Six Sources of Upcoming Volatility

Erik Norland, Senior Economist, CME Group

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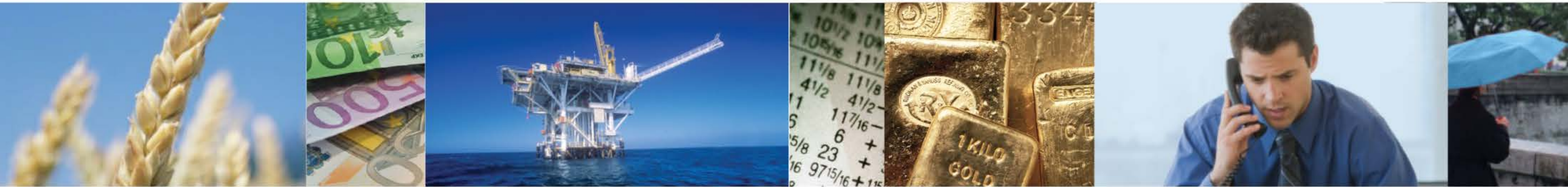

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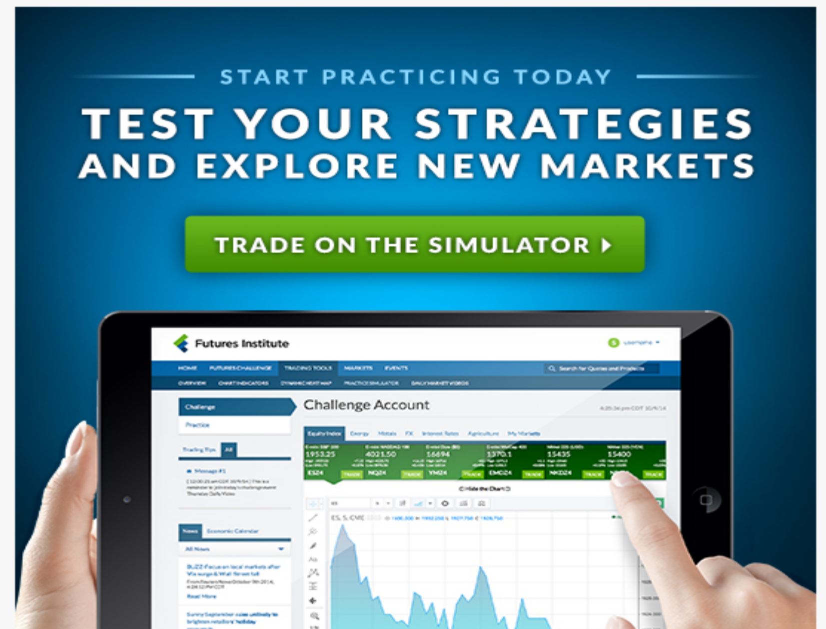

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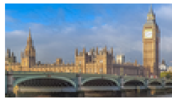
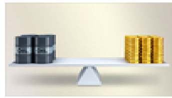

UK Elections: Possible Outcomes and Market Implications
12 March 2015 13:00:00 CDT
Britain's general elections in May could impact currency patterns and ties with the European Union.

Taking Stock After the Oil Price Collapse
27 February 2015 10:01:00 CST
Watch CME Group Chief Economist Blu Putnam present a macro view of the oil price collapse discussing changes due to lower oil prices.

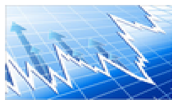

Oil-Gold Ratio: Dial Down Deflation Concerns
03 February 2015 13:57:00 CST
CME Group economists Blu Putnam and Erik Norland analyze the oil-gold ratio for tell-tale signs and conclude that deflation worries may be overdone.

Euro-Zone 2015: Can Stimulus Jump-Start Economy?
23 January 2015 12:08:00 CST
We expected Euro-Zone real GDP growth in the 1% to 2% range in 2015 – a decided improvement over recent years.

U.S. Economy: A Sixth Straight Year of Growth?
09 January 2015 06:00:00 CST
The U.S. economy is expected to have another healthy year in 2015, with our base case scenario for real GDP on track for 3% growth.

How Liquidity Evolves on Big Data Days
16 December 2014 17:10:00 CST
CME Group's Blu Putnam and Graham McDannel showcase liquidity in U.S. 10-year Treasury Futures (ZN) after the Fed's FOMC issues meeting press statements.

A Look at What is Happening Below the Surface in Energy
02 December 2014 16:14:00 CST
Learn more about the dynamics impacting the oil and natural gas markets from CME Group's Chief Economist, Blu Putnam, and Energy Economist, Desiree Schwartz.


Fed Set to End QE, Consider Rate Hike
08 October 2014 13:30:00 CDT
The Fed is poised to end quantitative easing at its FOMC meeting October 28-29 which could pave the way for raising short-term interest rates.

An End in Sight to Fed's Zero-Rate Policy
11 August 2014 15:07:00 CDT
As economists consider the end of quantitative easing, Blu Putnam discusses the possibility of the Fed ending the zero-rate policy as soon as January. Read article.

Visit: http://www.cmegroup.com/education/browse-materials/bios/commentary/bluford-putnam.html

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Erik Norland

Erik Norland is Executive Director and Senior Economist of CME Group. He is responsible for generating economic analysis on global financial markets by identifying emerging trends, evaluating economic factors and forecasting their impact on CME Group and the company's business strategy, and upon those who trade in its various markets. He is also one of CME Group's spokespeople on global economic, financial and geopolitical conditions.

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Six Sources of Upcoming Volatility

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Senior Economist & Executive Director
Strategic Intelligence & Analytics, Strategy & Execution

May 2015

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Six Sources of Rising Volatility

- U.S. Equities: Stocks are no longer cheap and corporate earnings may struggle to grow further in coming quarters/years. This could lead to a rise in volatility.
- U.S. Treasury Bond Yields: QE in Europe and Japan has depressed yields and gives an indication of downside potential on the yield side if equities were to correct.
- U.S. Rates: By all appearances, the Fed would like to hike rates sometime later this year.
- Crude Oil: Oil companies and state champions are likely to keep pumping oil at full tilt despite lower prices and rising inventories but investment is collapsing which boost prices longer term.
- Gold: With a lack of financial fear and few worries about inflation, gold could be in the cross hairs of a Fed rate hike.
- Dollar: Is the U.S. Dollar rally over or does the currency have higher go?

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Equity Valuation Themes

- NASDAQ has returned towards a record high but will it break 5000 decisively or will it prove a barrier like 1000 did for the Dow during the 1960s and 1970s?
- Corporate profits are near a record % of GDP and might begin to decline. Past declines in corporate profits as a % of GDP preceded market tops by 1-3 years and coincided with rising equity market volatility.
- By some long-term measures like Shiller Price Earnings, Price to Sales and Dividend Yields, stocks looks expensive.
- By other measures like Price to Book or any measure that adjusts equity valuations for the low level of bond yields, equities look inexpensive –at least relative to US Treasuries.
- The last time that stocks looked expensive outright but inexpensive relative to bonds was in the late 1950s. During the 1960s, equities produced modest positive risk adjusted returns while bonds struggled.
- Equities have rebounded versus commodity prices such as gold, silver, copper, and oil but are far from record levels. Equities tend to outperform commodities over the long run. Commodities can still be good portfolio diversifiers, however, even if they do not play a predominate role in asset allocation.

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Equity Valuation Themes: Corporate Profits and GDP

- During the past two economic cycles, corporate profits have recovered more quickly than GDP itself.
- When corporate profits rise faster than GDP, it implies a smaller share of national income going to labor and a larger share flowing to the owners of capital.
- Historically, corporate profits have struggled to exceed 10% of GDP.
- When profits achieve 10% of GDP, earnings growth typically begins to slow. Often this means outright declines in earnings and almost always means that earnings will grow more slowly than nominal GDP.
- Declines in corporate earnings often occur 1-3 years prior to a recession.
- Currently, corporate profits are near a record as a percentage of GDP: this might imply slow or even negative earnings growth ahead.
- If corporate earnings do grow more slowly than nominal GDP, it might put the equity market at a heightened risk of corrections/bear markets as well as sharp spikes in volatility.
- Since the pre-tech wreck peak in 2000, earnings have risen by 150%, whereas the S&P 500 is up only 33%. Bottom line: stocks aren't at 2000 valuations.

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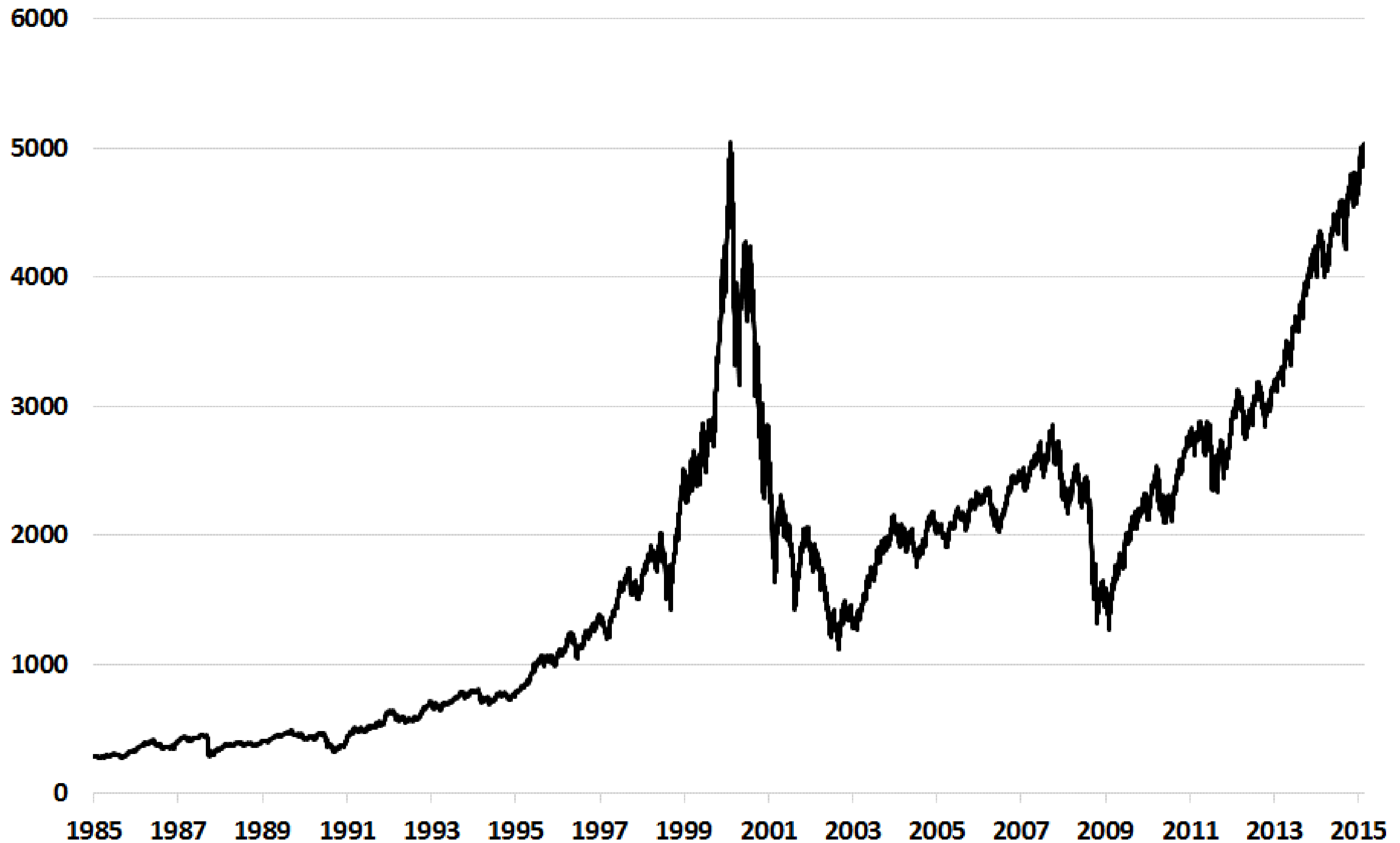
NASDAQ Back to a Record High After 15 Years.



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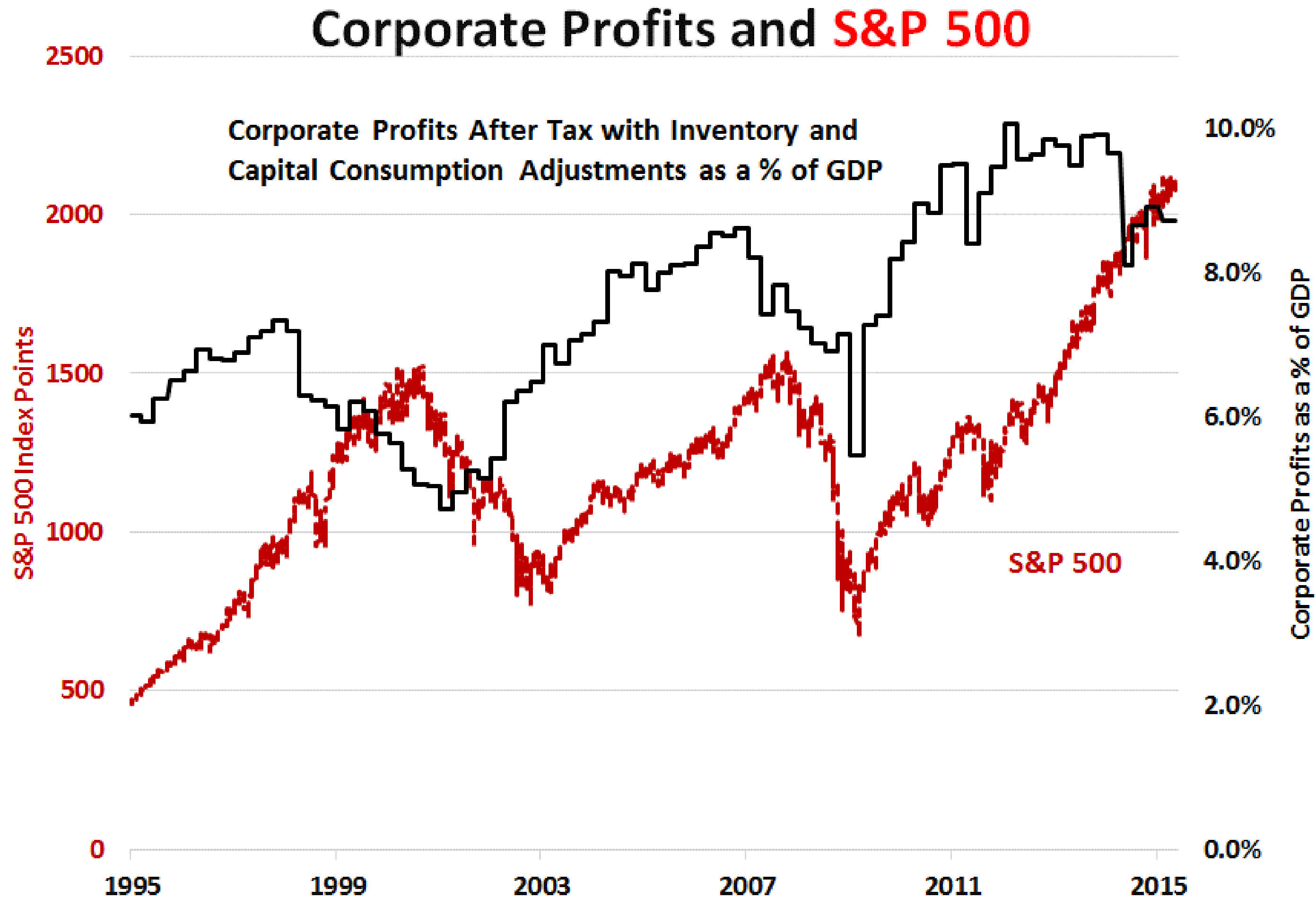
Can Corporate Profits Grow Beyond 10% of GDP? What Happens if They Fall?



Source: Bloomberg Professional (GDP CUR$, CPBICPAT and SPX)

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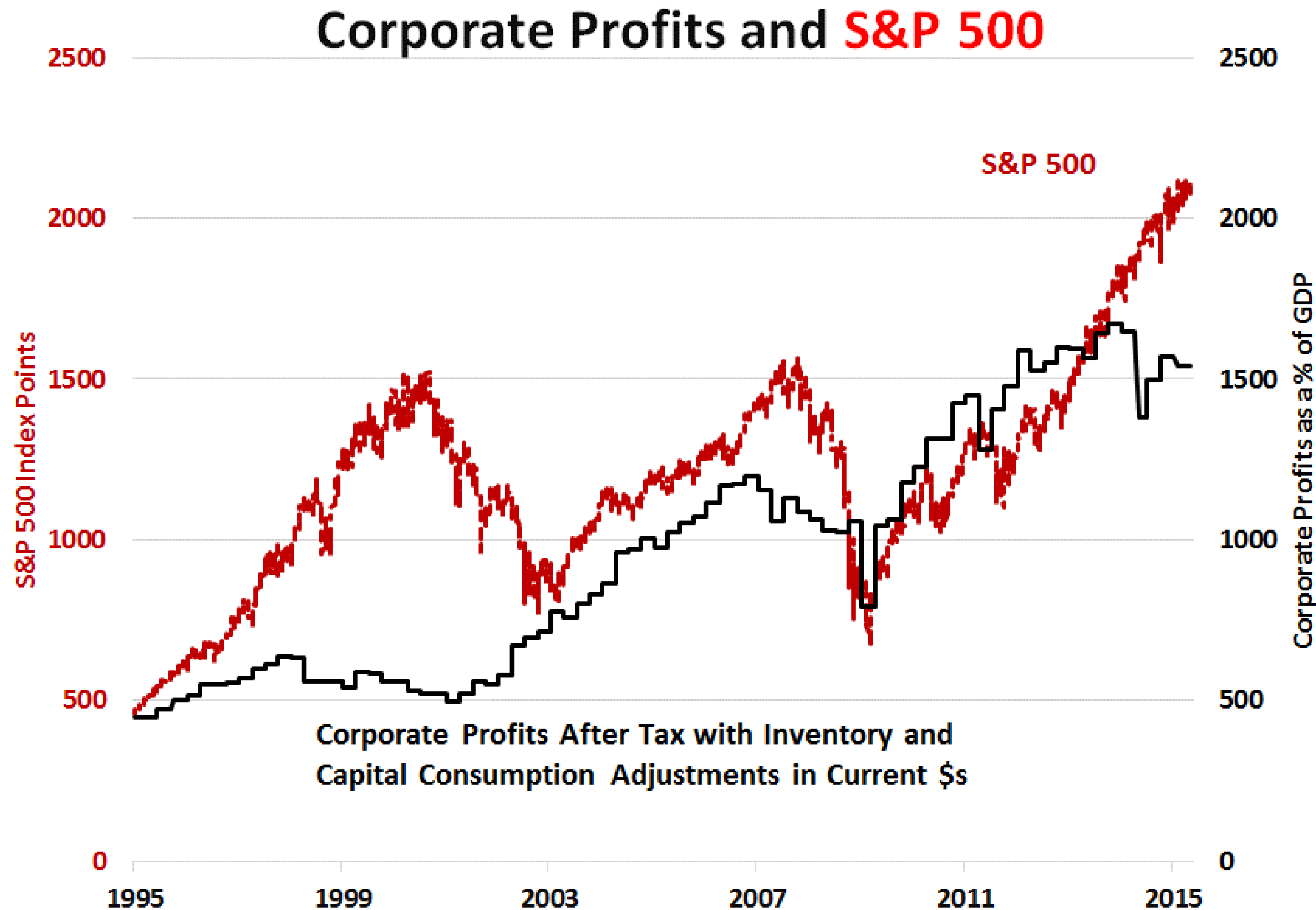
Are Equities Becoming Overvalued with Respect to Corporate Earnings?



Source: Bloomberg Professional (CPBICPAT and SPX)

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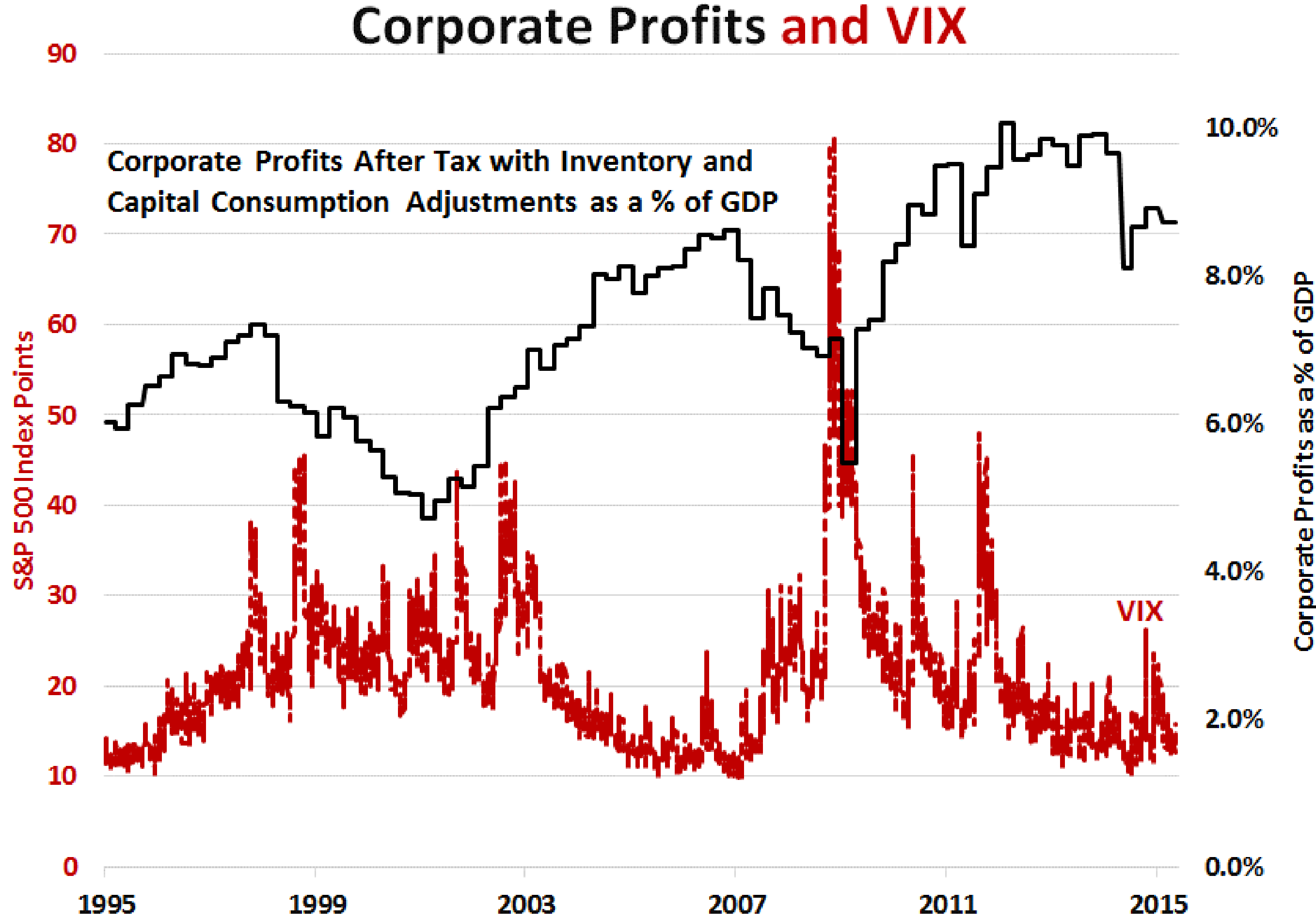
The Past Declining Corporate Profits (as a % of GDP) has been Associated with Volatility Spikes.



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Equity Valuation Themes: Traditional Measures

- Traditional equity valuation measures show a mixed picture.
- Price to Earnings (P/E) is around 16 for the Dow, 17.4 for the S&P 500, and 21.4 for the NASDAQ –far from alarming BUT…
- Implied earnings growth for 2016 versus 2015 is quite optimistic: with 12.7% growth in S&P 500 earnings and 16.8% for the NASDAQ. It is unlikely that earnings will grow this quickly since nominal GDP will probably grow 5% at most. This opens the possibility for more earnings disappointments.
- Shiller P/E, which uses 10 year moving average earnings, shows the S&P 500 at nearly 28x earnings, which is quite expensive. If earnings begin to decline towards their 10 year moving average, the market may not be able to support such high valuation levels.
- Price to Sales (P/S) is just as high as it was in 2000. P/S has the advantage of being difficult to manipulate (unlike earnings or book values) but contains no risk factor.
- Price to Book (P/B) is substantially lower than it was in 2000 in part because corporations have reduced leverage substantially over the past 15 years. Like P/S, P/B contains no risk factors.

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Shiller PE Uses 10 Year Average Earnings: Stocks Look Highly Valued.

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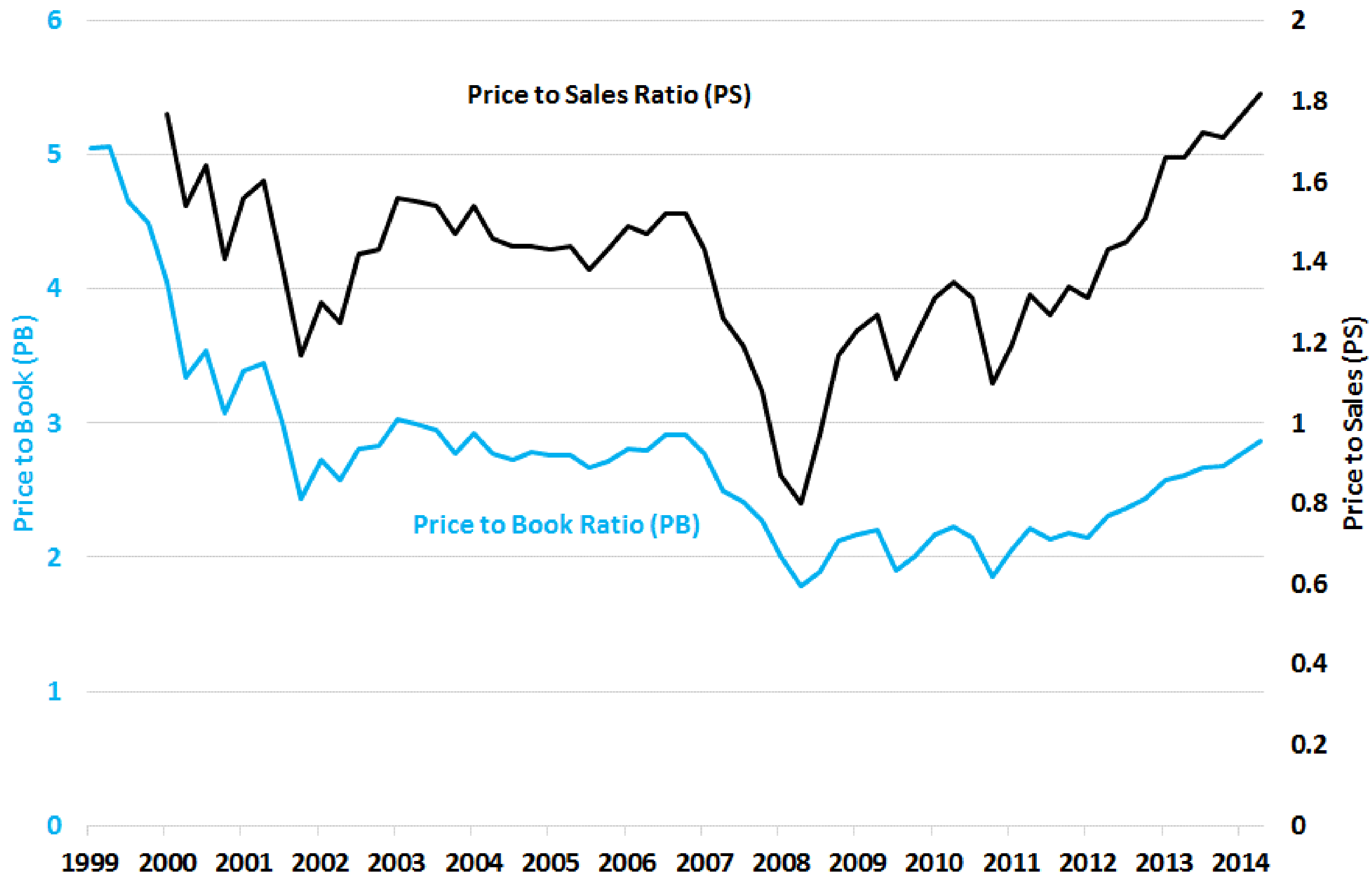
S&P Price/Sales Looks as Expensive as 2000 but Not Price/Book as a Result of Deleveraging.



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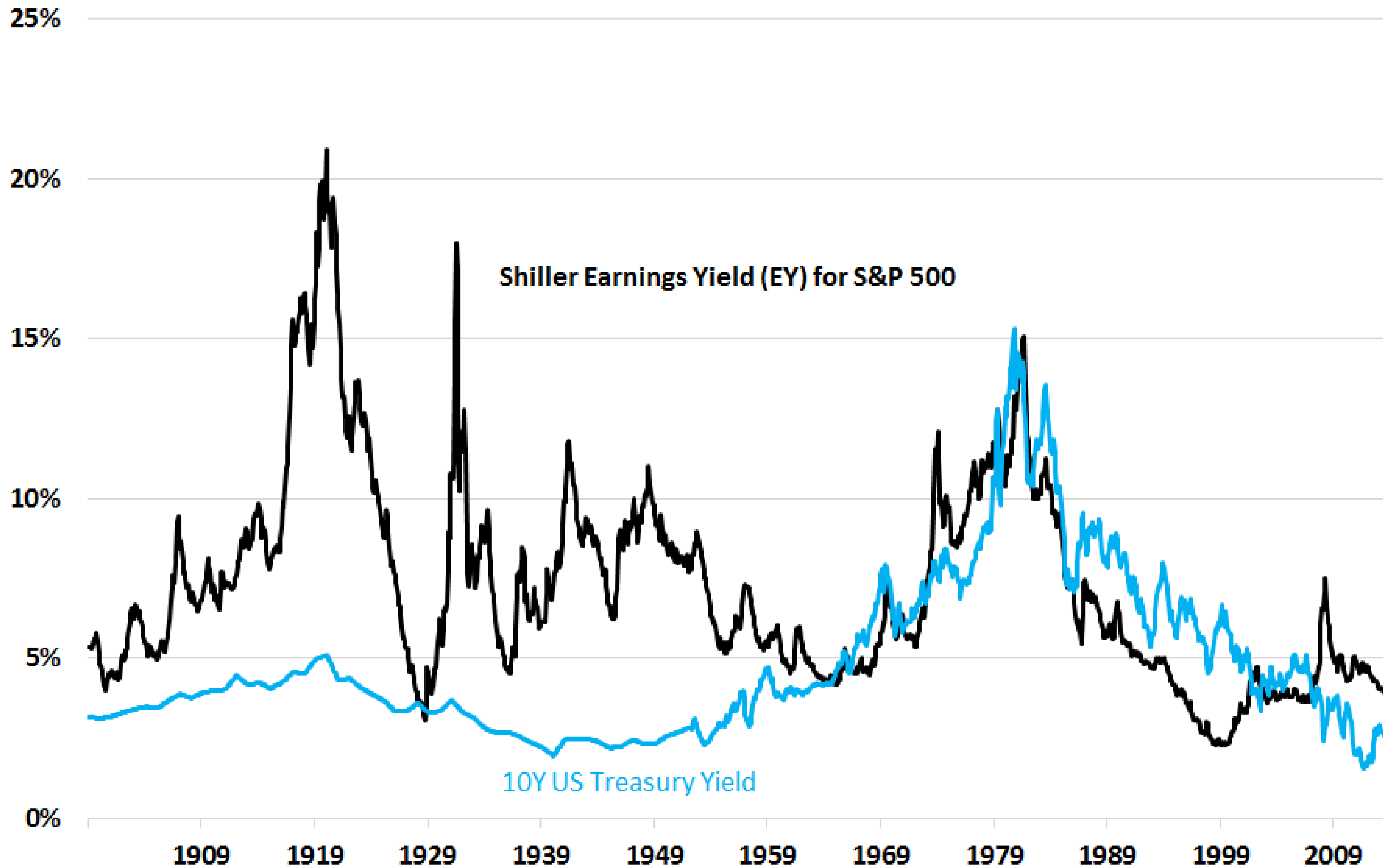
S&P 500 Earnings Yields Once Again Exceed the Yields on 10Y US Treasuries.



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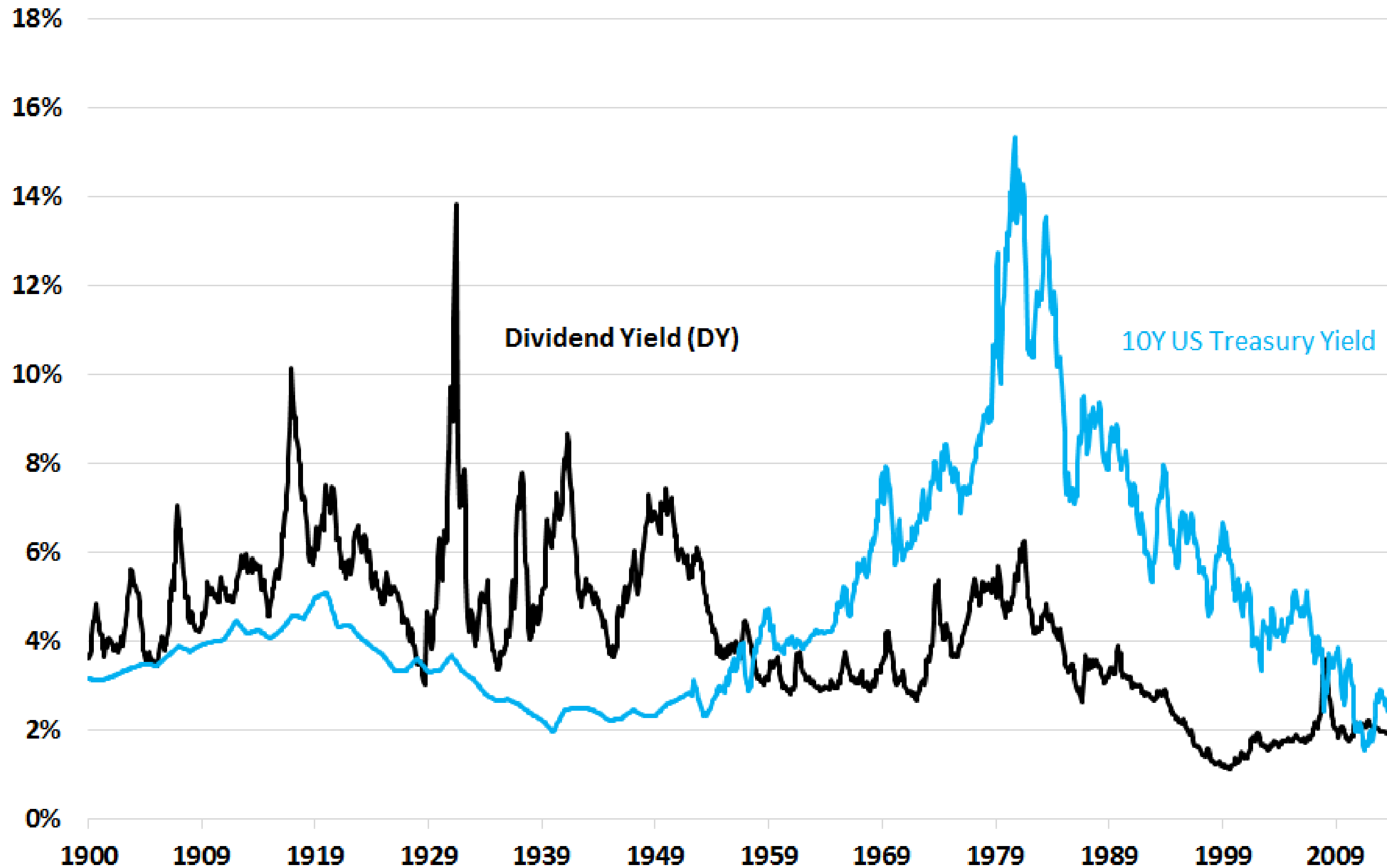
10Y US Treasury Yield Has Fallen to the Level of Dividend Yields For the 1st Time Since the ‘50s.



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Equity/Bond Valuation Themes: Alternative Measures

- **Comparing the S&P 500's market cap to the Nominal US GDP provides an alternative measure of valuation – that like all other measures has benefits and limitations. Presumably equity valuations can not rise versus GDP indefinitely.**
- **Currently, the S&P 500's market cap as a % of GDP is at levels only seen during the 1960s and during the late 1990s.**
- **The equity market might be able to sustain high valuation levels in the face of very low interest rates as was the case during the late 1950s and early 1960s before rates began to rise.**
- **If one multiplies the S&P 500 market cap as a % of GDP by the 10Y US Treasury yield one can create an index that indicates whether equities are expensive or cheap relative to bonds.**
- **Currently that index shows that equities are the cheapest compared to bonds since the mid-1950s.**
- **Between January 1, 1956 and December 31, 1965, equities performed OK in risk adjusted terms (0.51 information ratio) while bonds performed poorly (a -0.1 information ratio). Moreover, inflation hadn't even become a serious problem by 1965. Might the same happen again?**

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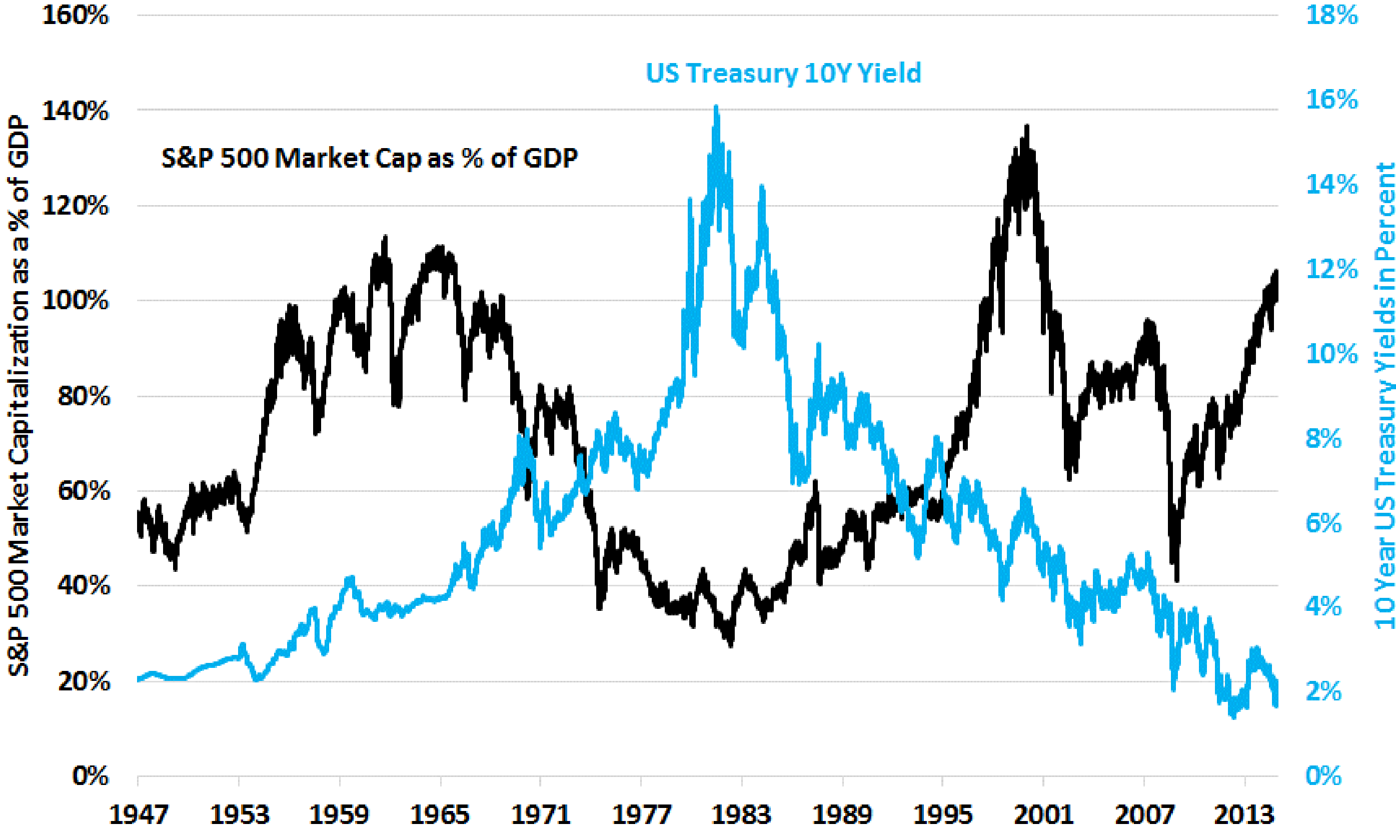
The S&P 500 Might be able to Maintain Higher Valuations Relative to GDP with Low Yields.



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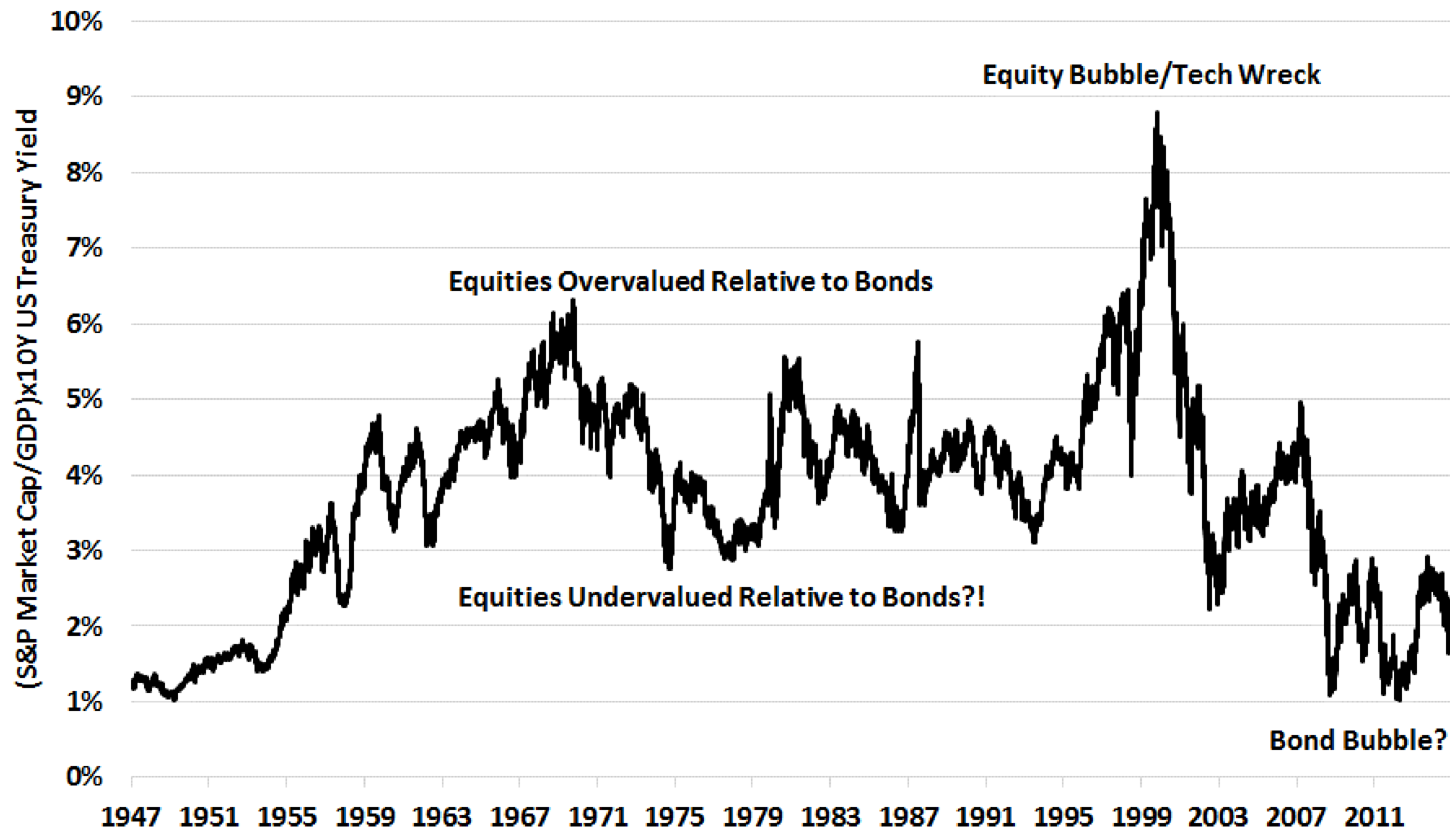
Normalized for Yields, S&P 500 Looks Cheap vs. Bonds (S&P 500 Market Cap/GDP)*(10Y Yields)



Source: Bloomberg Professional (SPX, GDP CUR$ and USGG10YR), with www.multipl.com for pre-1962 bonds.

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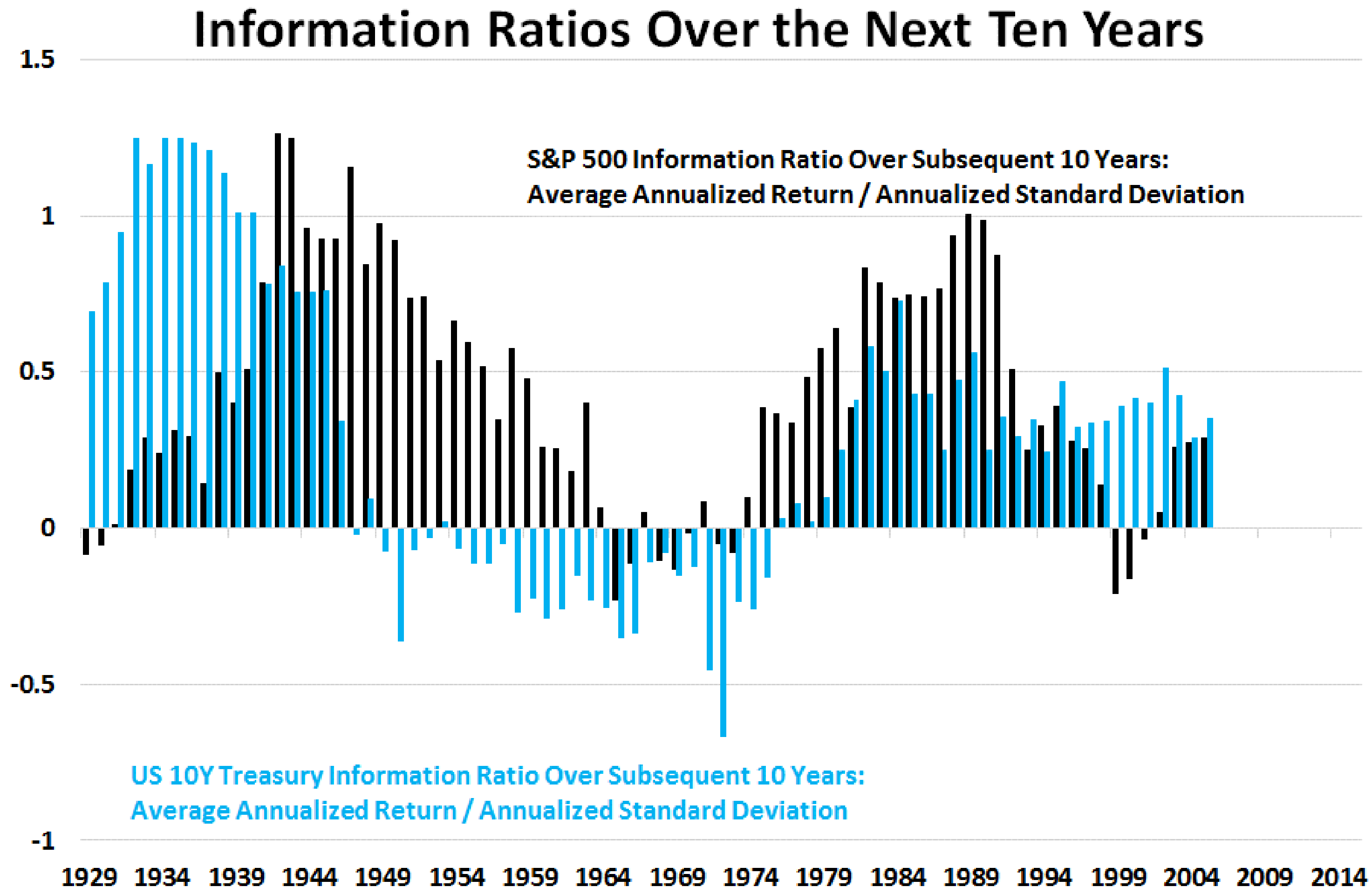
In the 10 Years from 1956-1965, Equities Achieved Better Risk Adjusted Returns than Bonds.



Source: Federal Reserve Bank of St. Louis, Stern School of Business NYU, http://www.stern.nyu.edu/~adamodar/New_Home_Page/data.html with CME Group Calculations.

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Fixed Income Themes: Alternative Measures

- **Extremely low rates in Europe and Japan may be pulling US rates downward.**
- **Even BBB+ rated Italian BTPs have lower yields U.S. Treasuries.**
- **What would happen to fixed income if there was a sharp correction in U.S. equities? Could we see U.S. Treasury yields fall to German or Japanese levels?**
- **With such low yields, can one still use bonds to discount earnings and cash flows from equity securities and other investments?**
- **The Fed would like to raise rates to the level of core inflation but can they raise rates without upsetting equity and bond markets?**
- **Despite weak Q1 growth, fundamentals of US economy look strong: services are growing rapidly, total labor income is very robust, especially in real terms, the negative impact of weaker oil prices on retail sales (gasoline station) will likely be temporary and the negative impact on business investment is likely to fade after Q2.**
- **Moreover, housing looks set to strengthen with low inventories, low interest rates, and rising household formation.**

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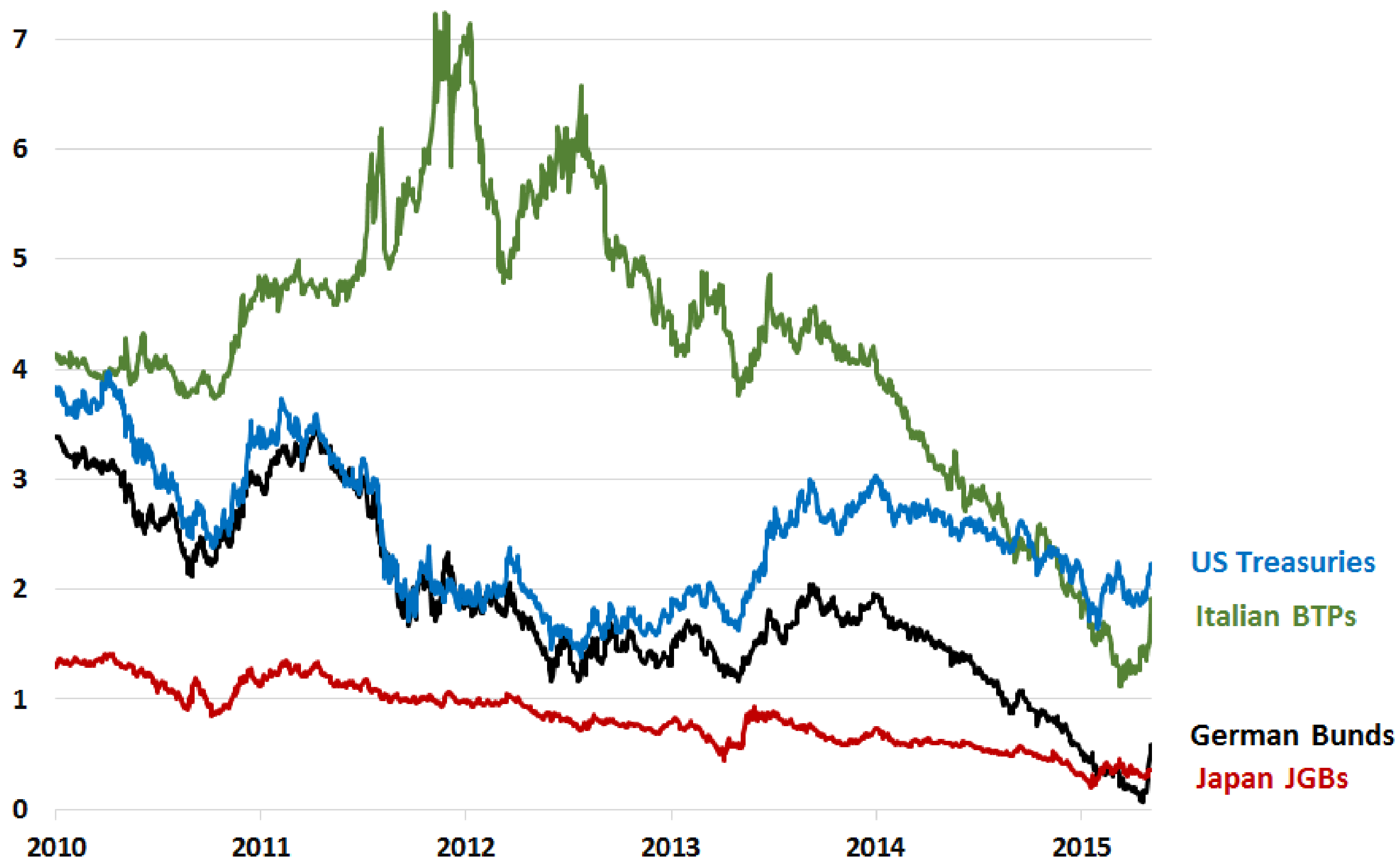
Bond Yields are Still Higher in the US Than They are in Europe (even BBB+ Rated Italy) or Japan.



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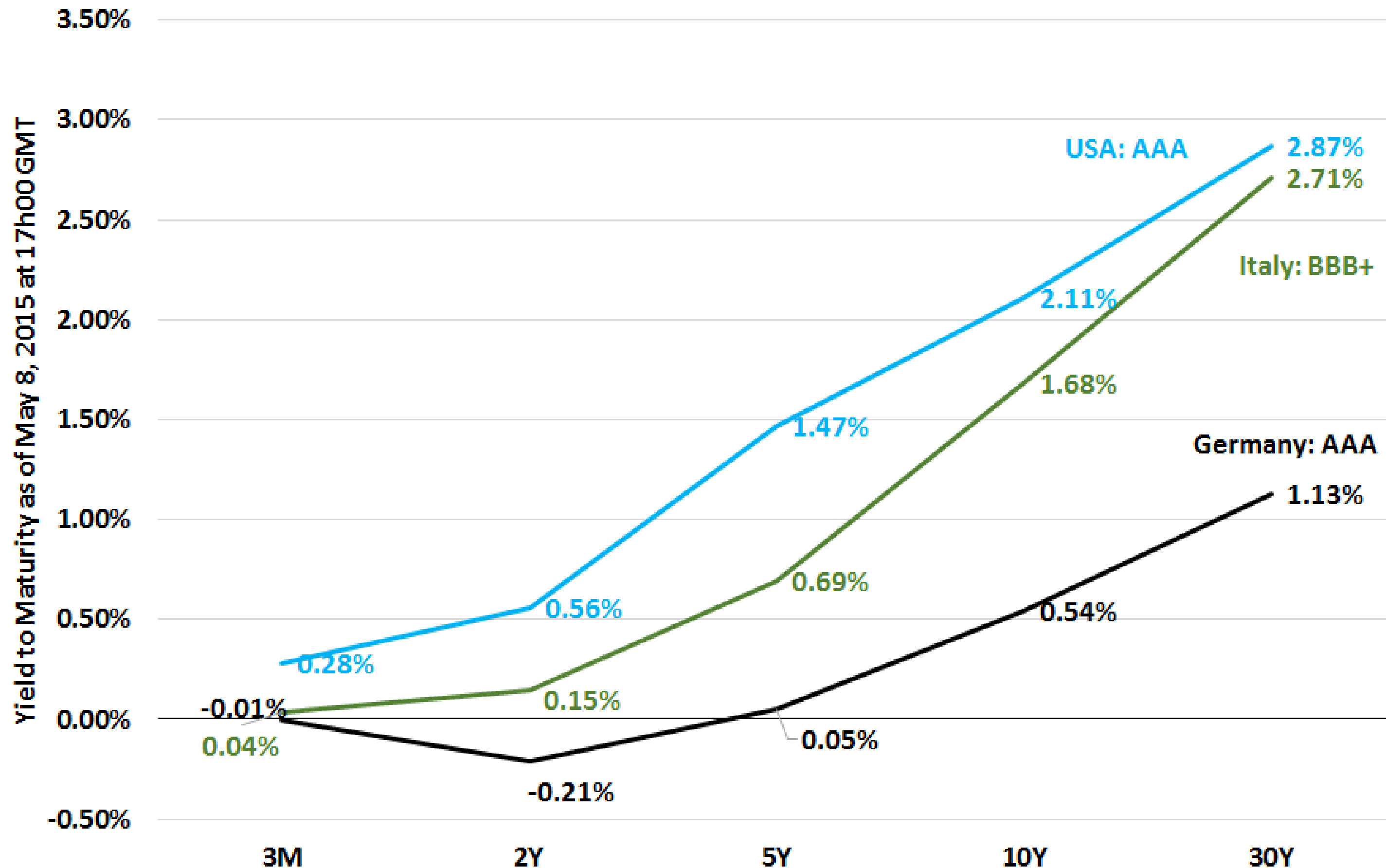
In the Event of an Equity Market Correction or Vol. Spike, Could US Yields Fall to German Levels?



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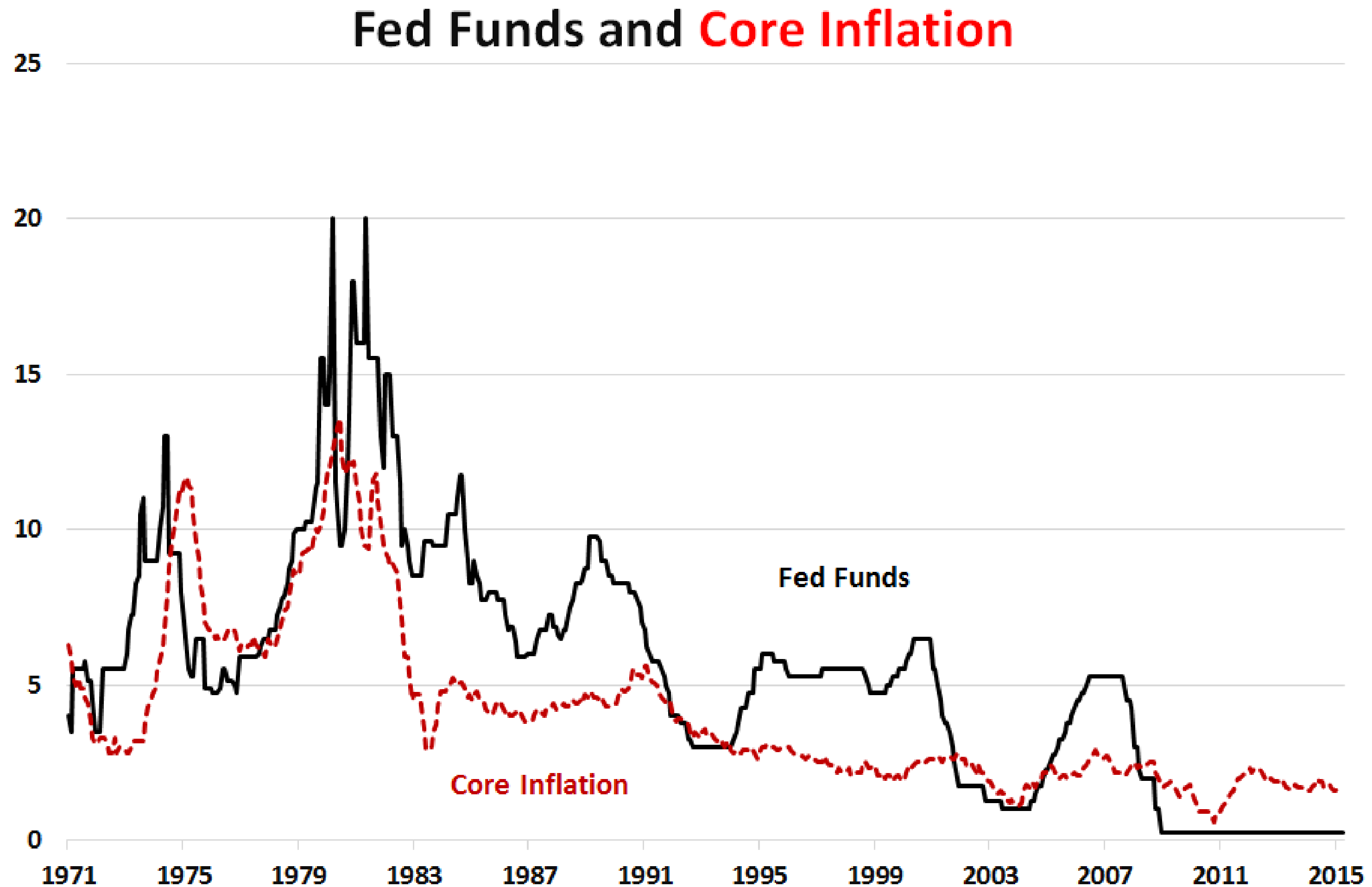
The Fed Would Like to Bring Rates Up To the Level of Core Inflation (Which has Been Stable Recently).



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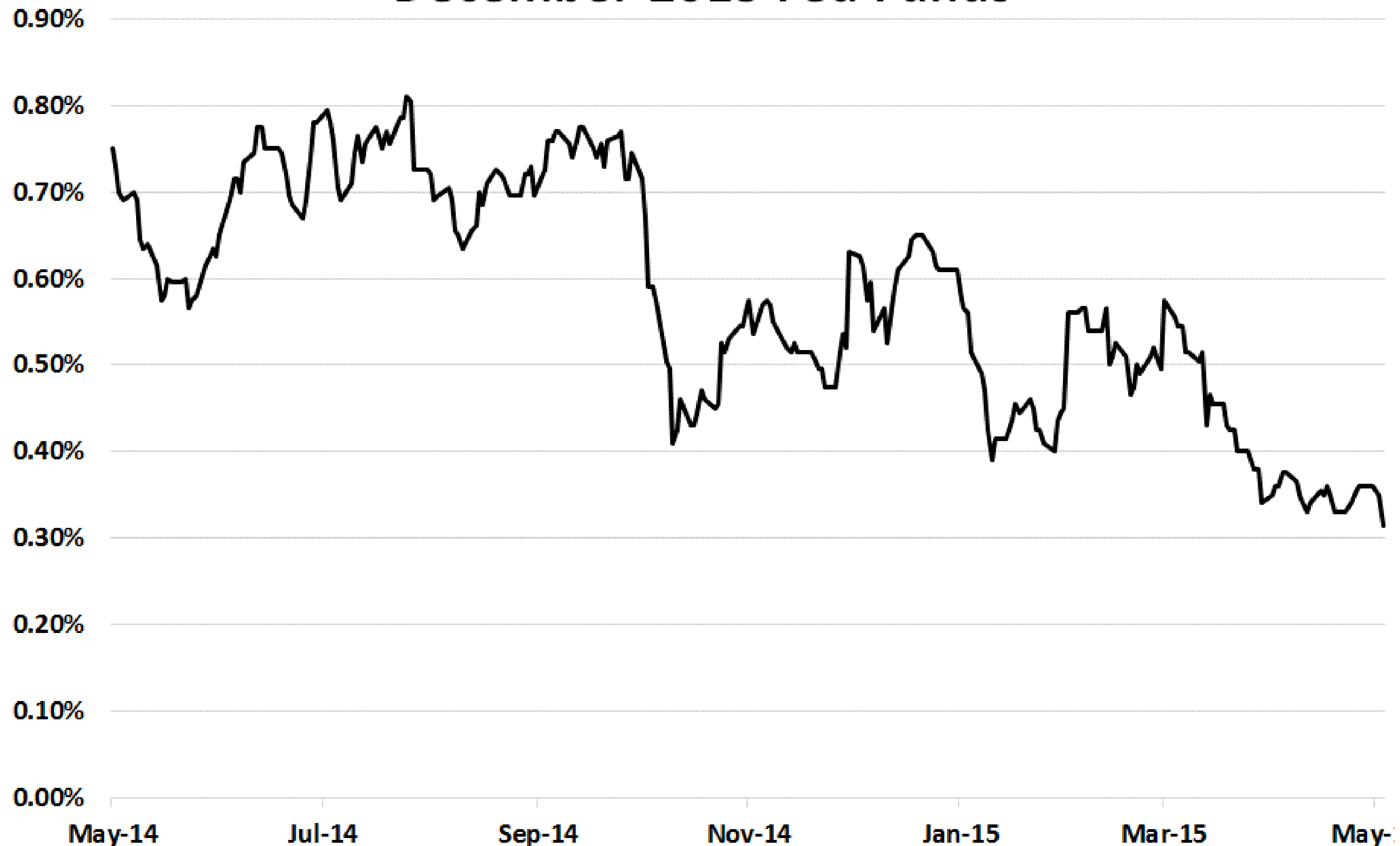
Fed Funds are No Longer Fully Pricing a Rate Hike for 2015 (as of Friday May 8)…



Source: Bloomberg Professional (FFZ5)

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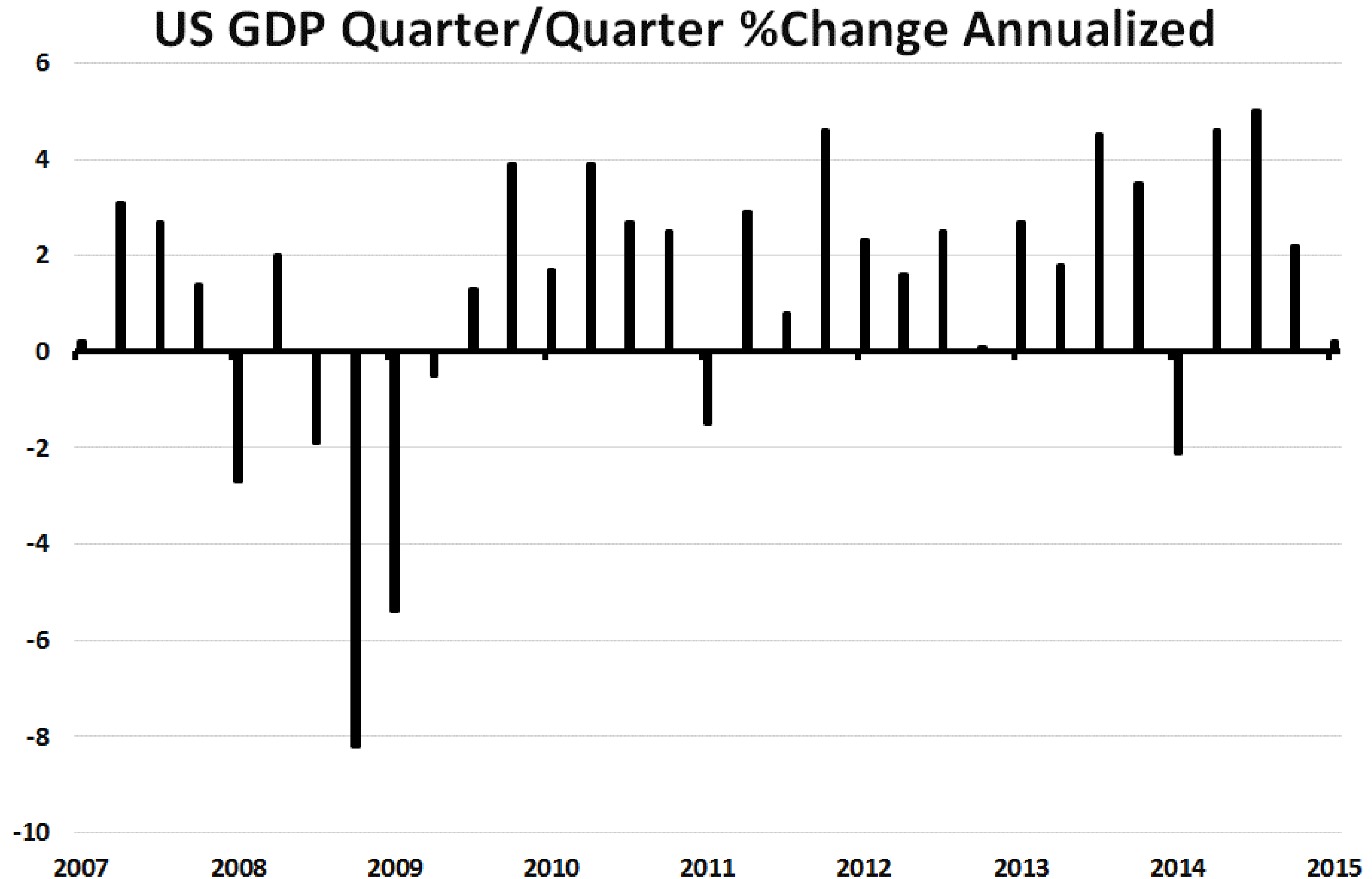
US GDP Slowed in GDP but May Pick Up Significantly Later in 2015 (as it did in Q2-4 2014).



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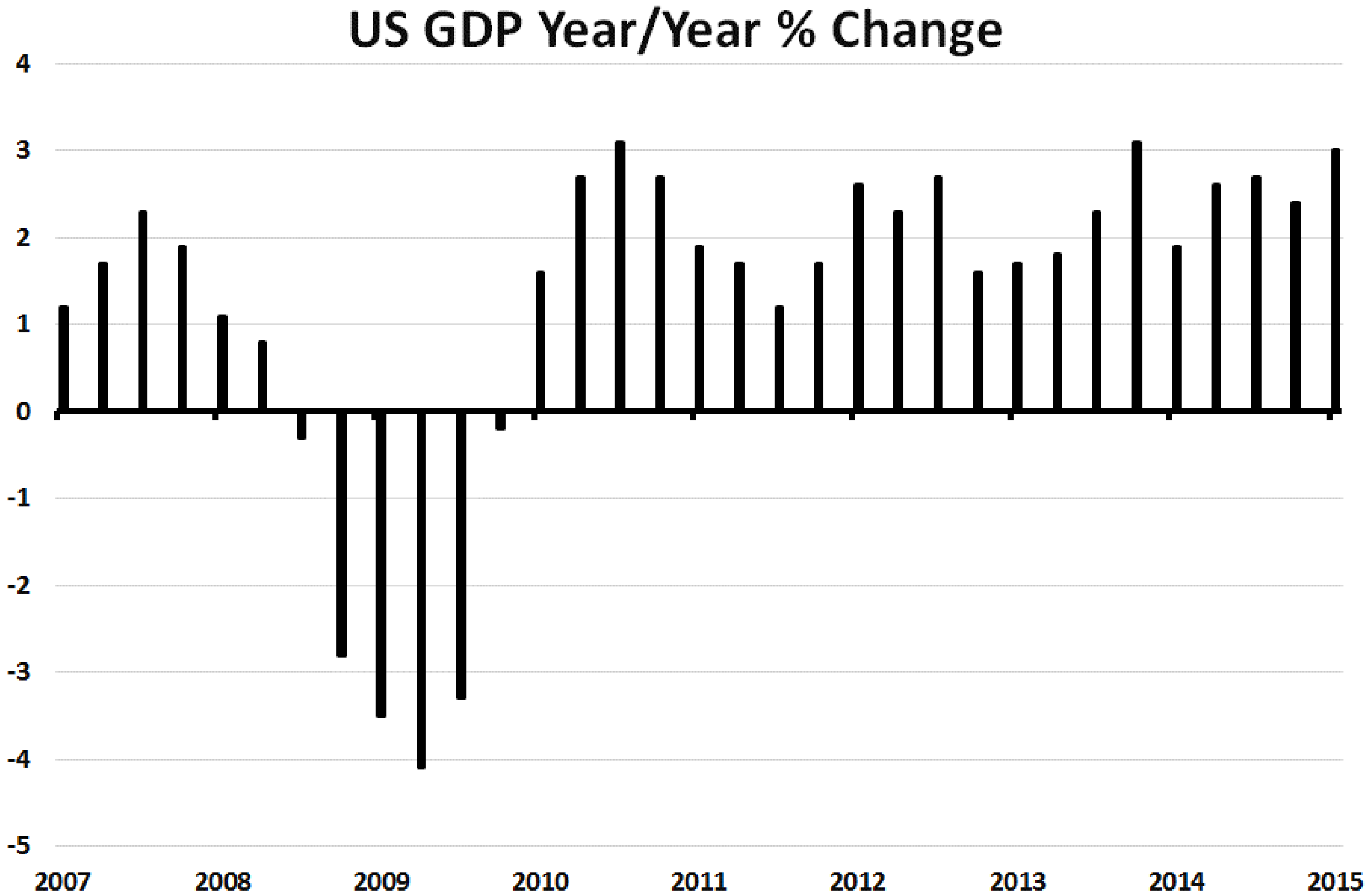
US GDP Year on Year Growth Actually Accelerated in Q1 – Not a Pessimistic Picture…



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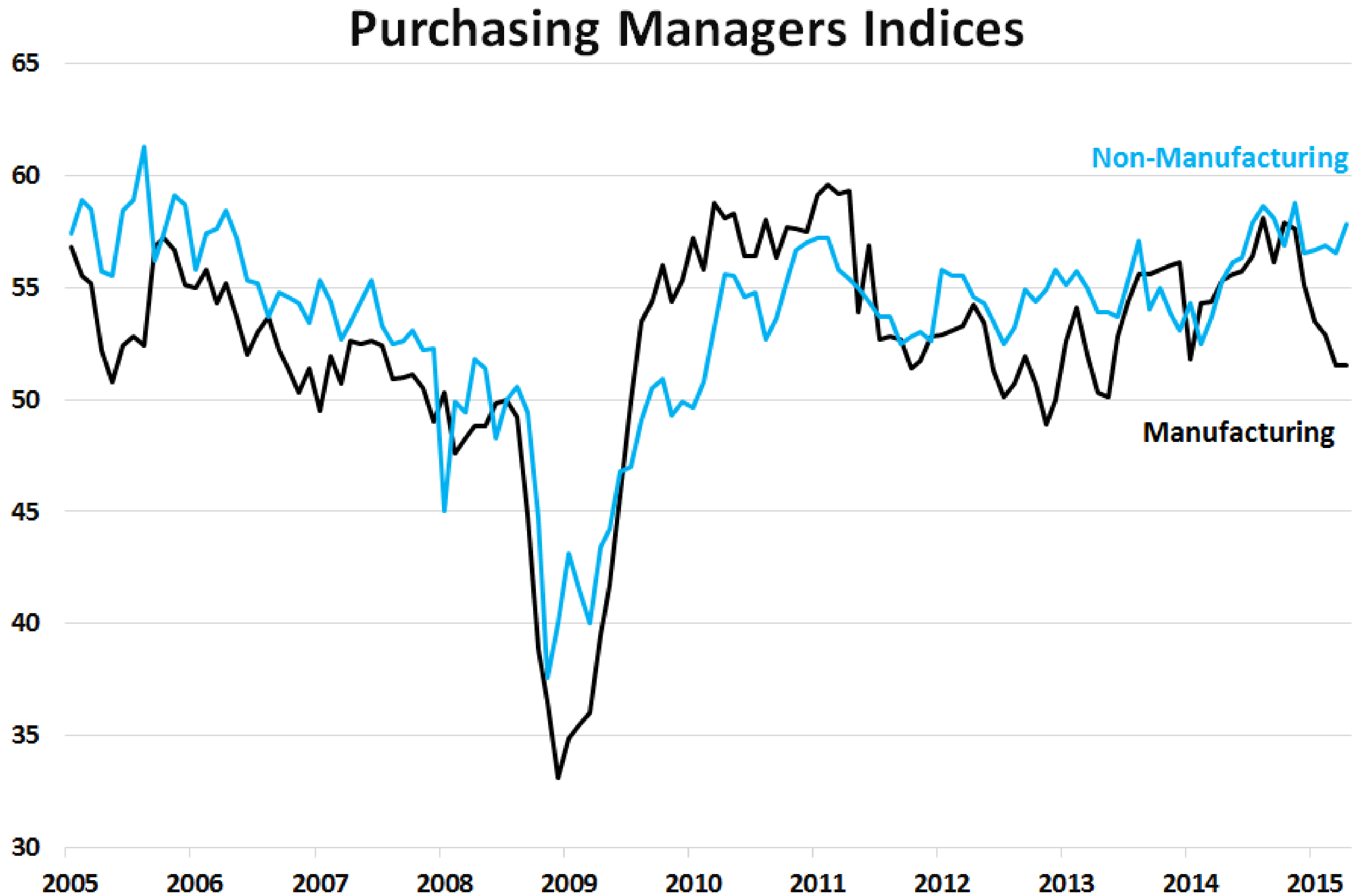
U.S. PMIs Shows Slow Growth in Manufacturing but Much Stronger Growth in Services…



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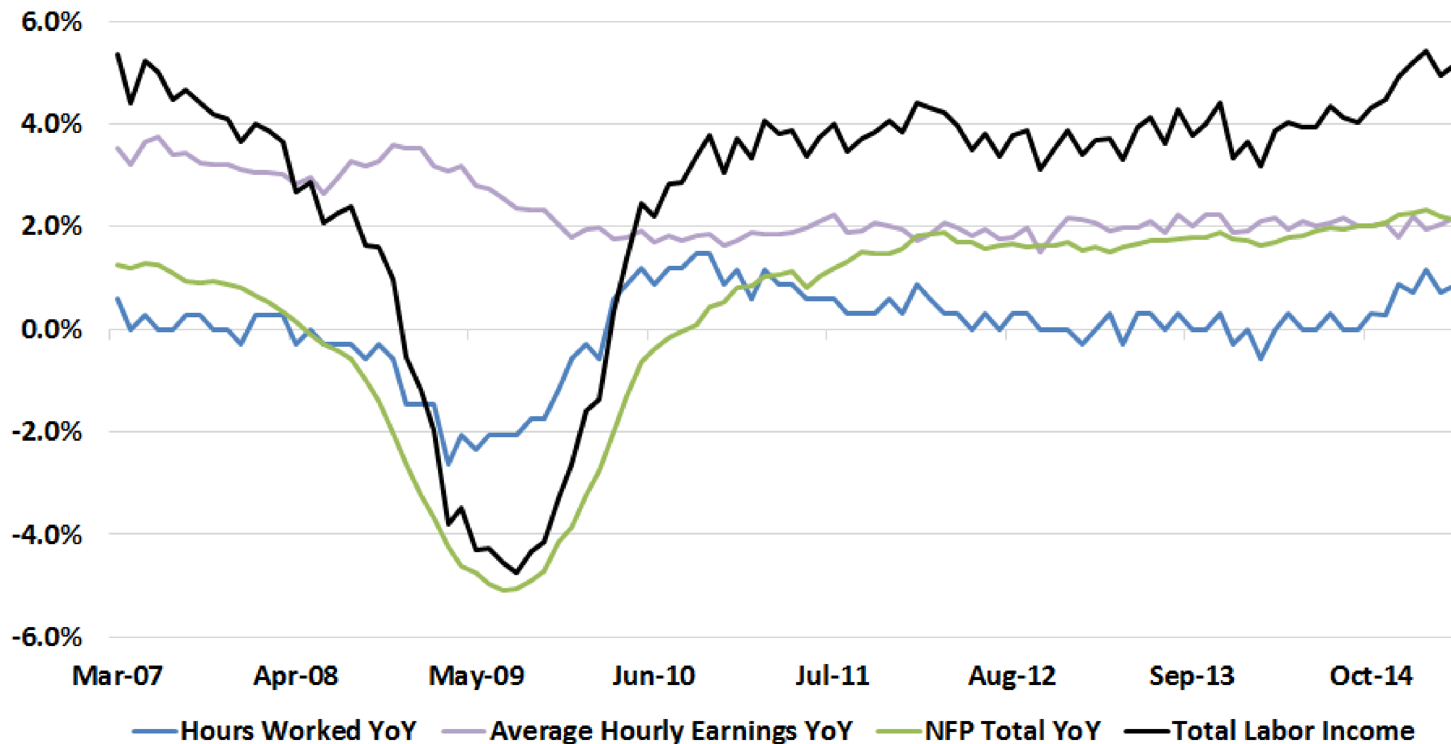
Labor Income in the US is Growing Far Faster than the Nattering Nabobs of Negitization Let On.



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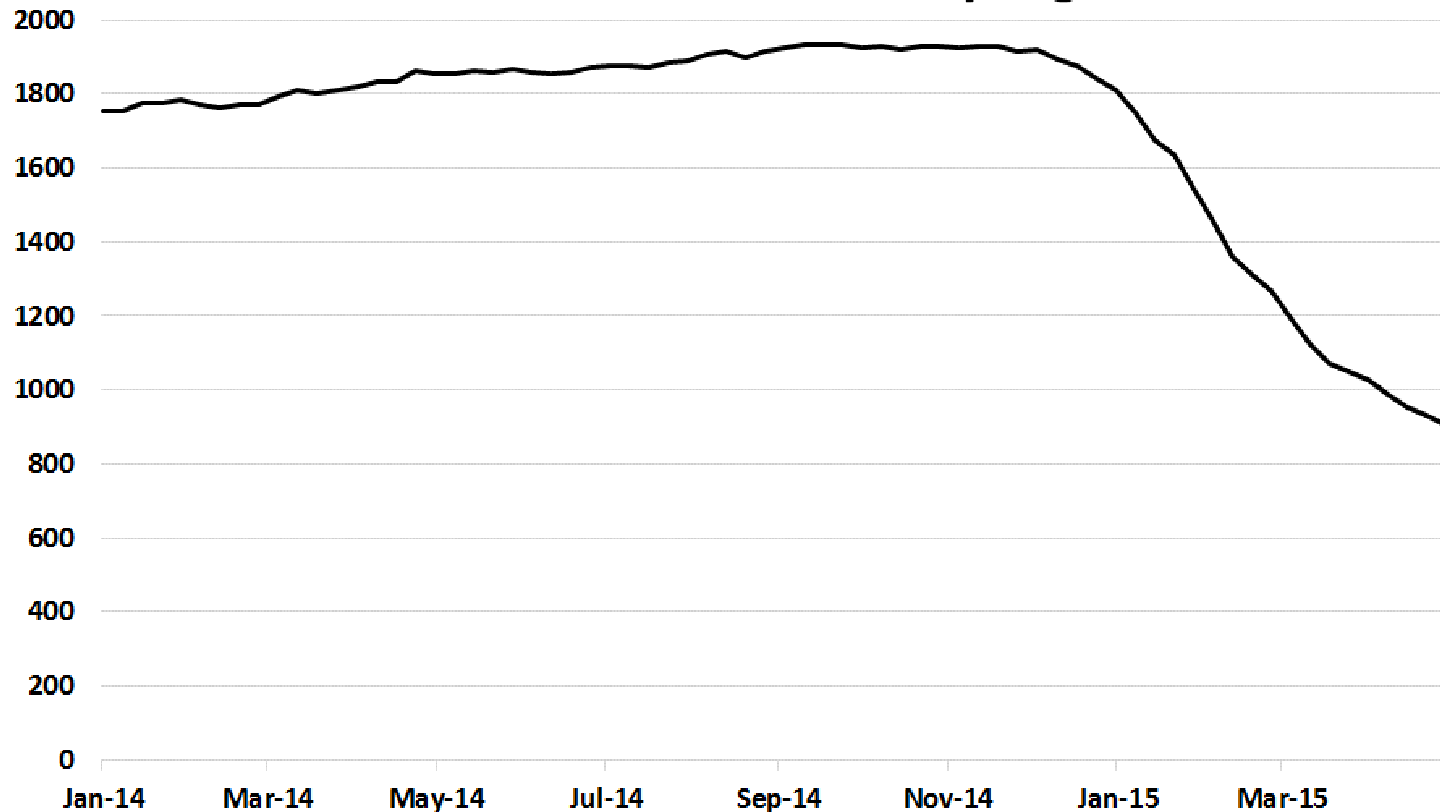
Collapsing Business Investment in Energy Could Shave $70 billion (0.4%) Off of GDP in 2015.



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Energy

- Oil prices have collapsed but may be in the process of finding a new trading range.
- If so, $44 (or so) might be the low end of the range.
- The high end of the range may not have been found yet but look for $65-68 as possible 38.2% retracement levels on 2015 WTI.
- Soaring U.S. production, mainly in North Dakota and Texas, played a key role in the collapse of world oil prices which began to fall as geopolitical tensions failed to escalate as feared in the second half of 2014.
- Lower prices are slowing investment in the sector and could also be slowing the pace of increase in U.S. crude production which OPEC (somewhat self-servingly) forecasts will peak in 2015.
- A slower pace of increase in production combined with risk of instability in certain oil production nations (Angola, Iraq, Venezuela etc.) could put upward pressure on prices.
- That said, rising inventories worldwide as well as soft demand in China and Latin America could put prices under renewed downward pressure.

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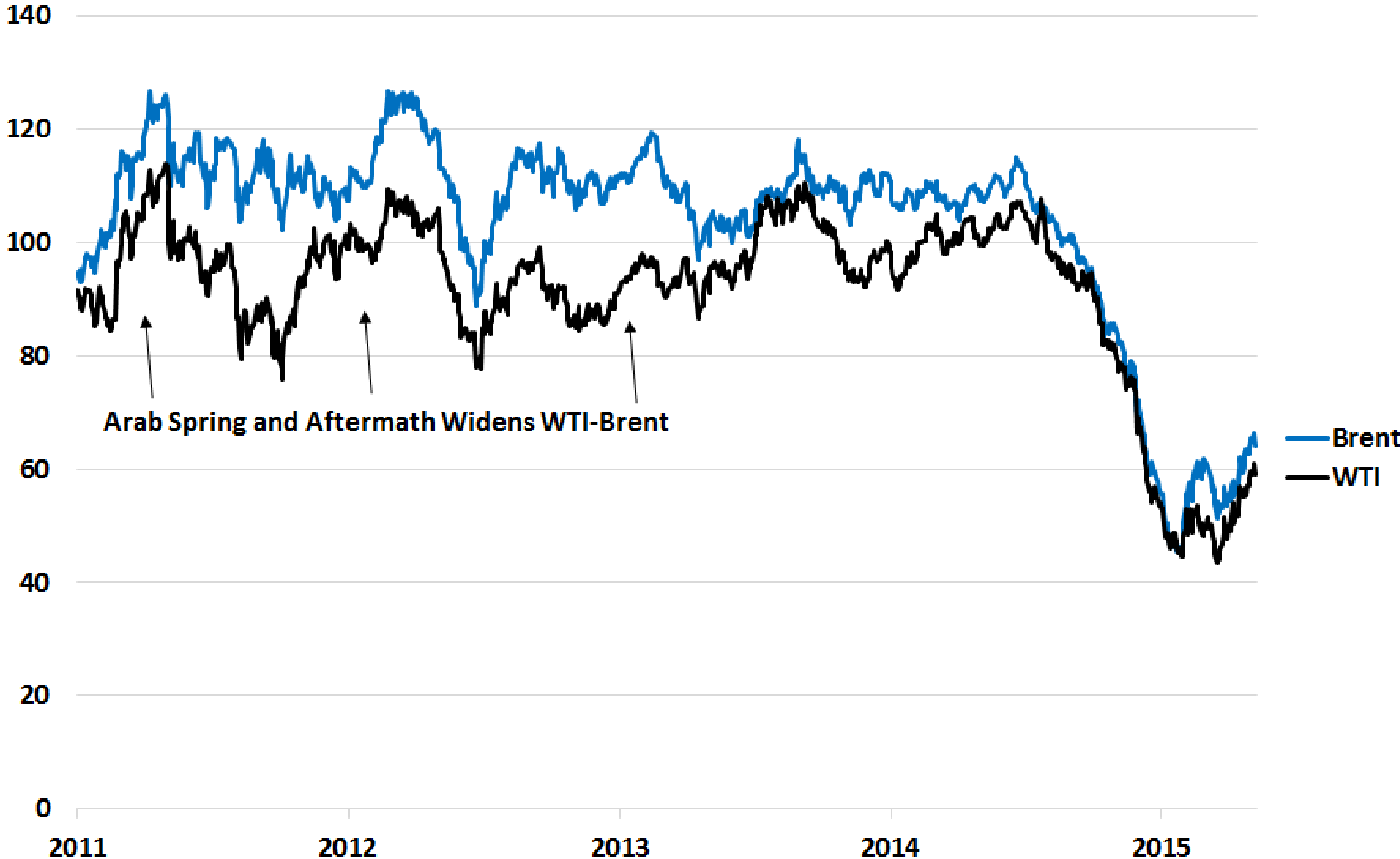
The Drop in Crude Oil Prices has Profound Implications for Consumers & Producers.



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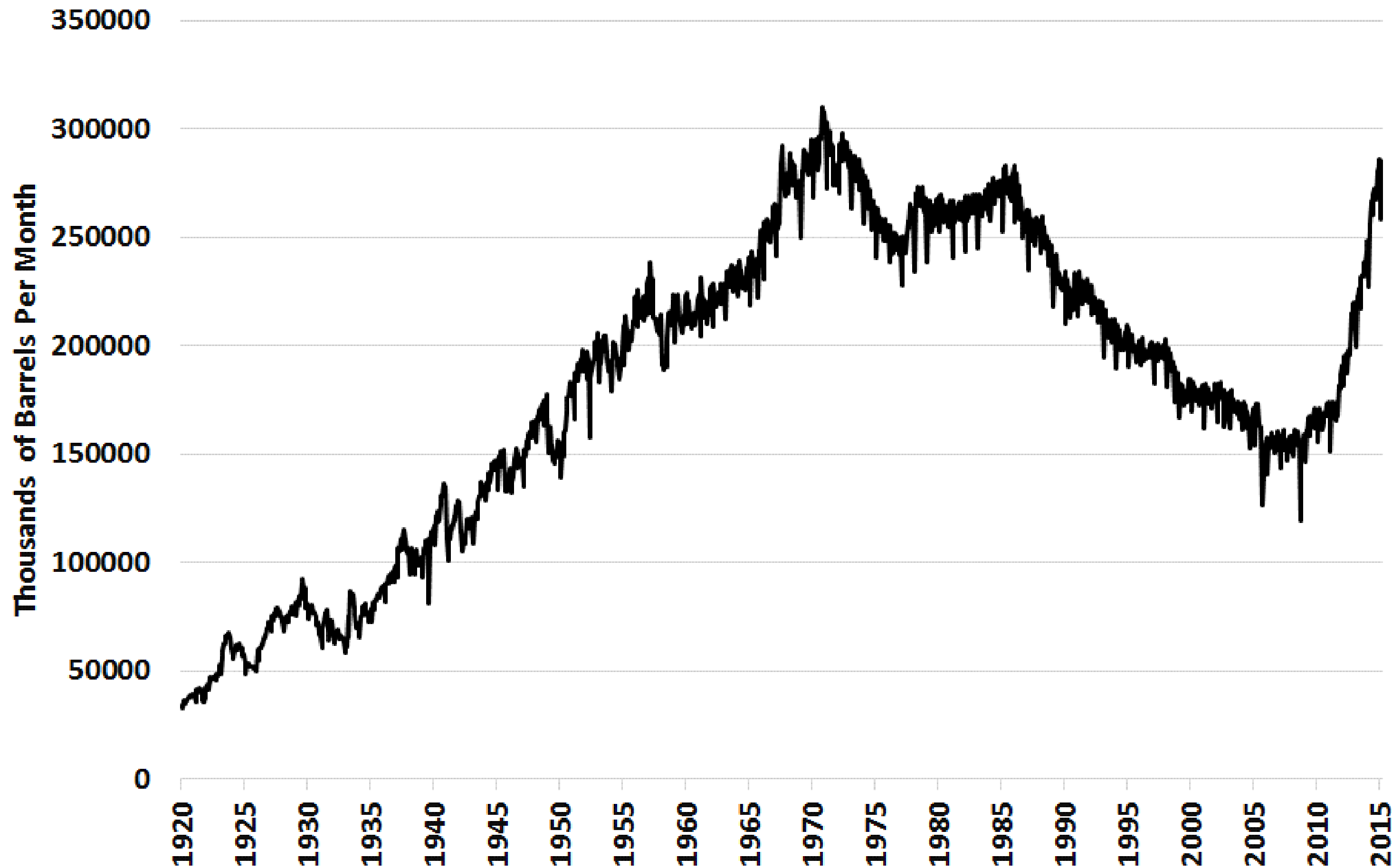
Soaring U.S. Production Played a Major Role in Bringing About the Oil Prices Collapse…



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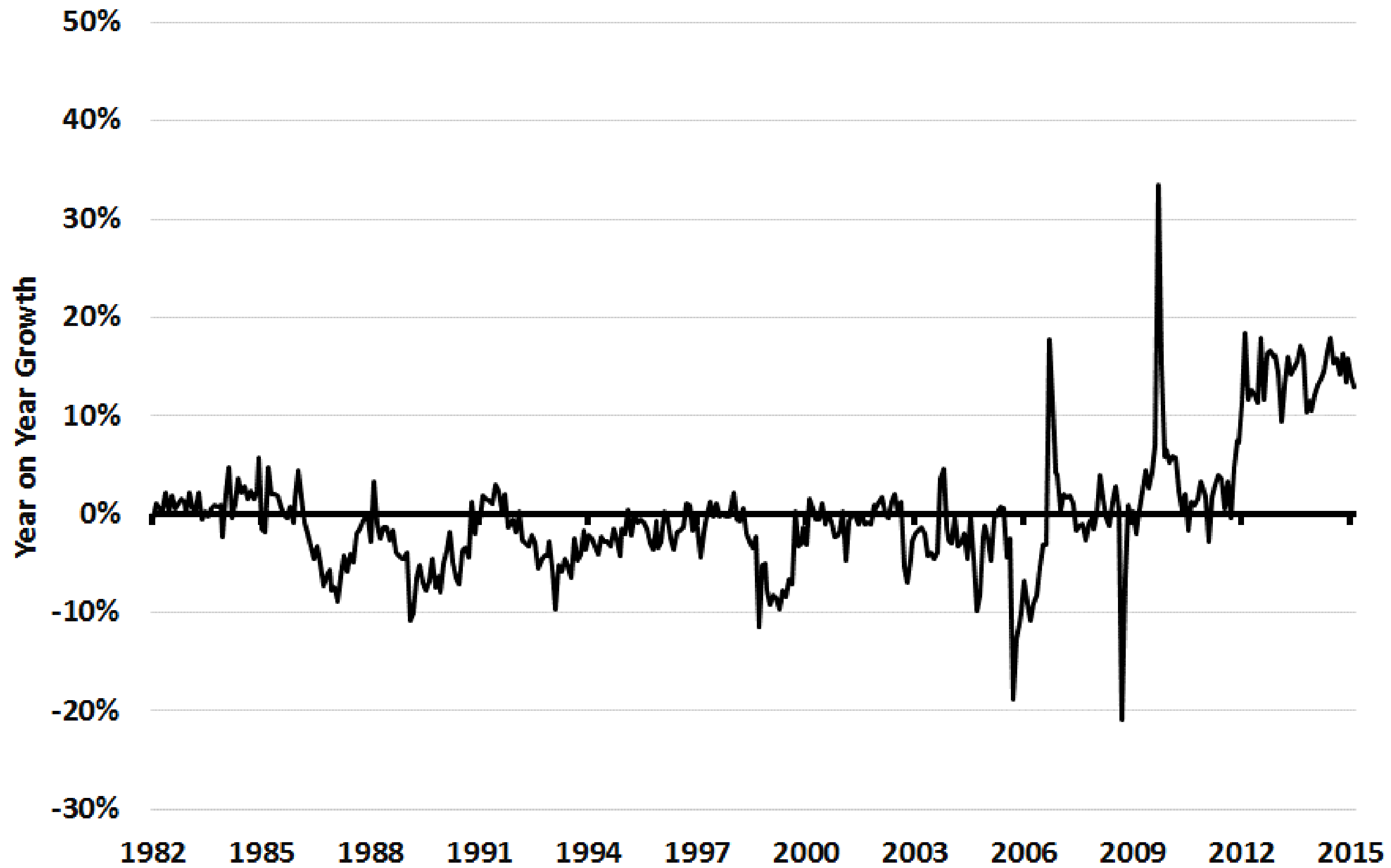
Collapsing Rig Counts and Investment Could Jeopardize Soaring U.S. Crude Production.



Source: Energy Information Administration (MCRFPUS1)

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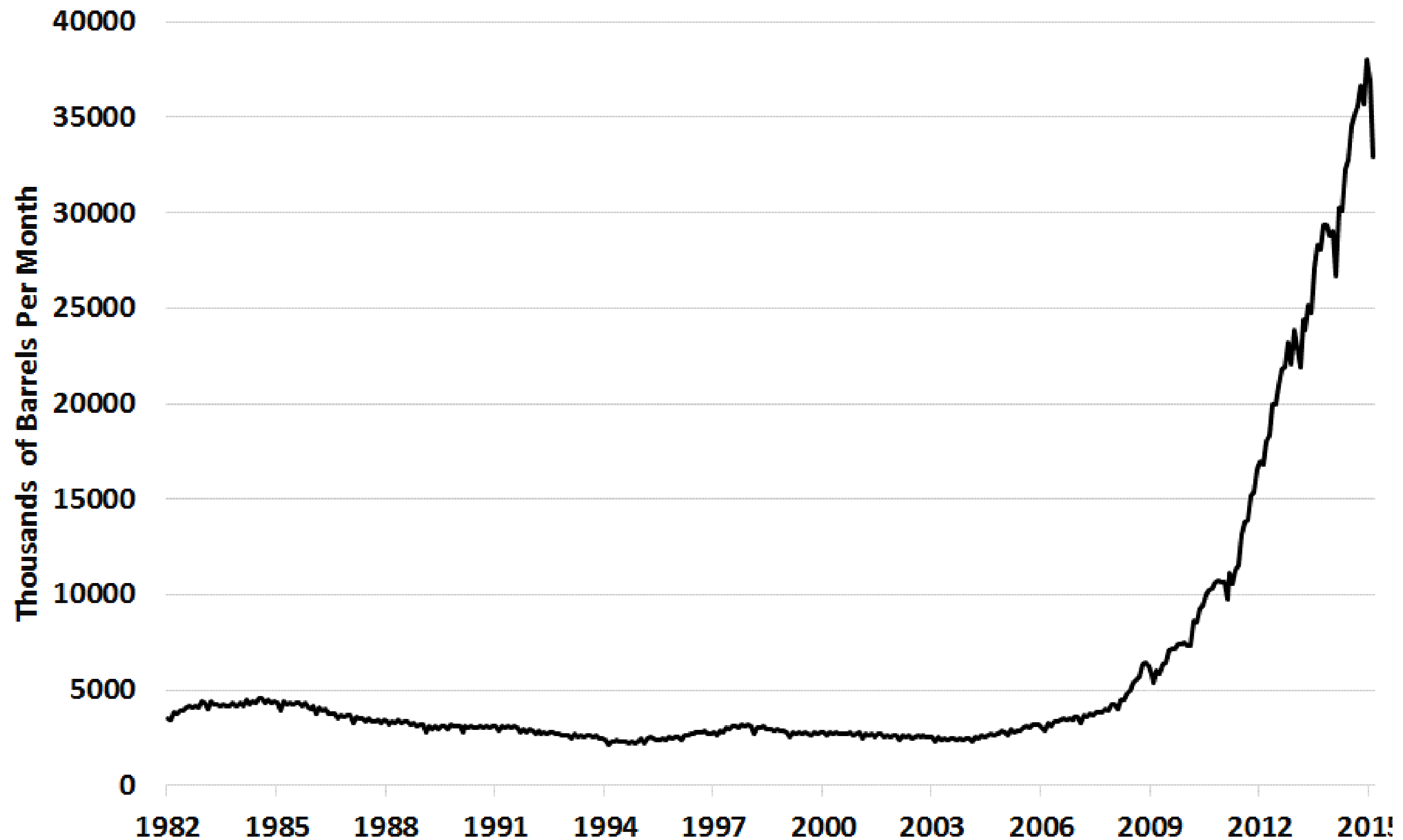
Growth in Bakken Crude has Been a Major Contributor to Expanding U.S. Production…



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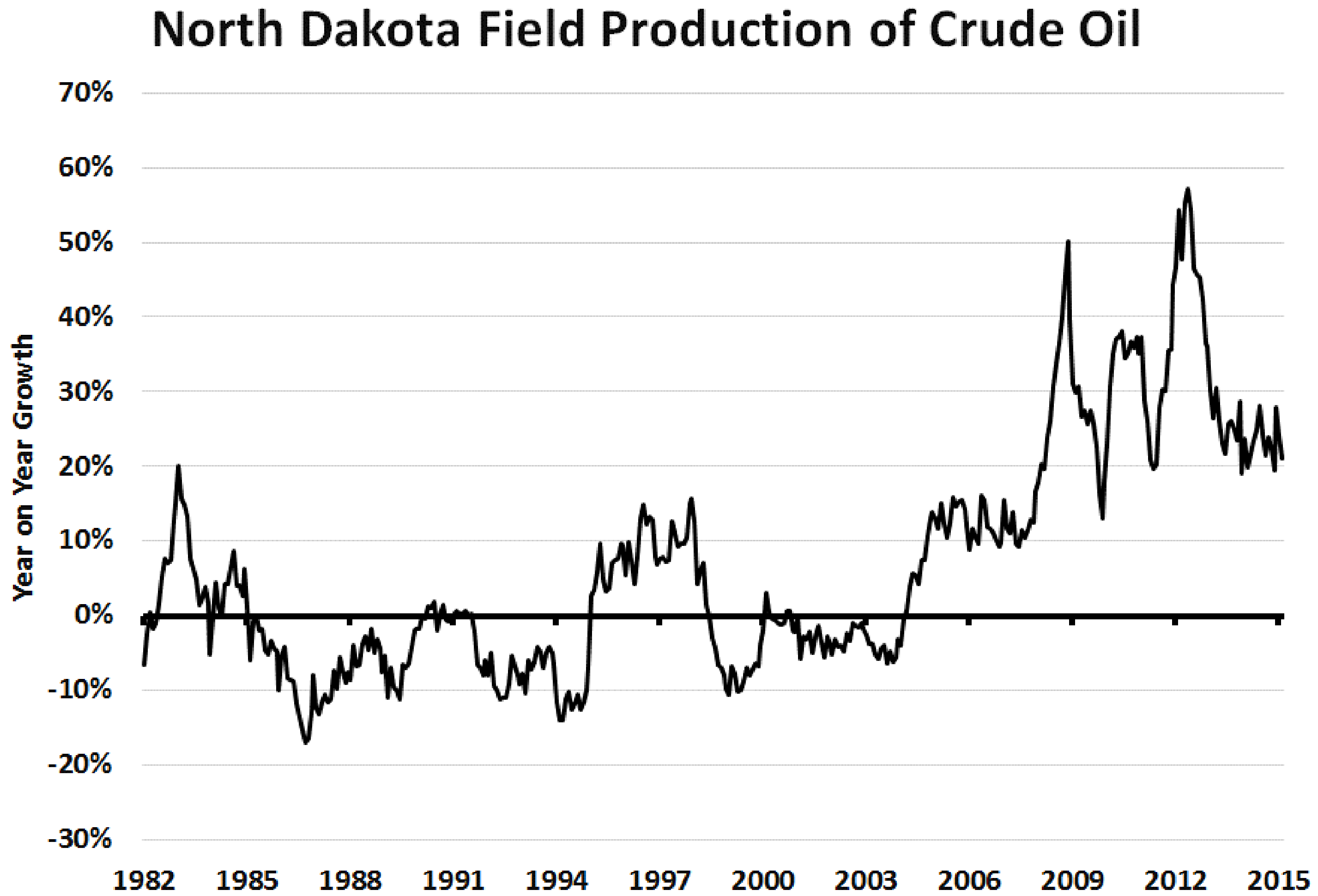
With the Collapse in Prices, For How Much Longer with Bakken Production Continue to Expand?



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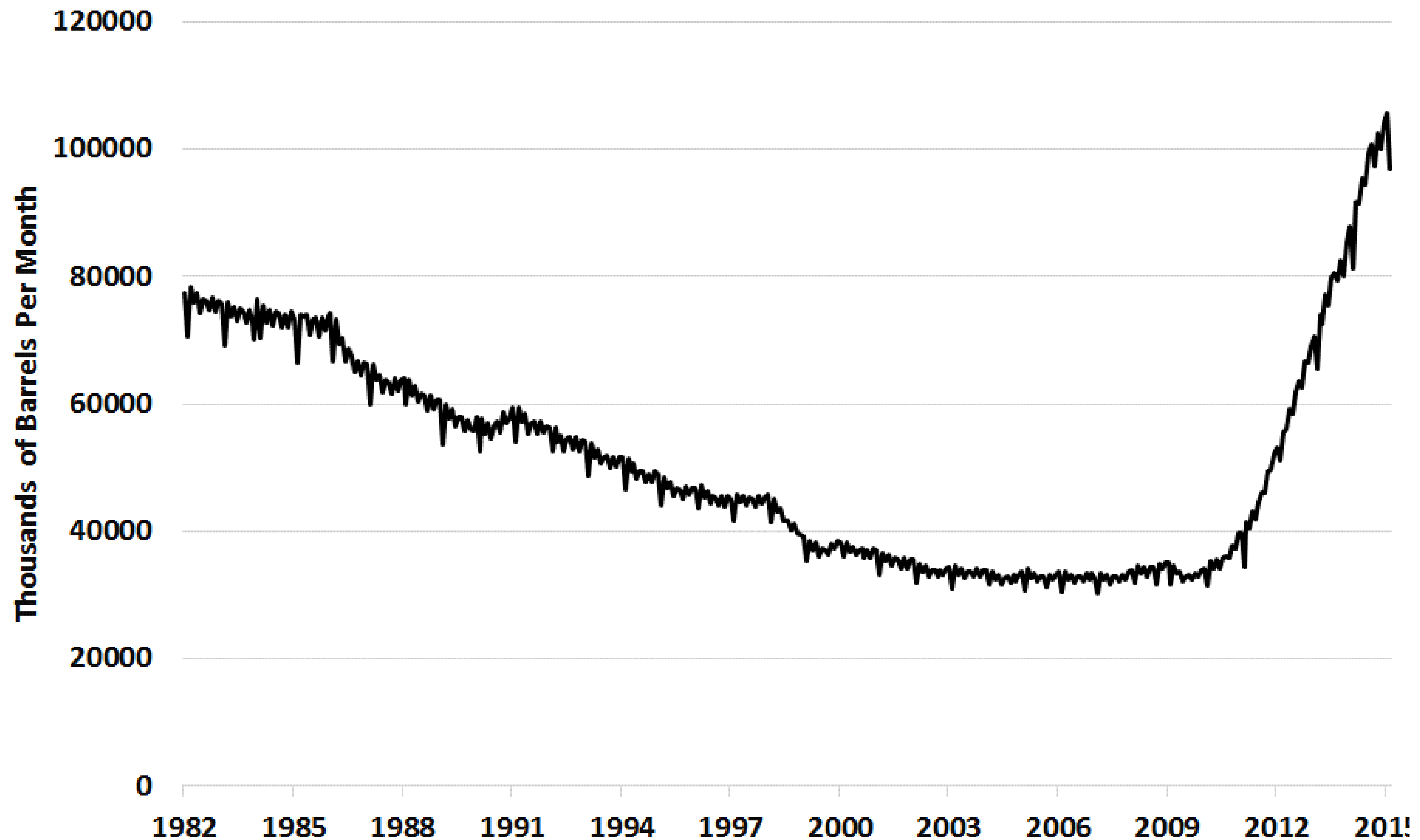
Texas Has Also Been an Important Contributor to Expanding Crude Oil Production…



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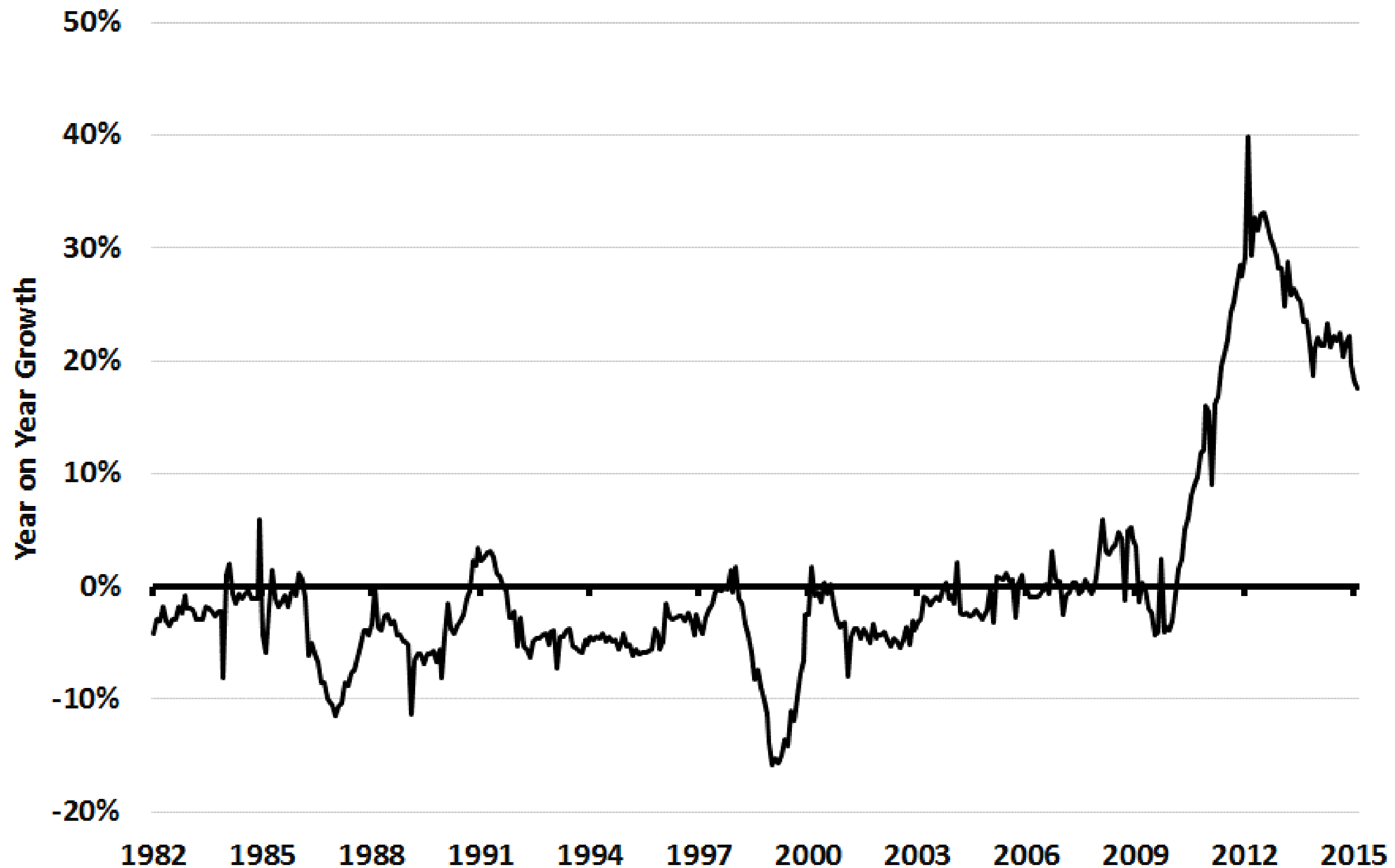
…But in Texas Too Growth in Production Has Been Slowing Considerably…



Source: Energy Information Administration (MCRFPTX1)

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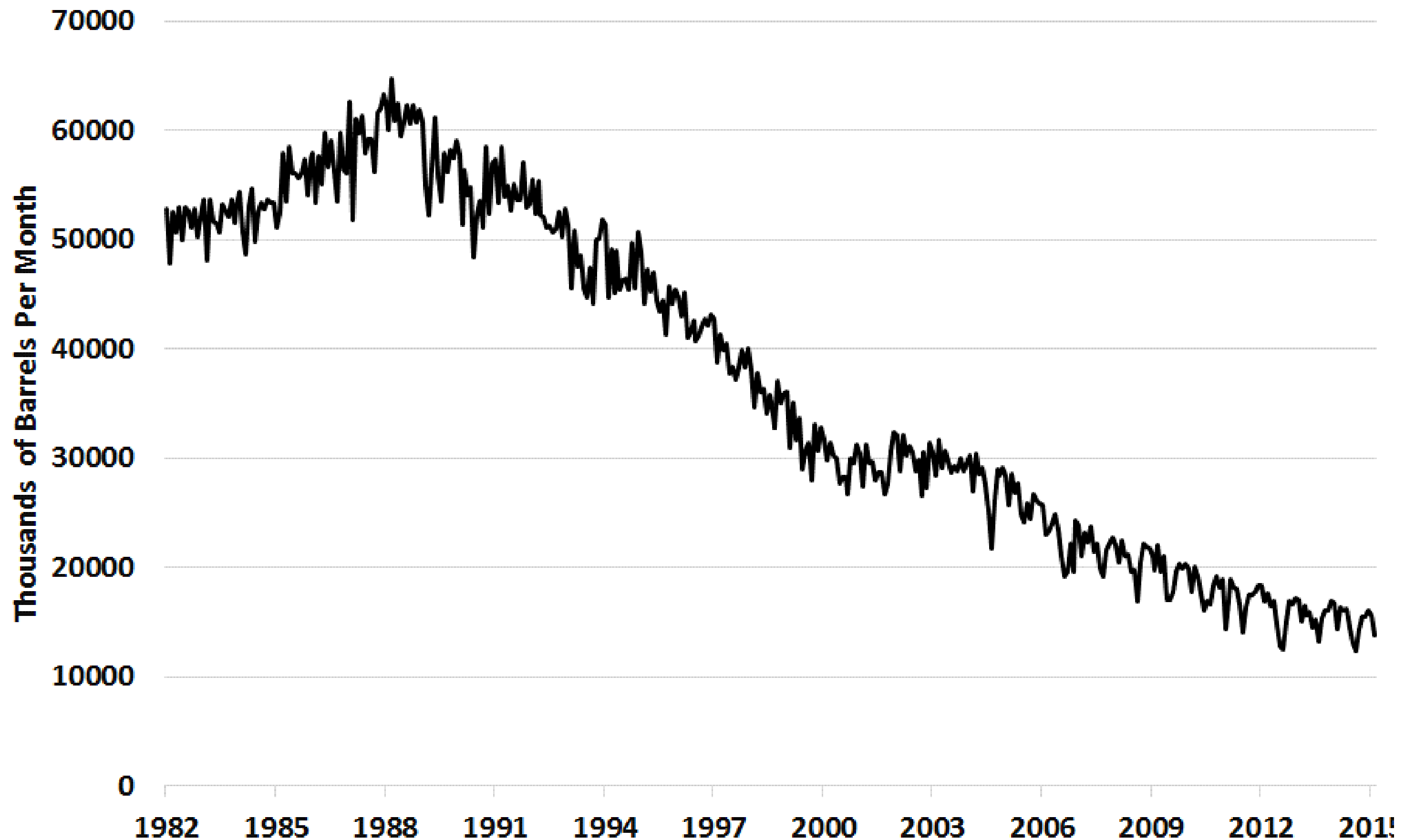
…and Production in Much of the Rest of the Country Continues to Stagnate or Decline…



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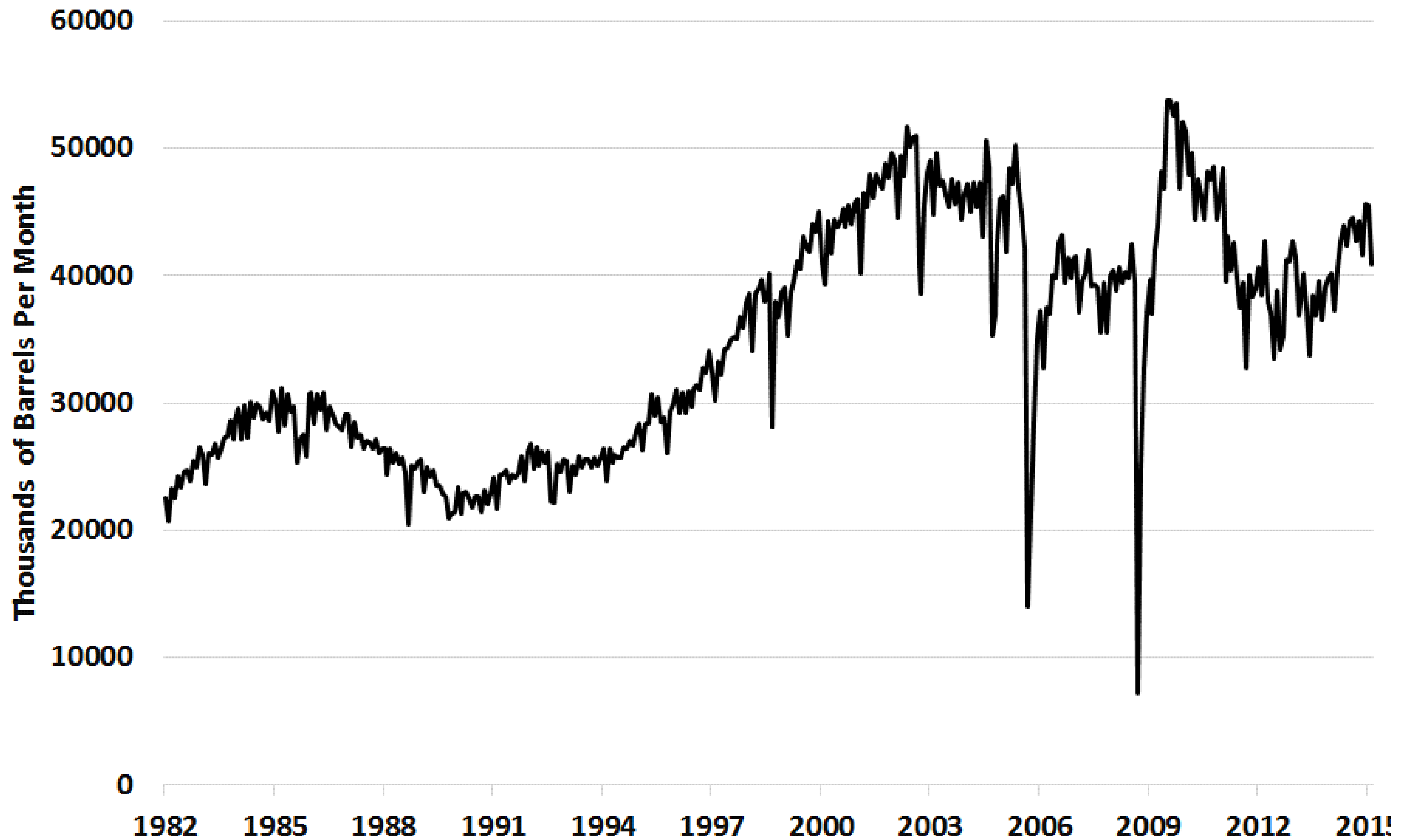

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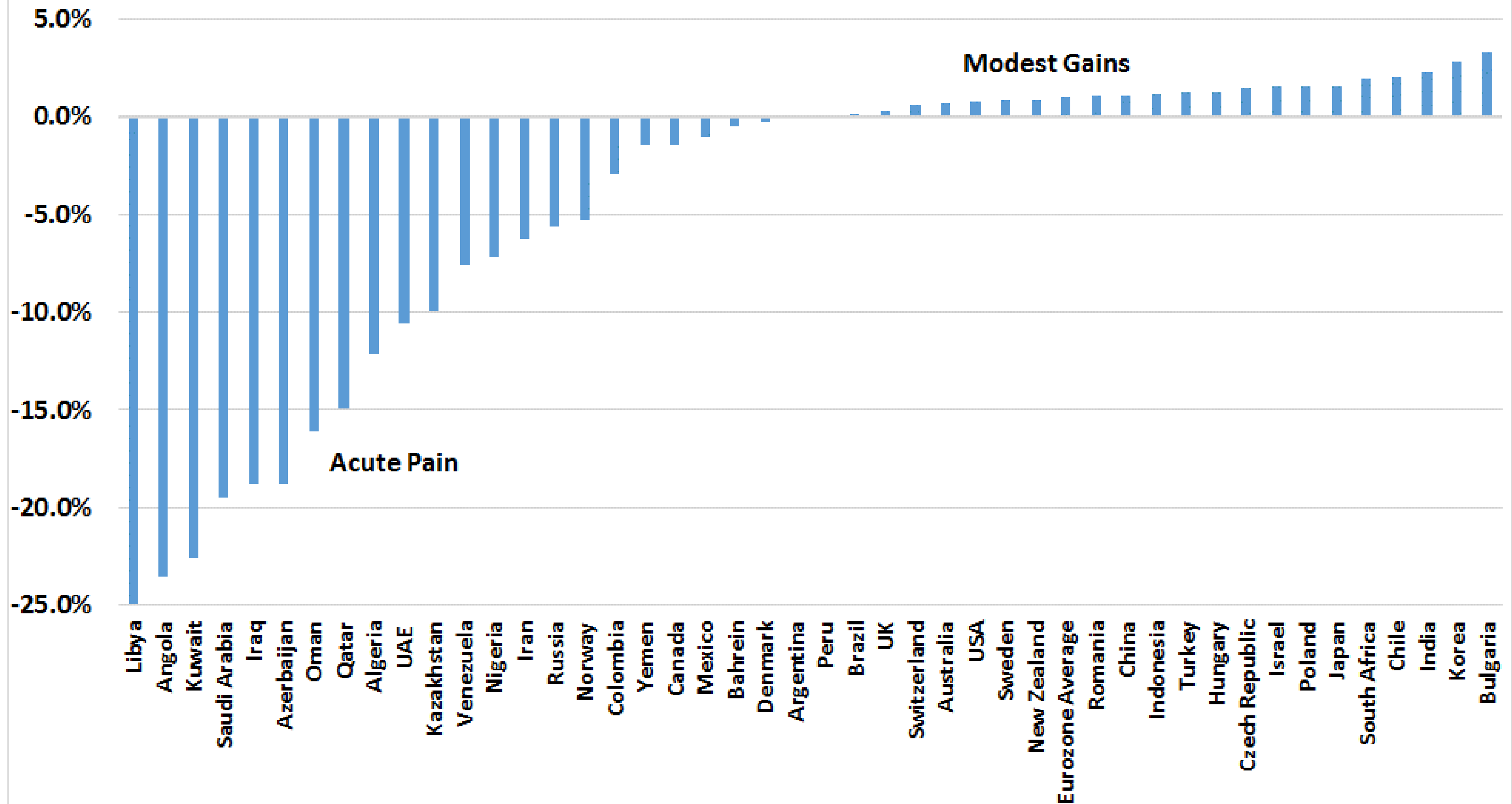
Only a Few Dozen Countries are Net Oil Exporters. Many Will Experience Acute Pain.



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Gold

- Gold prices have fallen by about a third from their highs in 2011, but they have risen versus silver and oil.
- Gold prices haven't fallen as much when seen from the perspective of other currencies such as the Brazilian Real, the Indian Rupee, the Japanese Yen and the Russian Ruble.
- Gold has been underperforming the S&P 500 for nearly four years but will this last? Or does gold have another rally in store versus U.S. equities?
- Gold production tends to lag prices by as much as seven or eight years. So don't expect the drop in prices to curtail worldwide gold production for several years to come, keeping the gold market generously supplied with new ore. This could put prices under downward pressure as well.
- If the Fed raises rates, it could put gold prices under downward pressure.
- That said, if equity markets correct sharply and bond yields fall, the Fed could be forced to forego rate increases, a scenario that might be bullish for gold.

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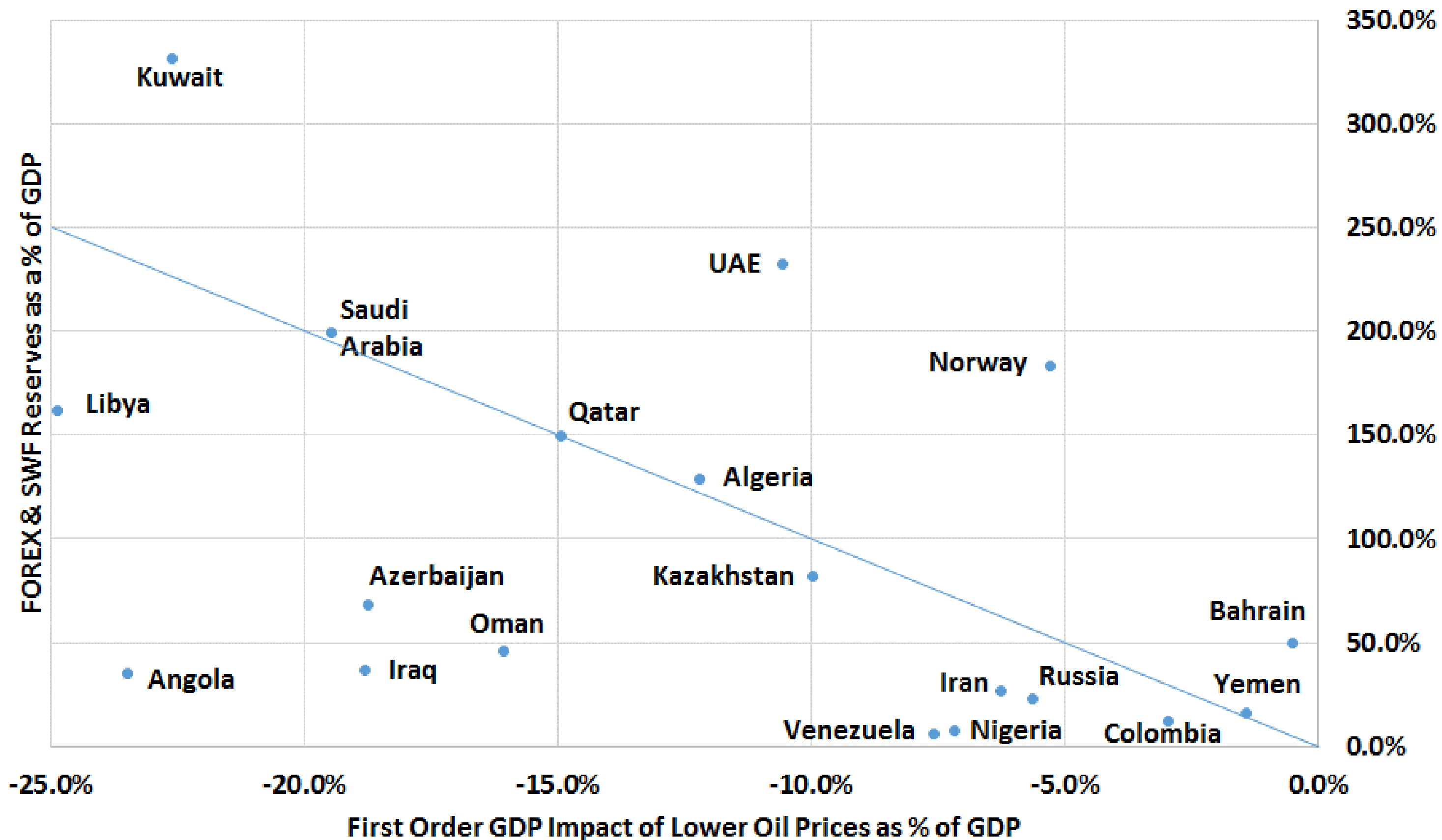
Oil Exporters Without Large FX/SWF Reserves Will be More Prone to Instability…



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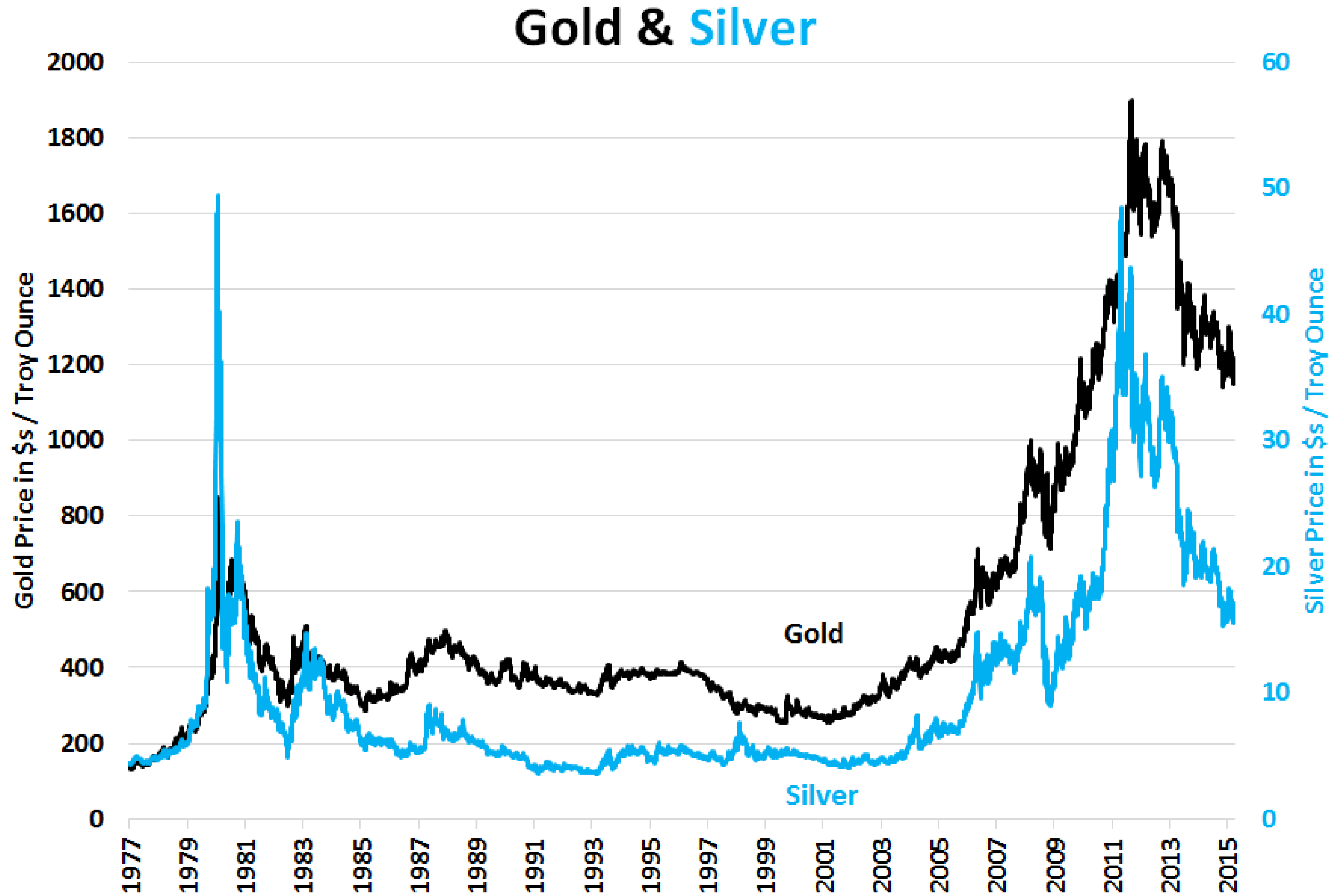
Silver Trades at a High Beta (β = 1.22) to Gold and Has a Correlation of 0.7 With the Yellow Metal Since 1977.



Source: Bloomberg Professional (GOLDS and XAG)

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The gold-silver ratio is near its highest levels since 1999 but not close to its all time peak in 1989.

Source: Bloomberg Professional (GOLDS and XAG)

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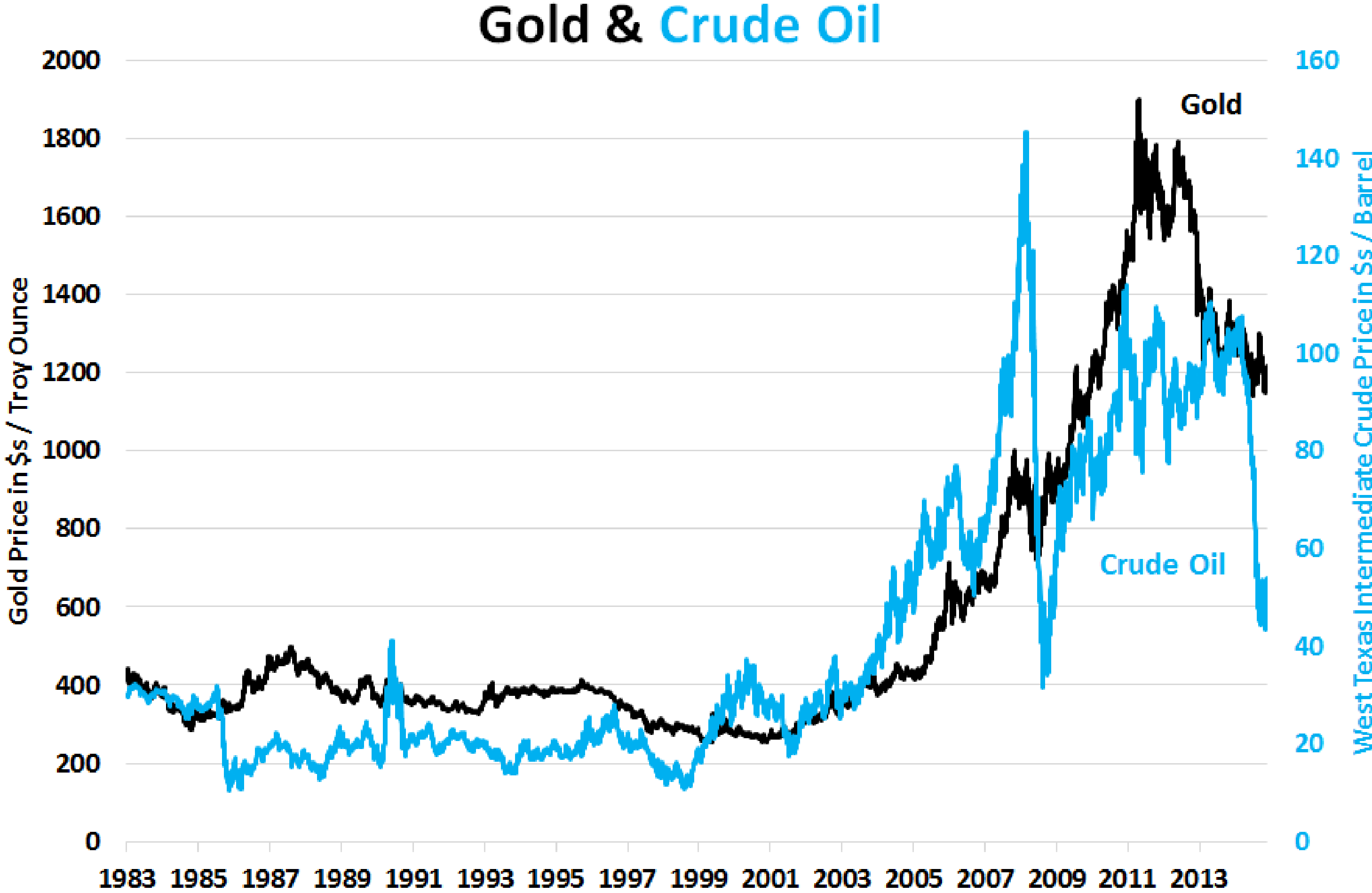
The upward move in oil prices from 1999-2008 anticipated the 2002-2011 bull market in gold…



Source: Bloomberg Professional (GOLDS and USCRWTIC)

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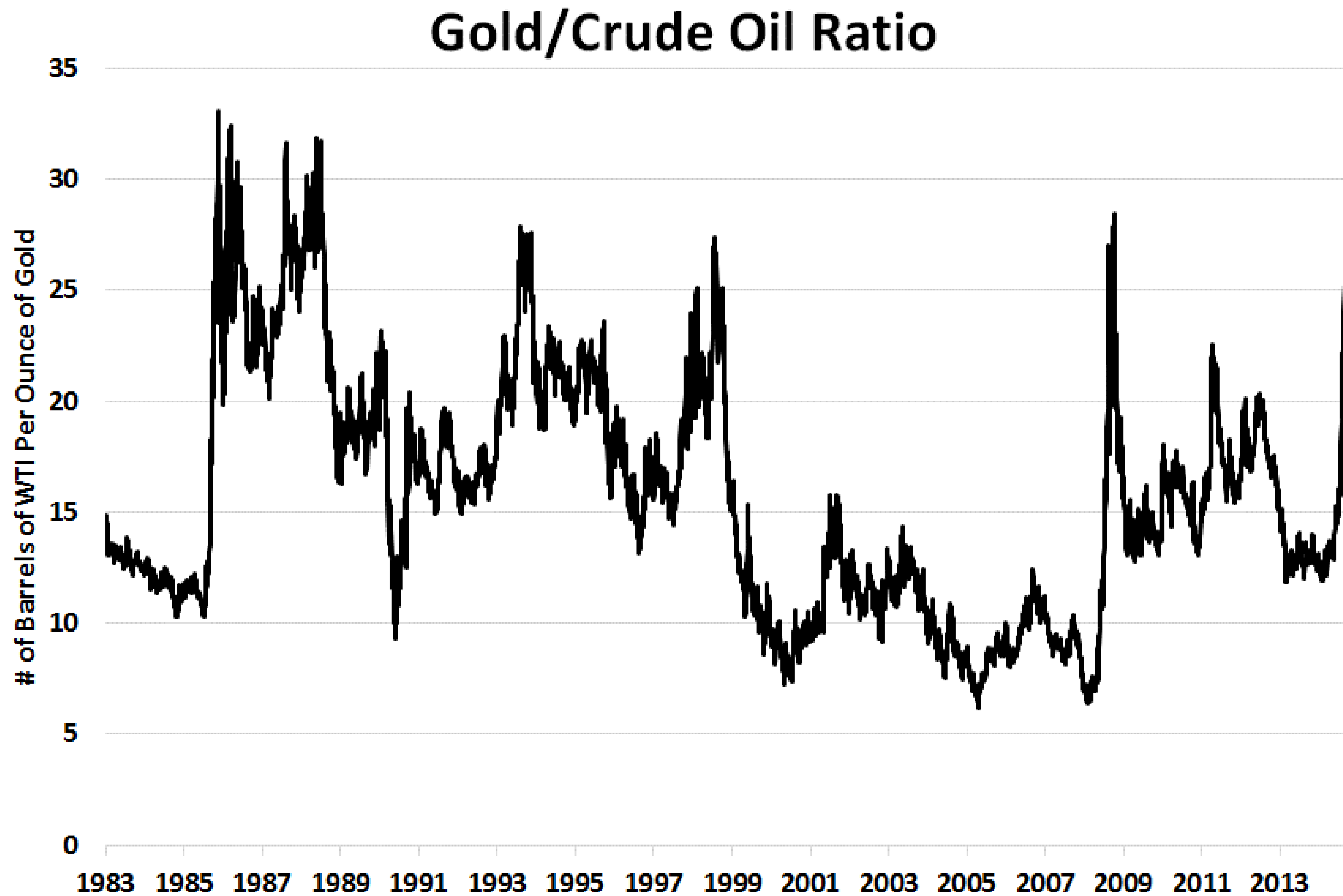
The gold/crude oil ratio remains near historical extremes…



Source: Bloomberg Professional (GOLDS and USCRWTIC)

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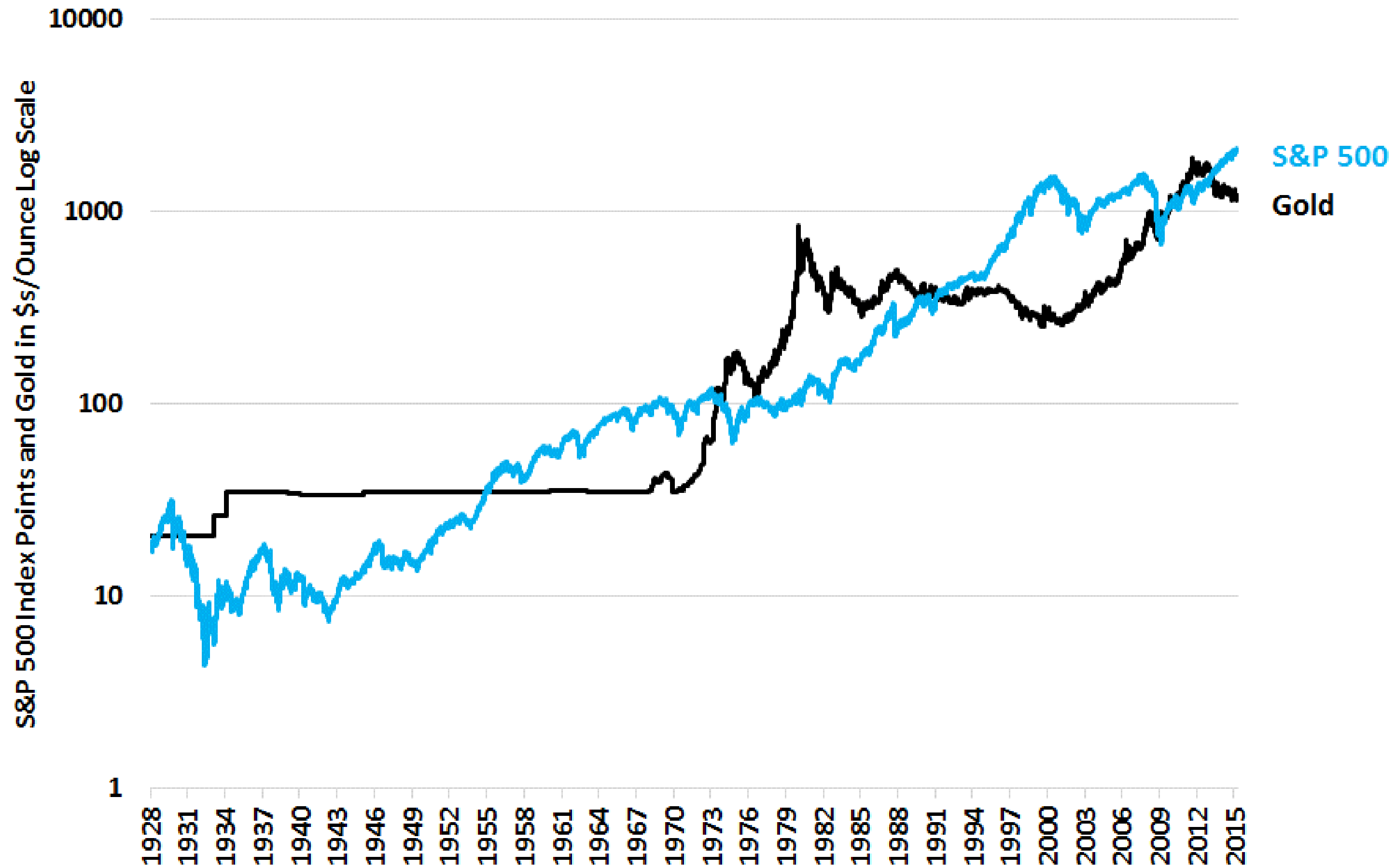
Gold & the S&P 500: Different Paths to Similar Results; Gold Can be a Great Diversifier for Equity Portfolios.



Source: Bloomberg Professional (GOLDS and SPX)

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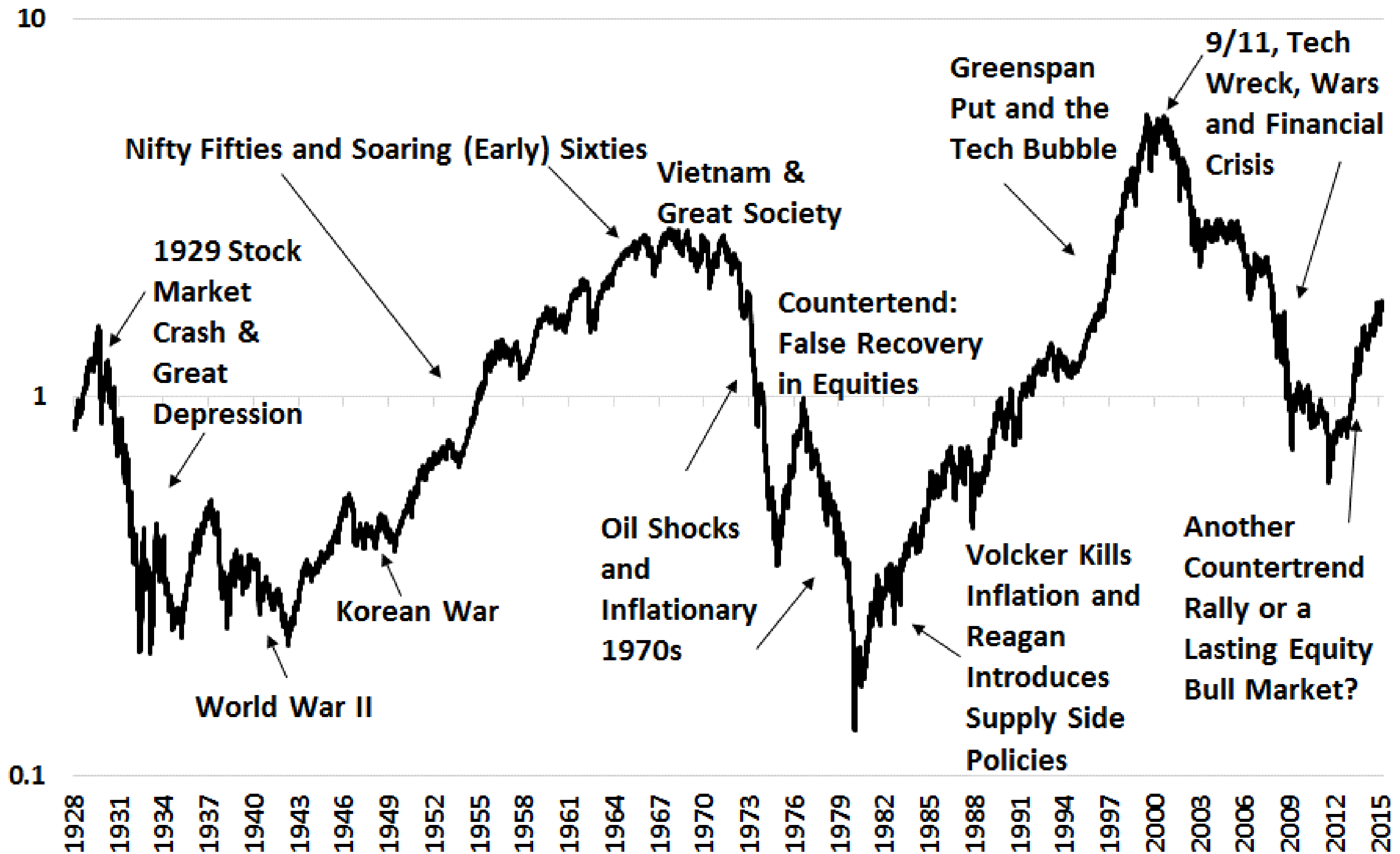
The S&P 500s Wild Ride versus Gold…



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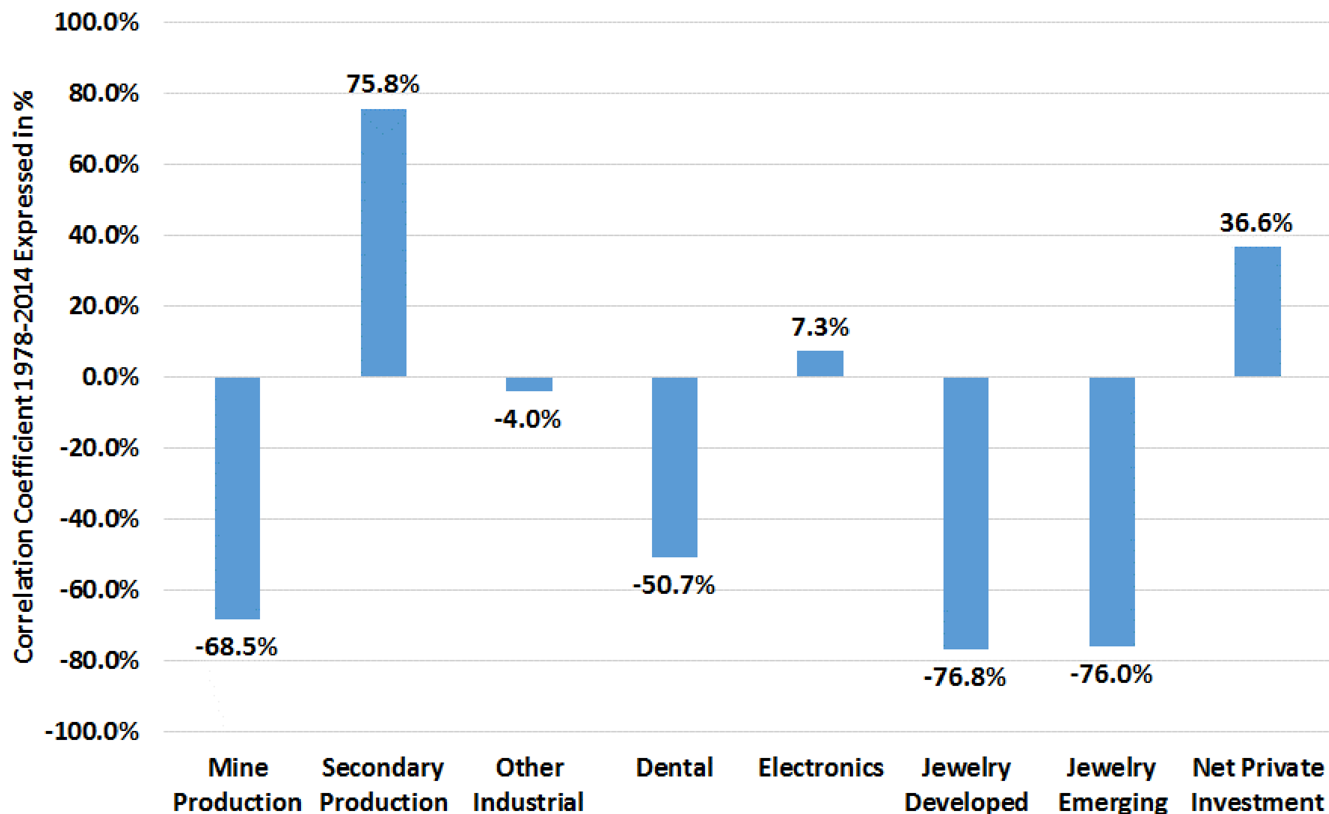
Gold is a supply driven market: current year gold prices are negatively sensitive to current year mining output. Secondary recovery and demand adjust to prices.



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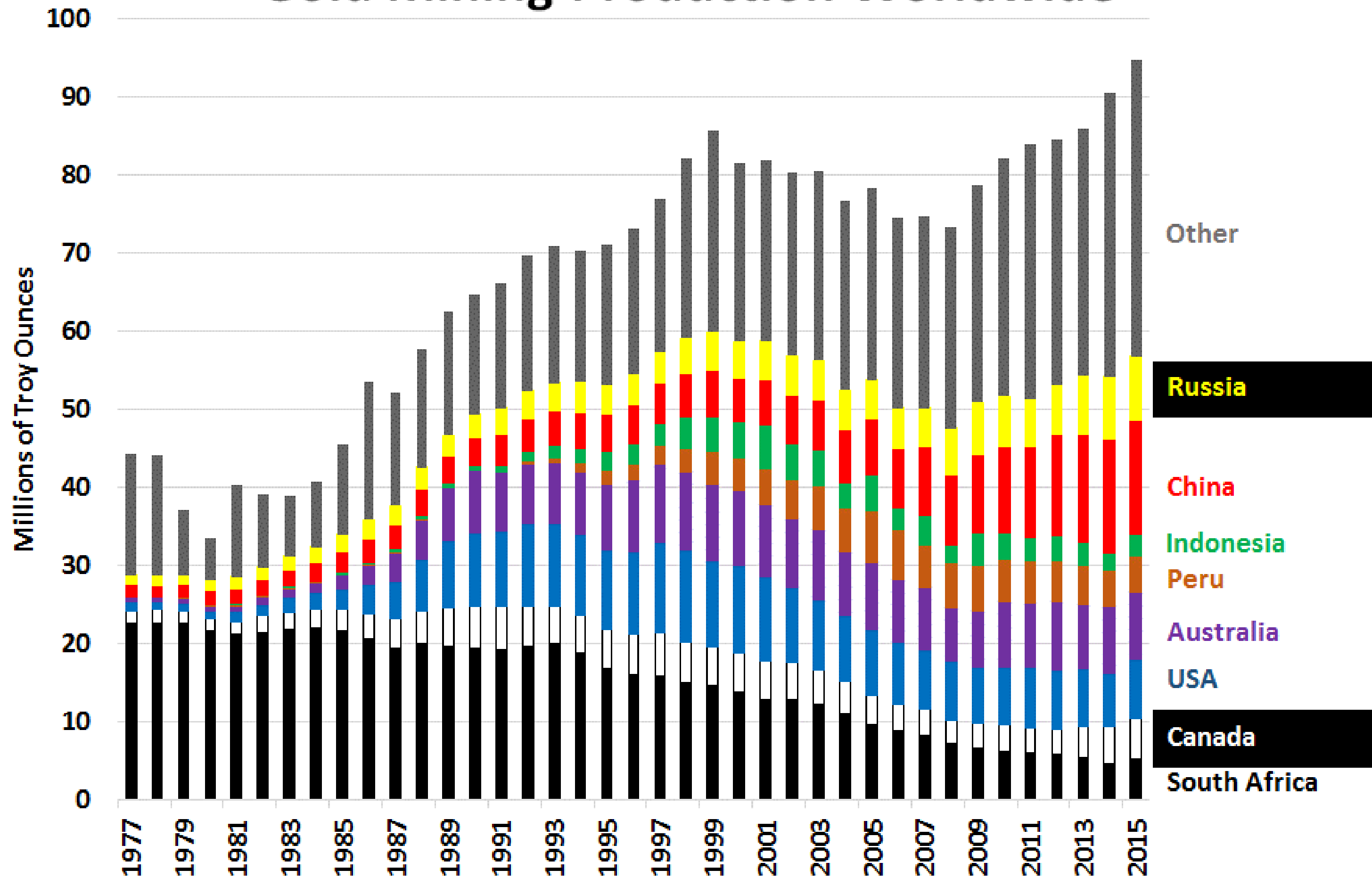
Gold Mining Production Began Rising in 2010, Eight Years After Prices Hit Bottom



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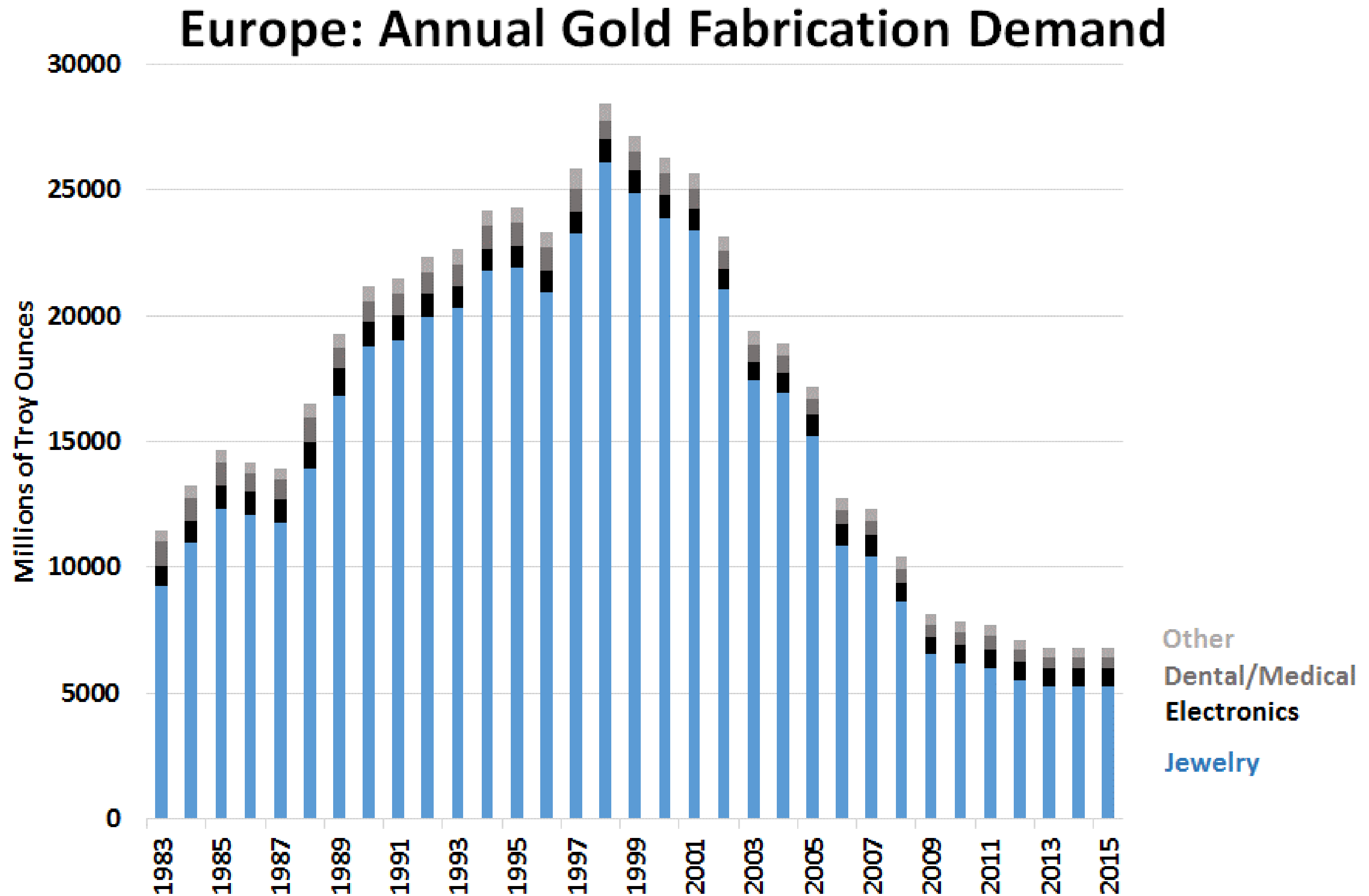
Developed country demand has been price sensitive.



Source: CPM Group Gold Yearbook 2015

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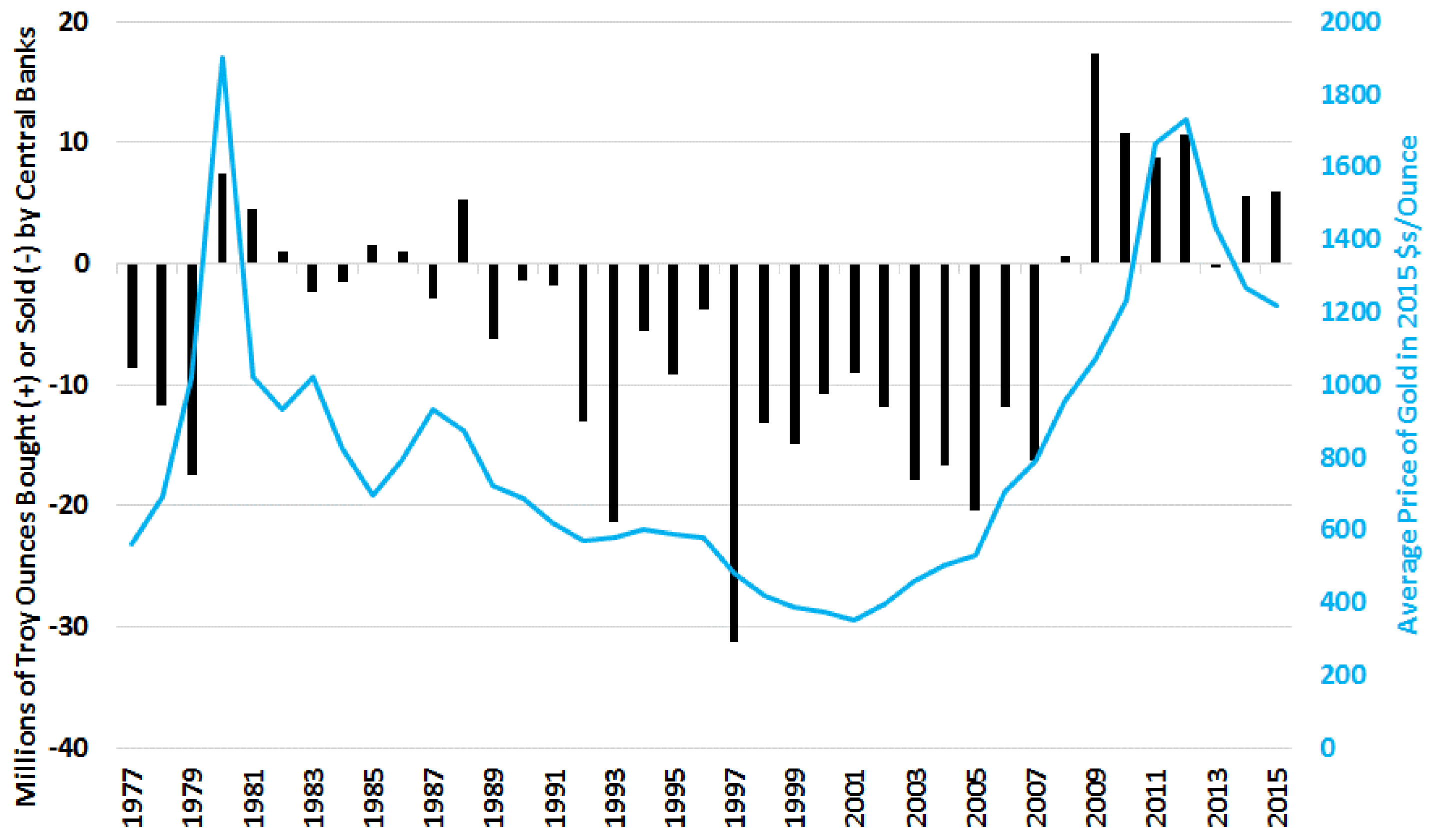
Bad investors: when it comes to gold, the world's central banks specialize in selling low and buying high.



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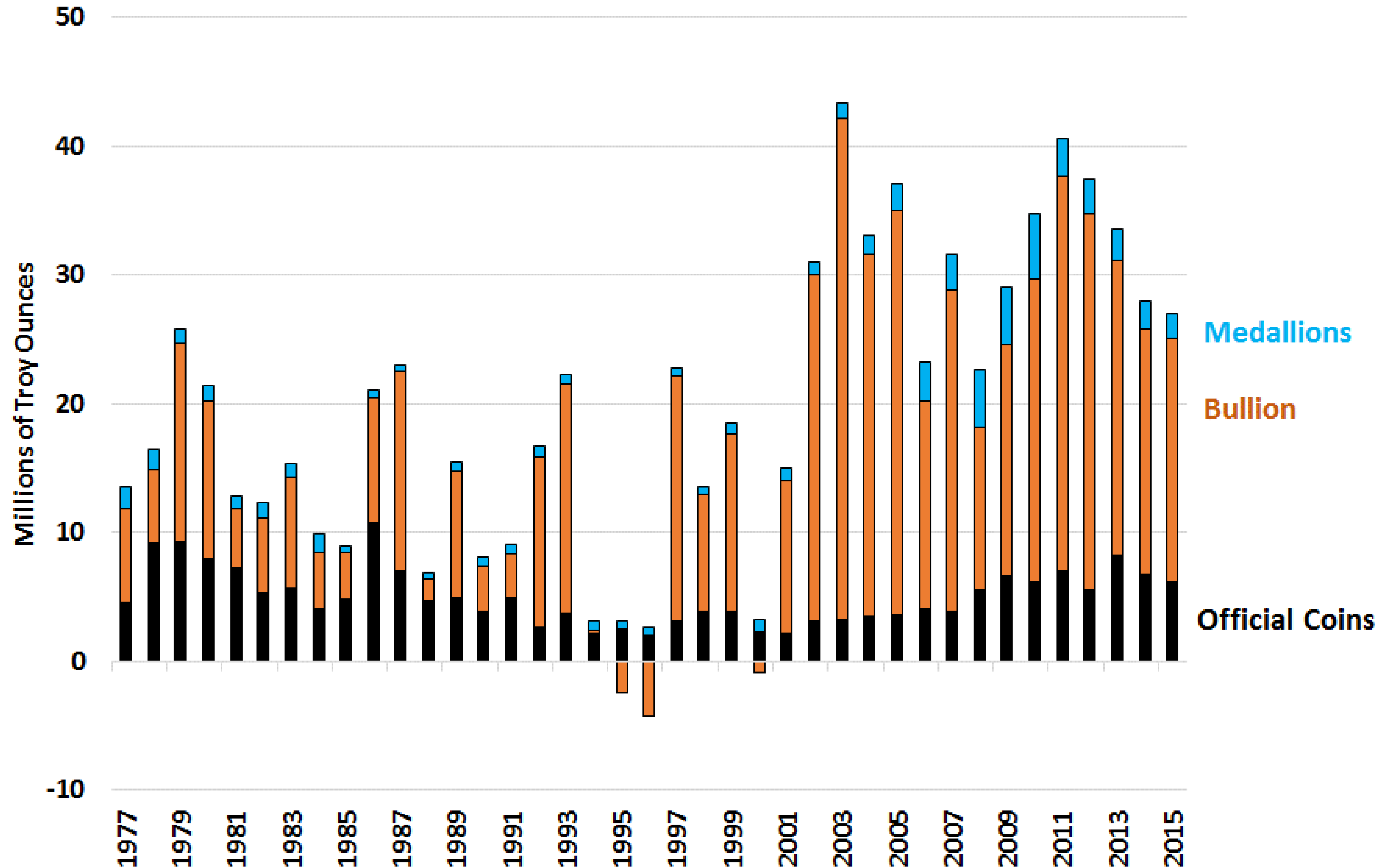
Private investors joined the party sooner than central banks and began increasing their exposure in 2002.



Source: CPM Group Gold Yearbook 2015

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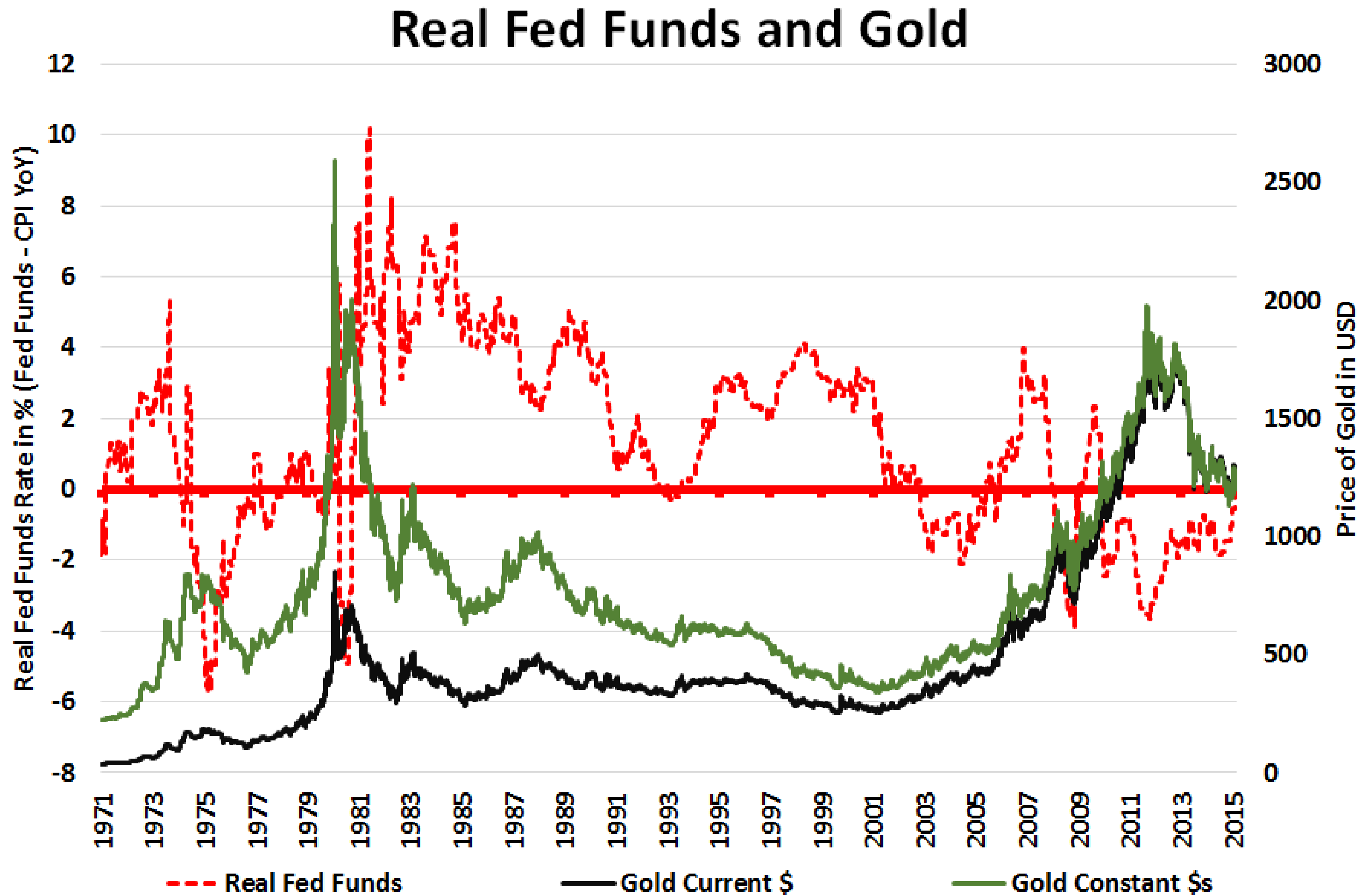
A rising real Fed Funds rate could put gold under downward pressure



Source: Bloomberg Professional (FDTR and CPI YOY, XAU and CPI INDX)

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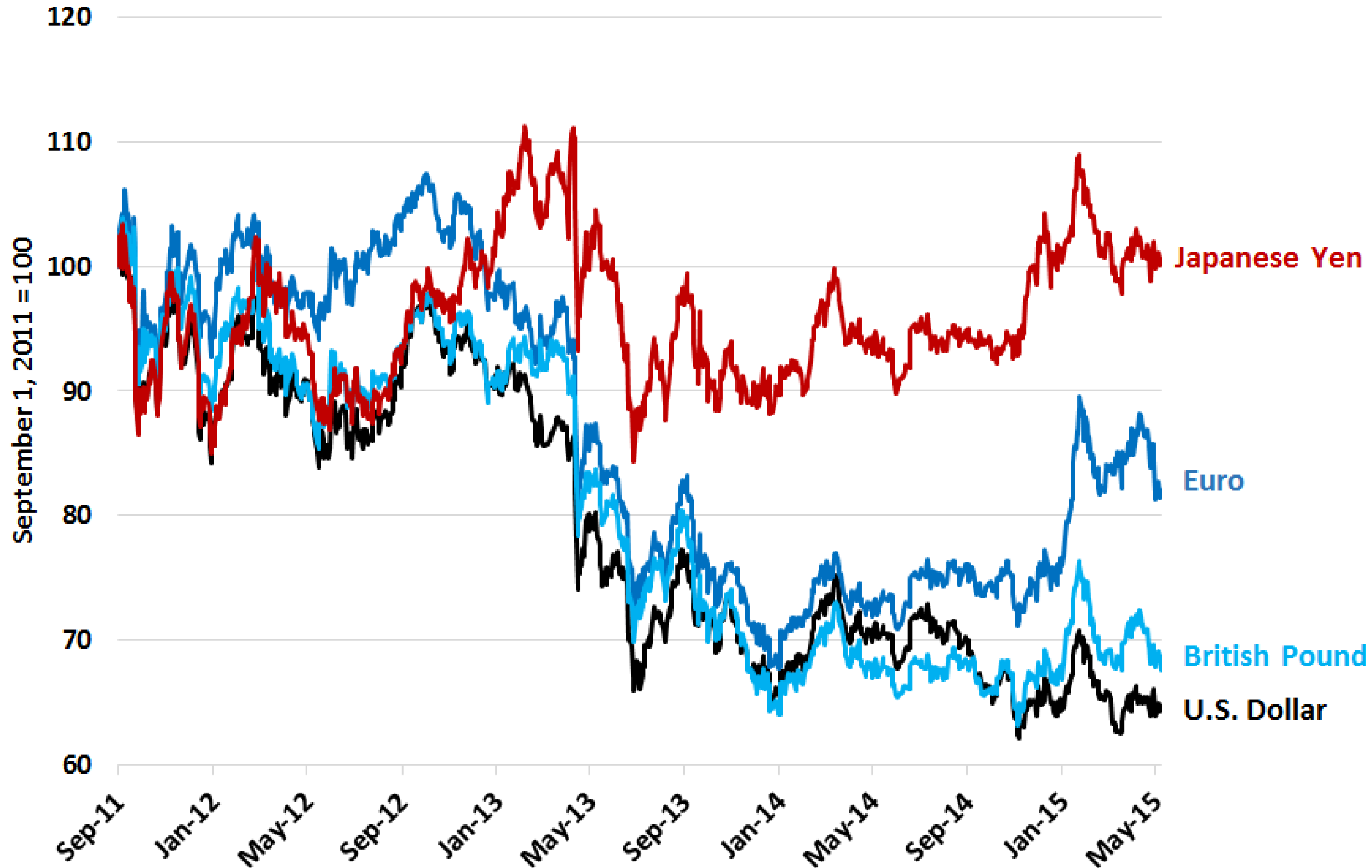
From the perspective of other currencies, gold doesn't look as weak as it does in USD.



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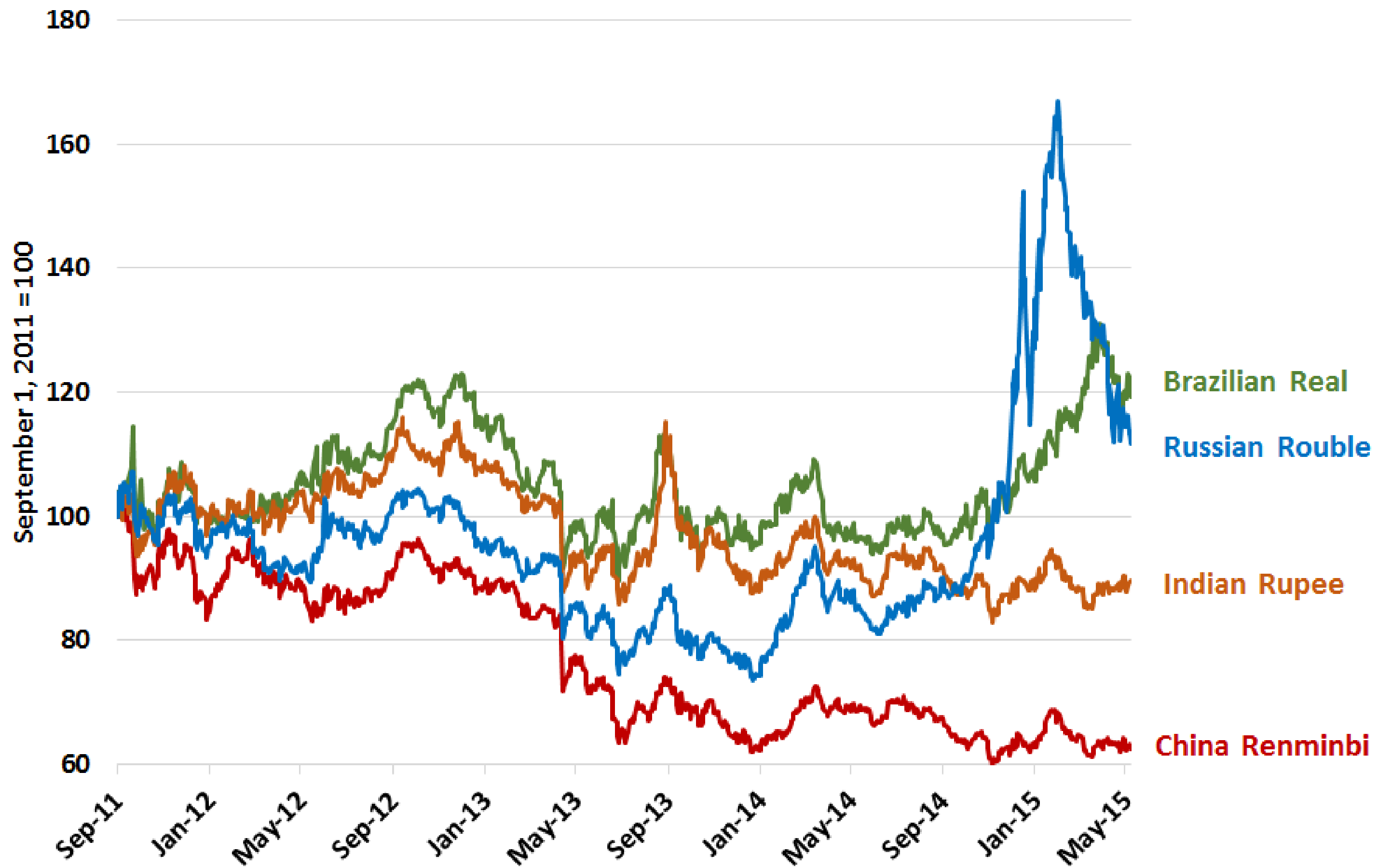
Gold has done quite well from the perspective of certain emerging currencies.



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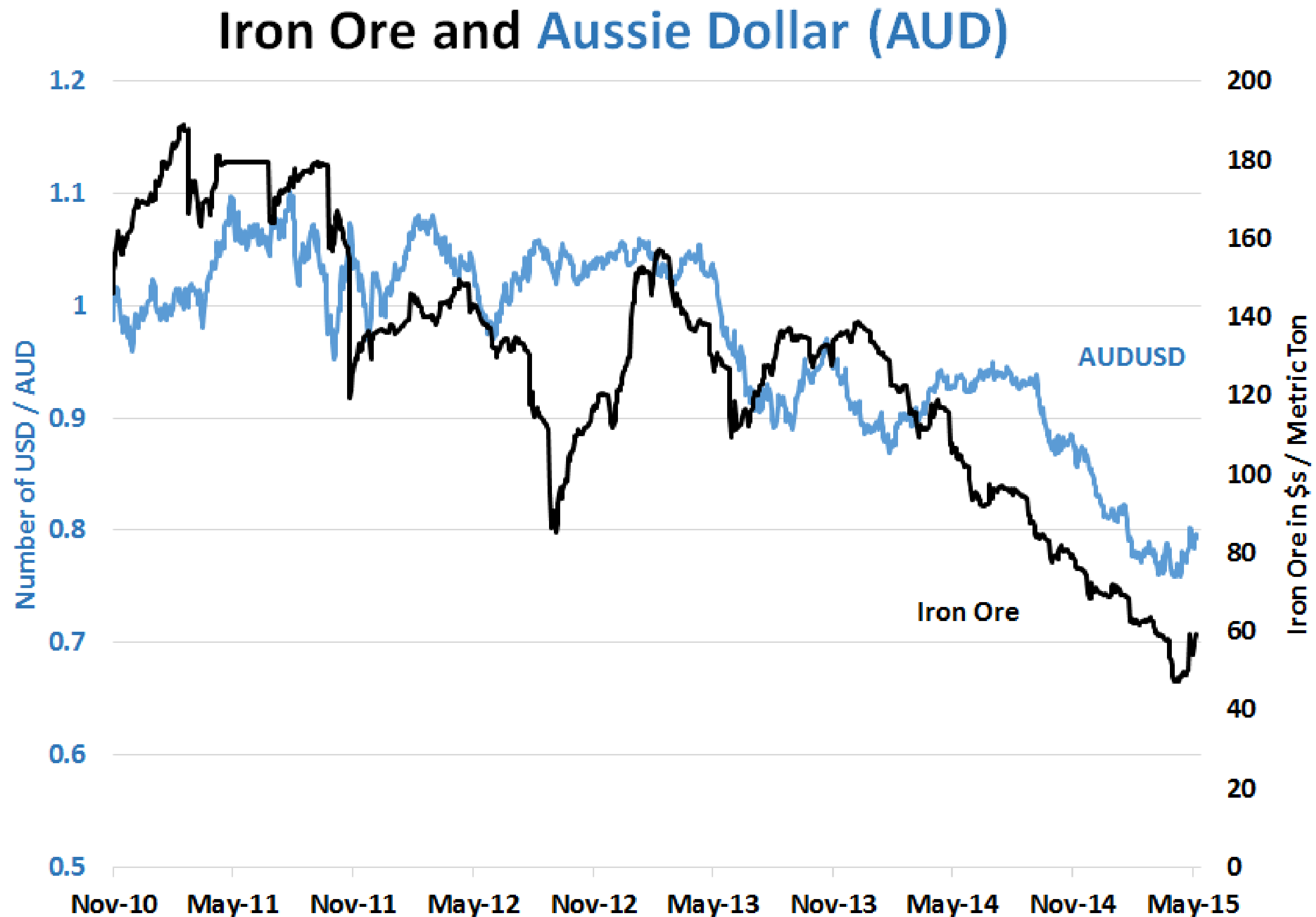
Watch the correlation between commodities and currencies…



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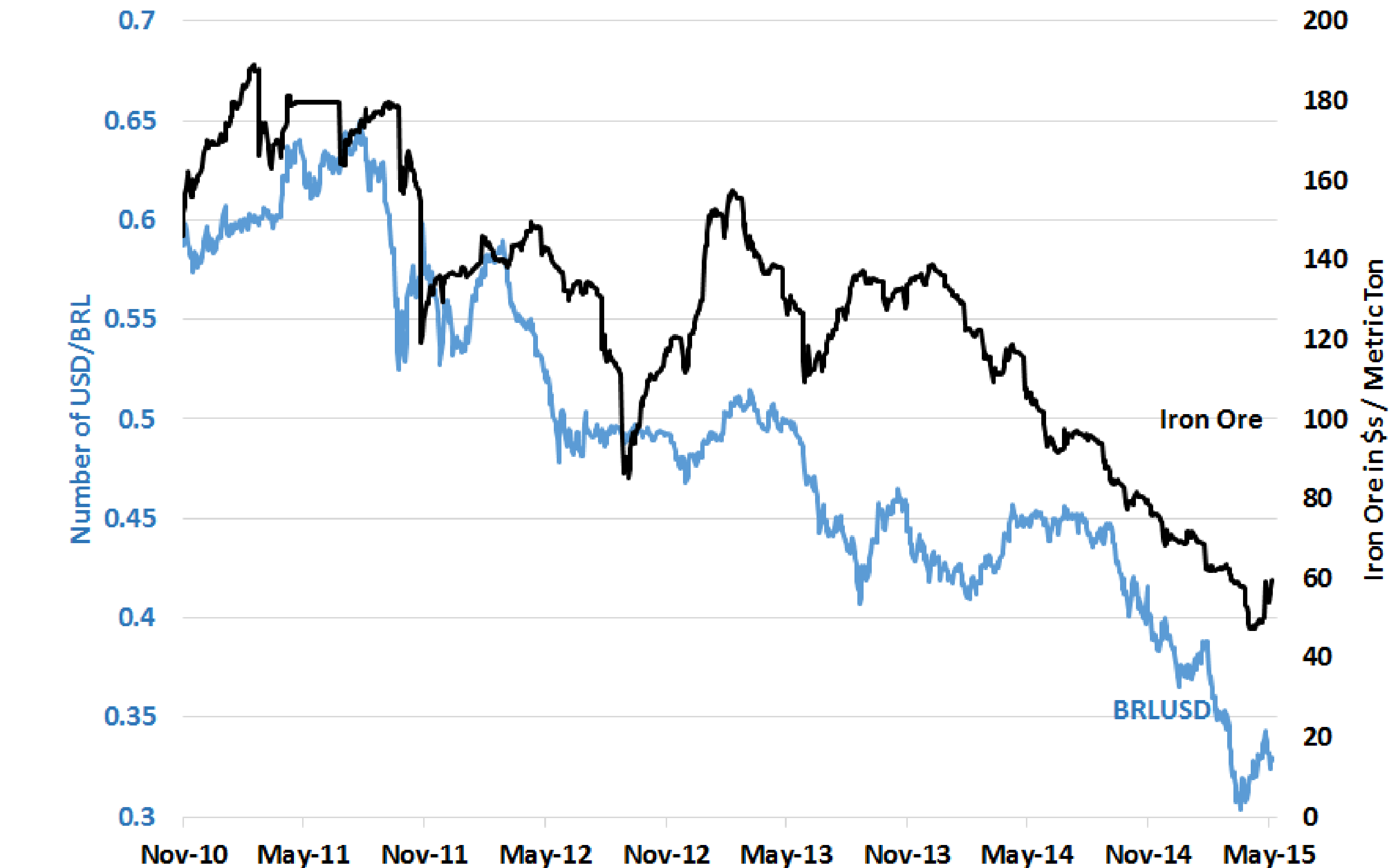
Watch the correlation between commodities and currencies…



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Global Economic Themes for 2015

- **China – Still decelerating, real GDP growth below 7% in 2015, 3% to 4% in the 2020s.**
- **Japan – Abenomics versus lack of labor force growth equals only 1%-2% real GDP growth. Depreciated yen and lower oil prices may give inflation a modest pickup in 2015, sales tax adjusted.**
- **Euro-Zone – ECB help and better functioning credit system in 2015 may allow for 1% to 2% real GDP growth. Greek debate continues, but bark is worse than bite.**
- **Emerging Markets – Diverse patterns but general slowing. When/if risk-on markets appear, FX carry trade may do well, too.**
- **Oil-Challenged Countries – Mostly the impact of lower crude oil prices is reflected in a weaker currency, then some domestic inflation. No meaningful impact on global growth.**
- **US – Healthy job growth with low inflation and only incremental wage growth; Fed likely to raise rates at June meeting, anyway.**

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China

- China's real GDP is still decelerating from the 10% real GDP annual average growth in the 1980-2010 period.
- Rapid pace of modernization and growing industrial maturity have meant that new spending on infrastructure projects has hit the point of diminishing returns.
- Rural-to-urban migration continues to support growth, but this will diminish substantially in the next decade.
- Aging of the population will make it difficult to switch to a domestic consumption-led growth model. With the exception of health care spending, retirement-age consumers spend less per capita than younger consumers.
- Soaring value of the Renminbi will likely slow China's export growth.
- High levels of private sector debt could also slow economic activity in China.
- Xi Jinping's crackdown on corruption might also slow growth.

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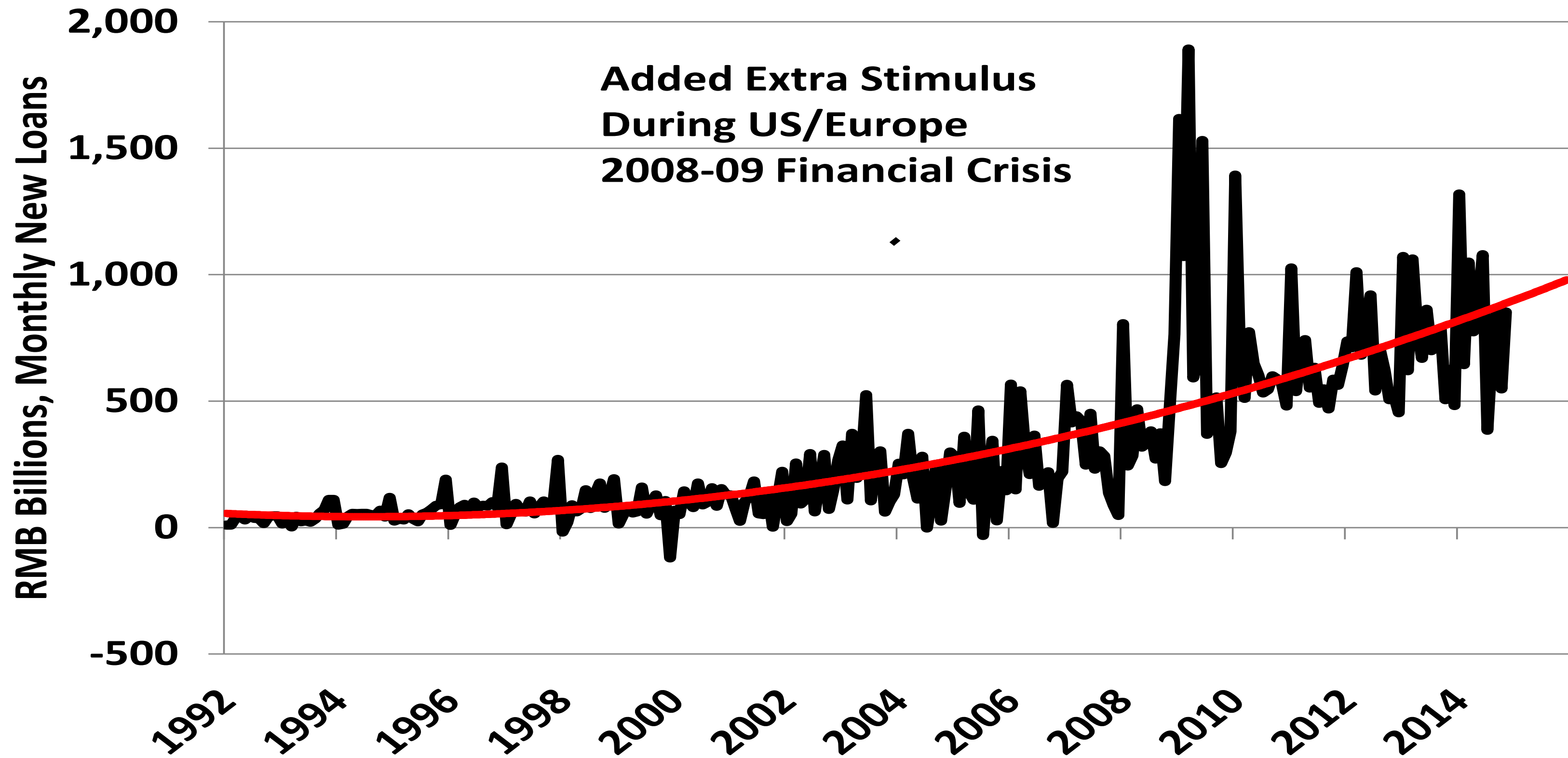
China's expansion has been driven in part by credit…



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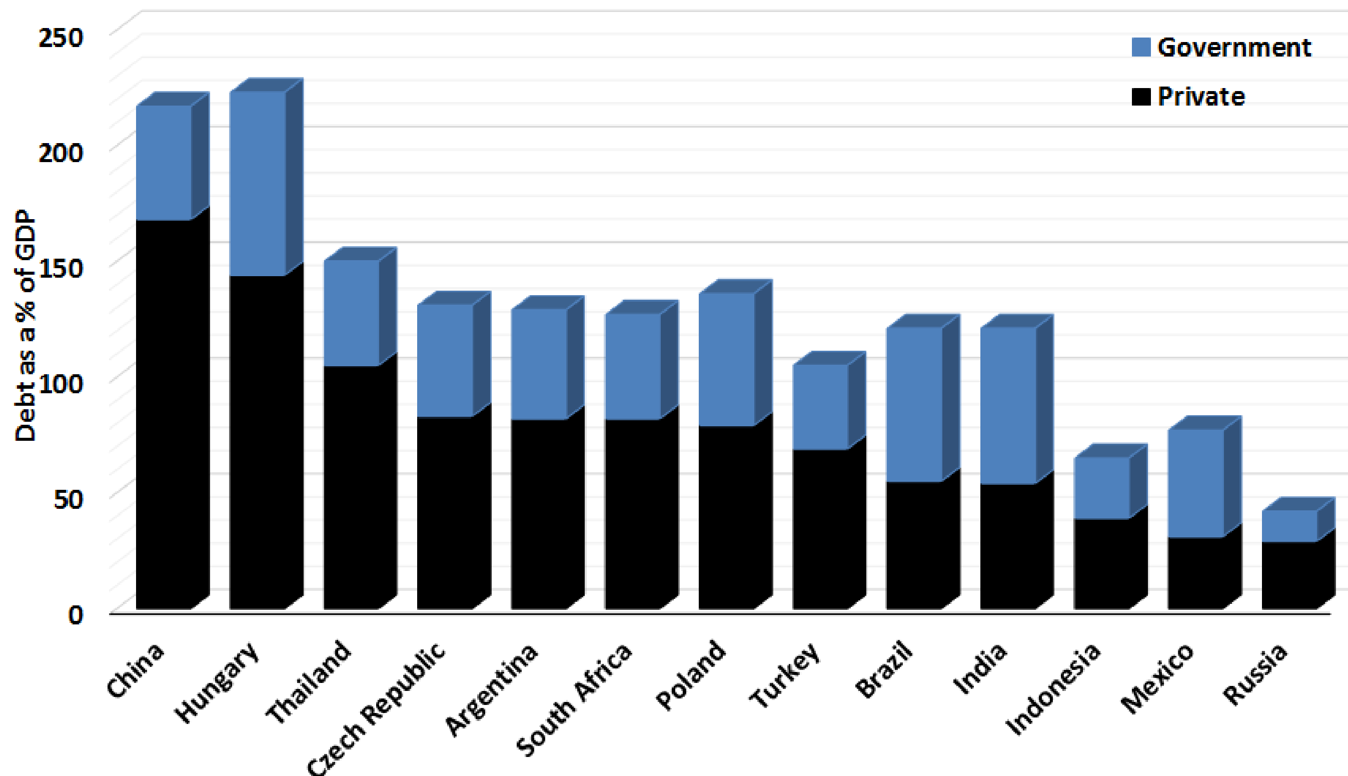
China: High Level of Private Sector Debt Could Slow Growth



Source: "Deleveraging, What Deleveraging?" Buttiglione et al, International Center for Monetary and Banking

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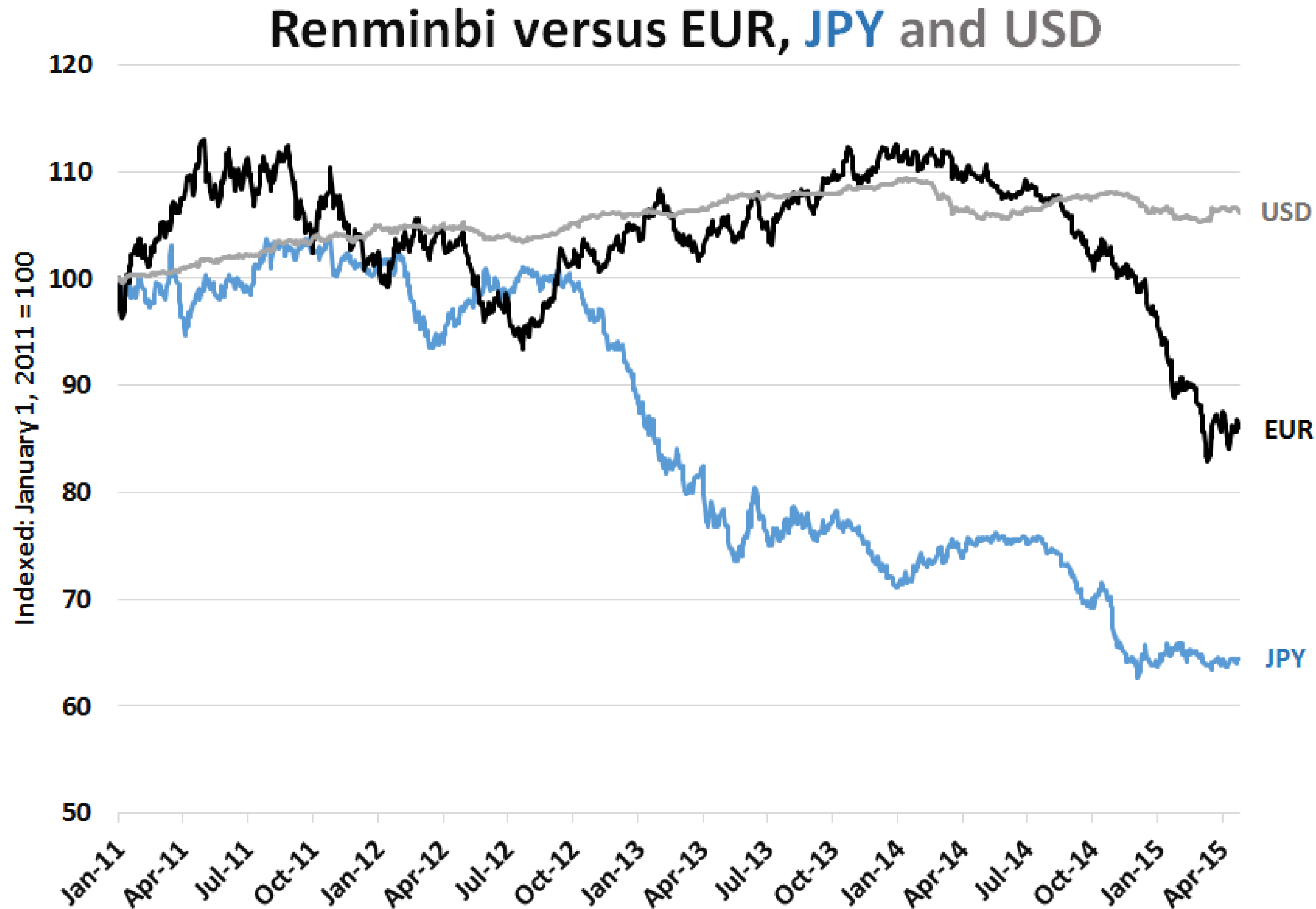
China: Renminbi has weakened vs USD but strengthened EUR and JPY



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China: Renminbi has soared vs other BRIC FX

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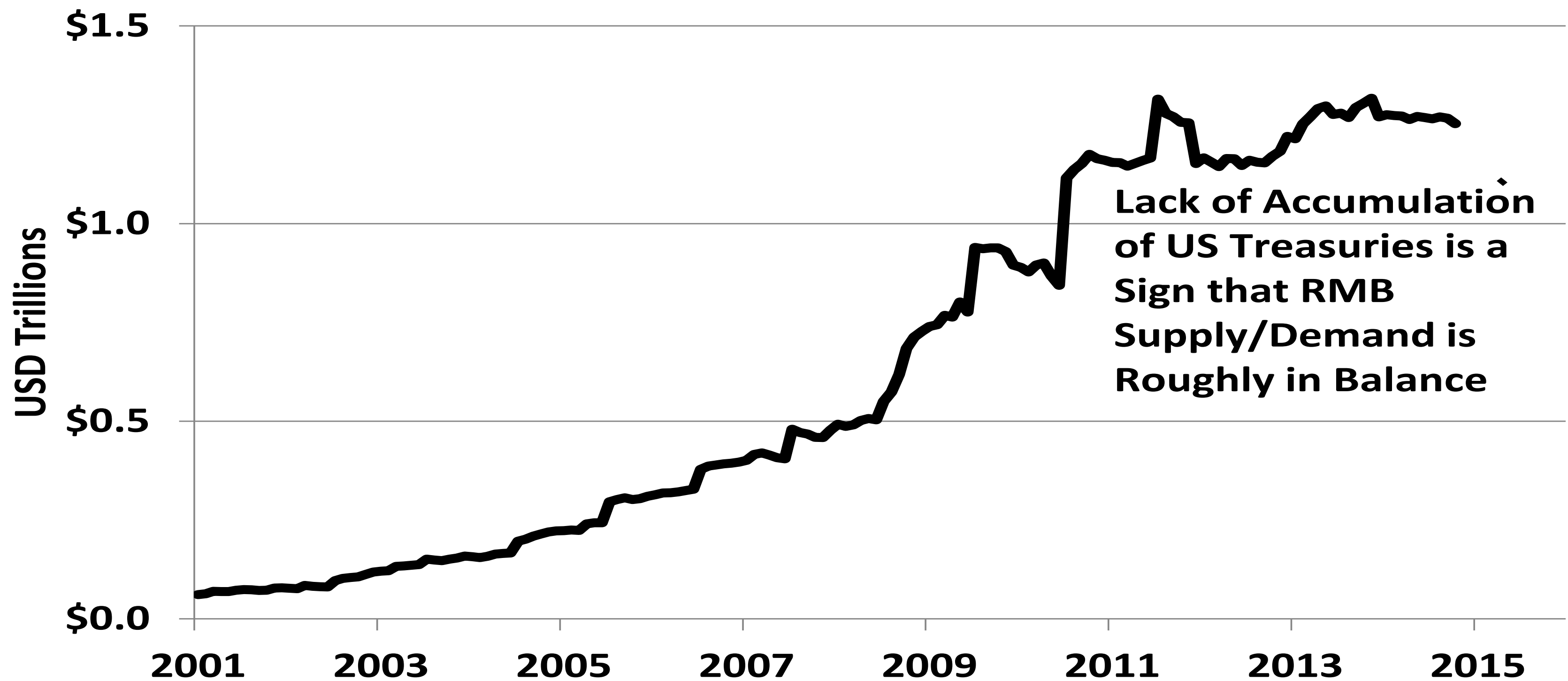
China



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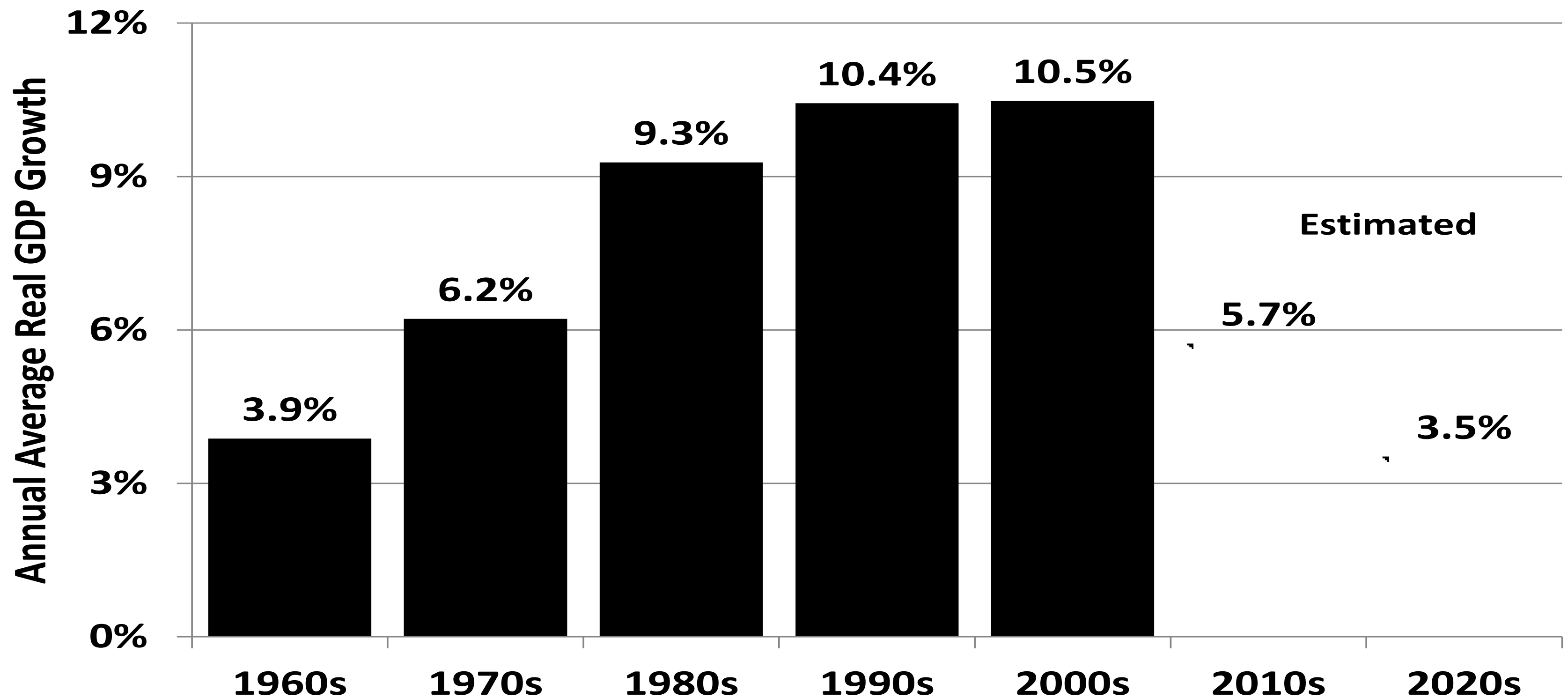
China



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Japan

- **Japan has virtually no population growth or labor force growth.**
- **A lack of labor force growth means that real GDP growth is driven by capital investment and technology-based improvements in labor productivity. For a modern economy with considerable capital equipment, the implications are that it will be extremely difficult to grow faster than 1% to 2% annual real GDP growth on average and over time.**
- **Japan recorded two consecutive quarters of declining real GDP after the rise in the national sales tax in April 2014. Real GDP growth should soon return to the 1% to 2% annual growth range.**
- **The Bank of Japan embarked in April 2013 on an extremely aggressive asset purchase program (i.e., QE). The consequences have largely been:**
  - **A depreciating Japanese yen versus the US dollar.**
  - **Rising equity prices based mostly on revaluation of the considerable non-yen assets, capital equipment, and investments held outside Japan by multi-national companies.**
  - **A shift of ownership of Japanese Government Bonds from banks and pension funds to the Bank of Japan, effectively reducing the quantity of debt held by the public.**

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Euro-Zone

- **The bank stress tests of 2014 caused major problems for the credit system. Banks did not want to show "Emergency term liquidity loans from the ECB" on their balance sheets, so they paid them back. The focus on improving capital ratios led to a lack of credit growth.**
- **The stress test results were announced in October 2014. All the big banks passed, more or less, and the credit system should function much better in 2015 with worries over failing the tests now in the past.**
- **The ECB is going forward with an expanded asset purchase plan – or its version of QE.**
  - **-ECB purchases sovereign debt of Euro-Zone nations are unlikely to help real GDP growth much at all – just shift the ownership of the debt from banks and pension funds to the ECB and keep credit spreads relatively tight among the countries.**
  - **-ECB purchases asset-backed securities (involving private sector credit risk), could make a measurable contribution to credit growth and real GDP growth.**
- **The Greek situation is troublesome but its bark is worse than its bite.**

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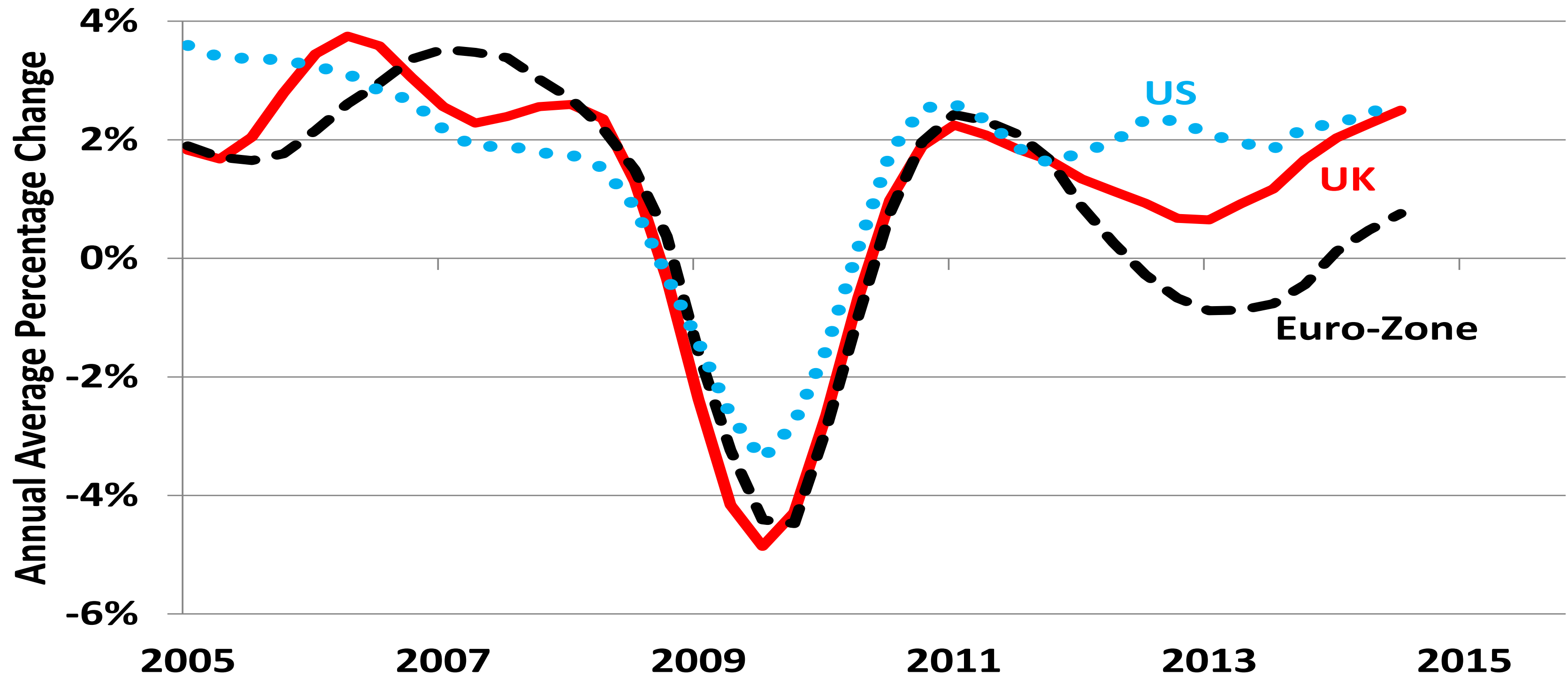
Euro-Zone



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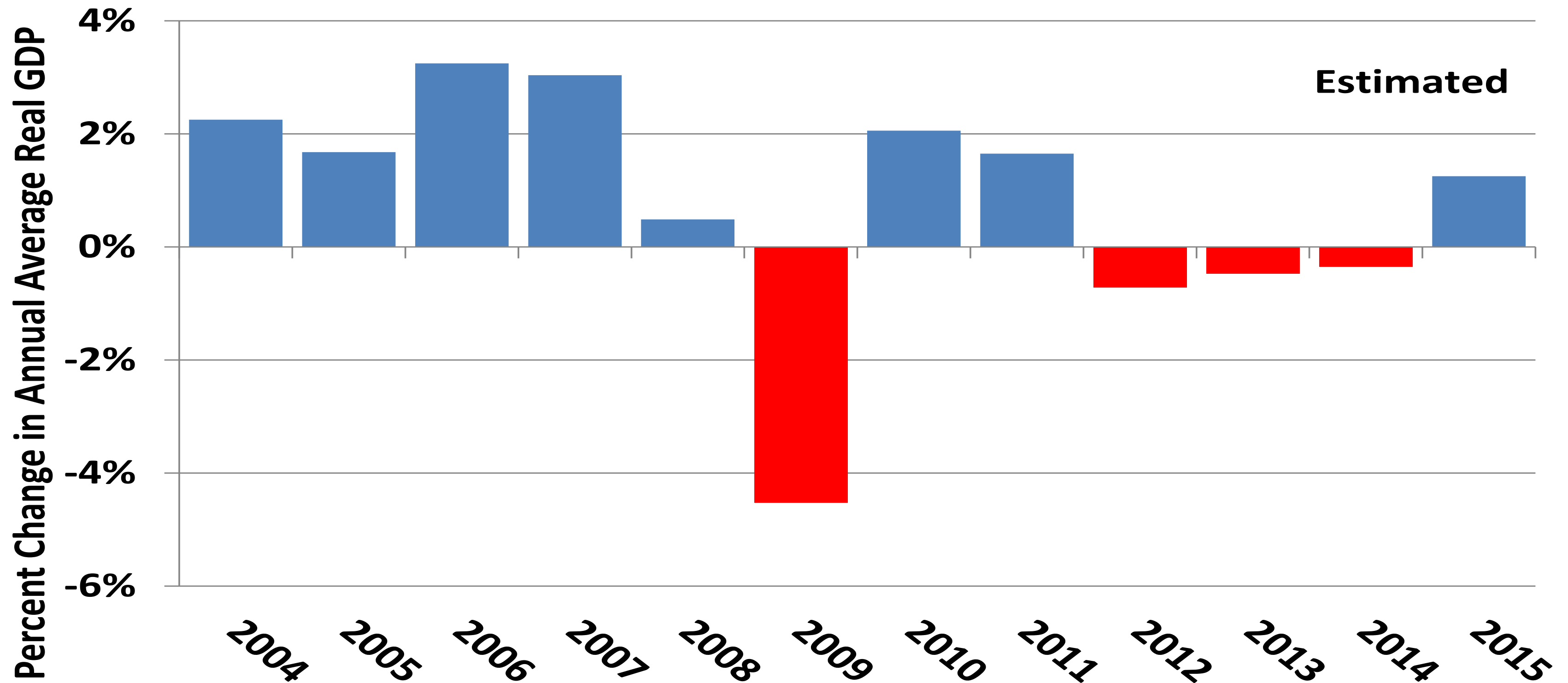
Euro-Zone



Source: Historical data from the World Bank via Bloomberg Professional (WRGDEURO). 2014 and 2015 estimates by CME Economics

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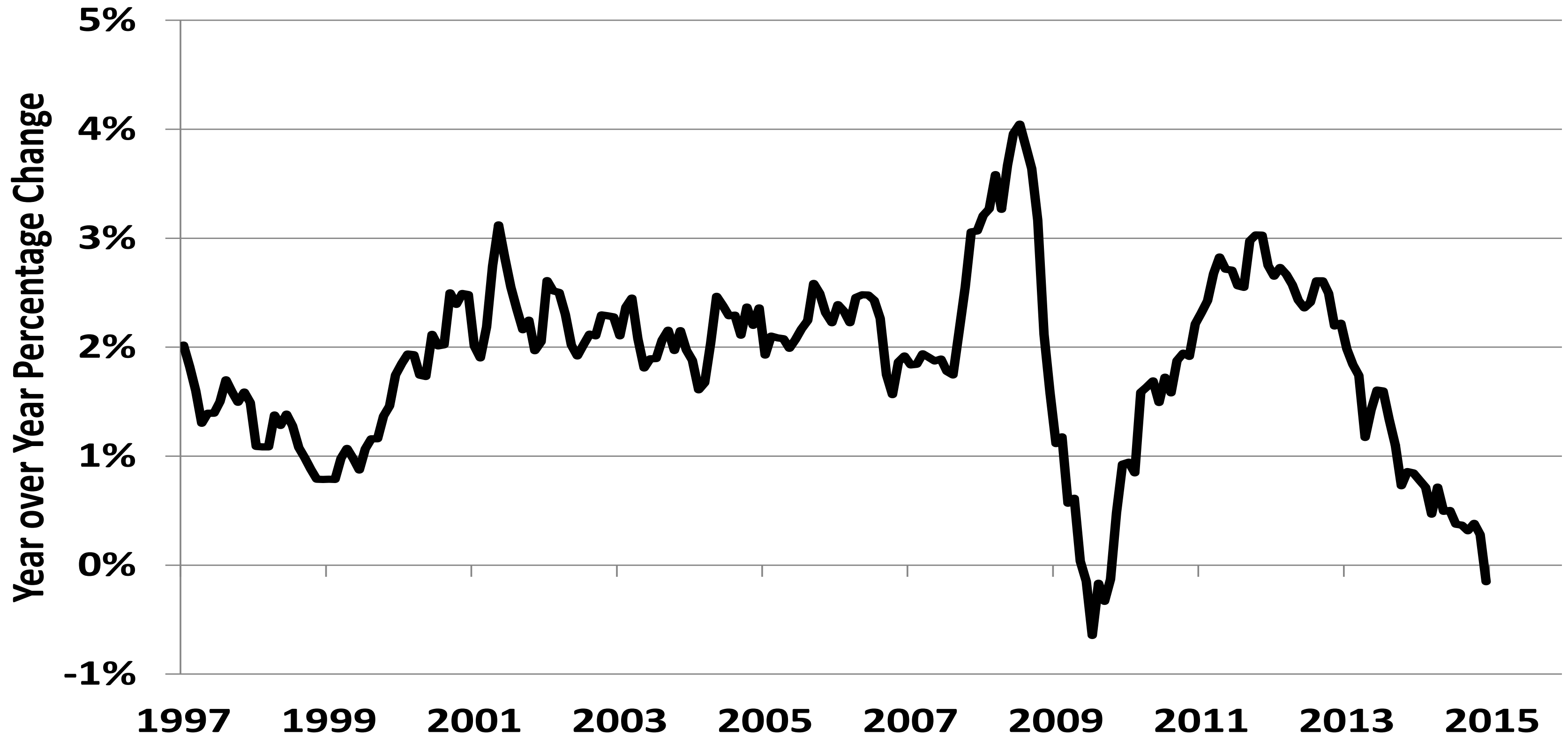
Euro-Zone



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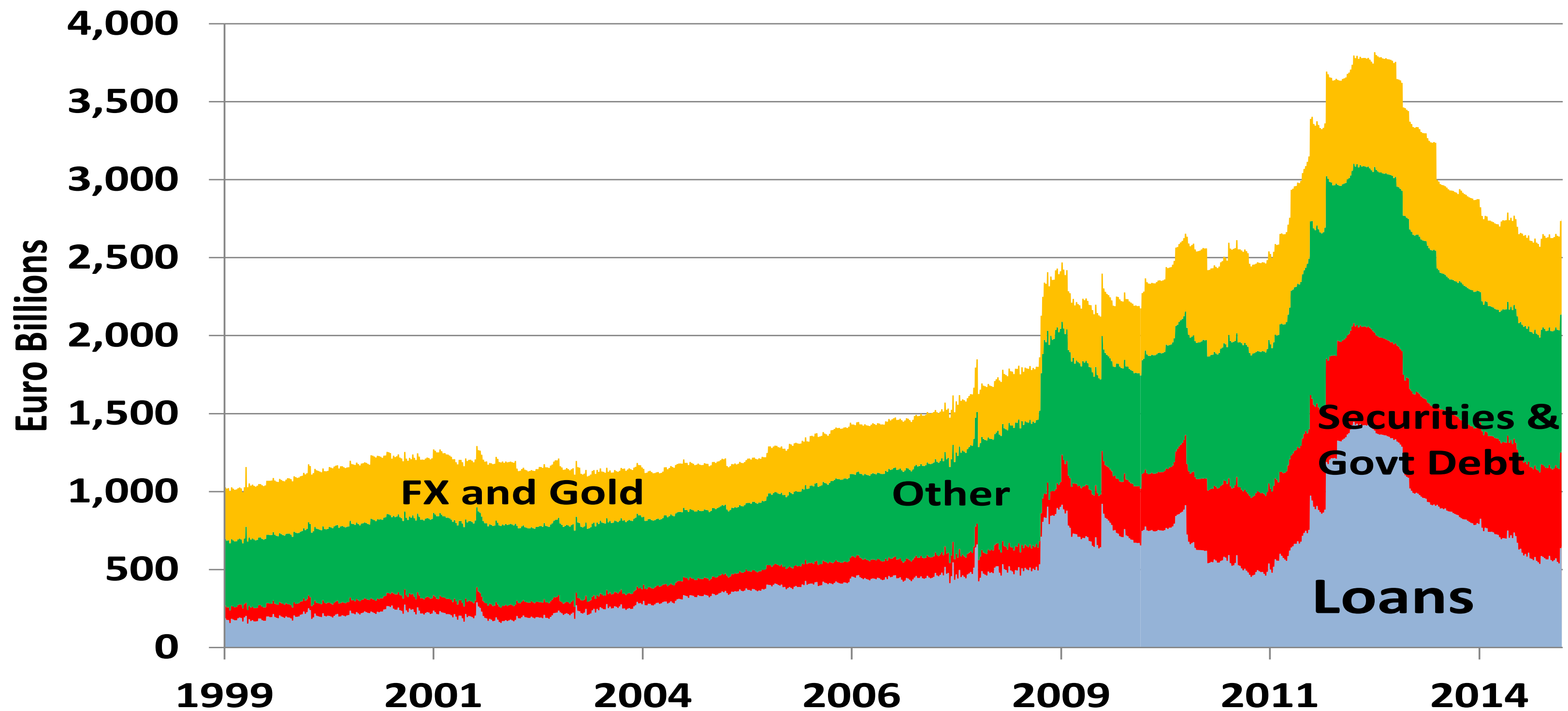
Euro-Zone



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Emerging Markets

- **There is considerable diversity in economic performance among emerging market countries but with some exceptions the overall trend in emerging markets is for slower growth, especially for commodity exporters.**
- **Brazil is slowing dramatically and looks headed for a recession. Like many Latin American nations it has a large current account deficit.**
- **Russia is in recession due mostly to the fall in oil prices and partly to the economic sanctions related to the Ukraine dispute. With a weaker Ruble, inflation is becoming an issue.**
- **India is doing relatively well under the Modi government – possibly 5% real GDP growth in 2015. There may be room for incremental short-term rate cuts without weakening the rupee, especially if “risk-on” markets emerge. India is a major beneficiary of lower oil prices.**
- **Growth across Africa will vary with oil exporters like Angola and Nigeria in recession but growth picking up in other parts of the continent.**

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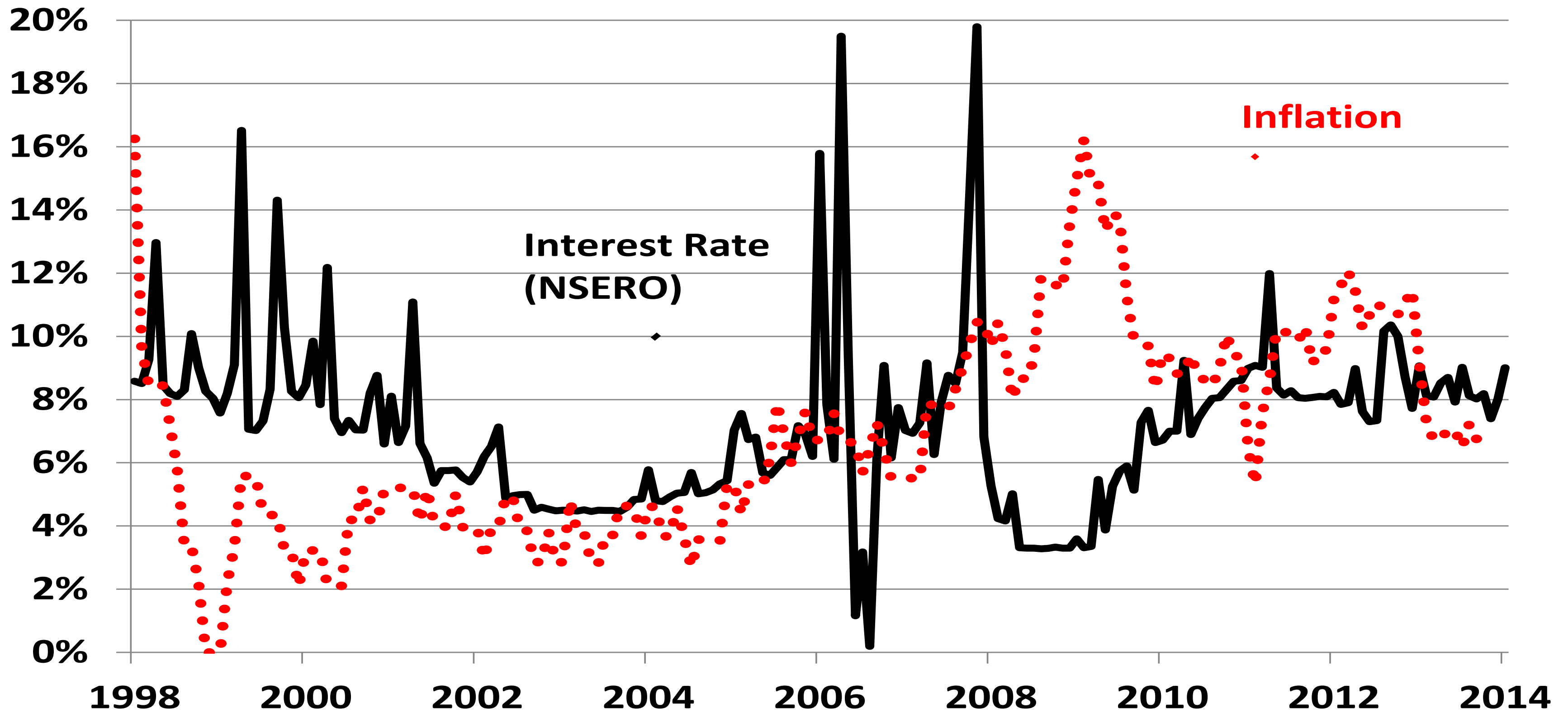
Emerging Markets



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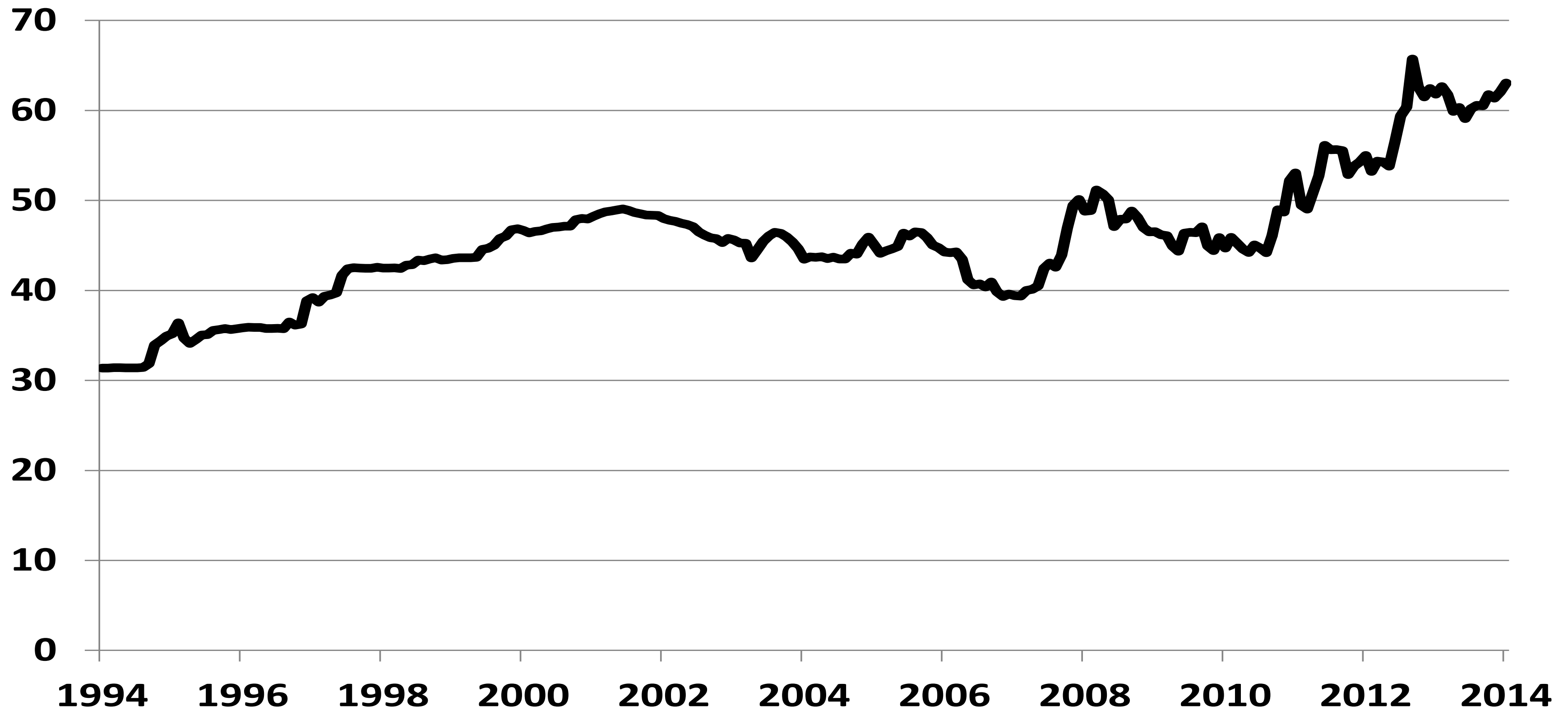
Emerging Markets



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