increase in coal consumption. “

Sources: Bloomberg, Credit Suisse, <http://www.theguardian.com/environment/2015/jun/08/five-g7-nations-increased-their-coal-use-over-a-five-year-period-research-shows>  
<http://www.worldcoal.com/special-reports/13052015/Japan-coal-demand-what-does-the-future-hold-coal2265/>, <http://blogs.ft.com/nick-butler/2015/05/24/the-burning-issue-of-german-coal/>

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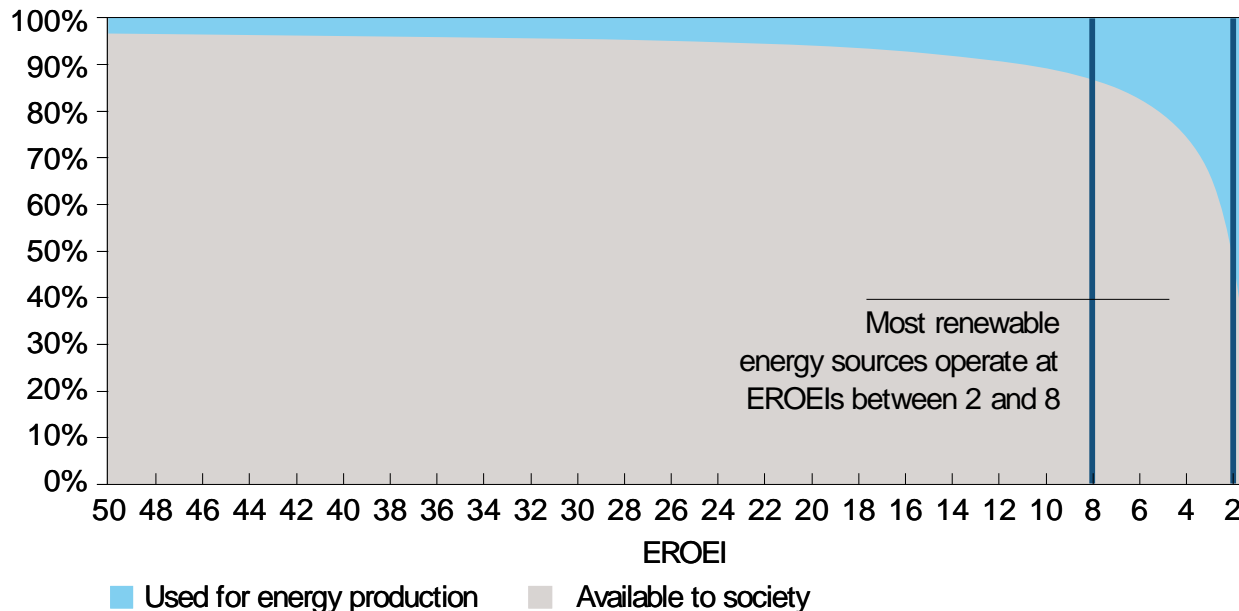


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# Lower EROEI and declining energy density impact: larger share of GDP devoted to assuring energy supplies

## Energy returned on energy invested (EROEI)



- 100 years ago, oil's EROEI was roughly 100:1 in "oil just below the ground" Siberia and Texas (offshore drilling EROEI: 5:1!)
- Over the past decades, energy production averaged "only" some 5% of GDP or an EROEI of 20:1
- As such, energy supply's economic significance is thus viewed as "minor" by mainstream economists and investors
- A declining EROEI will fundamentally change macro allocations and dense energy asset valuations (scarcity factor)
- *Upshot: dense energy and energy infrastructure should be strategic growth markets featuring rising asset prices!*

Sources: Euan Mearns, Resource Insights, Dr. Robert Hall, EIA; <http://Gregor.us>

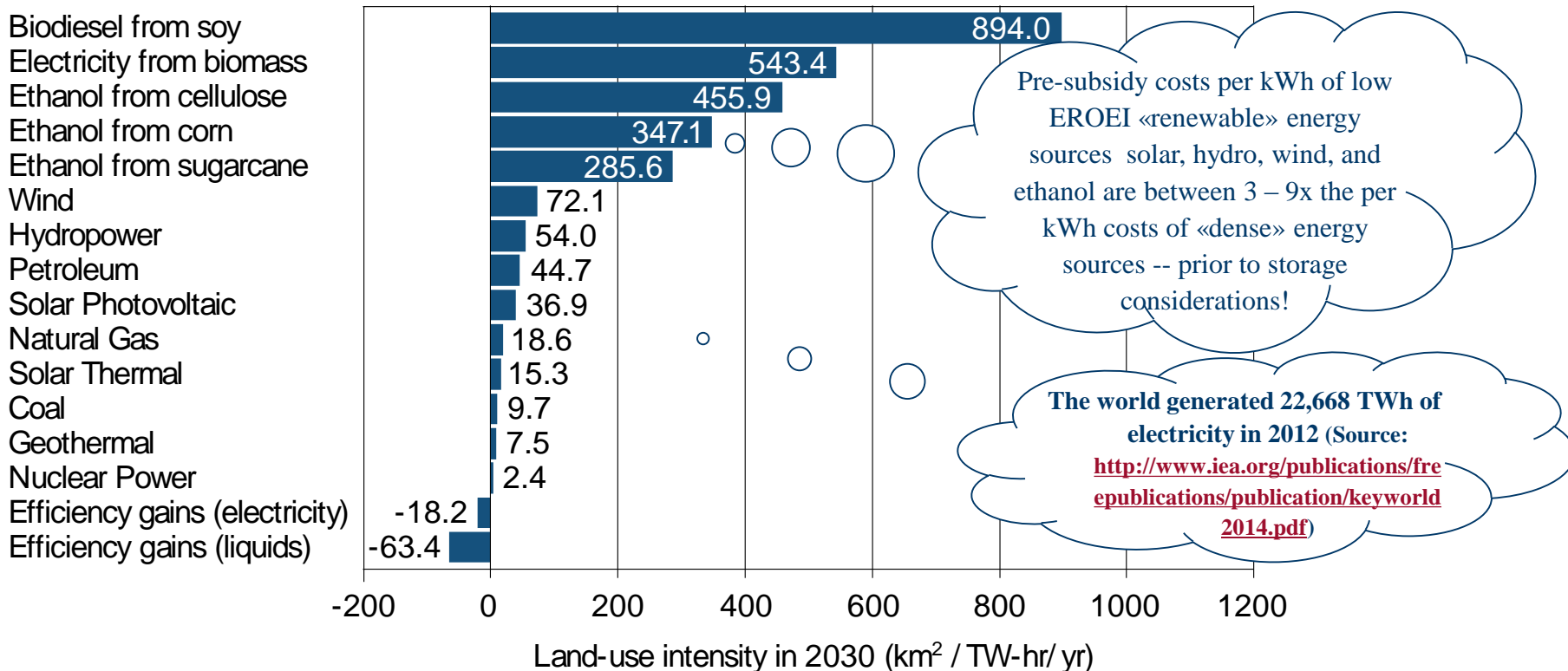
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# Projected land-use intensity per terawatt-hour per year (The lower the EROEI, the greater the land use intensity and cost!)



Source: <http://www.plosone.org/article/info:doi/10.1371/journal.pone.0006802>. Please note: values shown are for 2030, as measured in km² 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.

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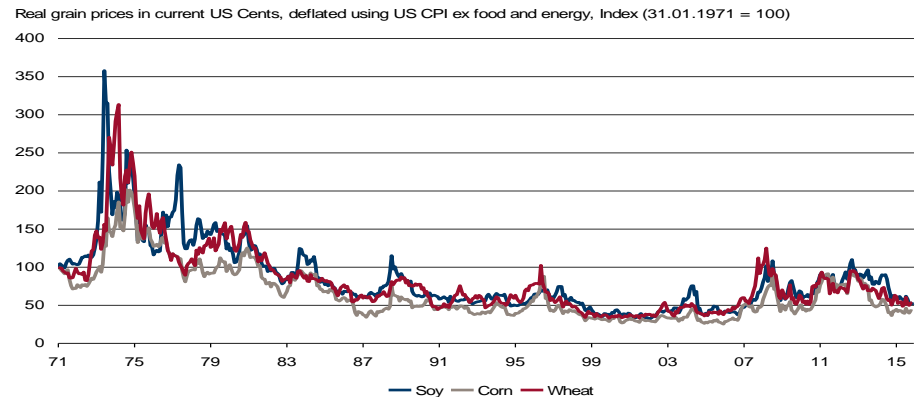
# Agricultural assets

Capitalize on scarcity via real assets amidst unprecedented global money printing

Crops are effectively water sales/exports!!!



## Real grain prices in current US cents, deflated using CPI



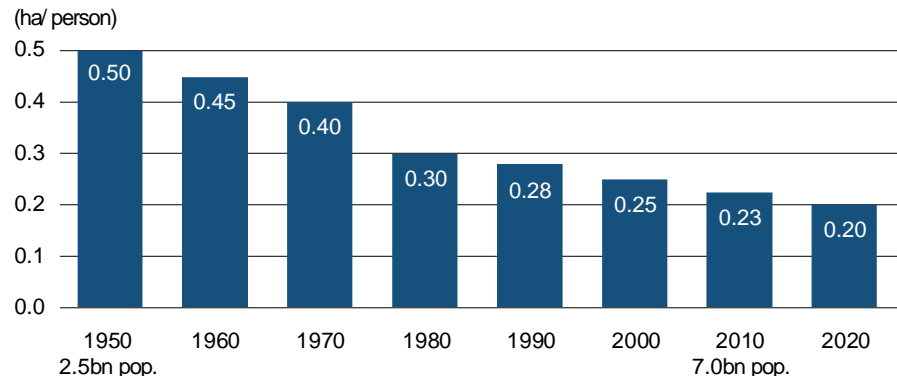
Sources: Bloomberg, Credit Suisse

## Agriculture: scarcity play

Agriculture assets, especially non-US farmland, water, and infrastructure/fertilizer-related, remain attractive given:

- *Constructive strategic supply/demand metrics* and the likelihood of substantially higher grain prices
- A meat-based diet requires about 6x the grains and 11x the water as a grain-based diet; EM consuming more!
- The positive implications of higher secular grain prices for farmer incomes and equipment purchases

## Per capita world arable land is dwindling (as is water)



Sources: FAOSTAT, UN, Environmental Health Perspectives  
(Data are rough estimates and can vary depending on assumptions – data shows relative trend)

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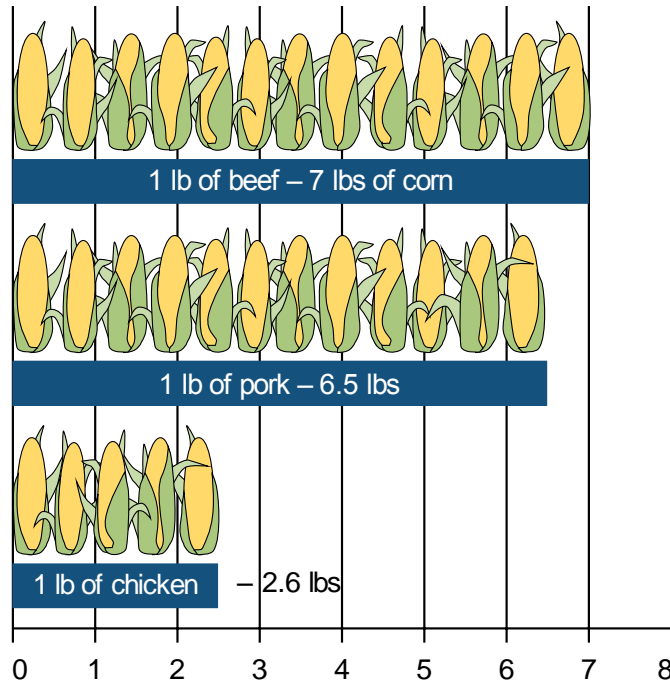
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# Dietary shift to increase demand for grains and farmland

## Meat production is very grain and water intensive

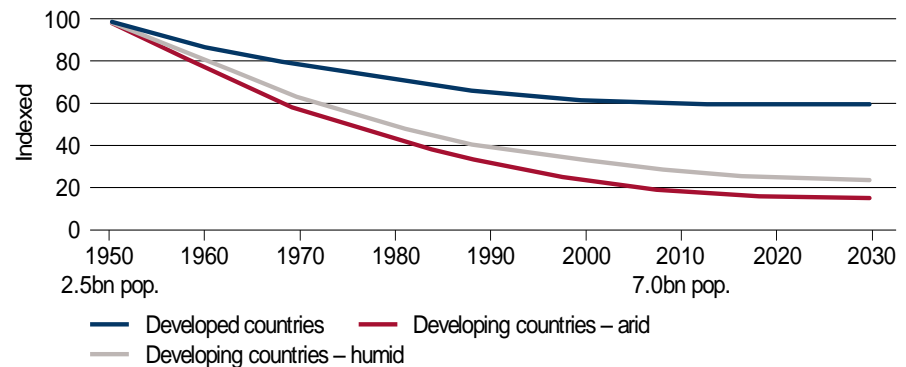
Meat production is feedstock intensive



**Dietary shift towards more EM meat consumption will increase demand for grains and farmland as meat production is very grain intensive**

**Moreover, between 1,150 – 2,000 liters of water are necessary to produce one kg of wheat. In contrast, some 16,000 liters are required to produce one kg of beef (or, between 8 – 14x as much water!)**

Indexed per capita water availability compared to 1950



Source: World Bank

Sources: USDA; Arjen Hoekstra, University of Twente, World Bank, worldwater.org

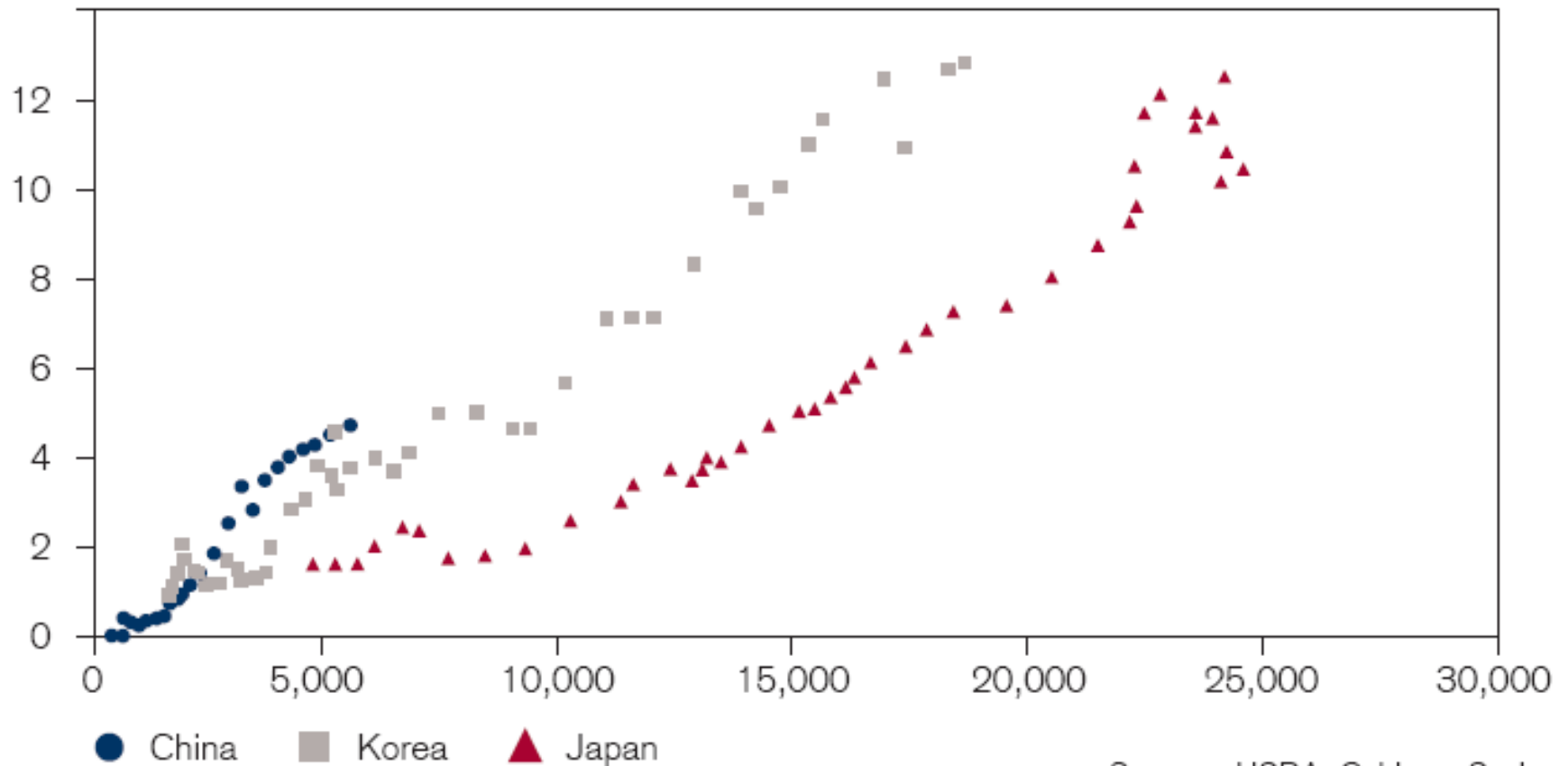
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## Beef consumption vs. real USD GDP per capita in PPP terms (Kg of beef vertical axis, real GDP per capita horizontal axis)



Sources: USDA, Goldman Sachs

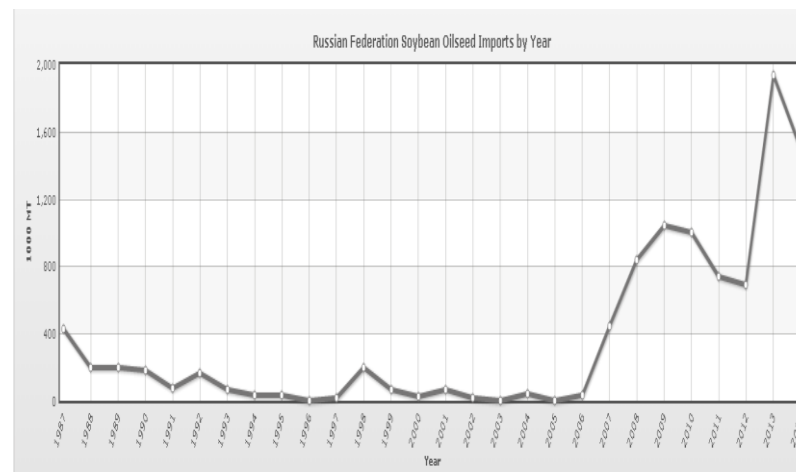
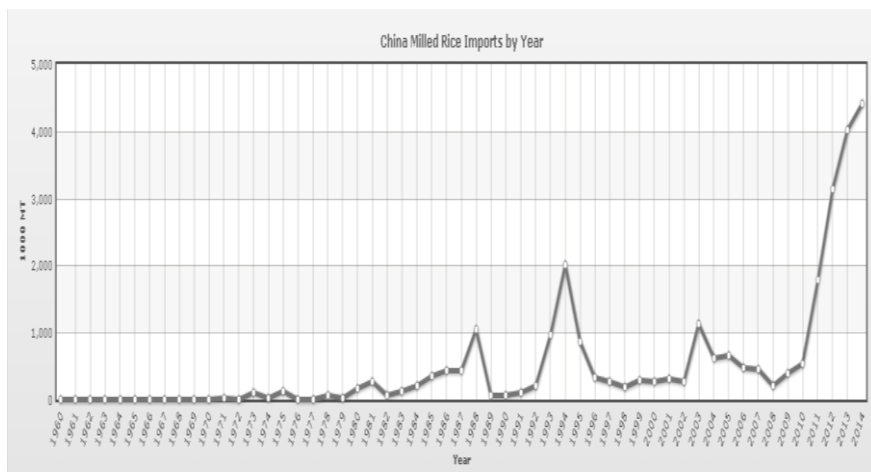
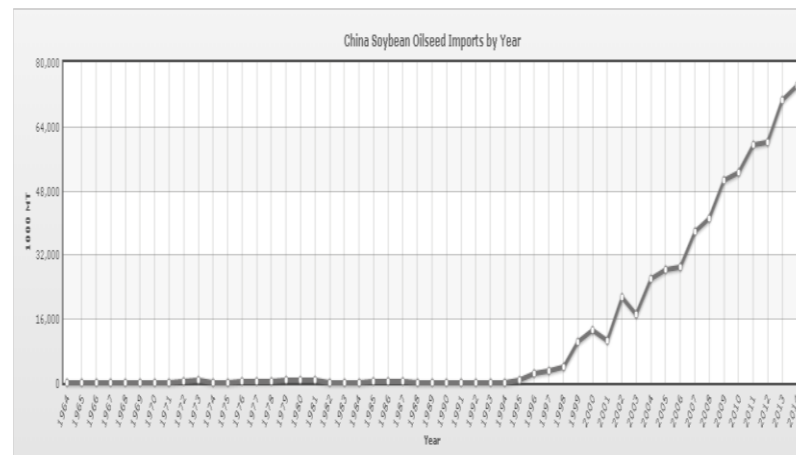
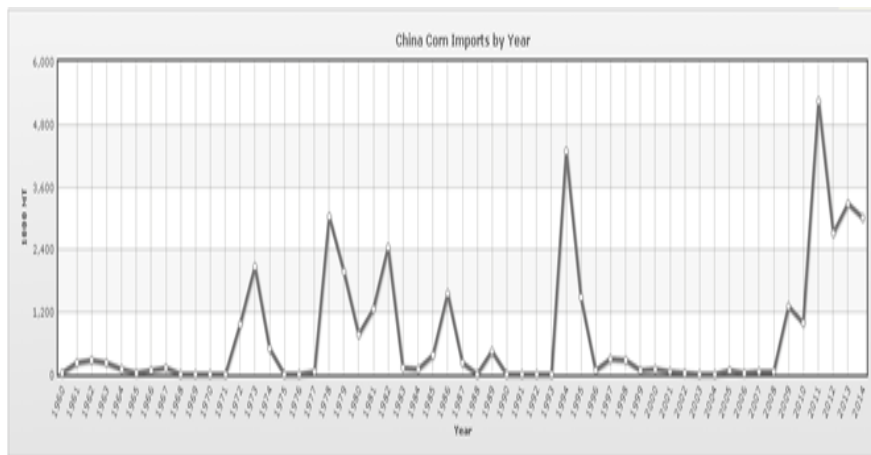
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# Chinese and Russian grain imports in metric tons



Sources: USDA, [www.indexmundi.com/agriculture](http://www.indexmundi.com/agriculture)

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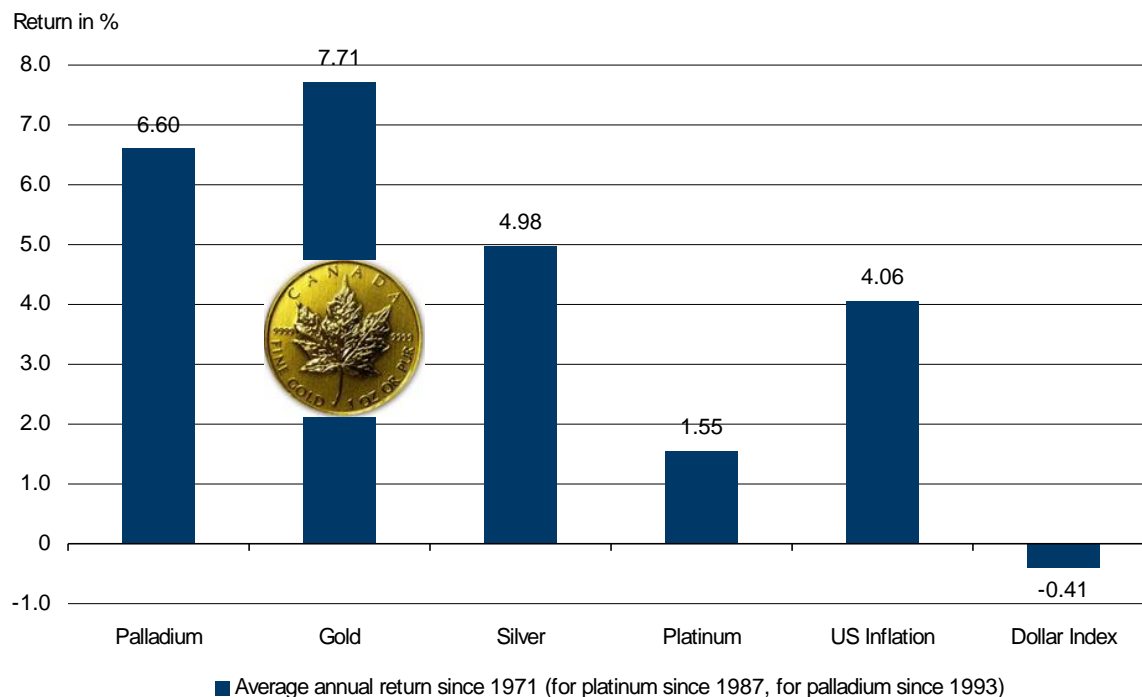
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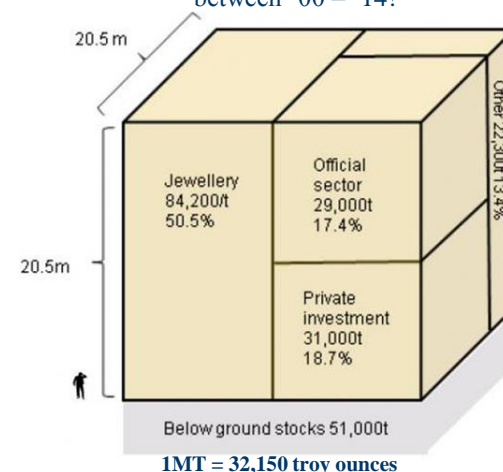
# Physical gold, a monetary reserve asset

Capitalize on scarce real money (gold & silver) protection amidst unprecedented global money printing

(An ounce of gold bought a tailored suit 100 years ago just as it does today; today the \$ cost of that suit is between 50x – 100x higher)



Current value of all above ground gold: about \$6.0trn  
Global stock & bond valuations up \$8.5trn p.a. on avg between '00 – '14!



(The Bretton Woods dollar gold standard was terminated in 1971)

Sources: Bloomberg, CS, [www.shadowstats.com/article/no-438-public-comment-on-inflation-measurement.pdf](http://www.shadowstats.com/article/no-438-public-comment-on-inflation-measurement.pdf)

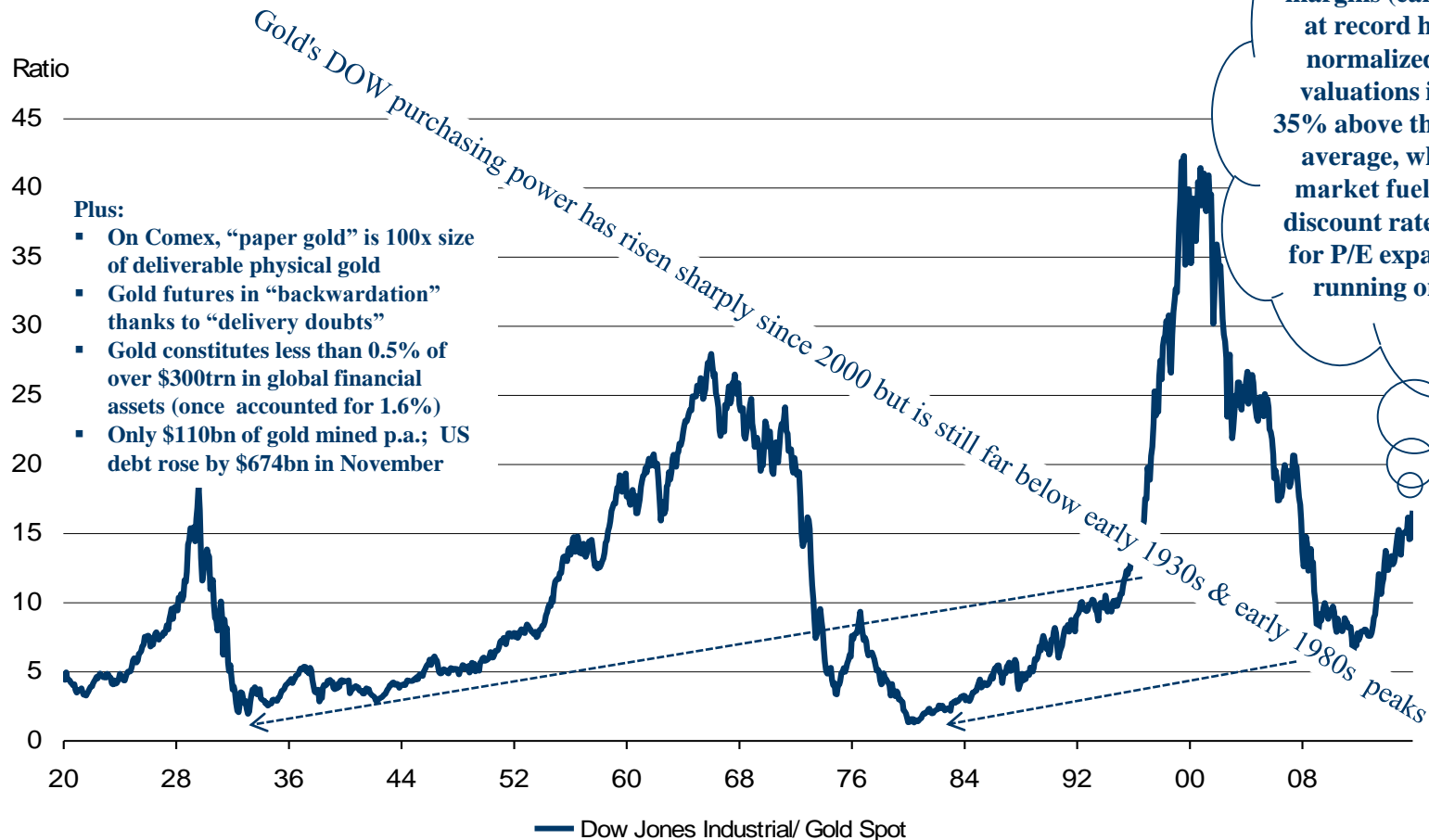
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# Gold valuation: DJII/gold spot price (long-term)



Meanwhile, corporate margins (earnings) are at record highs and normalized big cap valuations in US are 35% above the historical average, while “bull market fuel” -- lower discount rates allowing for P/E expansion -- is running on empty

Sources: Bloomberg, Credit Suisse, Comex, WGC, <http://www.marketwatch.com/story/global-stock-market-cap-has-doubled-since-qes-start-2015-02-12>, <http://www.zerohedge.com/news/2015-11-04/there-are-now-293-ounces-paper-gold-every-ounce-physical-comex-registered-gold-hits->, <http://www.jmbullion.com/investing-guide/pricing-payments/backwardation-contango/>, [www.mckinsey.com/insights/global\\_capital\\_markets/financial\\_globalization](http://www.mckinsey.com/insights/global_capital_markets/financial_globalization), <http://dkanalytics.com/pdfreports/wp-content/uploads/2015/05/Gold-update-slides-May-2015.pdf>

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