

Interdisciplinary colloquium

in mathematics,
economics, finance and
actuarial science



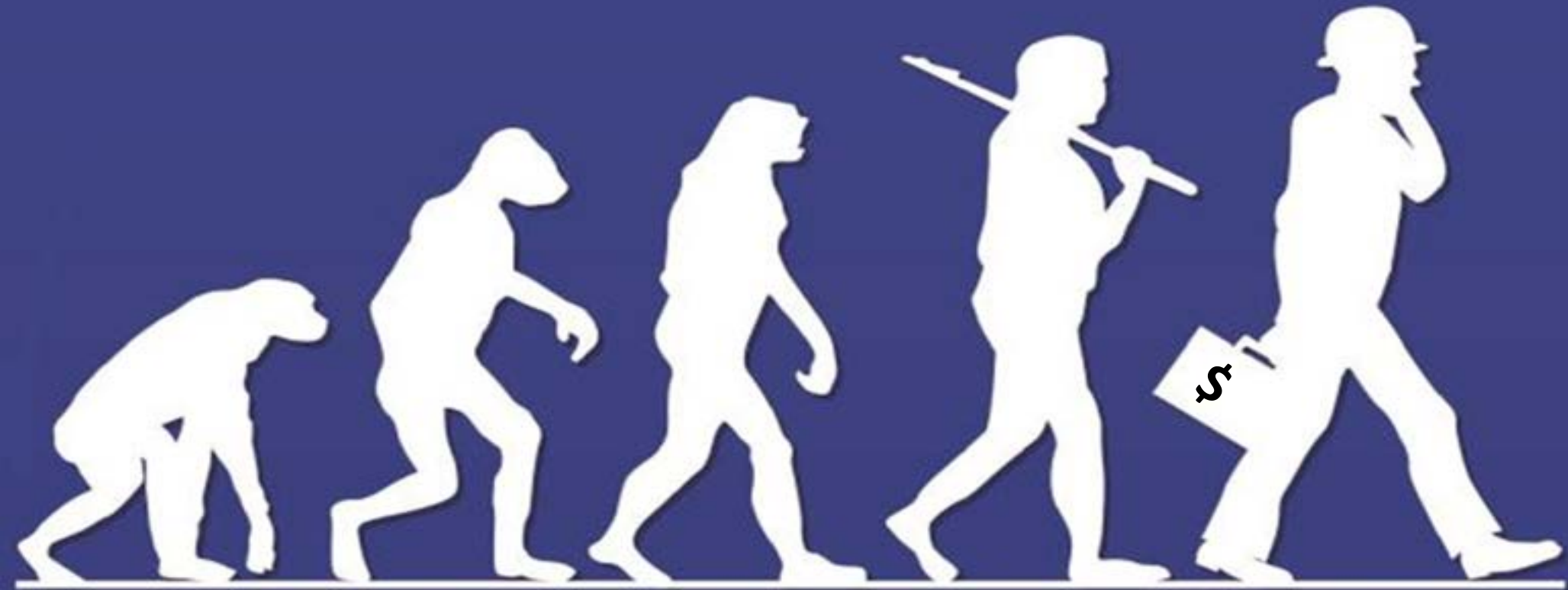
Coordinated by the
Absa Chair in Actuarial Science



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Source: Modernising Money: Why Our Monetary System is Broken and How it Can be Fixed by Andrew Jackson

THE EVOLUTION OF THE U.S DOLLAR MONETARY SYSTEM 2018

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SUMMARY

THE EVOLUTION OF THE MONETARY SYSTEM

- Everybody knows and uses the saying “**money makes the world go around**”. However, in reality, very few people actually understand the money creation process. When referring to money, most people tend to think of physical money; but physical money is less than 5% of total money supply.
- Financial markets focus on the evolution of the monetary system from the clay figure in Mesopotamia 9,000 years ago up until the abolishment of the gold standard in 1971. Many believe the monetary system has not evolved since then. That is however not true.
- Most market participants and economists were schooled in Keynesian economics and the demand side of the economy, and they tend to pay little attention to the change in money supply and the consequences thereof on the markets and the economy. Analysts/academics spend all their time on the destination of the funds, without ever asking what the source is (they just assume it is real savings).
- Since the late 1980s the monetary base grew. Through the process of **financialization**, the debt in the system was (and still is) larger than what regulators were/are aware of. From 1988 to 2008 there was just one game in town: Get growth and inflation right and then you know what central banks will do. The price of money was determining the business cycle. This has changed since the GFC, the **quantum of money** is now as important as the price thereof is. The jury is out on whether central banks should target **asset inflation** as well...
- The 2008 GFC is referred to as the “sub-prime” crisis. It would be more correct to refer to the crisis as a shadow banking crisis (seeing as the sub-prime lending was a consequence – and merely the weakest part – of the credit cycle that defaulted). The shadow banking system has evolved post the new Basel rules from the banking sector into the savings industry and the large cash-rich corporates.
- The **dollar, as the world’s reserve currency, is also attracting a lot of attention lately**. Reserve currencies in the past have lasted on average 93 years. The dollar became the official reserve system with the signing of the Bretton Woods agreement, but non-officially it took over from the British Pound in the 1920s. We believe the dollar will eventually lose its status for exactly the same reasons that all the previous reserve currencies lost theirs: Too much debt and the debasement of the currency. It will however not be as easy to get rid of the dollar as what many believe, and it will take many years if not decades. The Triffin dilemma is alive and well.
- **Implications for South Africa:** The South Africa economy and financial markets are impacted by the changes in the global liquidity environment through various financial linkages for example the carry-trade (search for yield) and offshore corporate funding.

THE CENTRAL BANK EXPERIMENT – 1907

THIS IS WHAT YOU CALL FORESIGHT...



Source: US money vs. corporation Crozier, Alfred Owen 1912

PRESENTATION OUTLINE

History of
money

The debt
super
cycle

USD
monetary
system

Financialization:
Shadow Banking
system

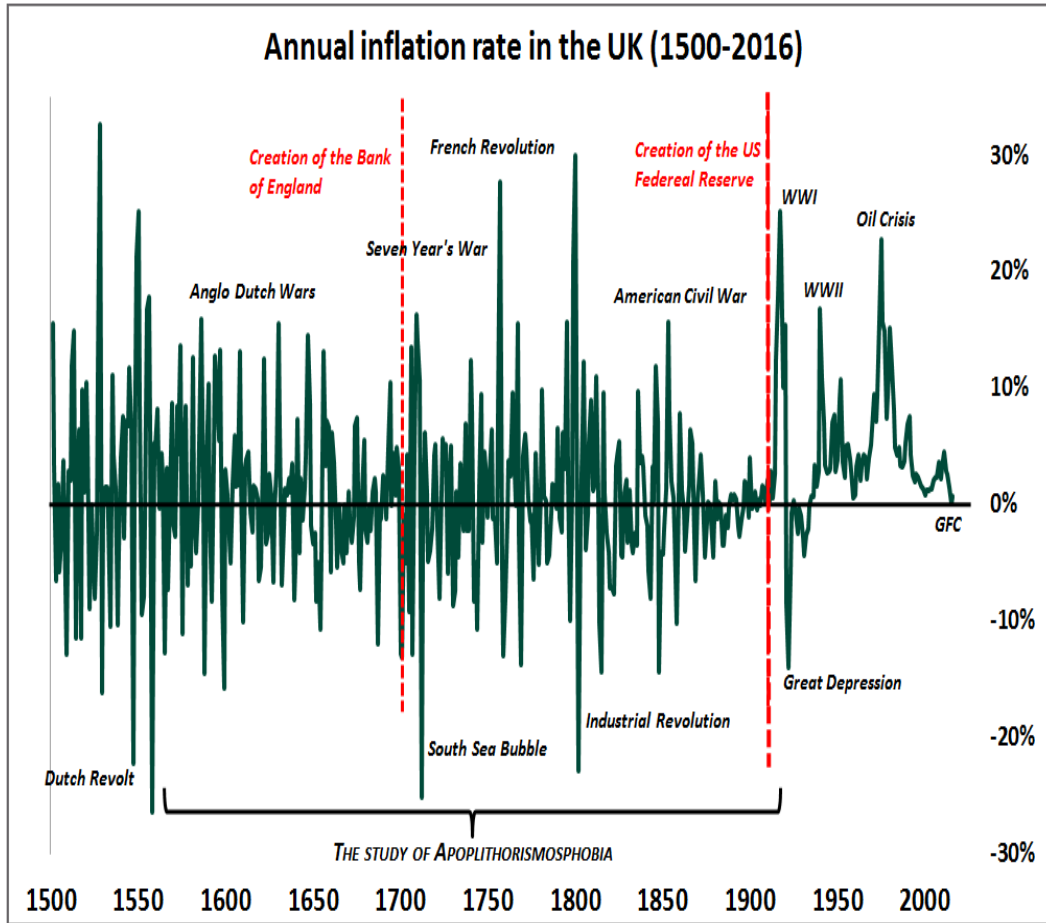
△ Monetary
policy (QE)
and quantum
of money

?
PS not
Bitcoin

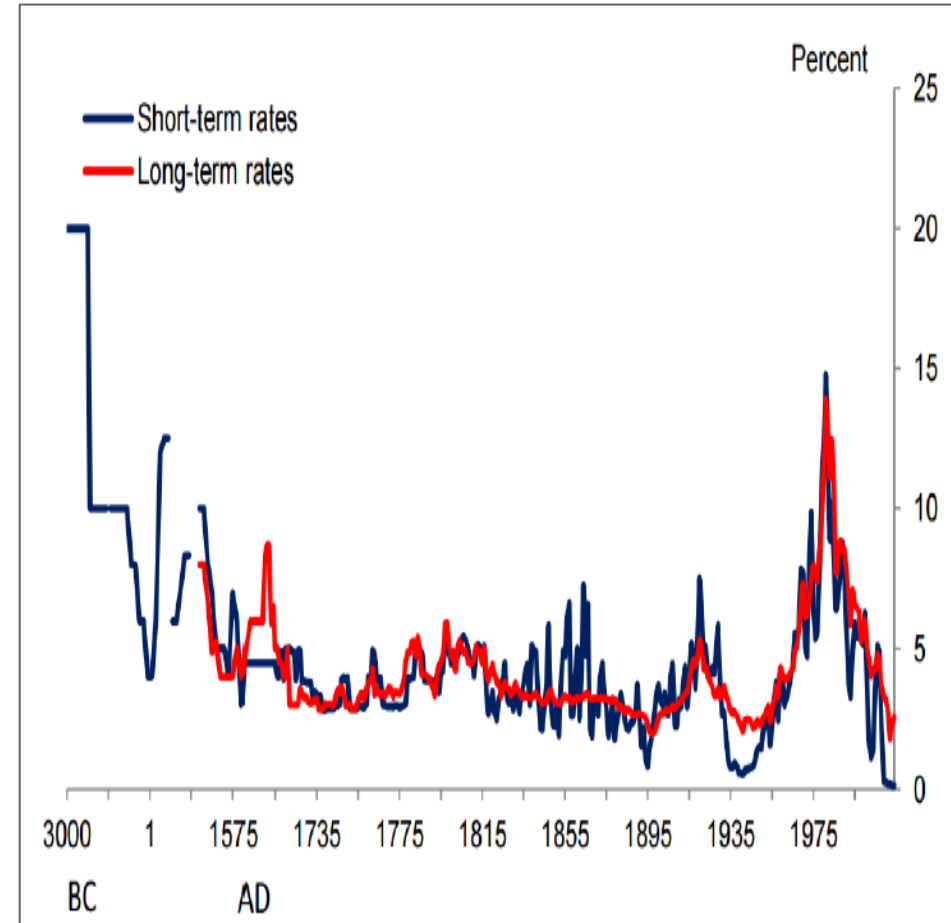
THE STUDY OF APOPLITHORISMOPHOBIA (FEAR OF DEFLATION)

CAN DEFLATION BE AVOIDED IN A CENTRAL BANK-CONTROLLED, FIAT MONETARY-BASED SYSTEM?

Boom and busts were very common pre-1900



Lowest interest rates in 5000 years!

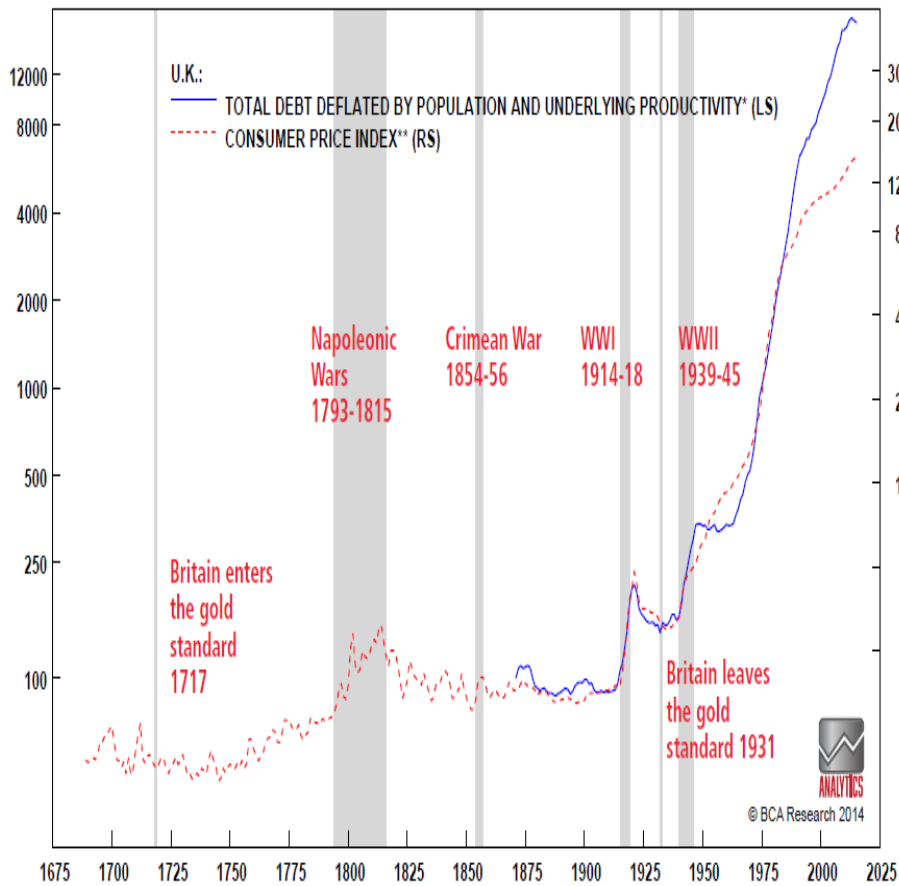


Source: Bank of England

THE DEBT SUPER CYCLE AND ASSET INFLATION

THE UNINTENDED CONSEQUENCES OF CENTRAL BANKING

275 Years of price stability and then the Debt Super Cycle



* REBASED TO 1870 = 100; THE COMBINATION OF POPULATION AND PRODUCTIVITY IS ASSUMED TO GROW AT A CONSTANT 2% A YEAR.

** REBASED TO 1688 = 100.

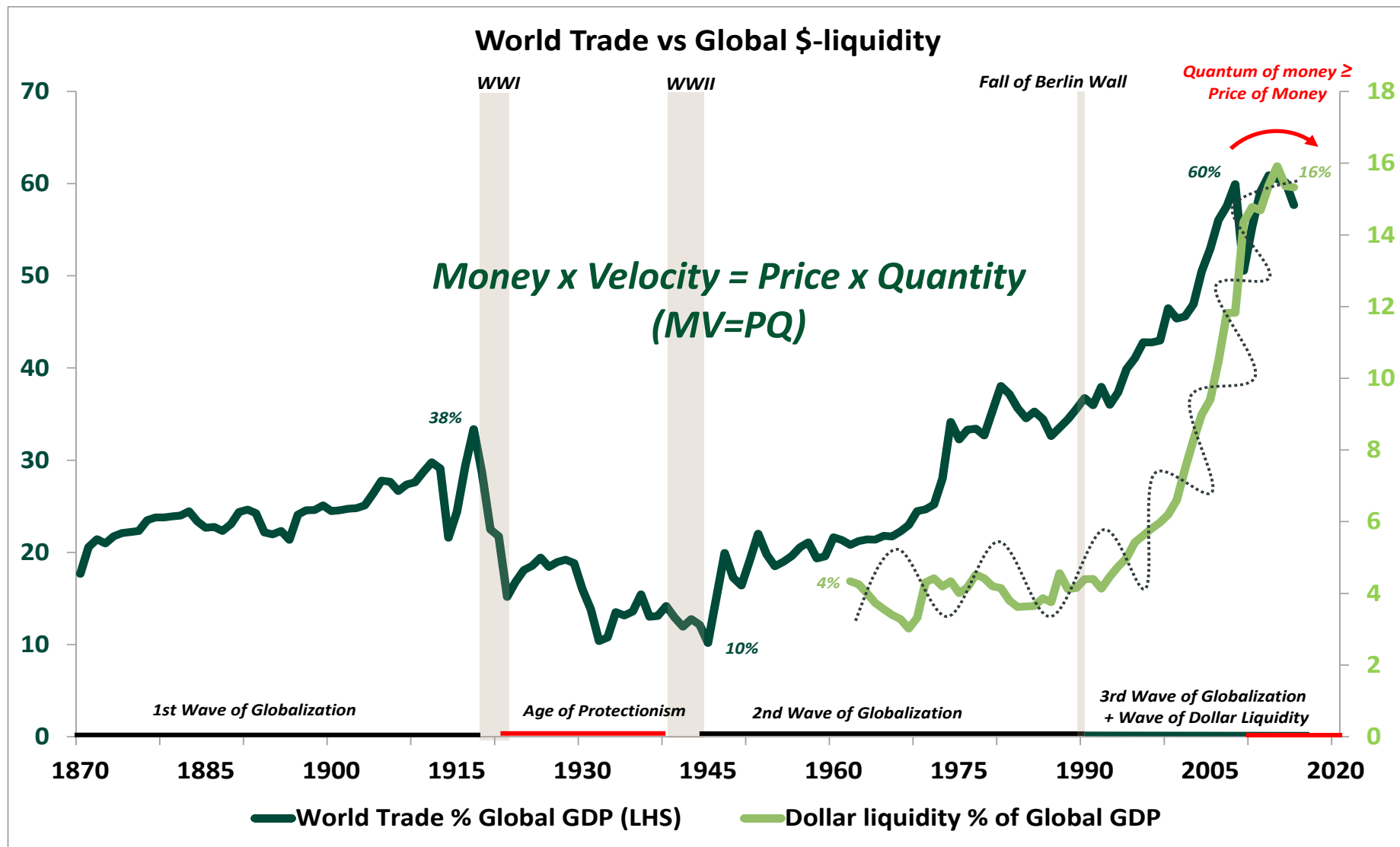
SOURCE: BANK OF ENGLAND.

Asset prices and the Debt Super Cycle



MODERN FINANCIAL SYSTEM: THE EXPLOSION IN THE USD MONETARY BASE

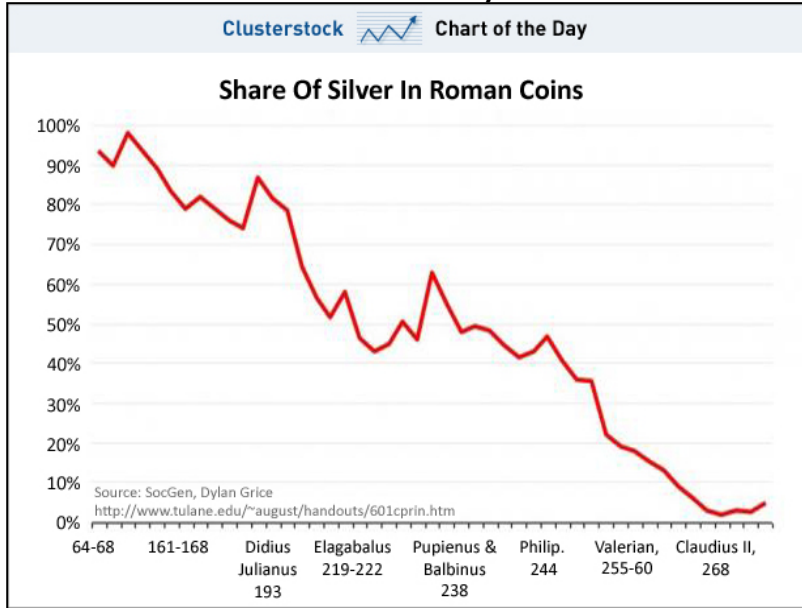
THE TIDE OF LIQUIDITY LIFTED ALL SHIPS, BUT THE TIDE IS RECEDING FOR THE FIRST TIME IN 30 YEARS



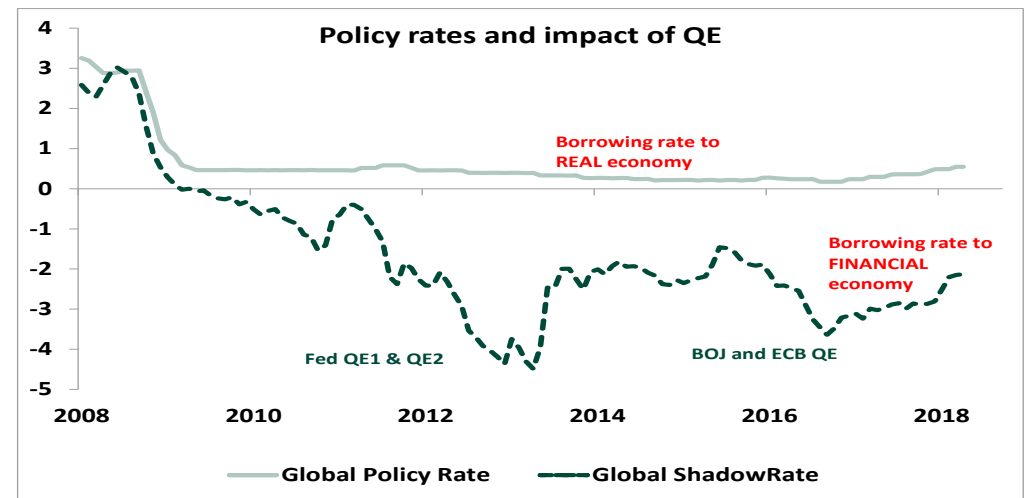
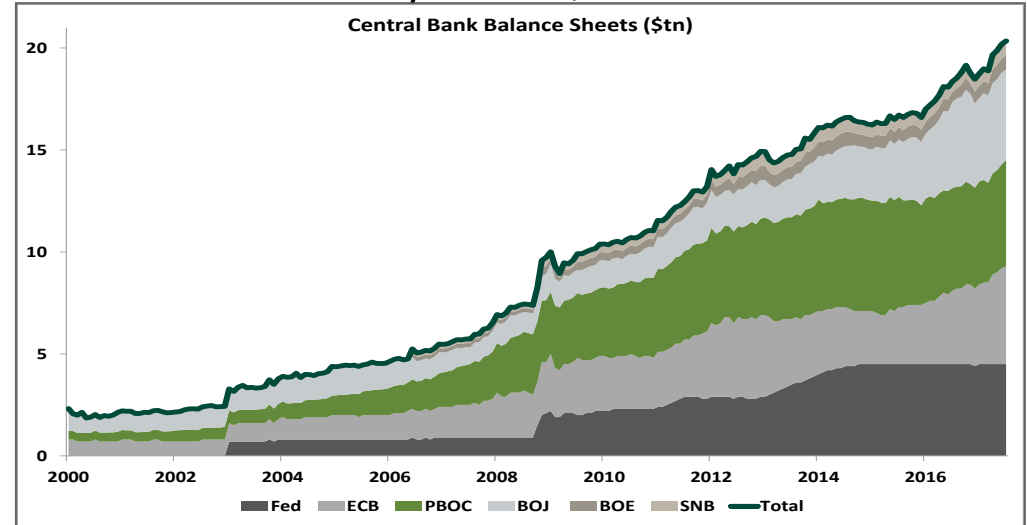
Source: DS

QE FROM SINCE THE ROMAN EMPIRE

The debasement of money is centuries old



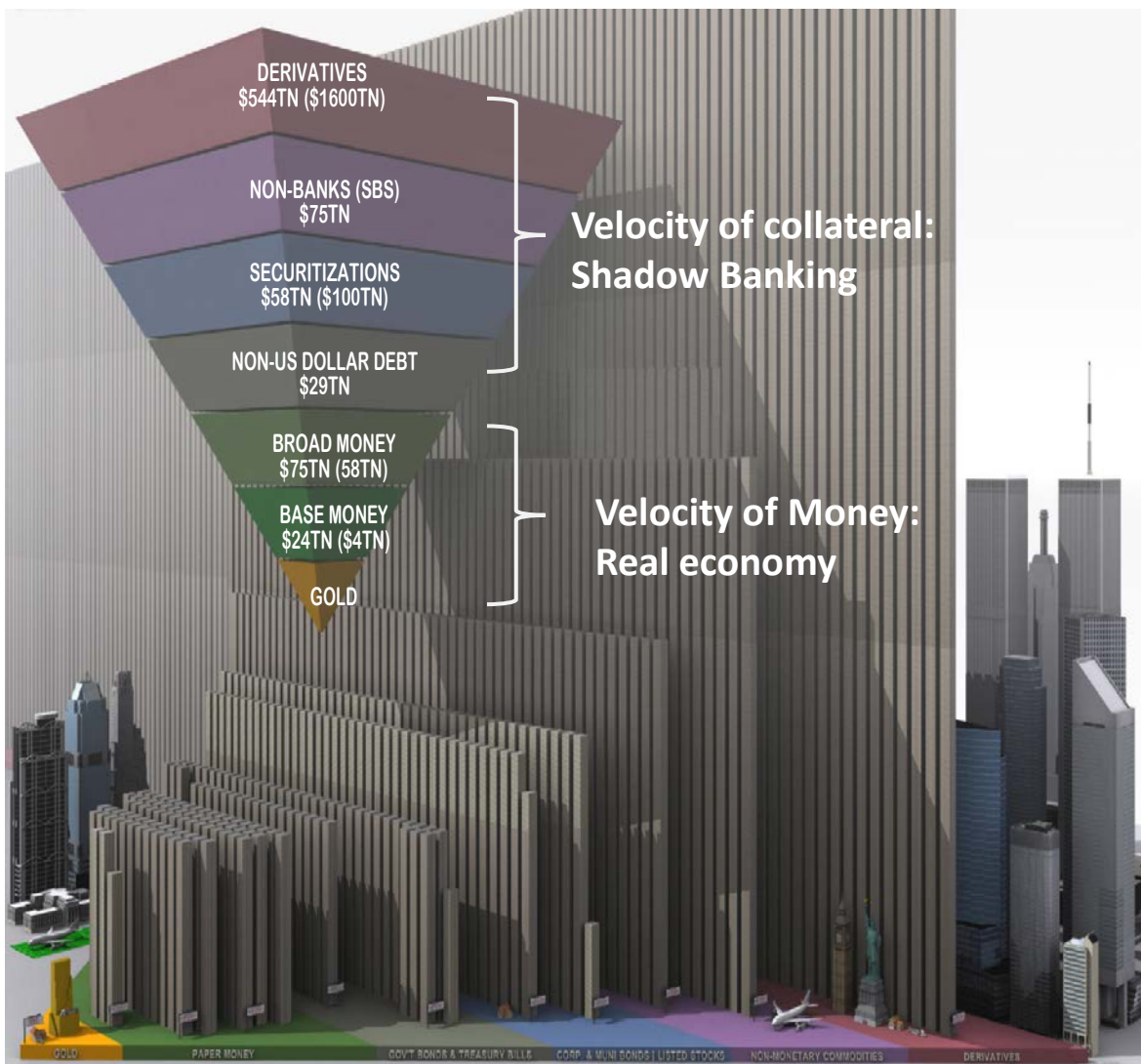
Modern day version of QE and Shadow Rates



Source: DS, The encyclopaedia of money, Bank of New Zealand (Shadow rates)

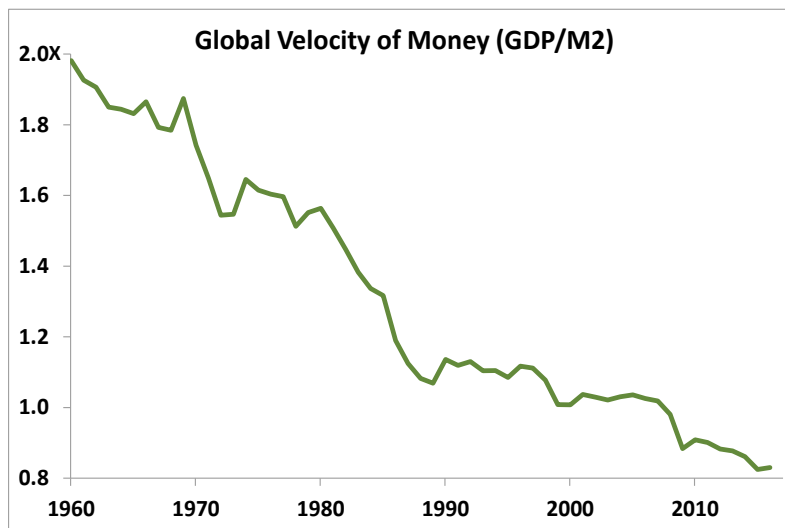
THE MONEY PYRAMID

REGULATED VS UNREGULATED MONEY CREATION



Velocity of collateral vs. Velocity of money

Year	Velocity of collateral
2007	3.0
2010	2.4
2011	2.5
2012	2.2
2013	2.0
2014	1.9
2015	1.5



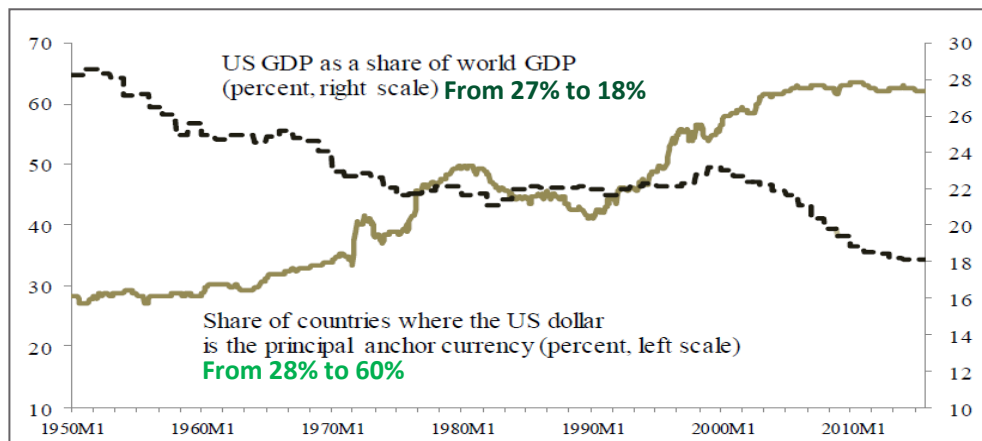
Source: Visual Capitalist, IMF

THE IMPORTANCE OF THE US DOLLAR IN TODAY'S FINANCIAL SYSTEM

For the World' Financial System to function smoothly the USD needs to be weak.



From 'Exorbitant privilege' to 'Exorbitant burden'



Source: Bloomberg, IMF, Carmen Reinhart

Tailwinds and headwinds for the USD becoming important



Independent Investment Research Since 1949



April 27, 2018

- In this Issue:**
- > The Geopolitical Fundamentals of A Reserve Currency ... 6
 - > American Hegemony - From Tailwinds To Headwinds ... 9
 - > The Economic Fundamentals of U.S. Dollar Reserve Status ... 12
 - > Headwinds To Dollar Liquidity ... 15
 - > If Something Cannot Go On Forever, It Will Stop ... 19
 - > Trades ... 24

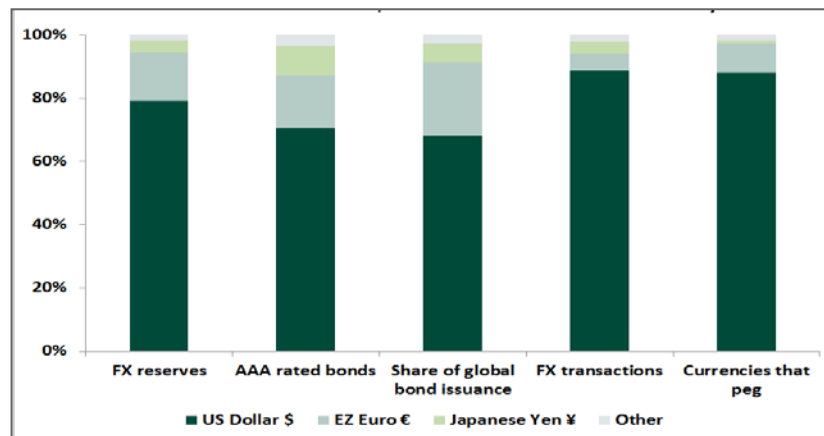
FOREIGN EXCHANGE STRATEGY
GEOPOLITICAL STRATEGY

SPECIAL REPORT Is King Dollar Facing Regicide?

- > Reserve currencies are built on a geopolitical and macroeconomic foundation.
- > For the U.S. Dollar, these foundations remain in place, but cracks are emerging.
- > Relative decline in American power, combined with a loss of confidence in the "Washington Consensus" at home, are eroding the geopolitical foundations.
- > Meanwhile, threats to globalization, a slower pace of petrodollar recycling, and stresses in the Eurodollar system are eroding the macroeconomic foundations.
- > The Renminbi is not an alternative to King Dollar, but the euro remains a potential challenger in the coming interregnum years that will see the world transition from American hegemony... to something else.
- > In the long run, we envision a multipolar currency regime to emerge alongside a multipolar geopolitical world order.

In this report, BCA's *Geopolitical and Foreign Exchange* strategies join efforts with contributing editors **Mehul Daya** and **Neels Heyneke** (Strategists at Nedbank CIB Research) to examine the conditions necessary for the decline of a reserve currency. Specifically, we seek to answer the question of whether the U.S. dollar is at the precipice of such a decline.

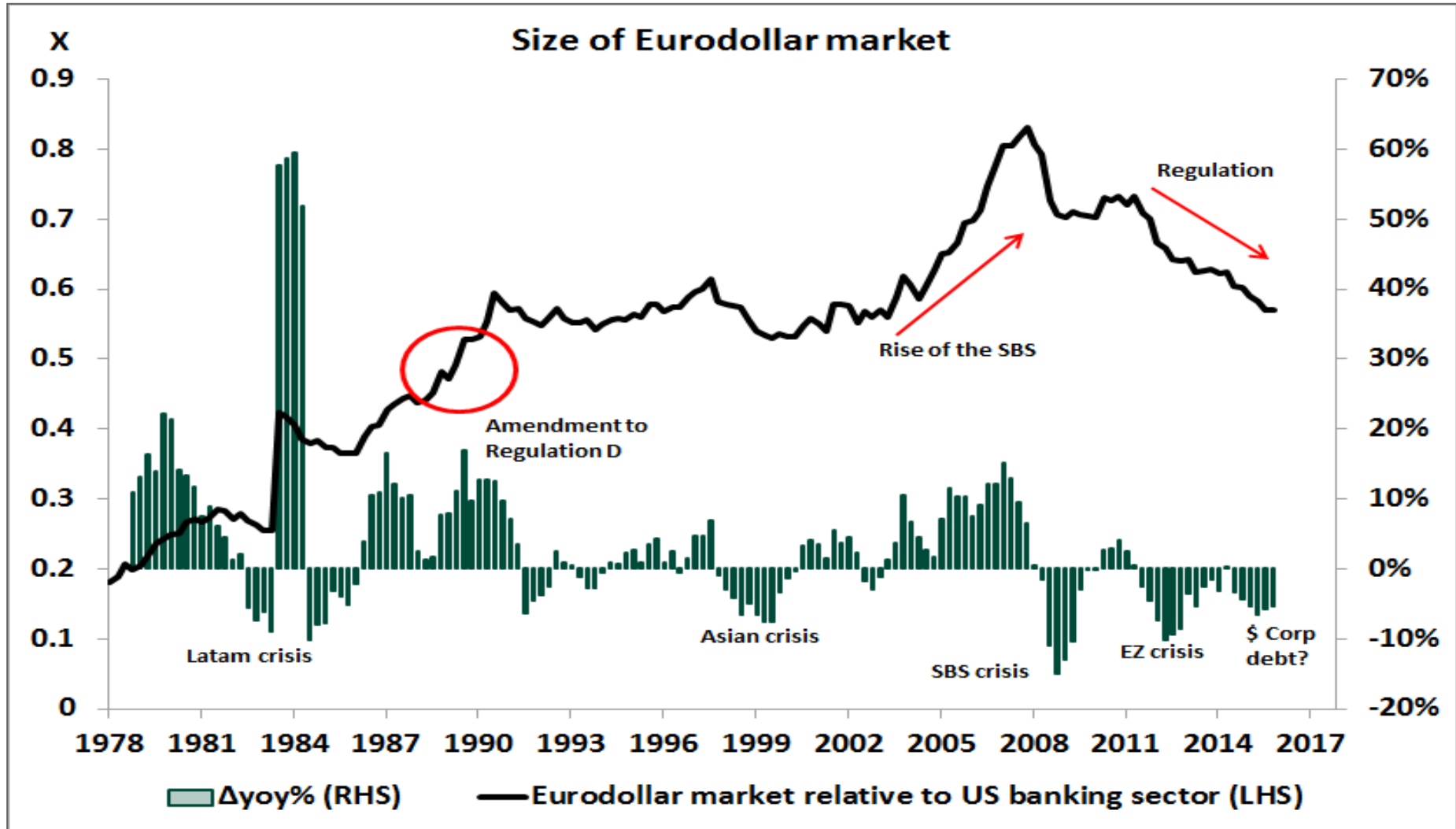
On several measures the \$ is still the World's dominant currency



EURODOLLAR SYSTEM: THE USD BANKING SYSTEM OUTSIDE THE U.S

US MONETARY POLICY IS THE WORLD'S MONETARY POLICY

The Eurodollar system is a key source of liquidity for global borrowers.



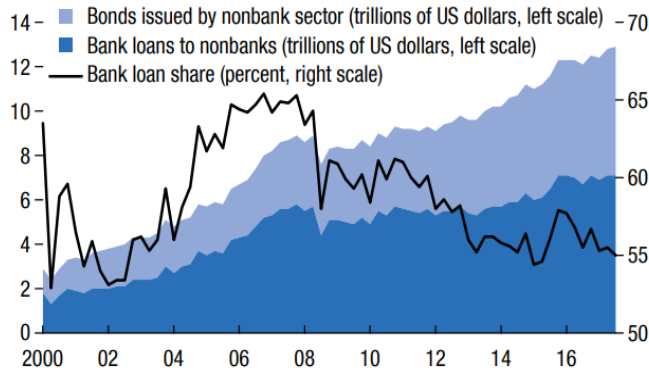
Source: IMF, BIS

EURODOLLAR SYSTEM: NOW ACKNOWLEDGED BY THE IMF AS A RISK TO GLOBAL FINANCIAL STABILITY

Figure 1.23. US Dollar Credit Aggregates and Bank Intragroup Funding Structures

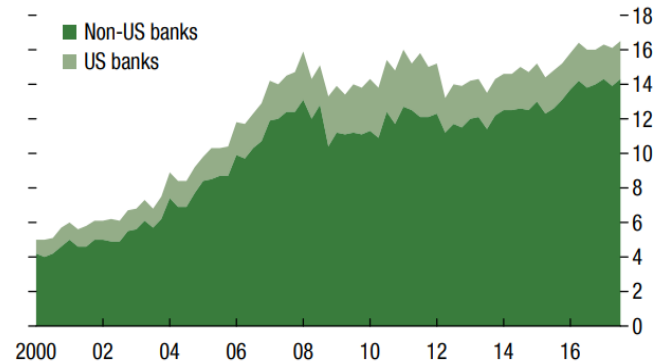
While dollar bonds outstanding have increased rapidly, loans remain the largest form of credit ...

1. Dollar Credit Extension by Non-US Entities, by Instrument



... dominated by non-US banks operating through international branch networks.

2. Banks' US Dollar-Denominated Claims Outside the United States (Trillions of US dollars)



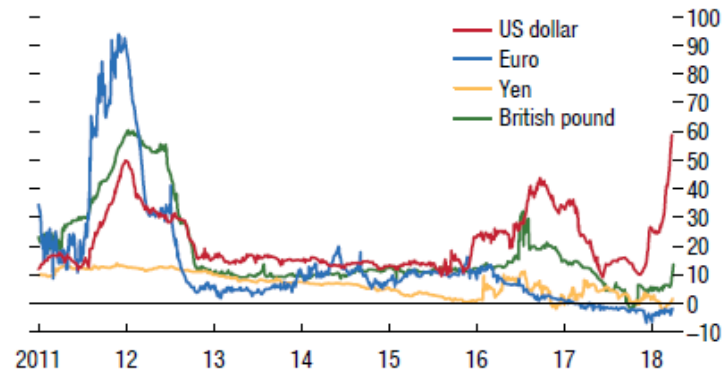
Cross-currency basis swap spreads have widened sharply in the past ...

2. Three-Month Cross-Currency Basis Swaps (Basis points)



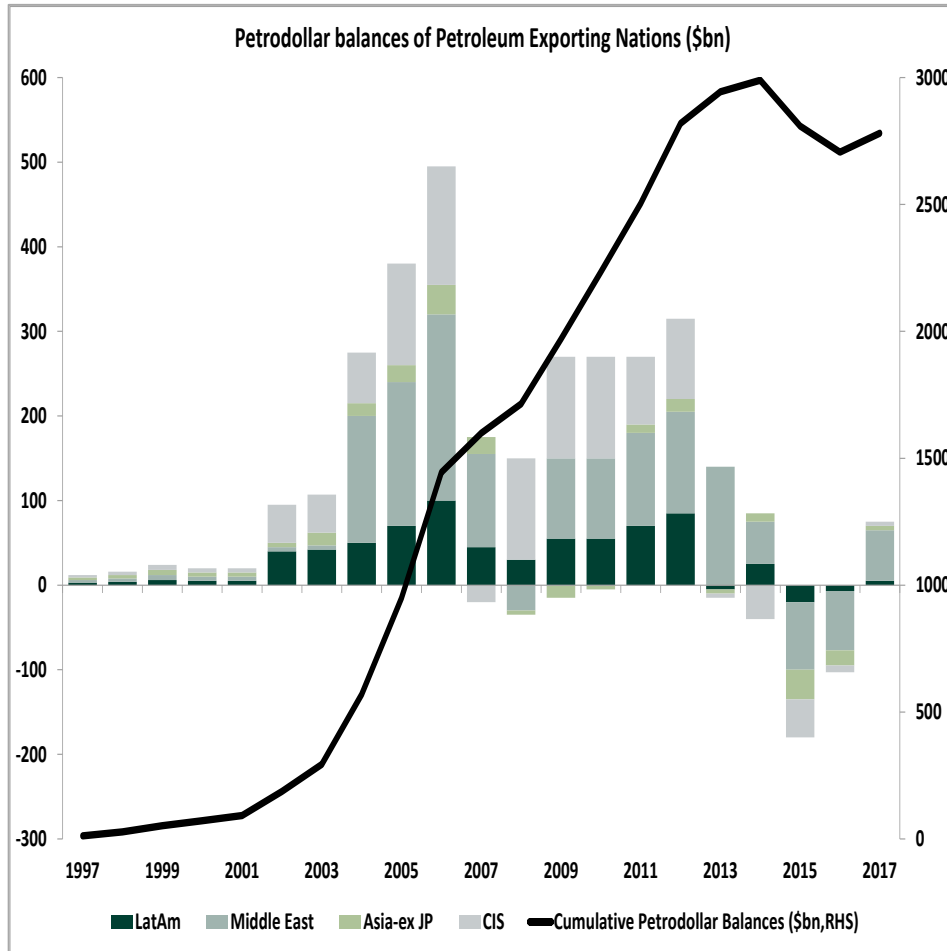
US dollar LIBOR-OIS spreads have widened recently.

6. Three-Month LIBOR-OIS Spreads (Basis points)



PETRODOLLAR SYSTEM IS THE MODERN DAY GOLD STANDARD.

Petrodollar system



↑ Oil = ↑ Petrodollars = ↑ Liquidity

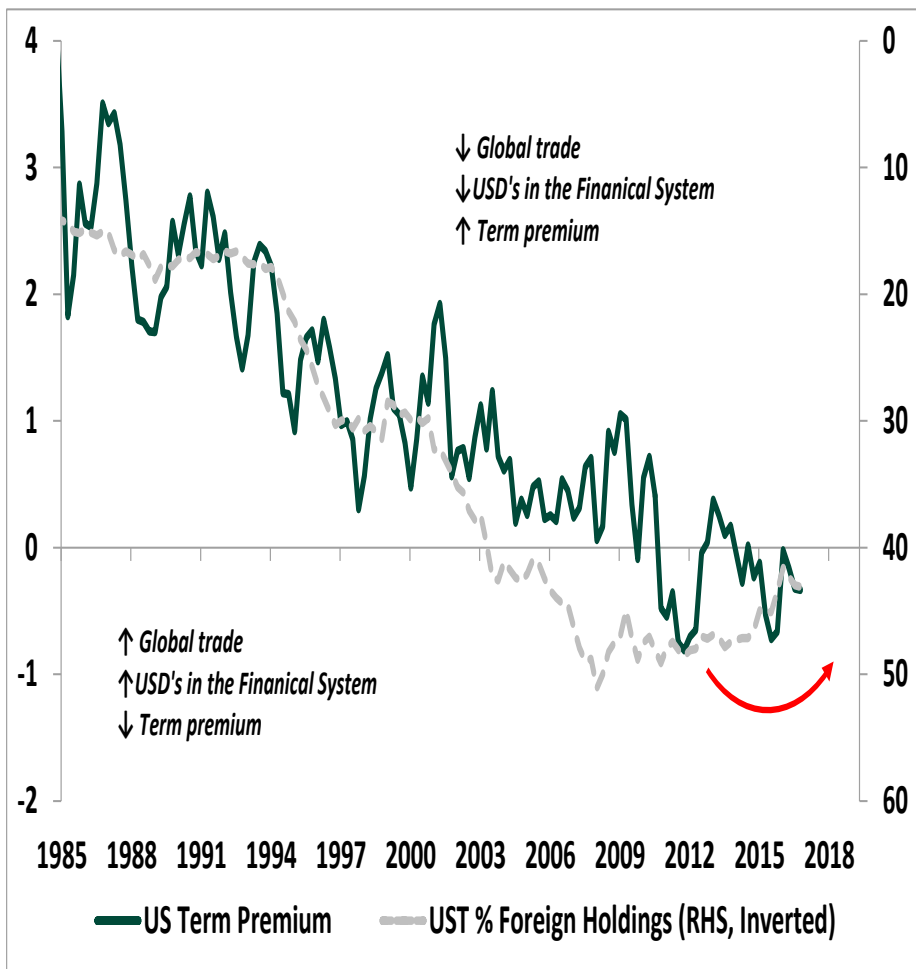


Source: BIS, IMF

THE PROVERBIAL SUN OF THE UNIVERSE

THE SYMBIOTIC RELATIONSHIP BETWEEN EAST AND WEST COMPRESSED THE TERM-PREMIUM

The USD savings glut and US rates

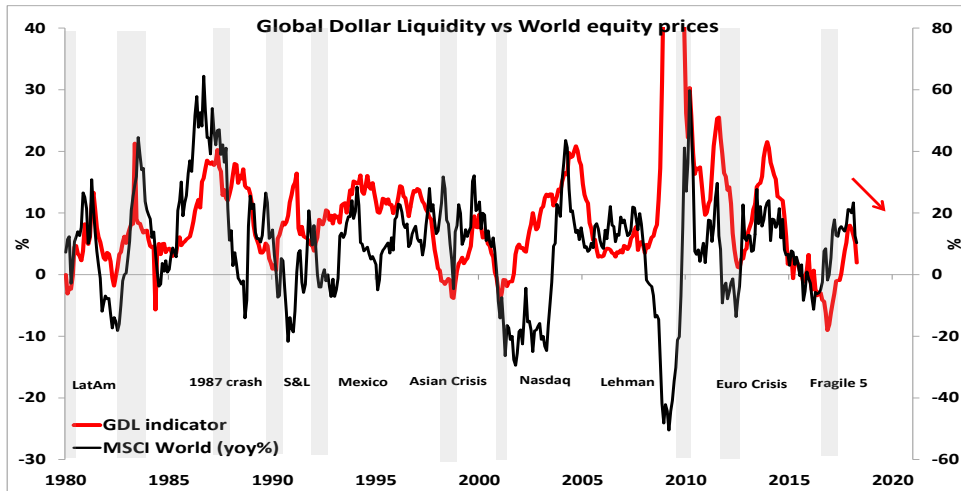
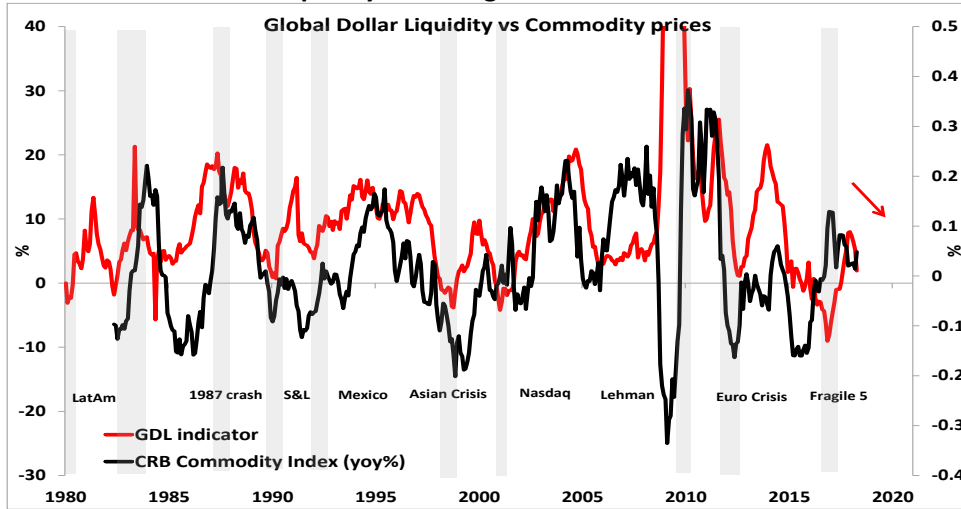


Misallocation of credit because interest rates are too low

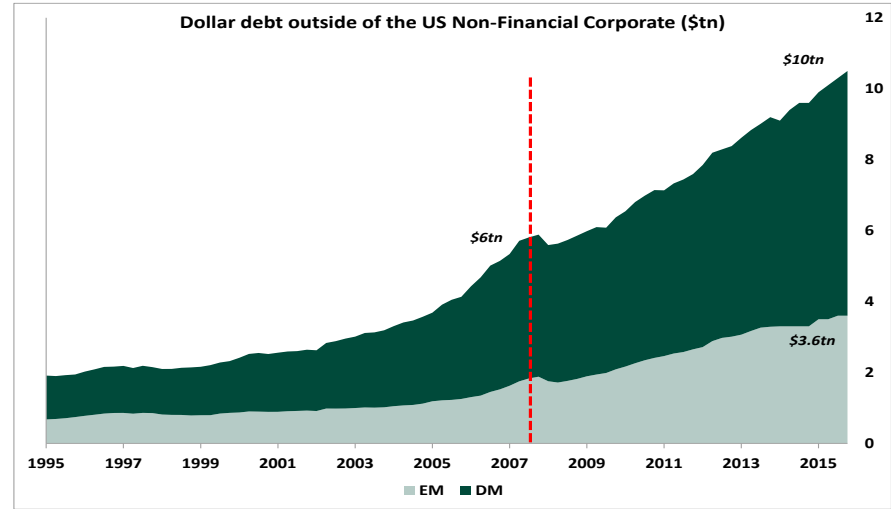


THE WORLD ALWAYS NEEDS \$-LIQUIDITY TO BE EXPANDING OR A FINANCIAL CRISIS ENSUES

\$-Liquidity is loosing momentum!



Over indebted USD World



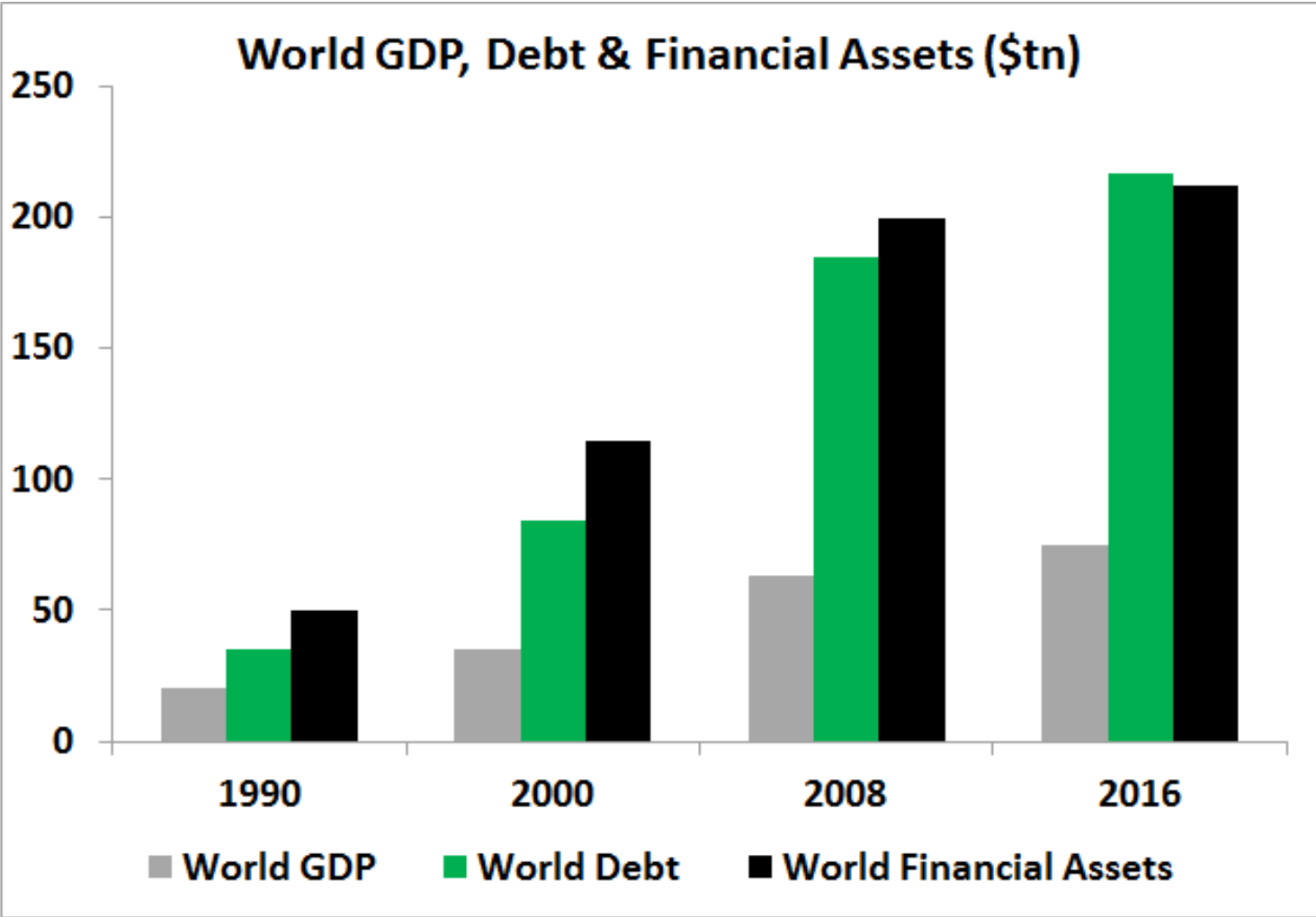
USD denominated debt outside the US by non-US entities

Non-Financial Corporates (debt issuance)	\$10tn
Non-Financial Corporates (swaps/hedging)	\$14tn
Other Financial Institutions (Asset managers, SWF's)	\$8tn
Banks	\$1.6tn
Governments	\$0.5tn
Total	\$34tn

FINANCIALIZATION

REBALANCING REQUIRED FROM THE FINANCIAL ECONOMY TO THE REAL ECONOMY

The world has not deleveraged

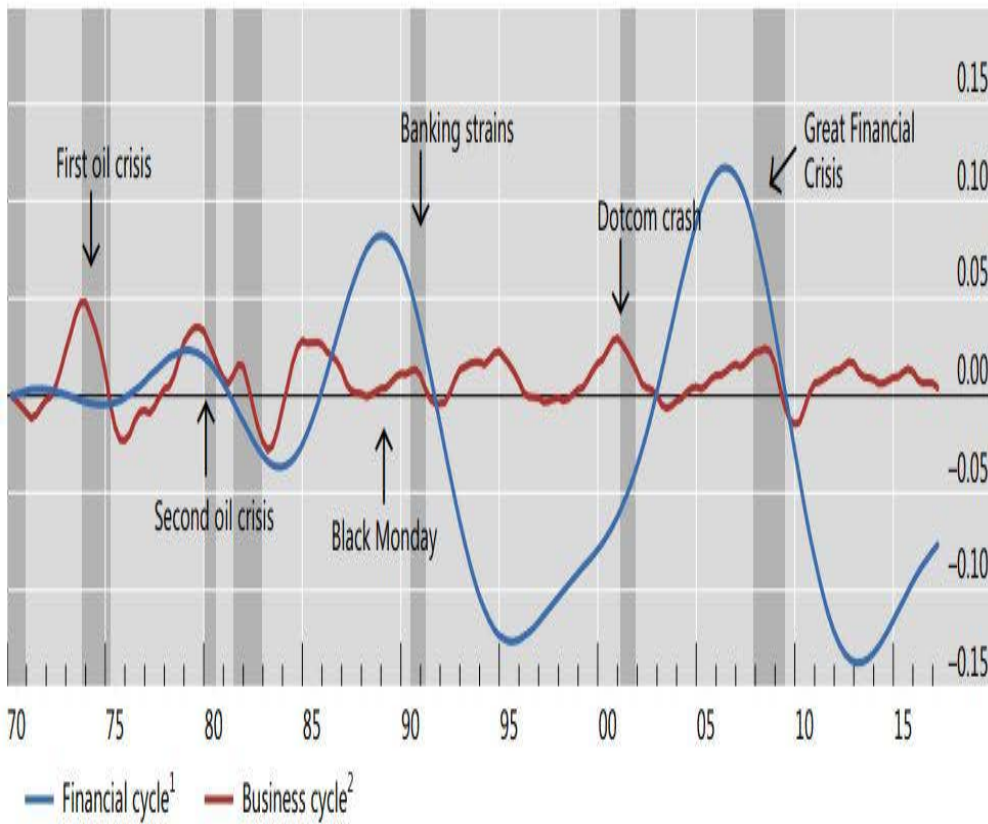


Source: IMF, BIS

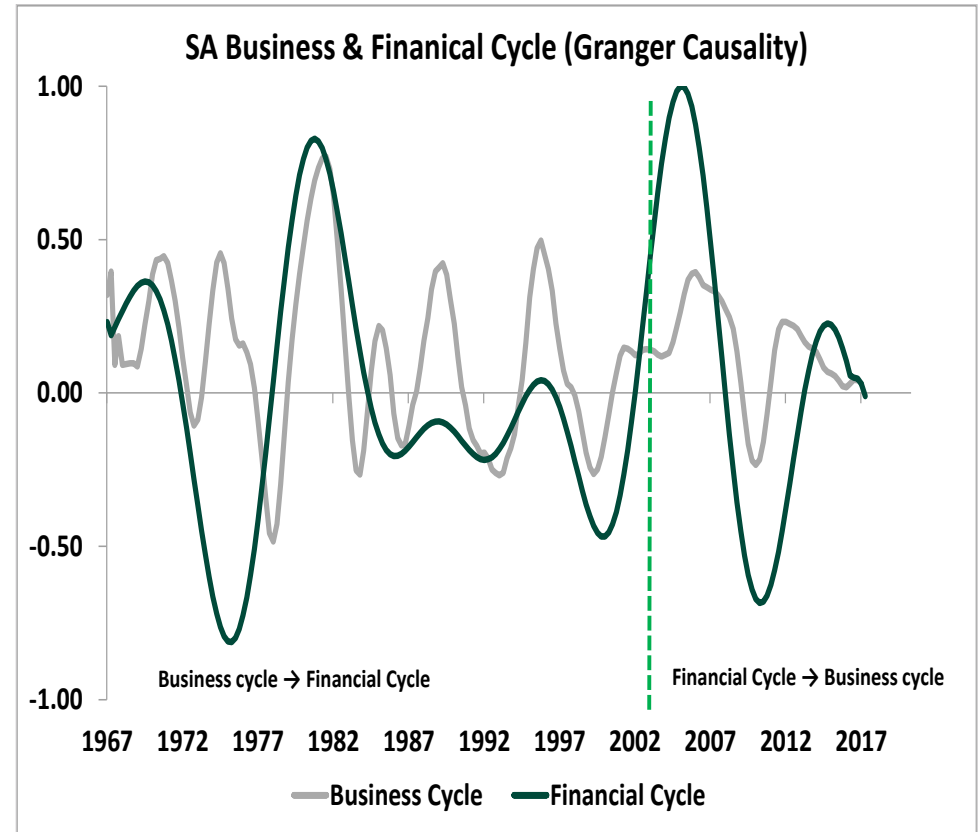
THE TAIL IS WAGGING THE DOG

FINANCIAL CYCLE IS DRIVING THE BUSINESS CYCLE

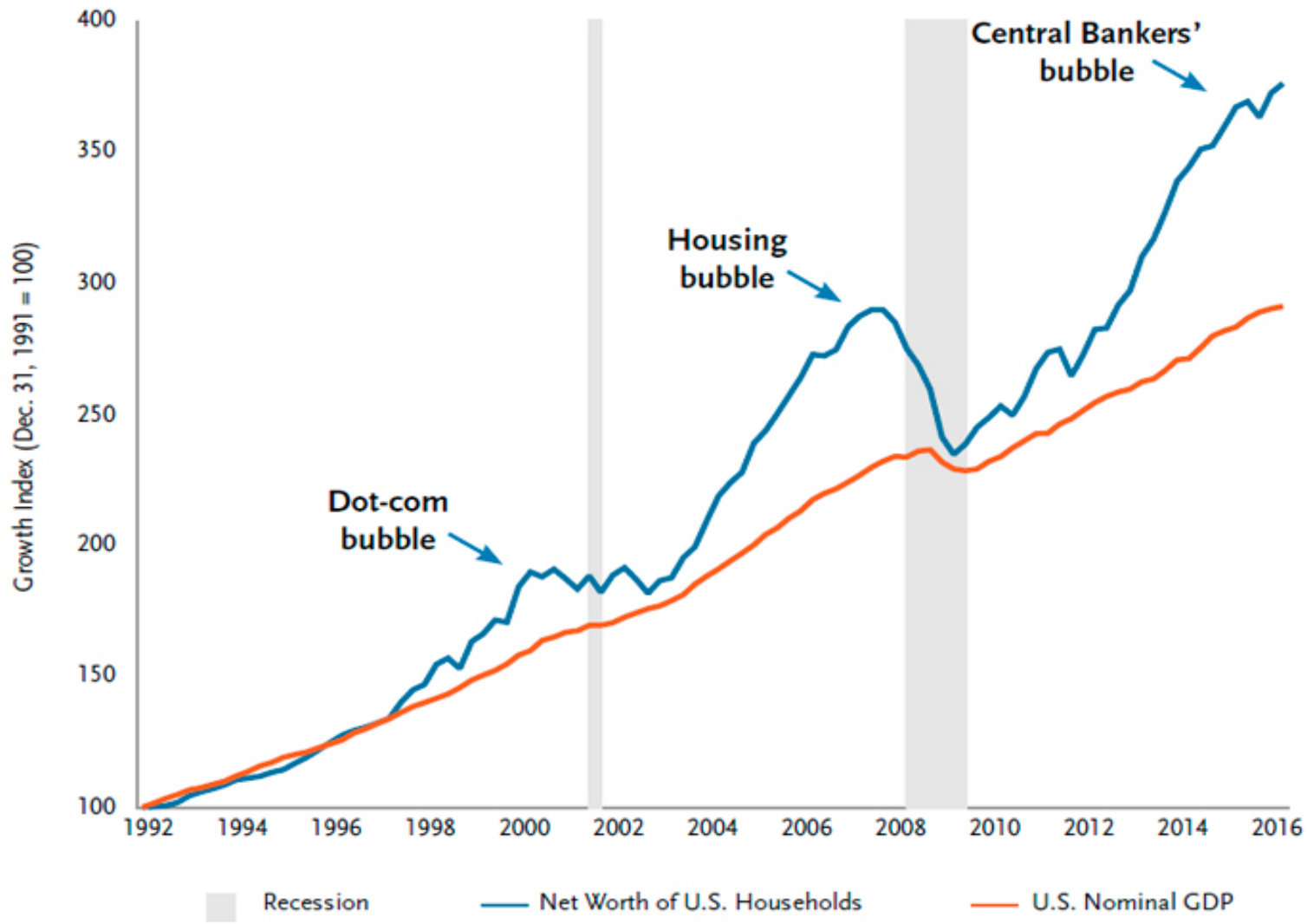
Financial cycle and Business cycle



SA financial cycle becoming important.



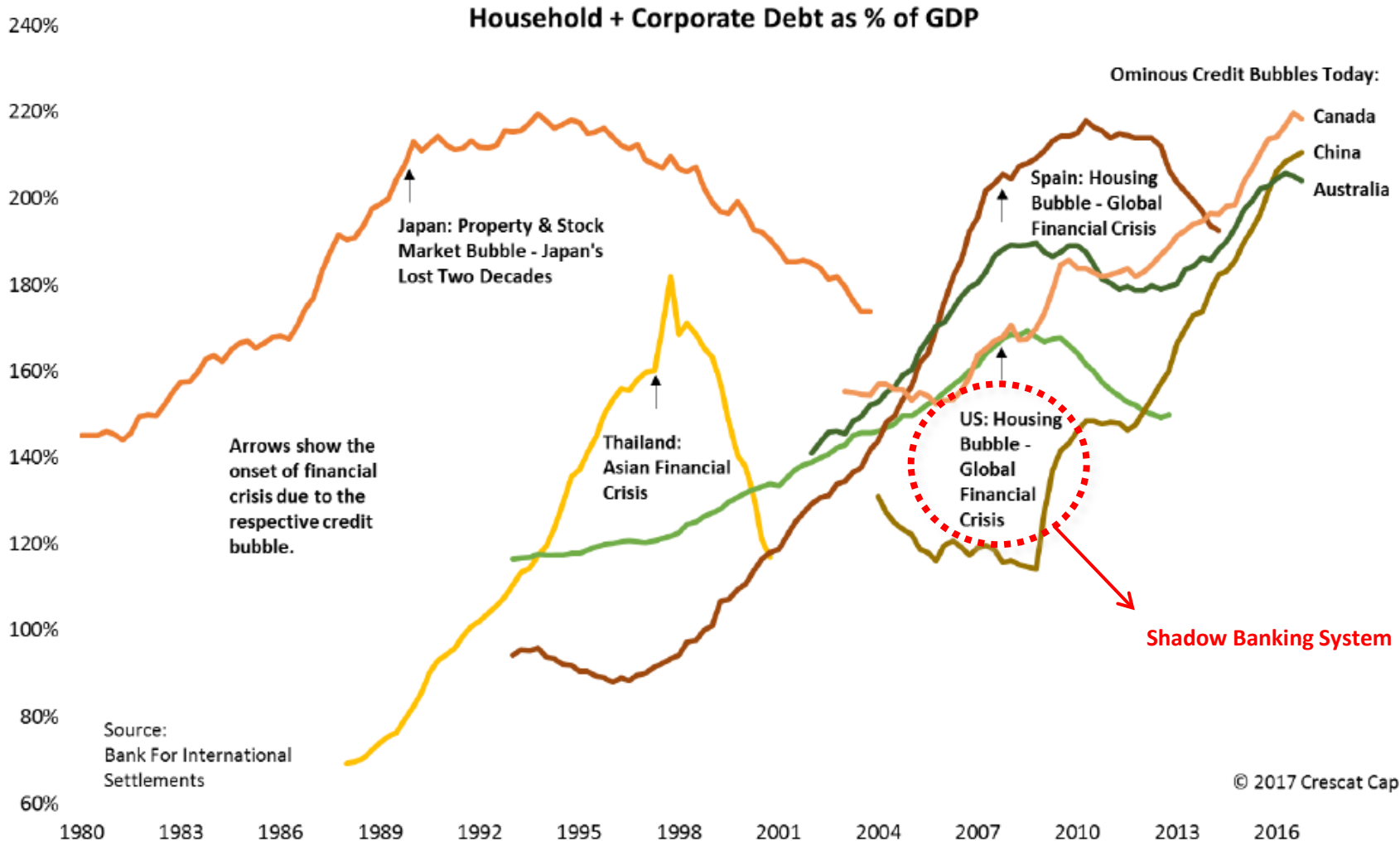
IN A CREDIT BASED FINANCIAL SYSTEM ASSET PRICES DRIVE GDP



Source: Google

DEBT CYCLES BY COUNTRY; THEN AND NOW

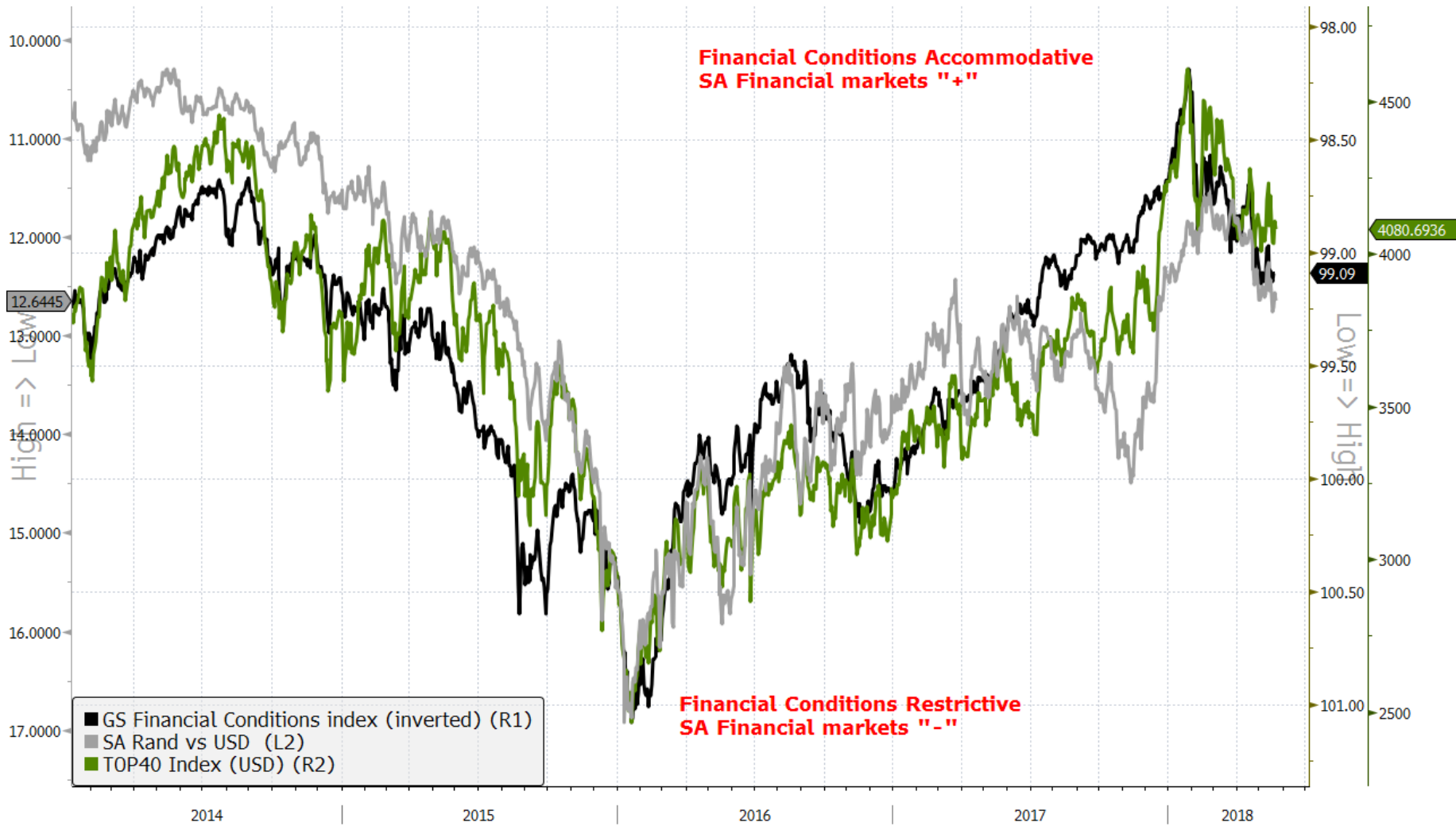
MINSKY MOMENT: CREDIT BUBBLES ALWAYS BURST



IMPACT ON FINANCIAL MARKETS: “FOLLOWING THE MONEY”

\$-THE GLOBAL LIQUIDITY TAILWINDS ARE LOSING MOMENTUM AND WE BELIEVE THIS WILL BE A HEADWIND FOR THE SA FINANCIAL MARKETS

\$-Liquidity vs. SA markets



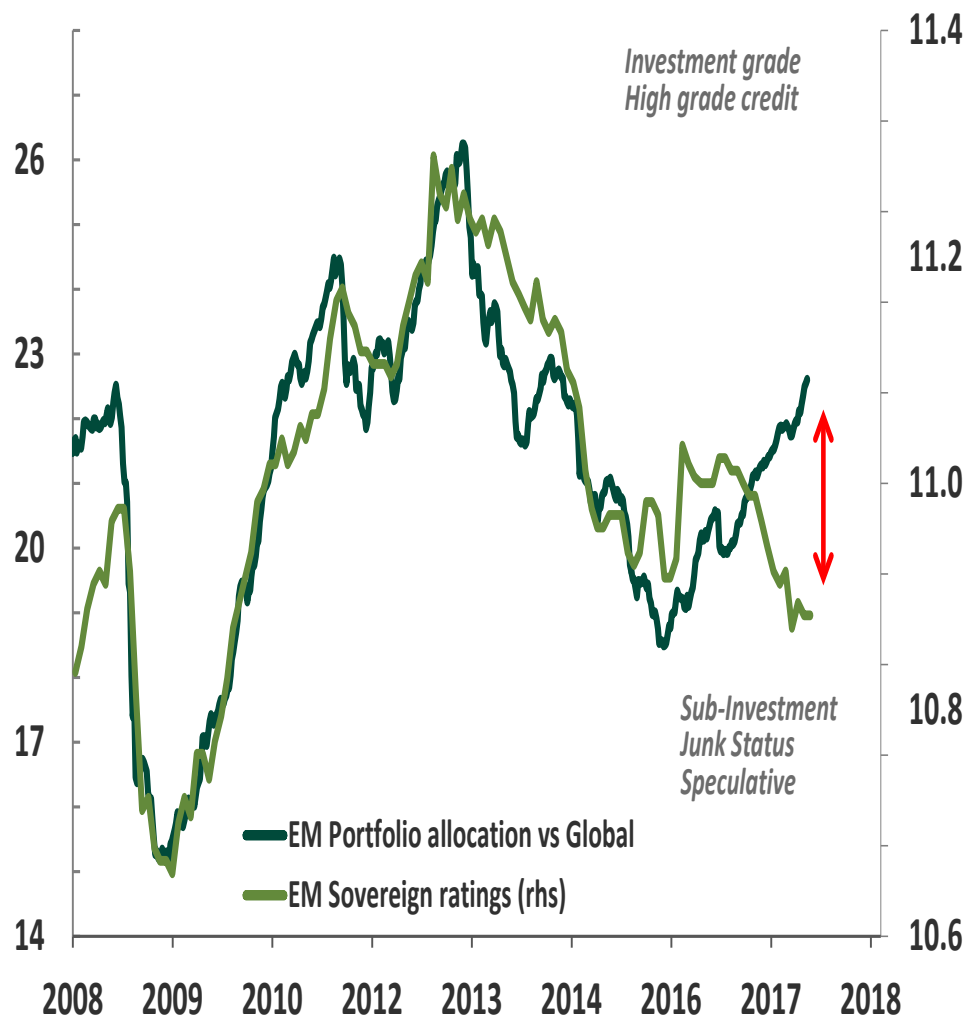
Source: Bloomberg



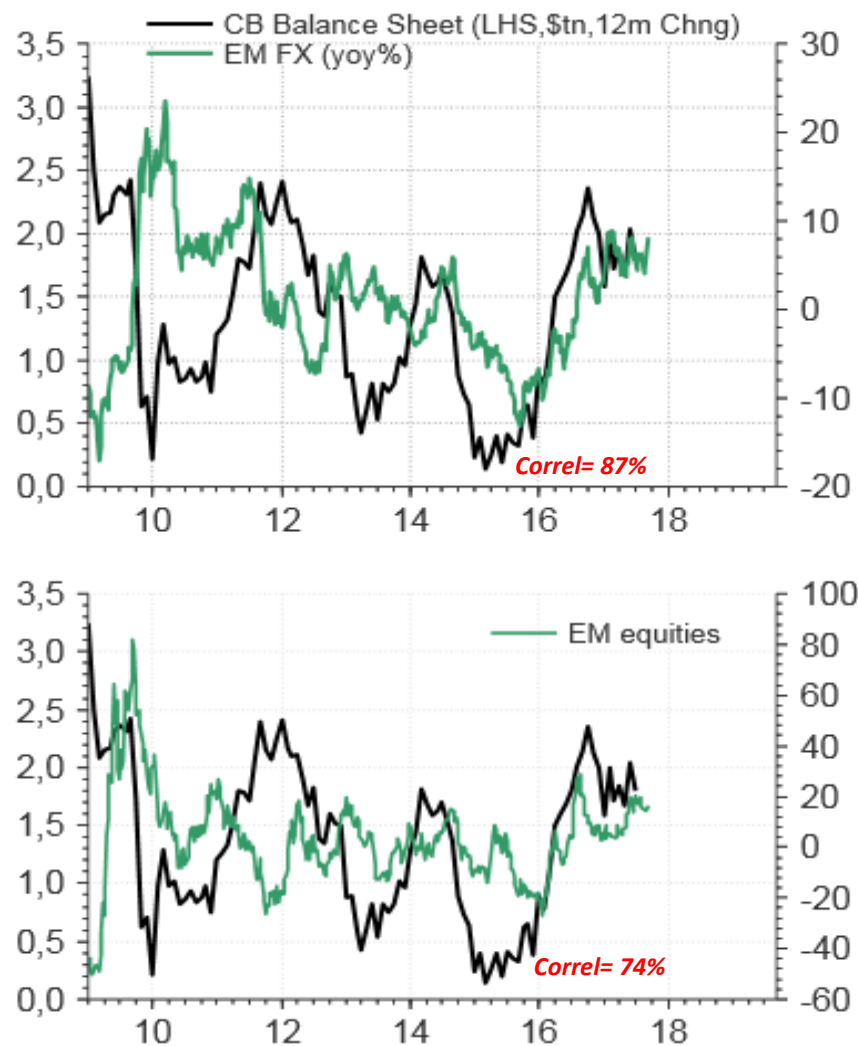
LIQUIDITY IS KING

CENTRAL BANK POLICIES DISTORTING THE ECONOMY AND ASSET PRICE PERFORMANCE

QE distorted EM from fundamentals



QT will not be pleasant

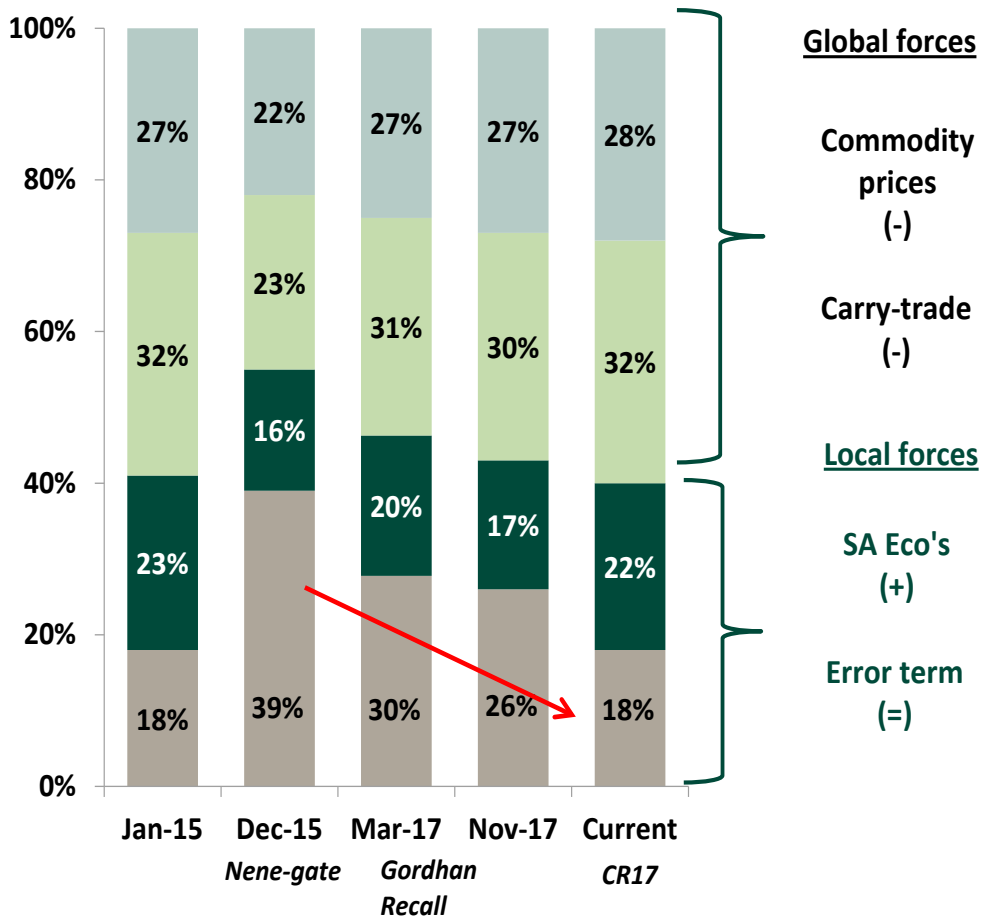


Source: DS, Bloomberg, IIF

\$-LIQUIDITY TIDE RETREATING WILL NOT BODE WELL FOR SA:

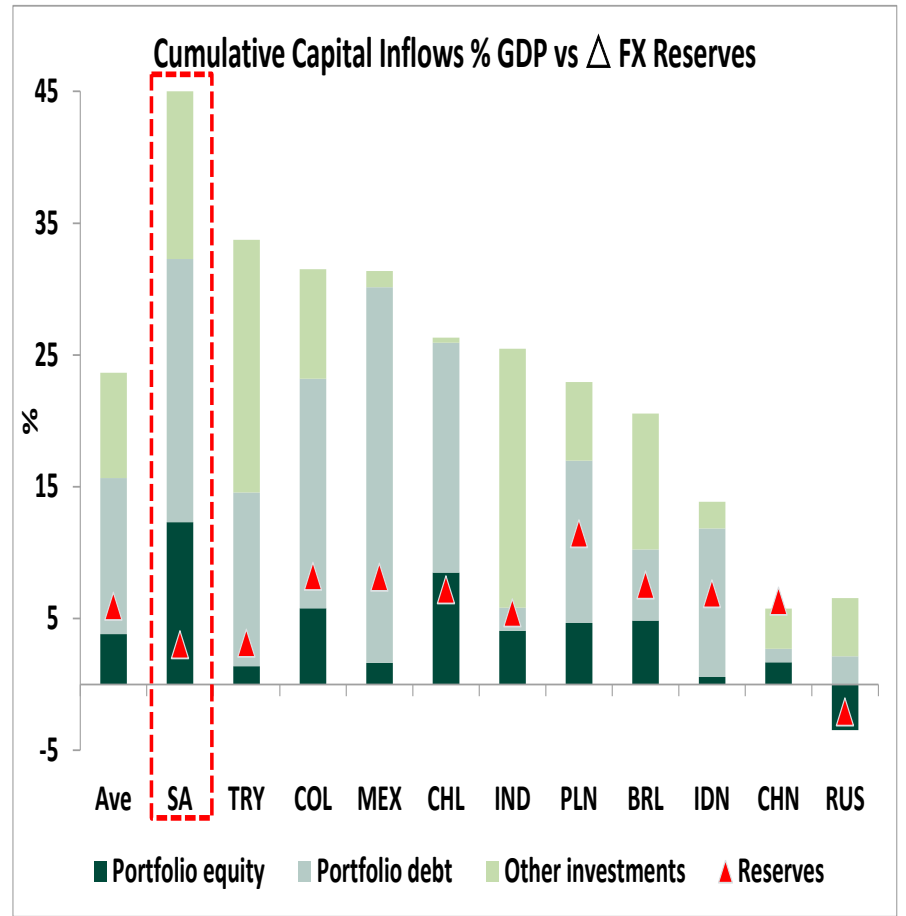
Weaker rand
Higher funding costs
Equity market under pressure

Rand fair-value model and our outlook for the components for 2H18



- Forecast R12.40 for 1H18 and 13.00 for 2H18
- SA 10yr yield upward pressure 8.70%
- Equity market correction 6-10%

SA and EM exposed to the carry-trade
Cost of hedging against rand weakness is the cheapest in 10 years!



Source: IIF, E-views

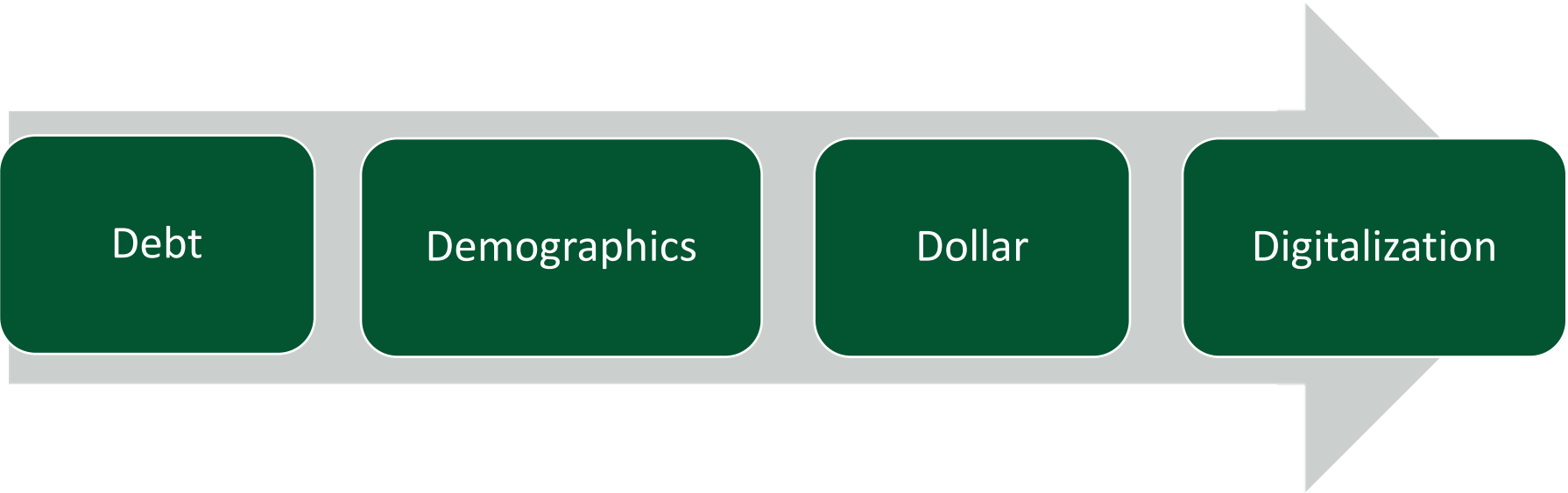


“ONLY WHEN THE TIDE GOES OUT DO YOU DISCOVER WHO’S BEEN SWIMMING NAKED” – WARREN BUFFET



Source: Daniger

SECULAR FORCES AT A CROSS-ROADS



THE PROBLEM WITH STUDYING HISTORY



**“Those who don’t study history are doomed to repeat it.
Yet those who *do* study history are doomed to stand by
helplessly while everyone else repeats it.”**

OUR SEQUENCE OF EVENTS

- In a carry-trade there are two components to monitor: The **investment destination** and the **source of funding**.
- We believe that the source of funding is as an important factor that is often neglected. We believe it plays an important role in financial markets.

↑ Interest rates

- Bond markets will come under pressure as the markets re-price risk, putting pressure on the term-premium.

↑ USD Funding

- As global liquidity tightens, the cost of USD funding will increase, eroding carry-trade returns.

↓ Carry-Trade

- Wider USD cross-currency basis swaps will result in profit taking and de-risking, similar to 2016.

↑ Value of USD

- This will drive the USD, resulting in tighter global financial conditions - negative for financial markets.

↑ Volatility

- Higher bond yields will accompany higher volatility, making the carry trade unattractive on a risk-adjusted basis.

↓ Risk assets

- Higher funding costs and rising volatility will see investors unwind credit and EM assets. Equities will also come under pressure.



Implications for South Africa:

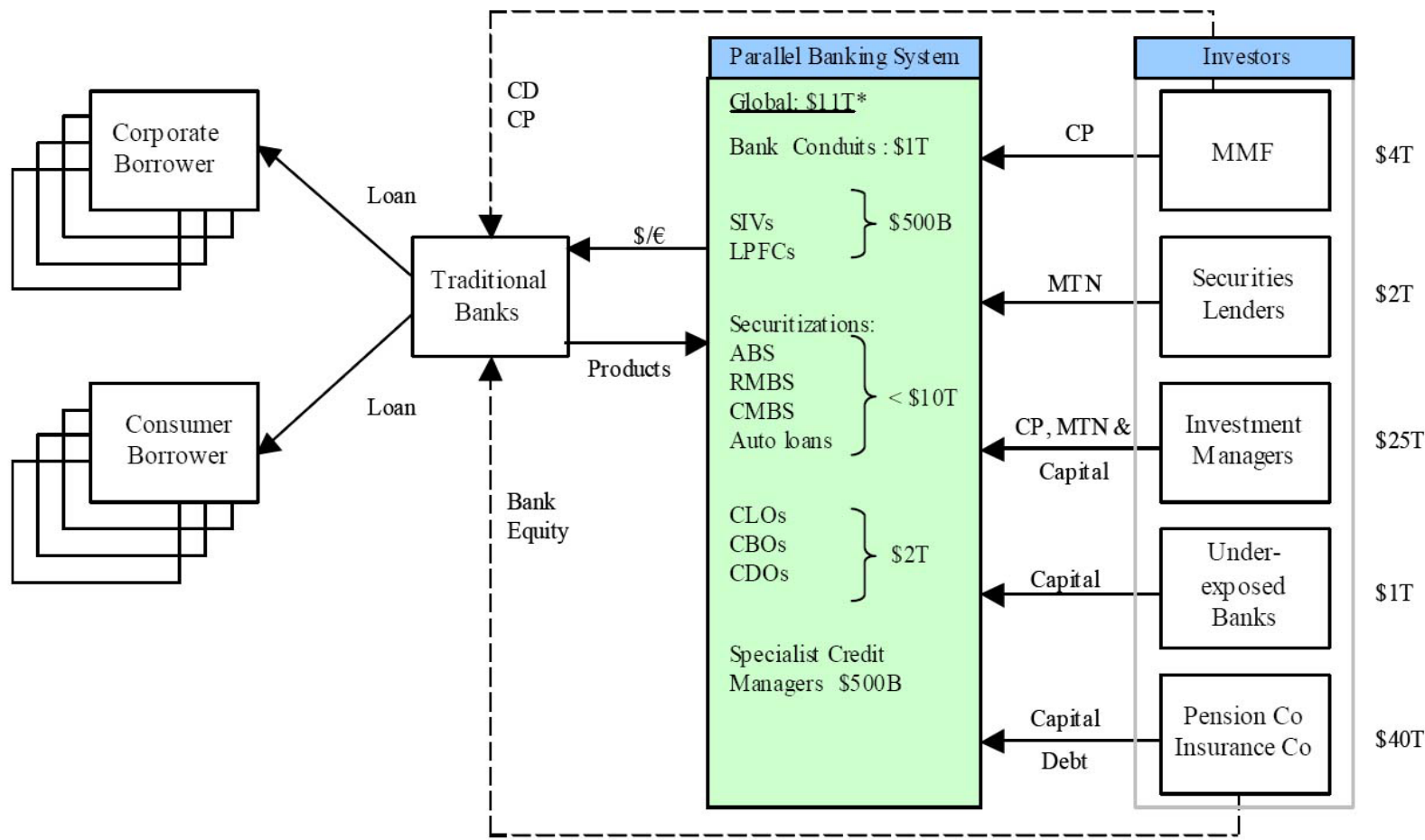
- Risk of outflows
- Downgrade risks
- Political uncertainty
- Higher cost of funding
- Currency weakness

APPENDIX

THE SHADOW BANKING SYSTEM (BANKING SECTOR)

SBS ALLOWED BANKS TO GEAR FROM THE LT AVERAGE OF 14X TO 50X, BY MEANS OF THE VELOCITY OF COLLATERAL

Traditional Banking Funding via the Parallel Banking System (pre-Crisis numbers)



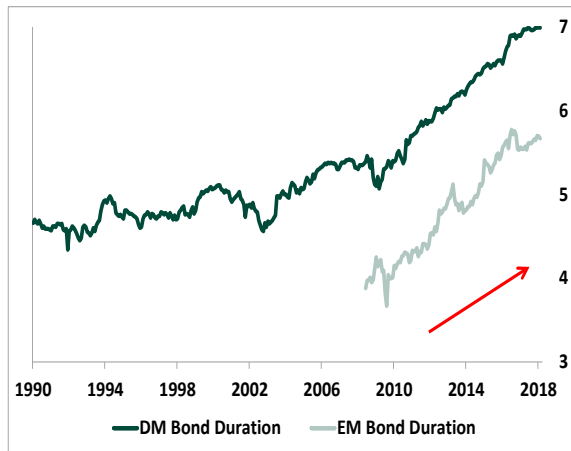
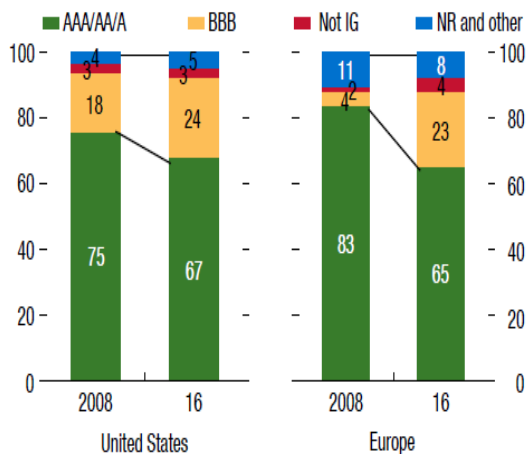
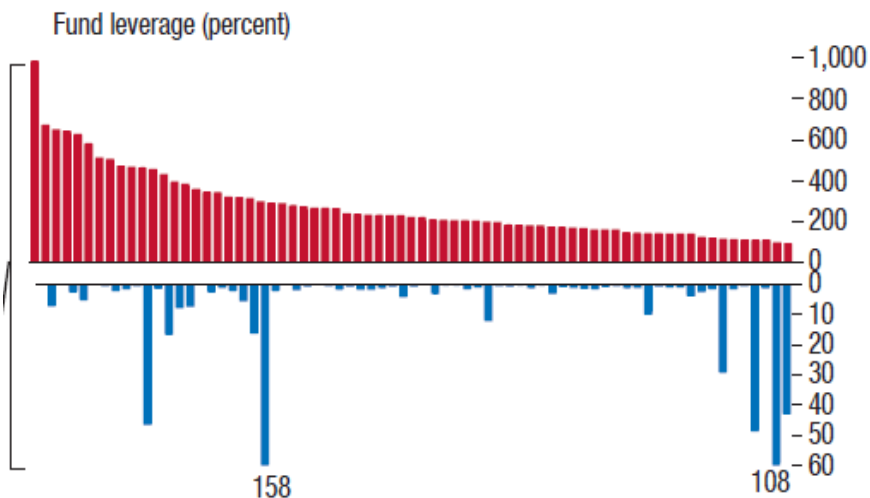
Source: IMF, Manmohan Singh, Rehypothecation 2011

THE SHADOW BANKING SYSTEM (NON-BANKING SECTOR)

SBS ACTIVITIES HAVE MOVED FROM THE BANKING SYSTEM TO THE NON-BANKING SECTOR

Asset Management gearing.

2. Fund Leverage and Assets under Management



Corporate lending activities

\$ billions, as of December 31st, 2016

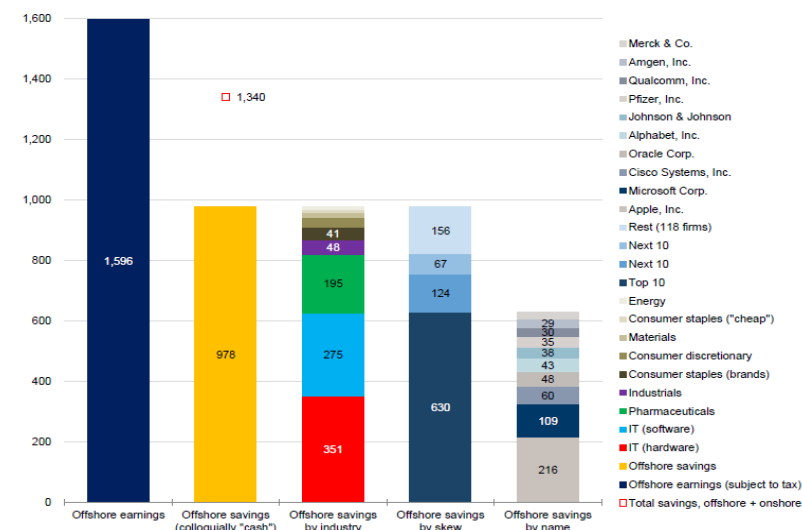
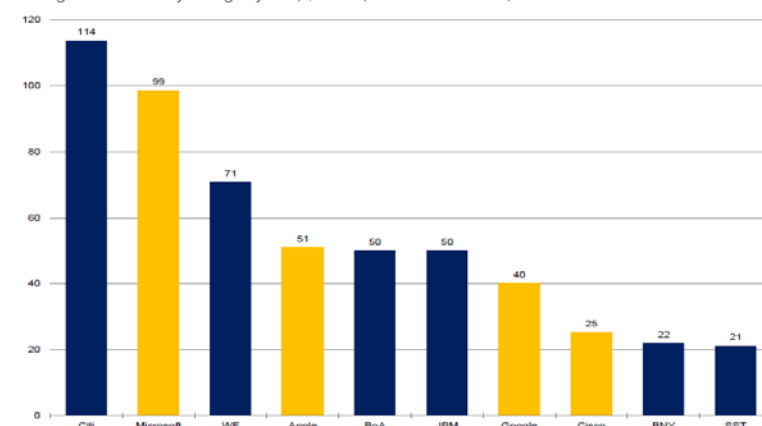


Figure 9: Corporate vs. Bank HQLA Portfolios

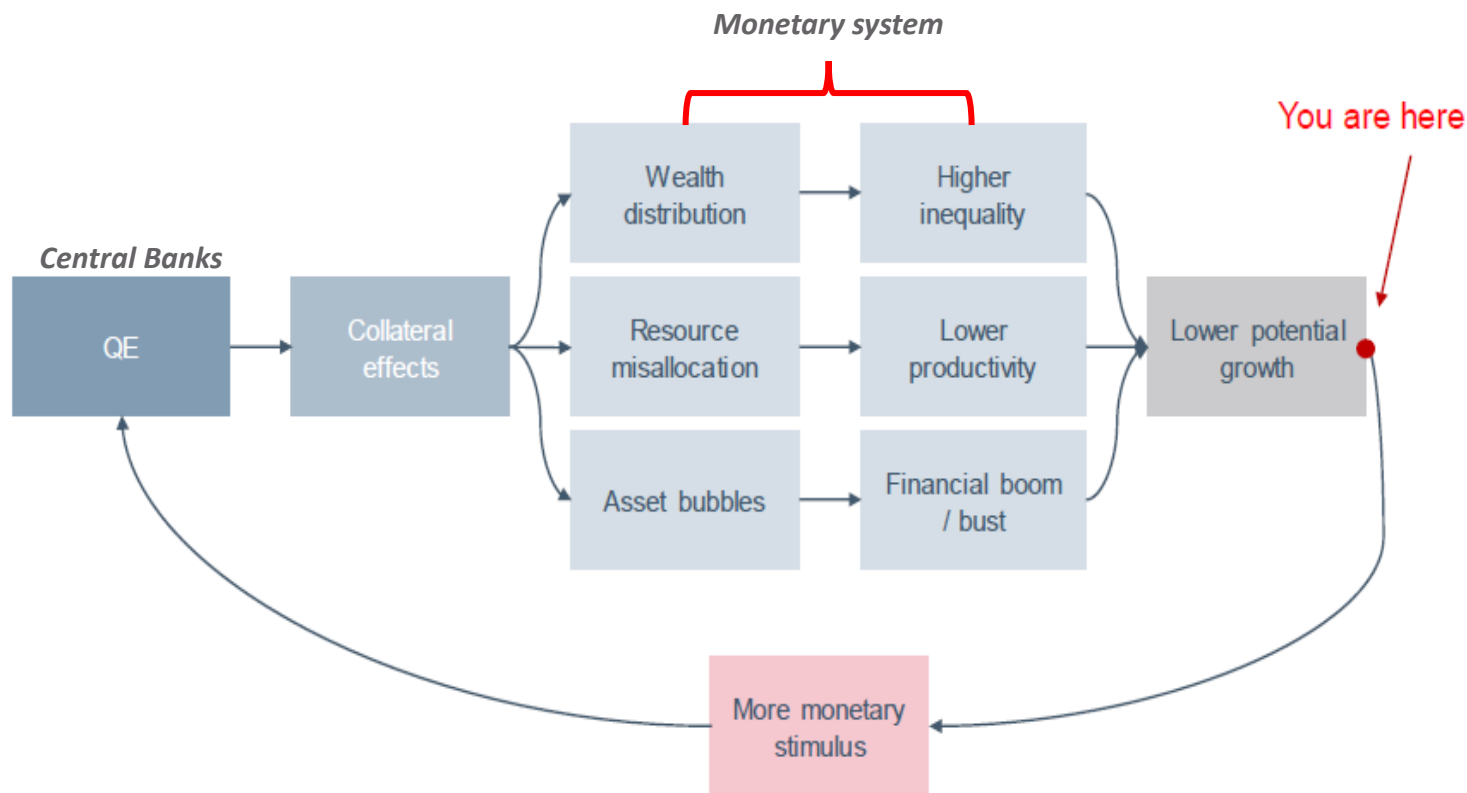
Holdings of U.S. Treasury and agency debt, \$ billions, as of December 31st, 2016



Source: IMF, Zoltan Pozsar

'THE QE INFINITY TRAP' - RAJAN

THE FINANCIAL MARKET IS ADDICTED TO CHEAP MONEY, THE REAL ECONOMY SUFFERS FROM THIS MISALLOCATION OF CAPITAL



*"If every time a central bank starts moving towards normalcy, it says, 'no, no, exchange rate appreciating, turmoil etc., we got to go back,' we're in it for a long time [...]
Then this is not QE2, 3, 4, it's QE infinity, we keep doing it."*

Raghuram Rajan, Former Governor of the Reserve Bank of India, April 2016

Source: Algebris (UK) Limited

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