Prospettive dei mercati alla luce di uno scenario complesso

Antonio Foglia

Sources of Complexity

Brexit

Market Structure

Eurozone

Banks

China

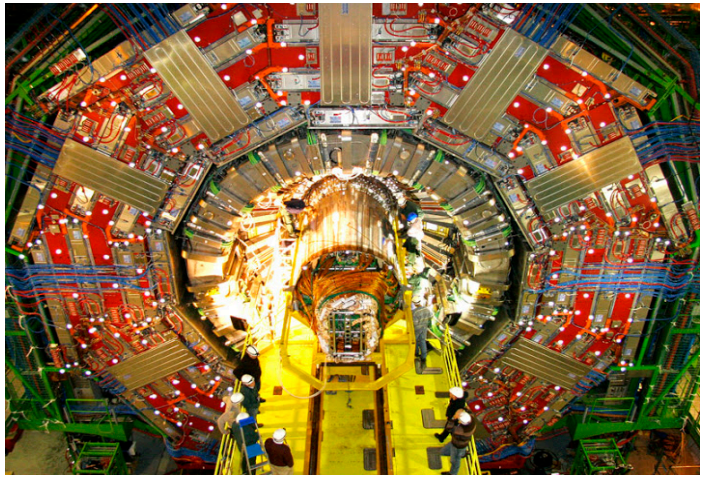
Politics

Monetary Policy

Fiscal Policy

Complicated or Complex Dynamic Systems?

Complicated Machine



(Large Hadron Collider, CERN, Geneva)

Complex Ecosystem

(Gabon's Jungle)

Man-Made Ecosystem

("Busy Times Square" by Paul Thompson)

If you wouldn't release a GMO in here, Why would you experiment with economic policy and regulation here?

An Ongoing Massive Cognitive Failure

- The economy is a complex dynamic evolving system populated by fallible agents with imperfect knowledge.
- In such a system economic policy and regulation may not be nearly as effective as predicted by models and will often backfire through unintended consequences.
- Financial regulation and large financial institutions have become themselves complex systems.
- The financial crisis was caused by massive unavoidable cognitive failures by regulators and bankers.
- We need to switch to new paradigms to understand what happened, why it will happen again, and hopefully be more resilient when it will.

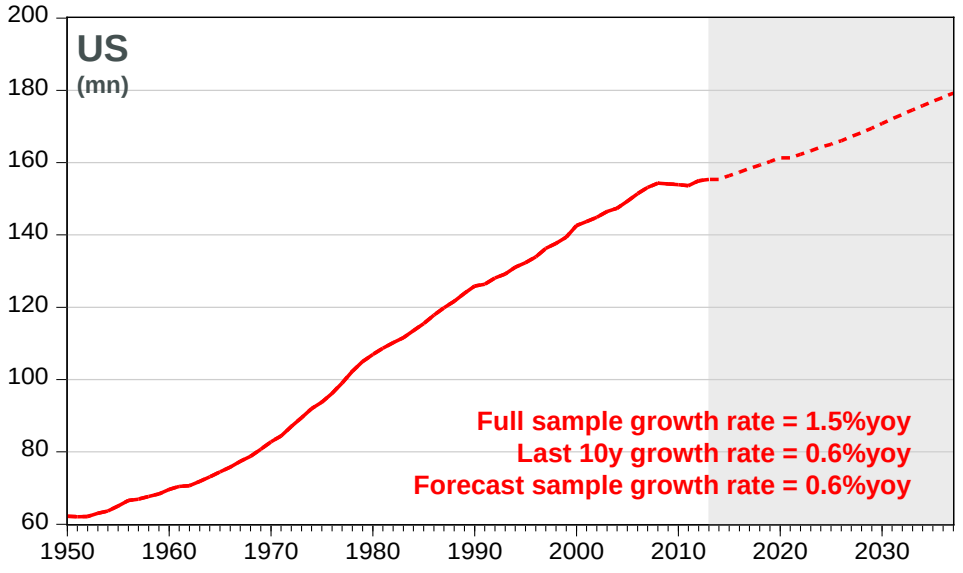
The Economy is Simple:

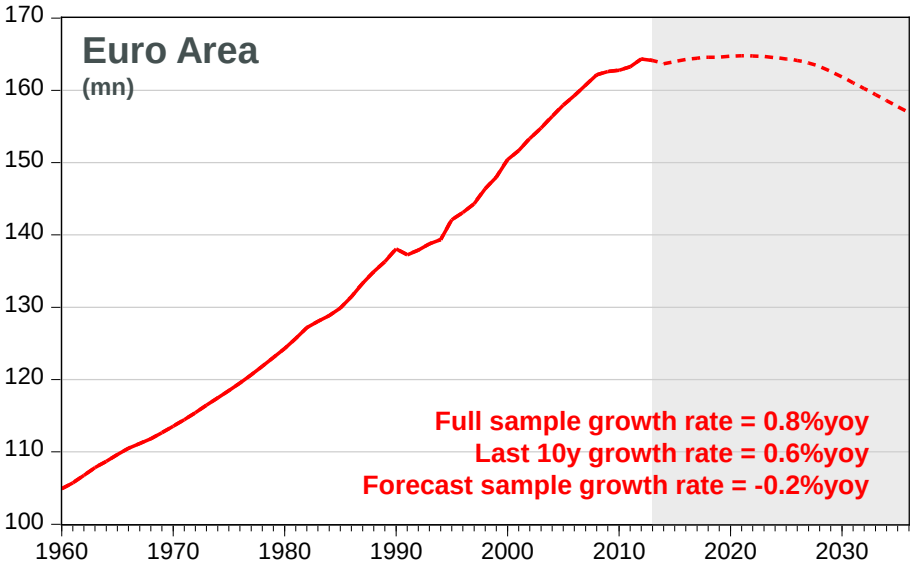
$$GDP = \frac{GDP}{Workers} \; x \; Number\ of\ Workers$$

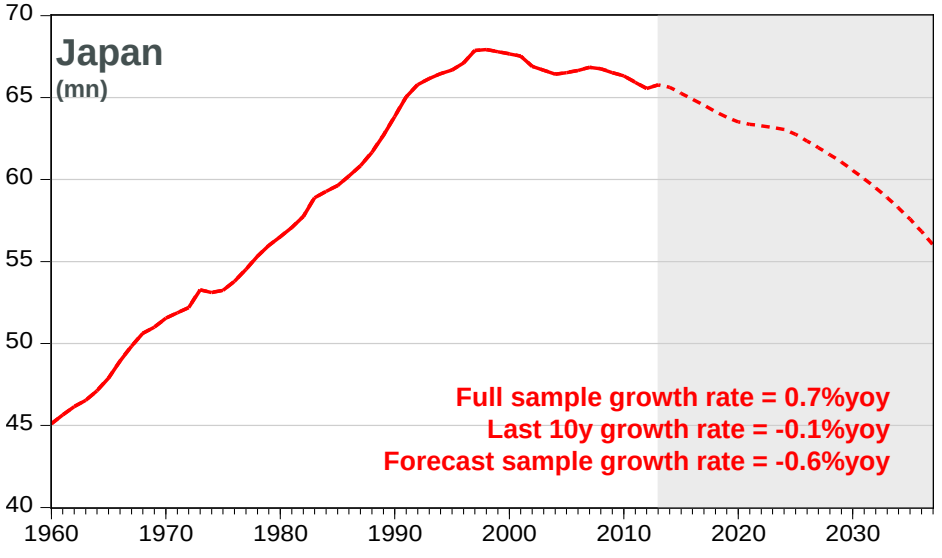
Productivity **Demographics**

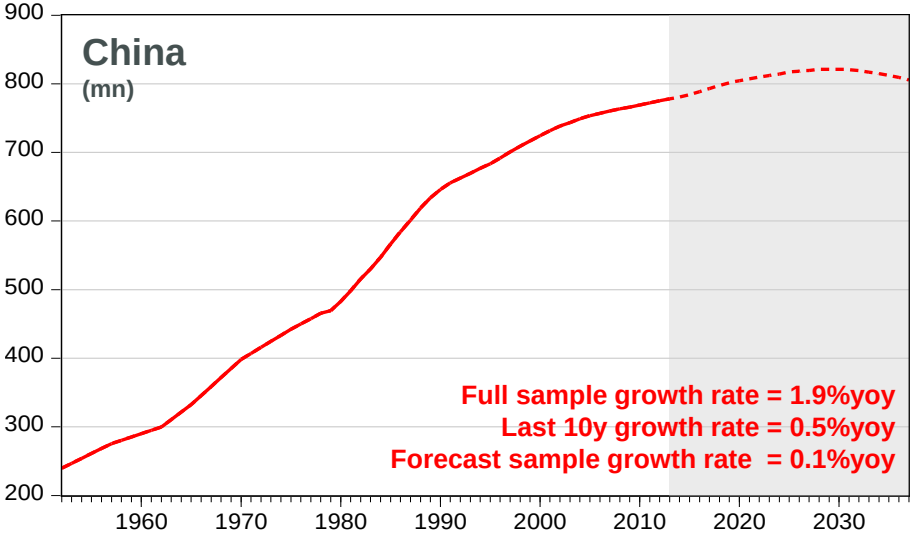
Labour in the Long Run

Labour Force : out of sample projections (CBO & Oxford Economics)



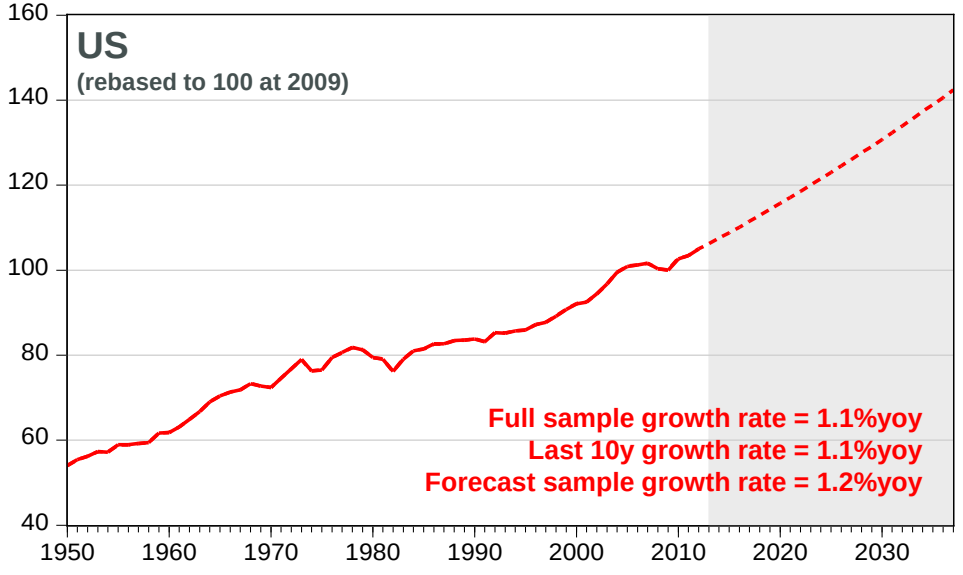


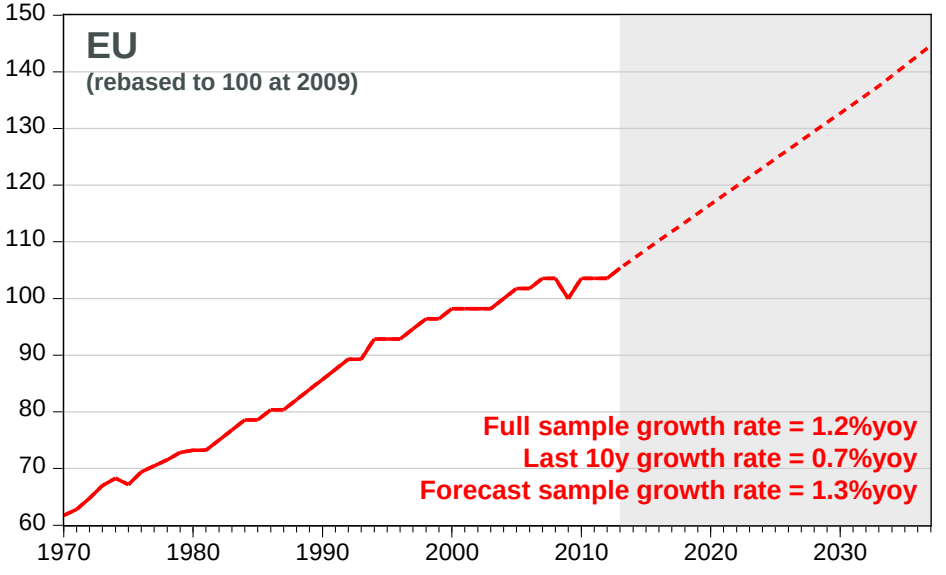


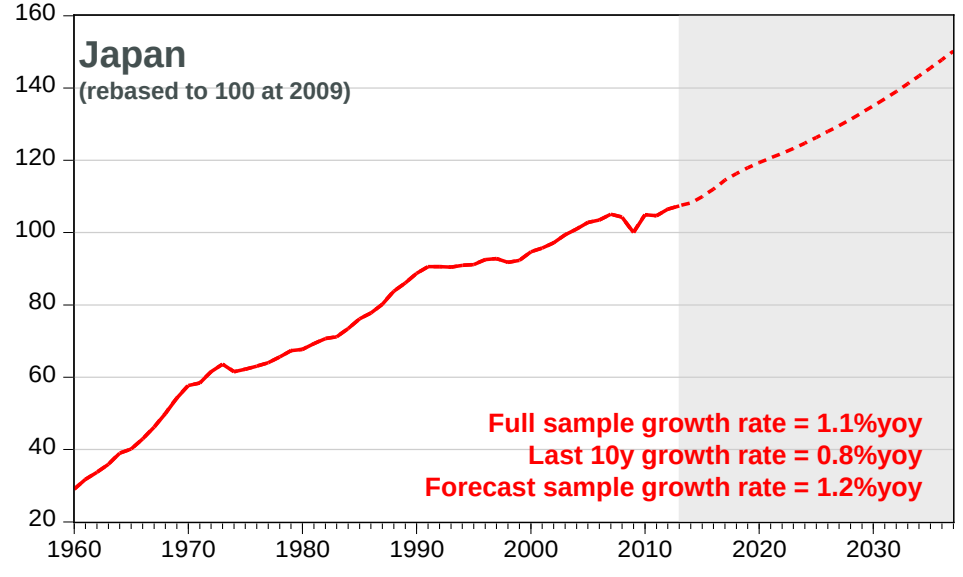


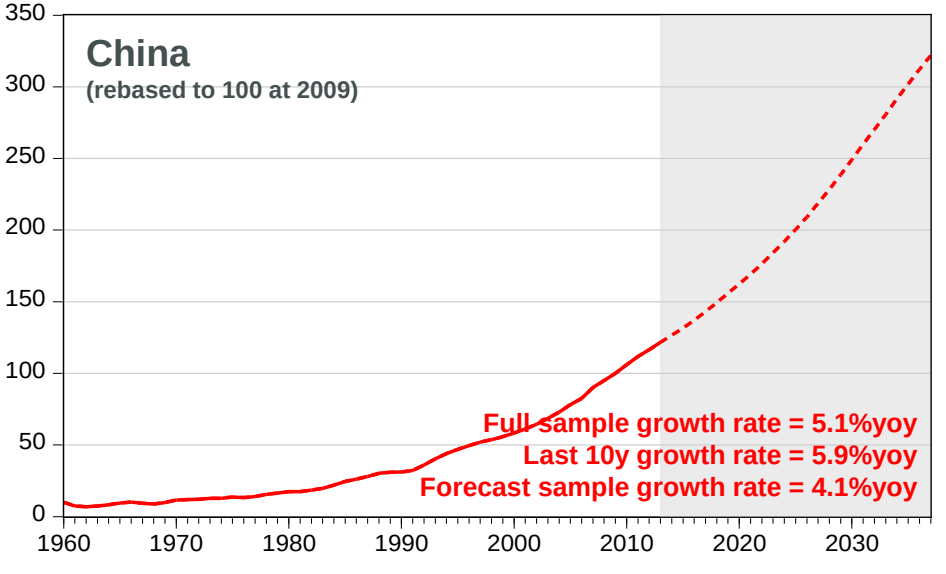
Productivity in the Long Run

Total Factor Productivity Indices: out of sample projections (CBO & Oxford Economics)



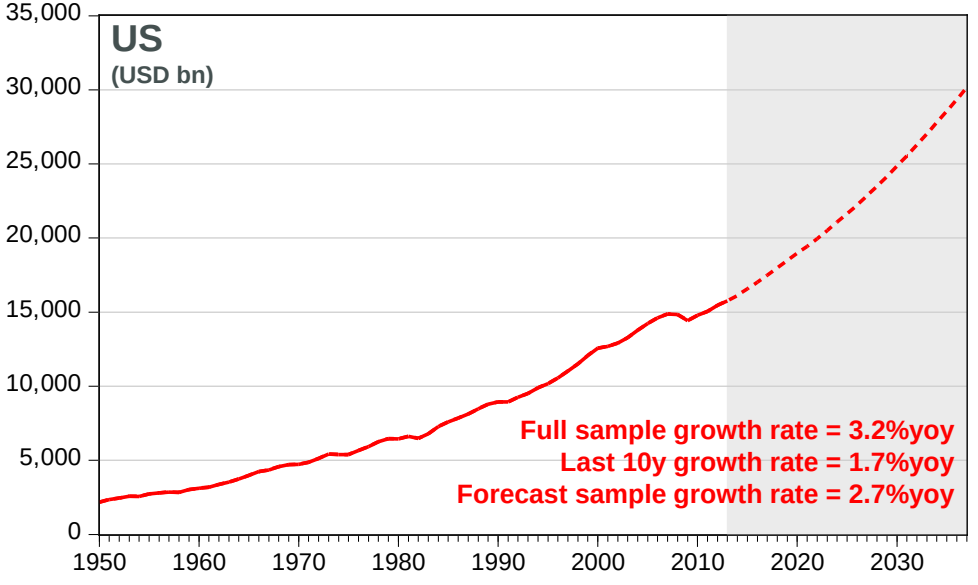


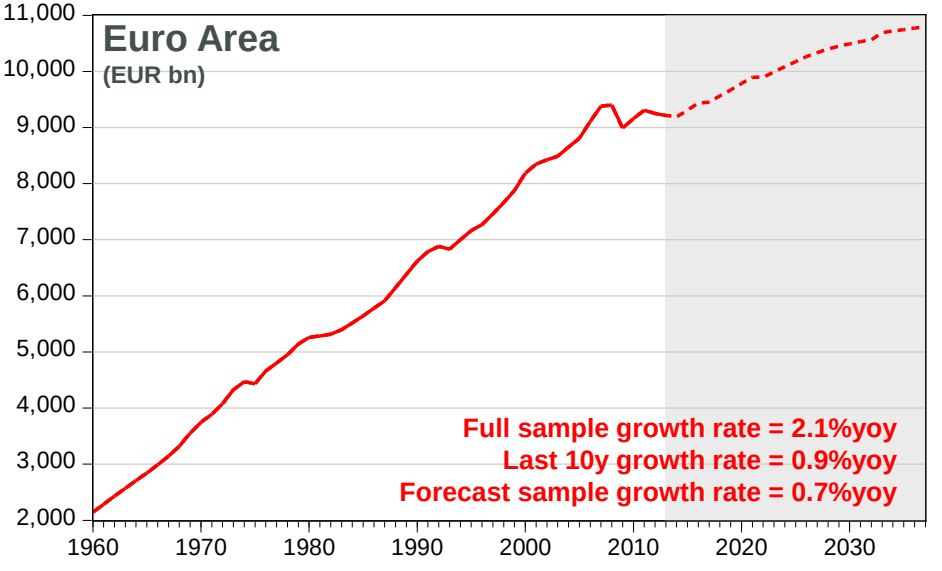


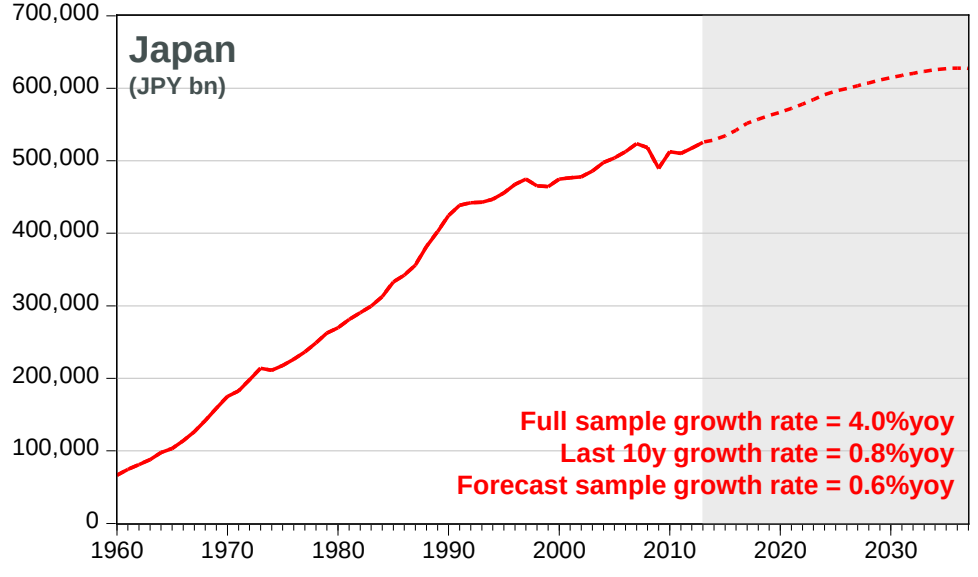


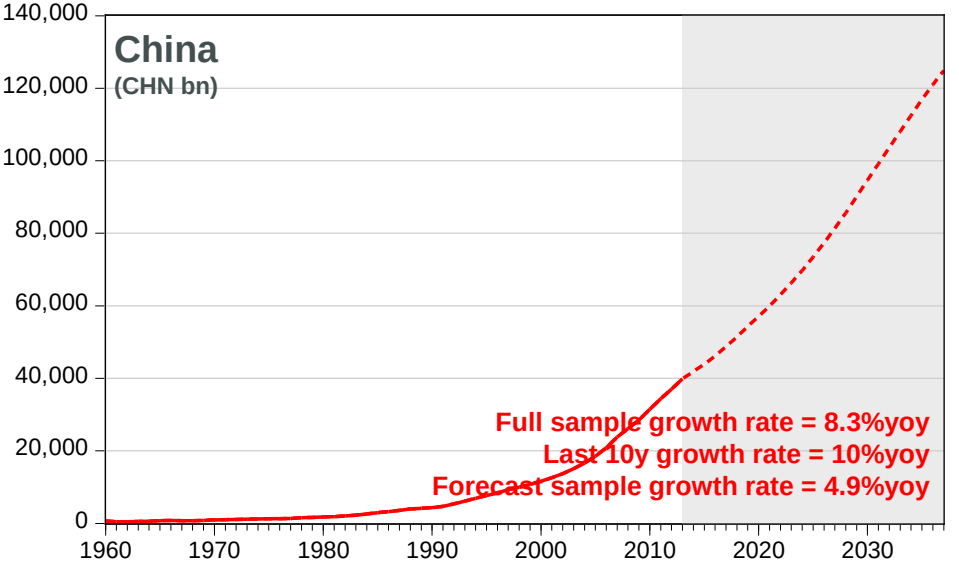
Growth in the Long Run

Real GDP : out of sample forecasts









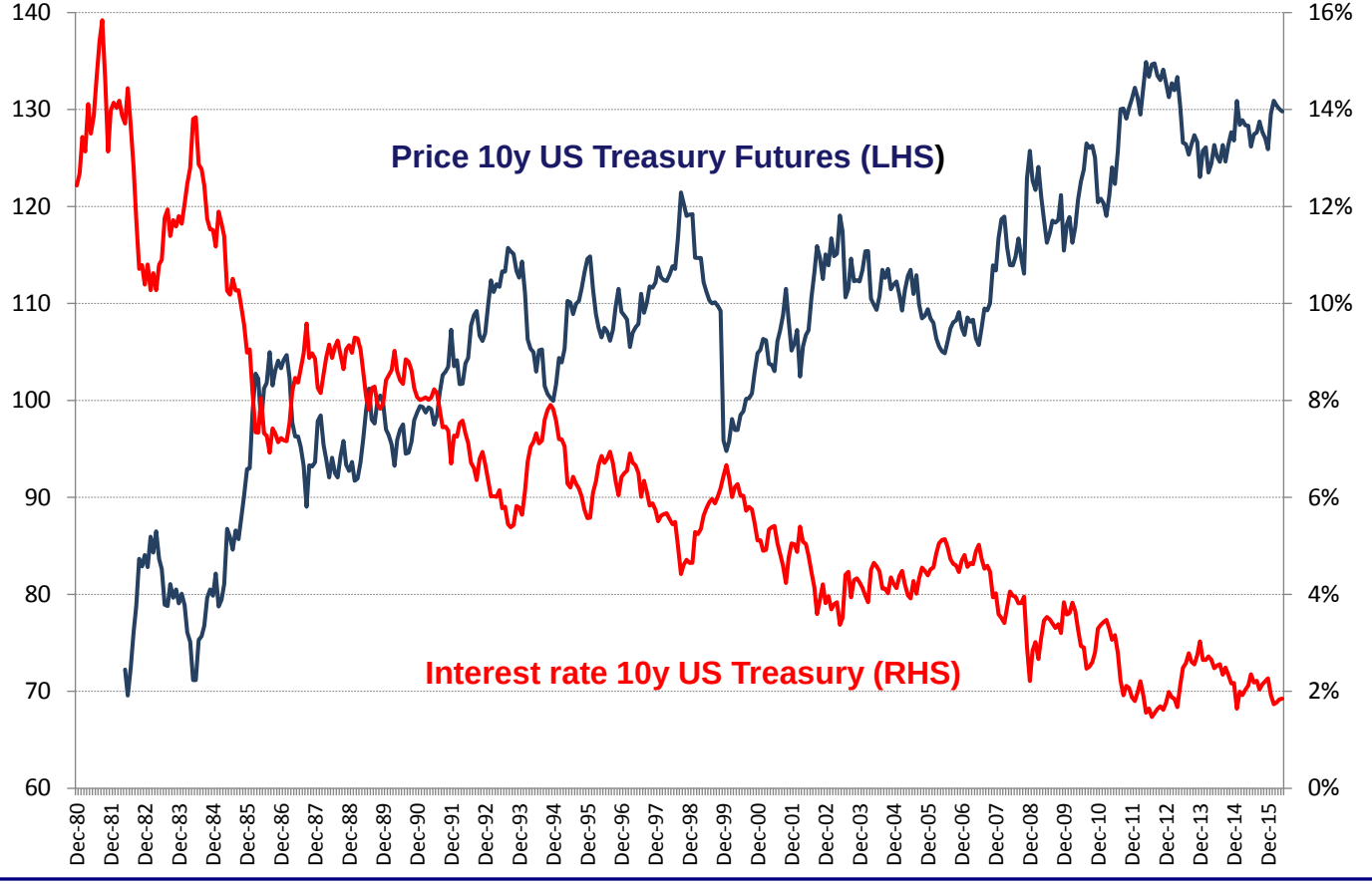
Interest Rate is the Most Important Variable in Asset Pricing

Low Interest Rate Pushes up Prices of Fixed Income Assets

Bonds have a maturity and their cash flows (coupon and capital at maturity) are known in advance

Bond prices are related ***inversely*** to interest rates

$$Bond\ Price = \frac{Coupon}{(1+i)} + \frac{Coupon}{(1+i)^2} + \frac{Coupon}{(1+i)^3} + \ ... + \frac{(Coupon + Face\ Value)}{(1+i)^n}$$



Equity Prices also Depend on Interest Rate (and Growth, and Risk Appetite)

Equities do not have maturity and their cash flows (earnings/dividend, far in the future) can only be estimate

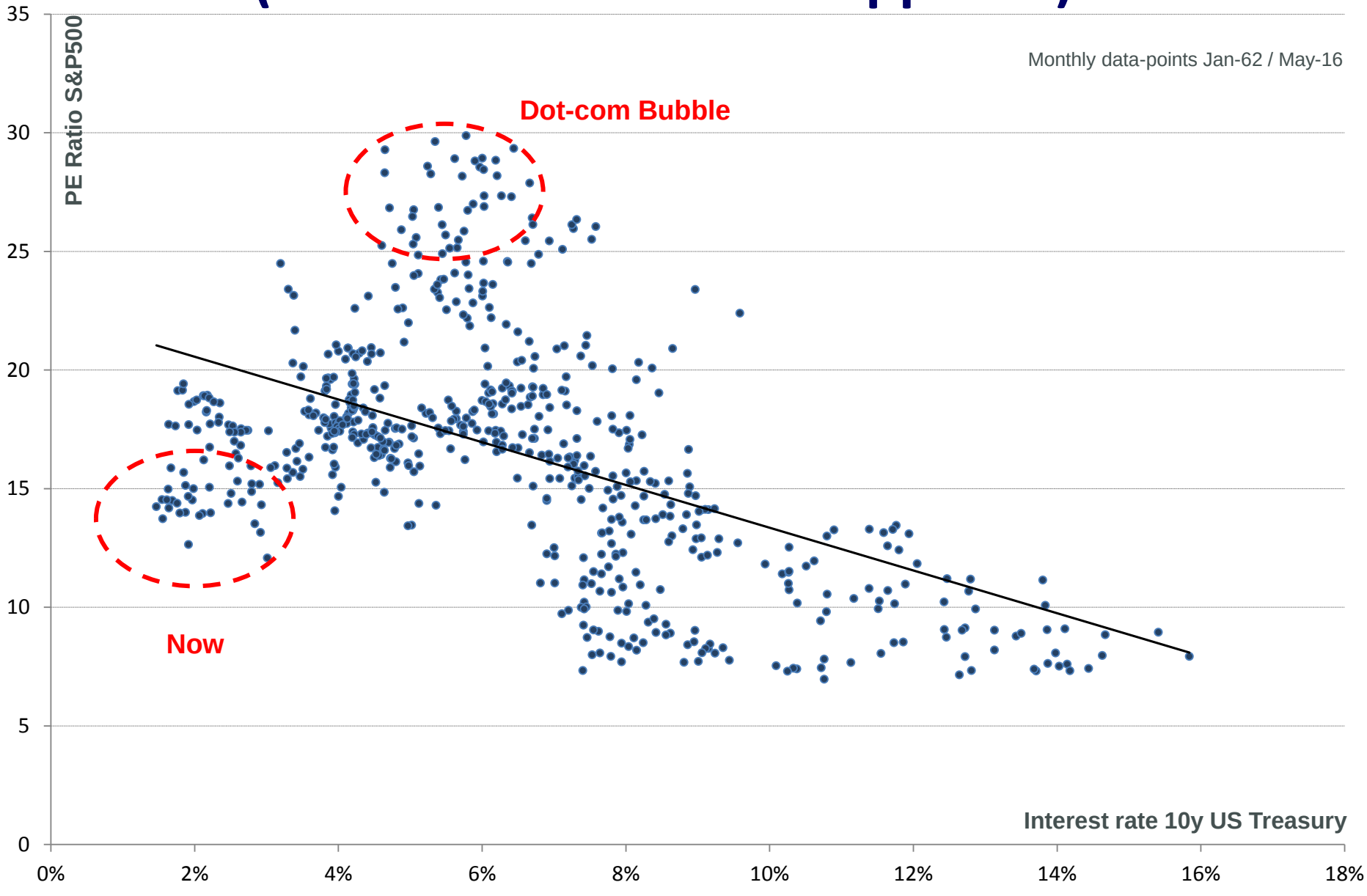
Equities prices are related

- ***directly*** to dividend/earnings growth (g), that can be approximated by economic growth
- ***inversely*** to a discount factor (k), which can be though as the interest rate on bonds + an equity risk premium (appetite for risk)

$$Equity\ Price = \frac{Earnings\ (1+g)}{(1+k)} + \frac{Earnings\ (1+g)^2}{(1+k)^2} + \frac{Earnings\ (1+g)^3}{(1+k)^3} + \ldots$$

$$k = i + ERP$$

Equity Prices also Depend on Interest Rate (and Growth and Risk Appetite)



Conclusions…

Low rates = Higher sensitivity to changes in variables

Low interest rates = High Asset Prices

High Asset Prices = Asymmetric downside risk

High Asset Prices = Lower Expected Returns

Are low interest rates permanent ?

Real rates depend on real growth = probably yes

Nominal Rates depend also on inflation = uncertain

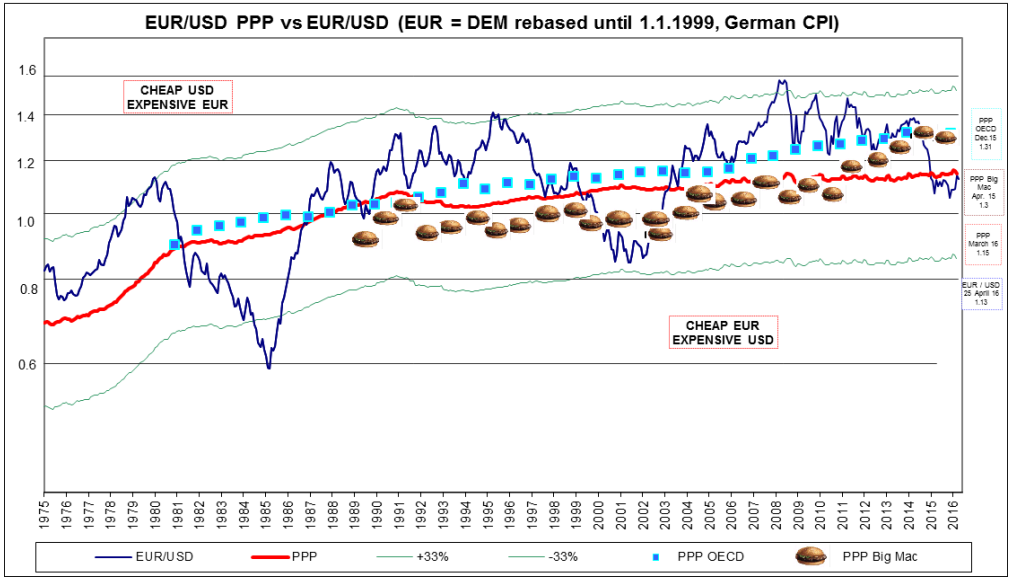
…Expect Lower Returns

The Savings Challenge Is Becoming More Pervasive

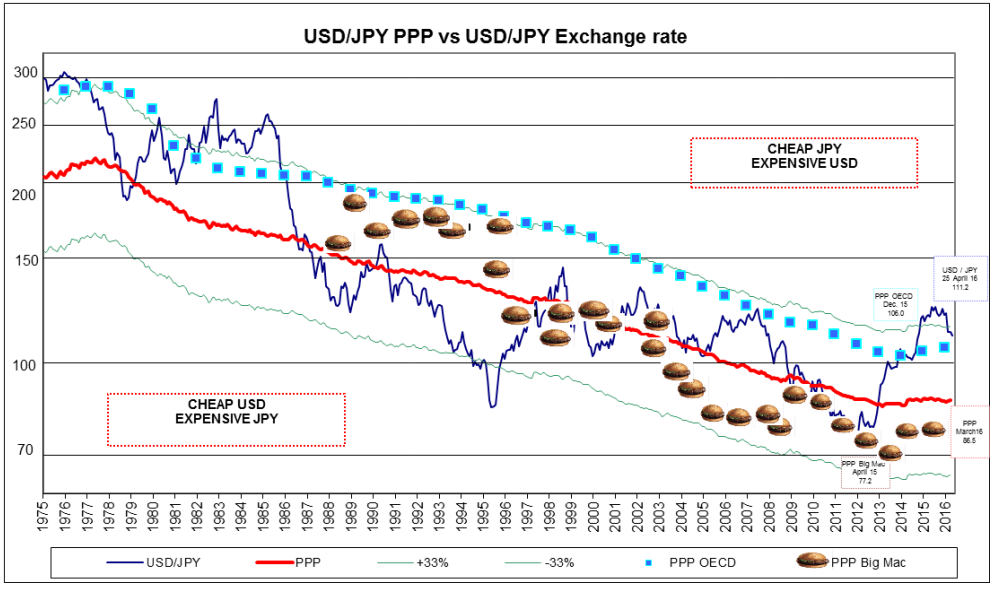
	Household Savings		Nominal Returns		
	%GDP	%Assets	1970-2007	Since 2008	Next 10 Years
US	236%	100%	9.9%	5.3%	2.4%
Bonds	40%	17%	9.8%	6.3%	1.8%
Stocks	142%	60%	11.2%	7.0%	3.2%
Cash	54%	23%	6.4%	0.4%	0.8%
Europe	135%	100%	9.2%	1.6%	1.4%
Bonds	19%	14%	9.7%	7.3%	0.2%
Stocks	42%	31%	11.4%	0.5%	4.5%
Cash	74%	55%	7.9%	0.8%	0.0%
Japan	229%	100%	4.9%	0.8%	0.9%
Bonds	5%	2%	7.3%	2.4%	-0.1%
Stocks	50%	22%	6.6%	3.1%	4.1%
Cash	174%	76%	4.3%	0.1%	0.0%

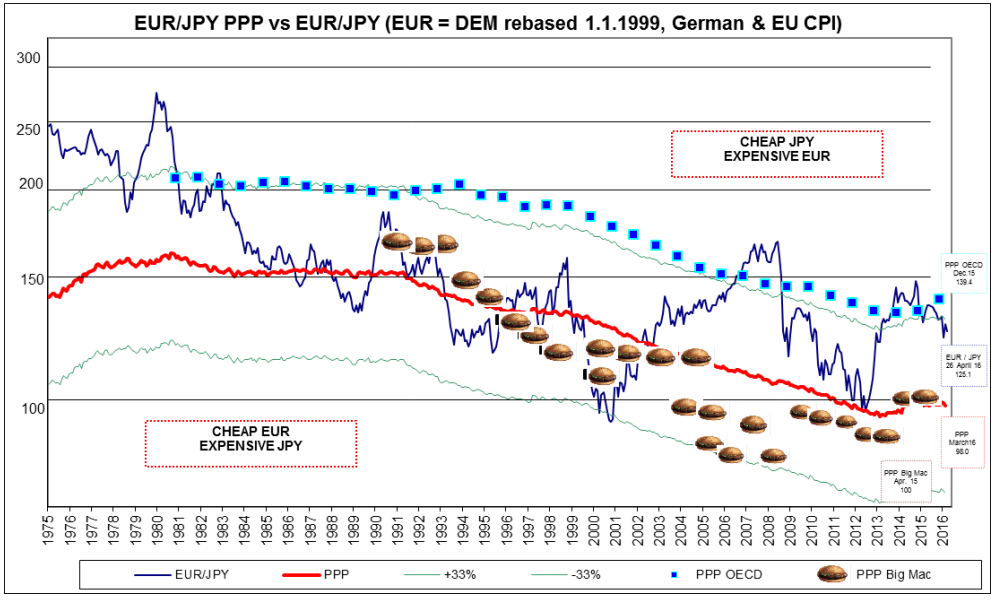
Source: Bridgewater 03.06.2016

Foreign Exchange rates and Purchase Power Parity



- PPP is a guide for excesses in FX markets
- PPP boundaries are robust and supported by economics
- Around PPP many changing factors may influence FX





Sources of Complexity

Brexit

Eurozone

China

Monetary Policy

Fiscal Policy

Politics

Banks

Market Structure

….

Brexit

Outcomes depend on decisions after the vote both in the UK and in the EU

Leave:
- uncertainty rises, depresses Animal Spirits
- weaker UK and EU economy
- political turmoil in UK and EU
- BUT: possible renaissance of the UK as Ayn Rand's island ?

Remain:
- no changes is not good for EU

Eurozona: Genesi del progetto

Esistono sostanzialmente due sistemi monetari possibili:

Gold Standard
(valuta di scambio e tesaurizzazione)

↓

L'offerta è inelastica.

Le banche possono fallire.

Gli stati possono fallire.

Fiat Currency
(valuta come strumento finanziario)

↓

L'offerta è elastica, determinata dalla banca centrale.

La banca centrale è il prestatore di ultima istanza del sistema bancario.

La banca centrale è il prestatore di ultima istanza dello stato.

Le ambiguità dell'Euro

- Nasce mediando i due sistemi, sperando di prendere il meglio di entrambi:

1) Offerta di moneta modulata dall'ECB
2) Nessuno stato nazionale può stampare moneta per finanziare i propri deficit

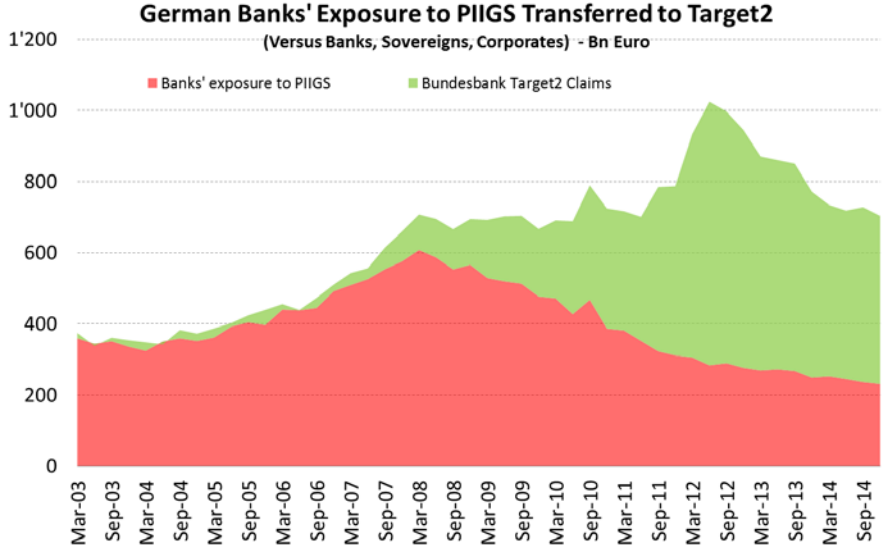
- In un'area monetaria, gli squilibri devono essere finanziati

a) Con finanziamenti privati (Banking Union)
b) Con finanziamenti pubblici (Transfer Union)

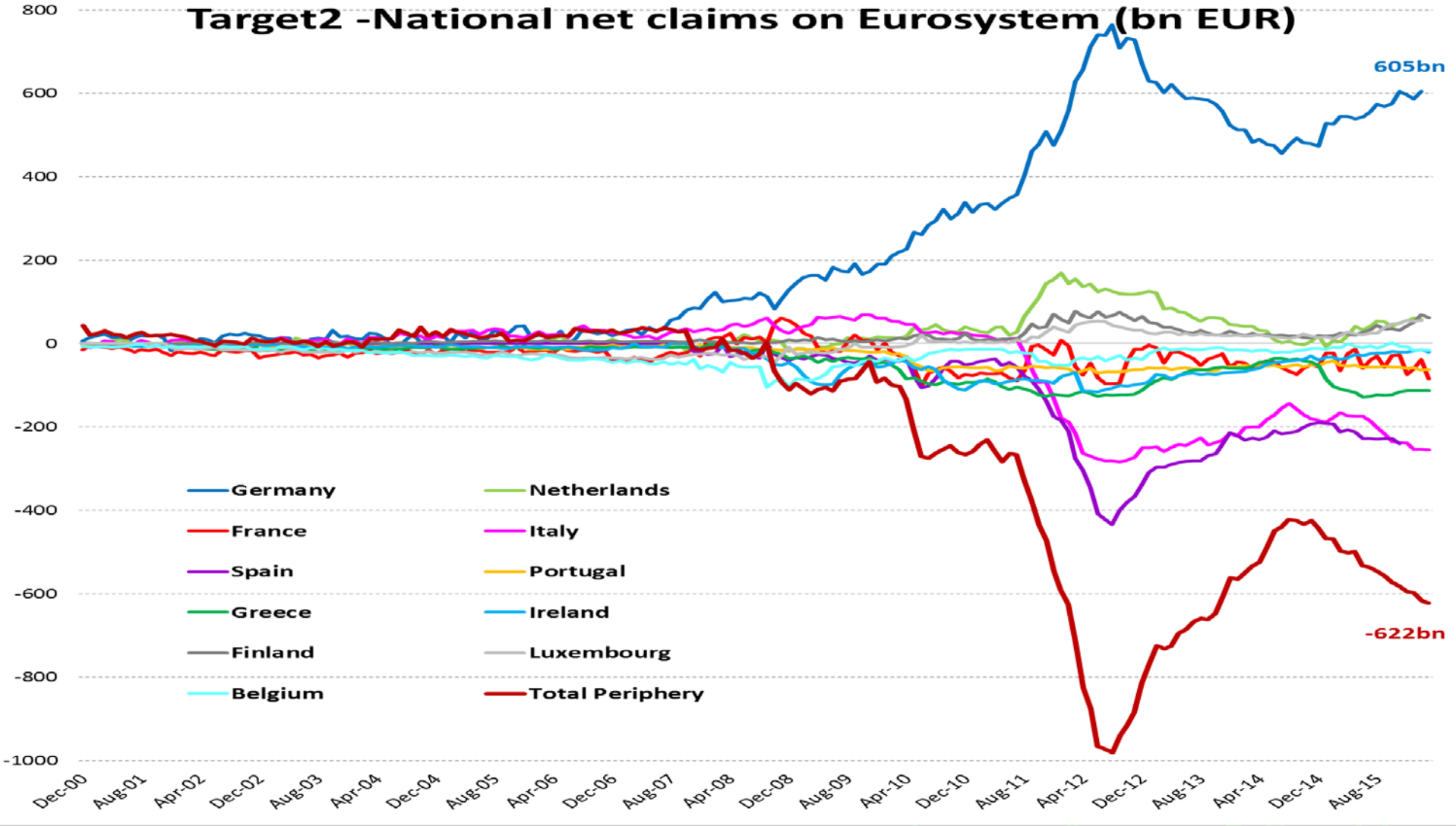
Eurozona: evoluzione del progetto

Eurozona 1.0 (Maastricht Model)	Eurozona 2.0 («Full Bail-Out» Model)
2010-2011 L'approccio iniziale alla crisi debitoria europea ha cercato l'implementazione rigida dei parametri di Maastricht, privilegiando un'interpretazione dell'Euro come «Gold Standard». L'Area Euro è giunta alle soglie del collasso.	Dal 2012 (ESM, LTRO, TLTRO, OMT …) La BCE ha scelto di dare priorità alla coesione europea piuttosto che all'austerità fiscale. La BCE finanzia i debiti della periferia e permette alla Germania di rimpatriare i propri crediti dubbi. L'Euro è diventato una «Fiat Currency».

Il collasso dell'Area Euro è stato evitato dalla sostituzione di credito privato con credito della BCE



Ricominciano le Tensioni?



The accumulation of large imbalances in the Eurozone payment system is an indicator of the loss of confidence in the Eurozone's integrity.

Solidita' dell'Eurozona 2.0?

L'Euro come «Fiat Currency» è moneta di uno «Stato» che al momento non esiste e che, dopo i più recenti sviluppi, ha sempre meno probabilità di concretizzarsi. Manca la volontà politica di creare un Governo Europeo.

- La BCE ha esteso impropriamente ed eroicamente il proprio ruolo, assumendosi i compiti e le funzioni di un instabile «governo ombra», sperando che ne nascesse uno legittimo.

- La Germania inizia ad essere una voce sempre più isolata nel contesto europeo (gestione della crisi del debito, immigrazione…), ma un'Europa senza Germania non interessa agli altri paesi membri.

- Una possibile soluzione: un Super Gold Standard che preveda meccanismi di gestione dei default pubblici e la possibilità di uscita di un paese membro (non interessa né ai centralisti francesi indebitati né ai federalisti tedeschi, che premono per la realizzazione di un governo centrale).

- Brexit: la prima crepa nel sistema? Vittorie elettorali di partiti Euroscettici.

- Target 2 dimostra che la Banking Union non funziona.

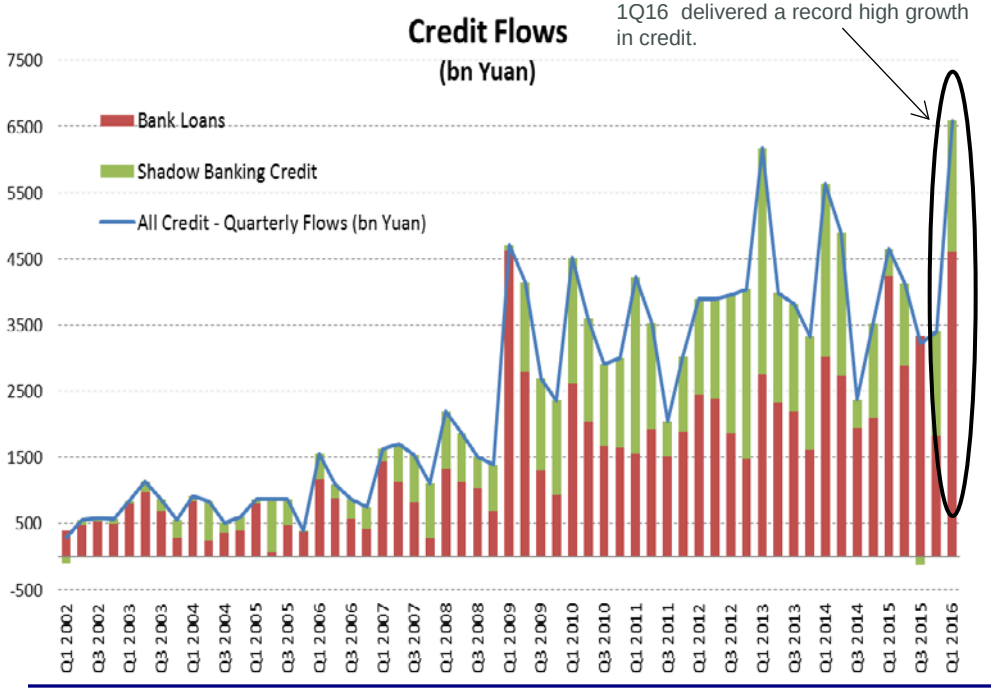
China: Capital Outflows, Currency Pressure and a Credit Boom

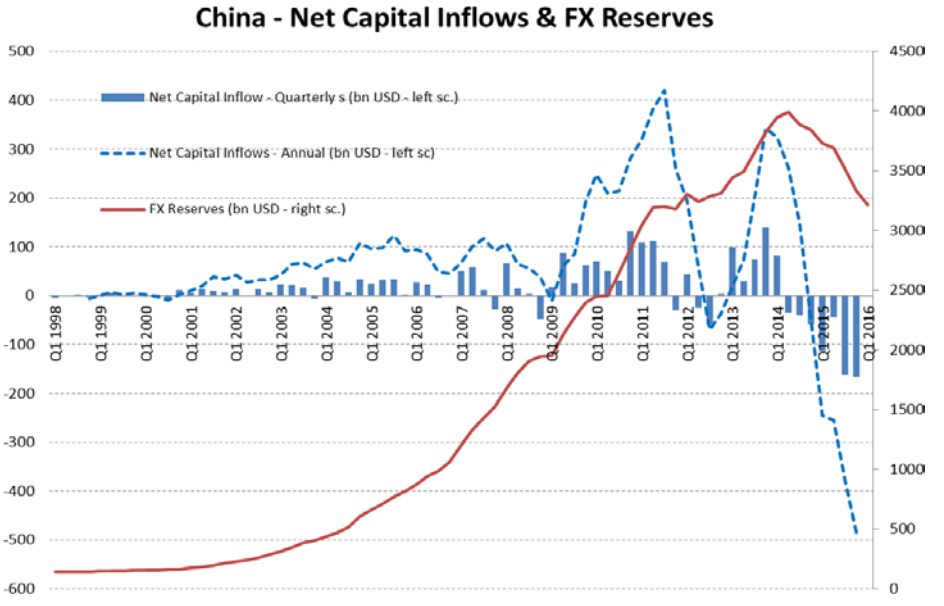
In 2015, China capital outflows were huge as the People's Bank of China's poor communication over its shift in currency policy triggered fears of a massive Yuan depreciation.

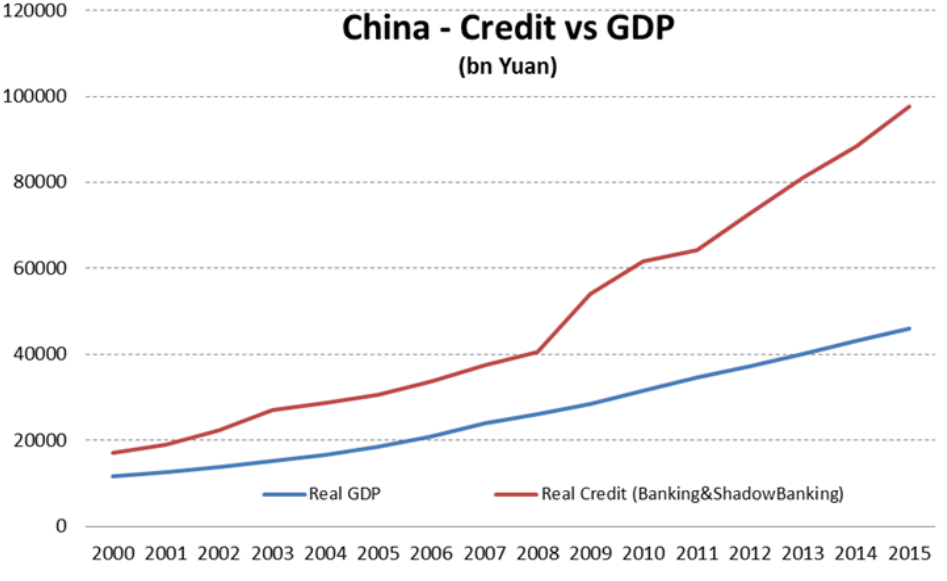
Such outflows force the PBoC to sell further FX Reserves to stabilise its currency, dragging down the monetary base and representing an undesired tightening in Chinese monetary policy.

To counterbalance such tightening, the PBoC has started to aggressively lent, relying further on a debt-fuelled growth model to push economic growth to the desired target.

China lending rose at the fastest pace on record in Jan. 2016. The 1Q16 delivered a record high growth in credit.





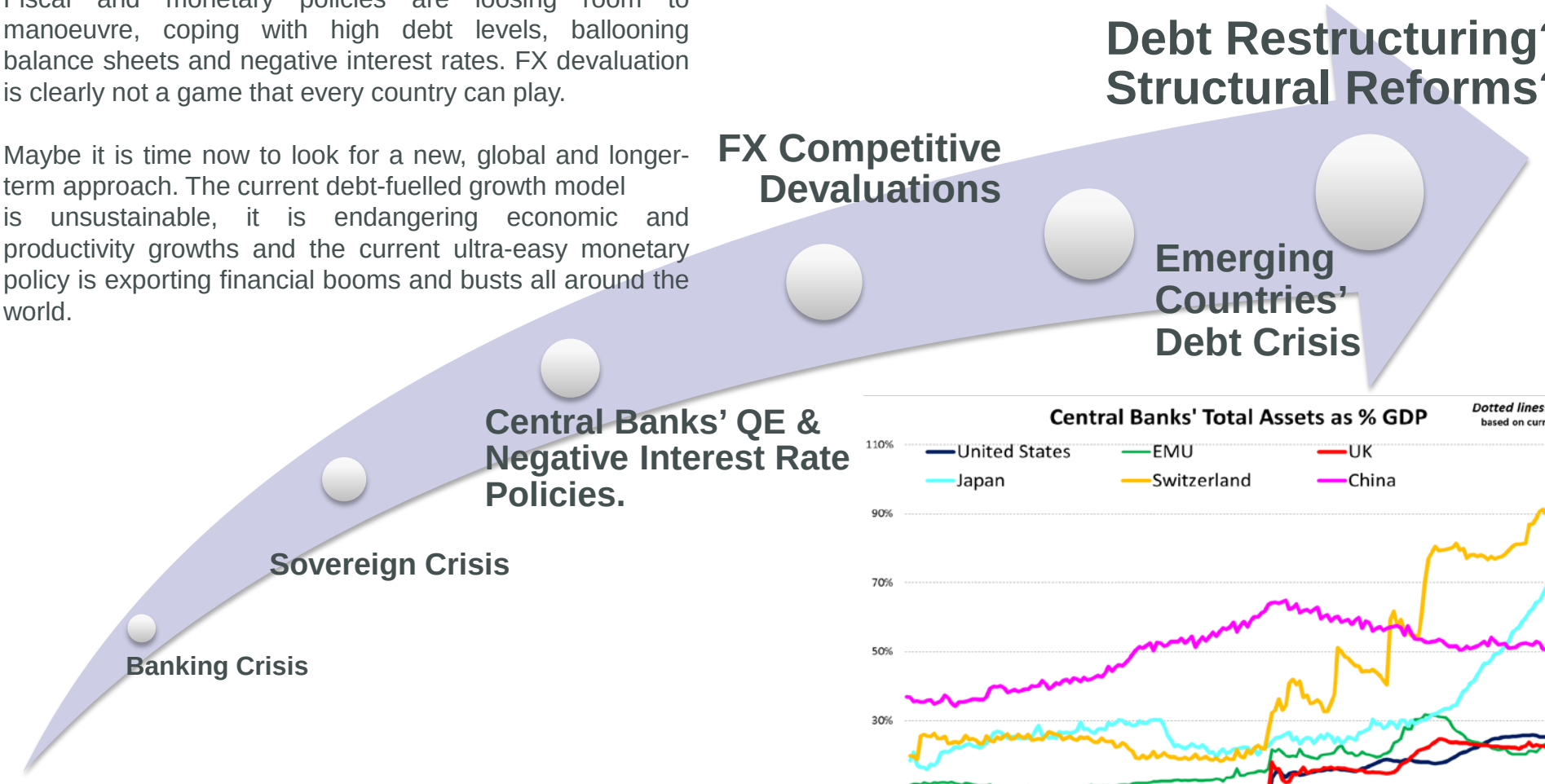


Jumping from One Debt Crisis to Another

Almost a decade since the Great Financial Crisis, the global economy is still dealing with serious financial distress and a debt-fuelled growth model.

Fiscal and monetary policies are loosing room to manoeuvre, coping with high debt levels, ballooning balance sheets and negative interest rates. FX devaluation is clearly not a game that every country can play.

Maybe it is time now to look for a new, global and longer-term approach. The current debt-fuelled growth model is unsustainable, it is endangering economic and productivity growths and the current ultra-easy monetary policy is exporting financial booms and busts all around the world.



Il Vostro bilancio e quello delle banche

ATTIVO
Voi ≅ Banche

28 x 125% = 35

72 x 0% = 0

Risk Weighted Assets
0 + 35 = 35

$\frac{\text{RWA}}{\text{TA}}$ = 35%

Rischiosità del portafoglio uguale a quella delle prime 10 **banche** UE

Voi
Tier1 Ratio:

$\frac{\text{Capitale}}{\text{RWA}} = \frac{100}{35}$ = 285%

Prime 10 **banche** UE
Tier1 Ratio = 13.5%

Voi siete 20 volte più prudenti e meno a rischio delle **banche**

PASSIVO
Voi **Banche**

Banks, 10 Years After (2006 -2016)

Top US*	Dec.06	Sept.15	Diff%
RWA/TA	66.8%	67.2%	1%
Leverage	17.3	11.4	-34%
Tier1 Ratio	7.0%	13.8%	98%
ROA	1.3%	0.9%	-30%
ROE	20.8%	8.6%	-58%

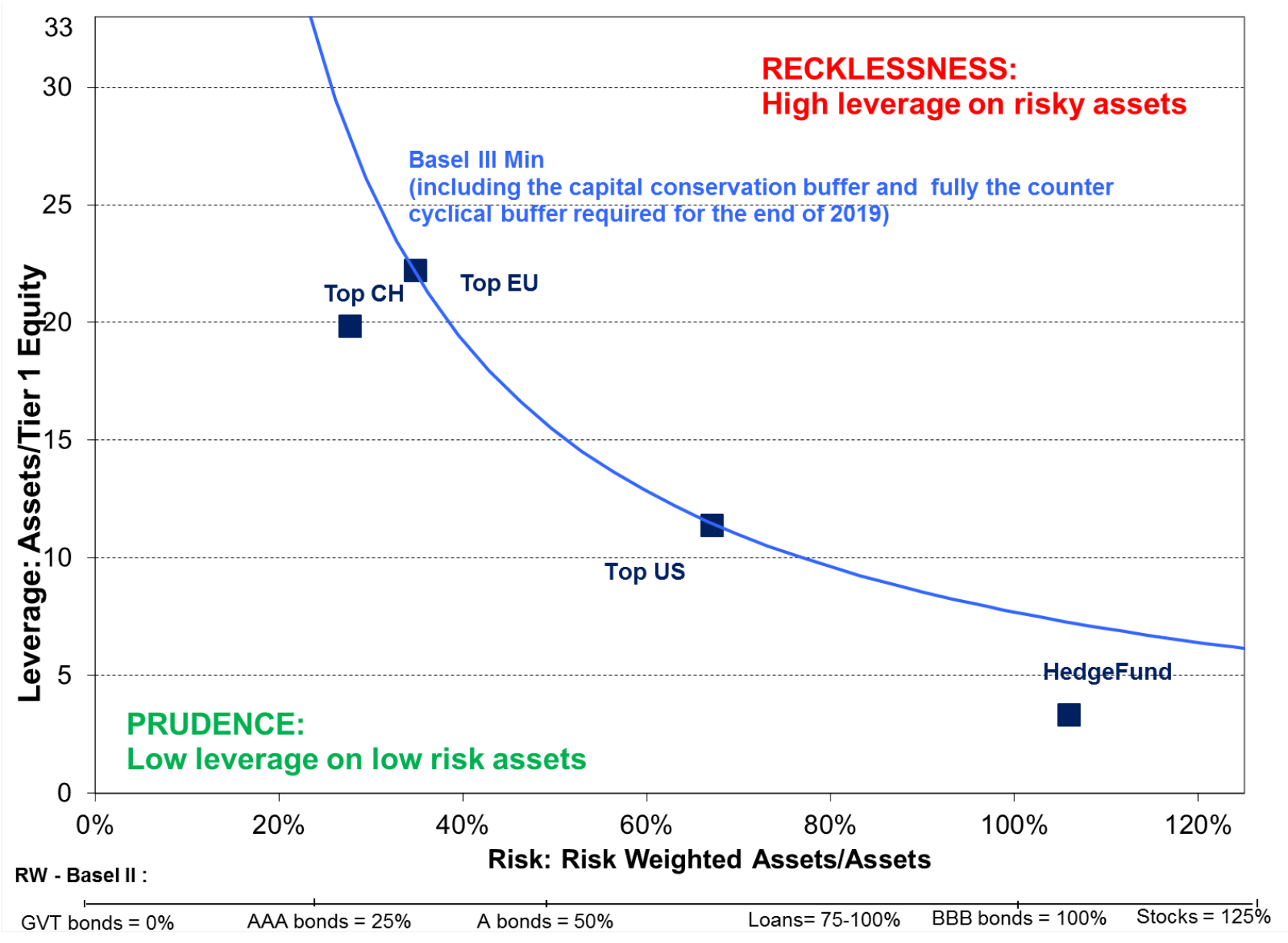
Top US : GS/MS/JPM/Citigroup/WellsFargo/BoA

Top EU	Dec.06	Sept.15	Diff%
RWA/TA	37.4%	34.9%	-7%
Leverage	34.2	22.2	-35%
Tier1 Ratio	8.0%	13.5%	70%
ROA	0.7%	0.2%	-72%
ROE	17.4%	2.5%	-85%

Top EU: HSBC/DB/BNP/RBS/Barclays/CreditAgr/Santander/SocGen/Unicredit/Intesa S.Paolo

* Due to different accounting standards (US GAAP vs EU IFRS), European banks are not allowed to net their derivatives exposure . Hence, European banks' total assets are approximately 20/30% higher than US banks' total assets. Adjusting for this difference, Top US banks' RWA/TA ratio at Sept. 2015 declines to 52% from 67%, while their leverage ratio increases to 15 from 11.4.

Comparing Bank's Risk and Leverage

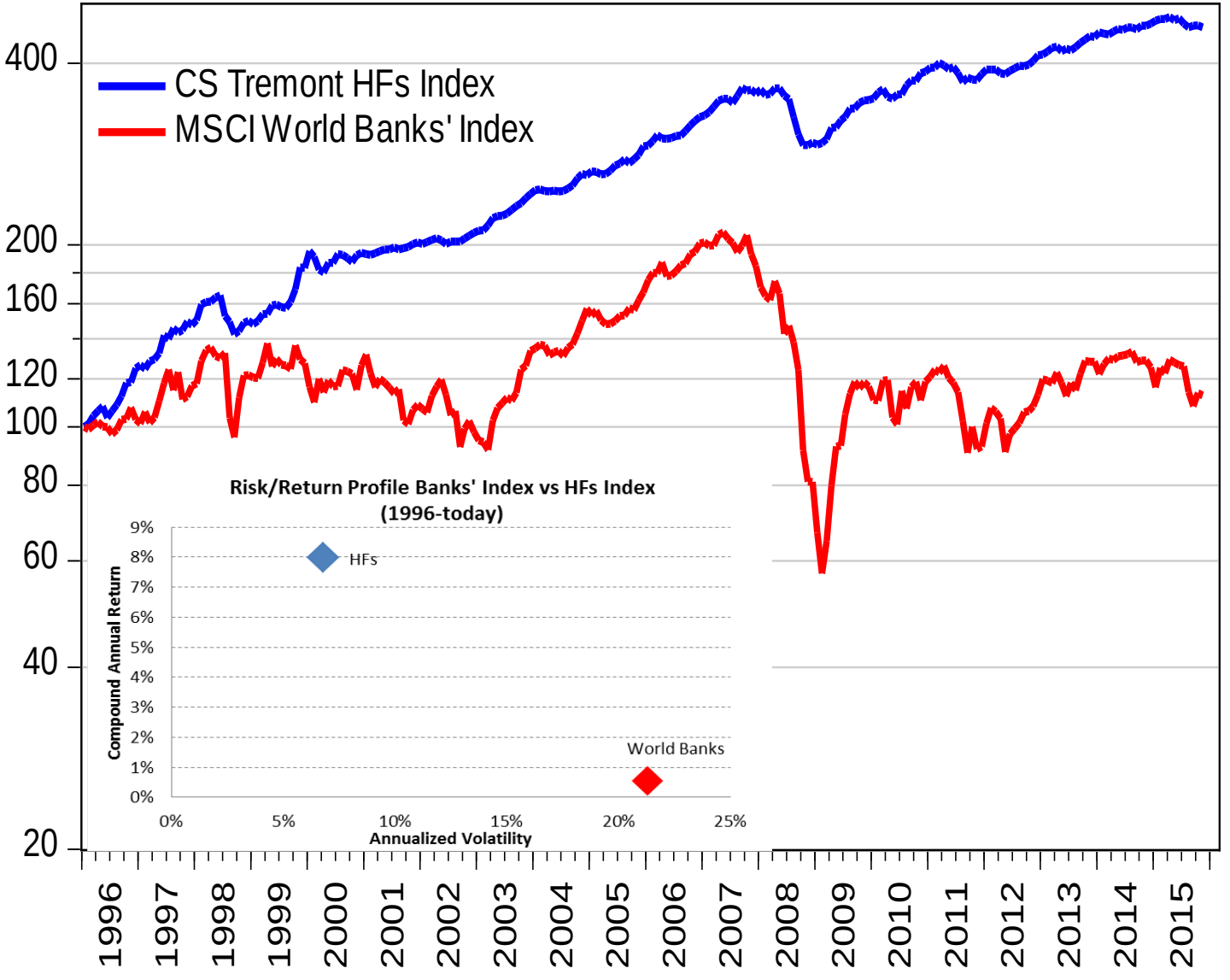


Confronto con un aggressivo Hedge Fund

Top EU (Q3-2015)			
	Nominal	*Basel II coeff.*	*Risk Weighted*
Stocks	198.0	@125%	247.4
AAA Bonds	1652.1	@25%	413.0
Tot Assets	1850		660.5
Equity	100		
Eq/RWA	15%		
Leverage	18.5		
RWA/TA	36%		

HF Balance Sheet			
	Positions	**Basel II Multiple**	**RWA**
Stocks Long	150	@100	150
Stocks Short	80	@100	80
Stocks Net	70		
Gov Bond , 8y duration	100	@0	0
Corp Bond BBB 3y duration	30	@100	30
Foreign currency	50		
Interest rate risk			29.0
Currency risk			62.5
Total Positions	330		
Total Risk Weighted Assets			352
Equity	100		
Eq/RWA	28.4%		
RWA/TA	107%		
Leverage	3.3		
Min Capital according to Basel III (13% of RWA including add on) = 45.8			

Banche molto meno prudenti degli Hedge Funds?



Gli hedge funds hanno avuto una volatilità pari a un terzo di quella delle banche.

Un'analisi del bilancio degli hedge funds attraverso i criteri di Basilea III mostra che detengono normalmente mezzi propri più che doppi rispetto ai minimi richiesti (13%) che le banche ancora non hanno (Tier One > 30% per gli HF)

Bank Failure Definition

"The solvency of a bank depends on whether the value of its assets, ***if held to maturity*** , is sufficient to meet its obligations to depositors and holders of other bank debt" (John Vickers, "Some Economics of Banking Reform" Dec, 2012 – emphasis added).

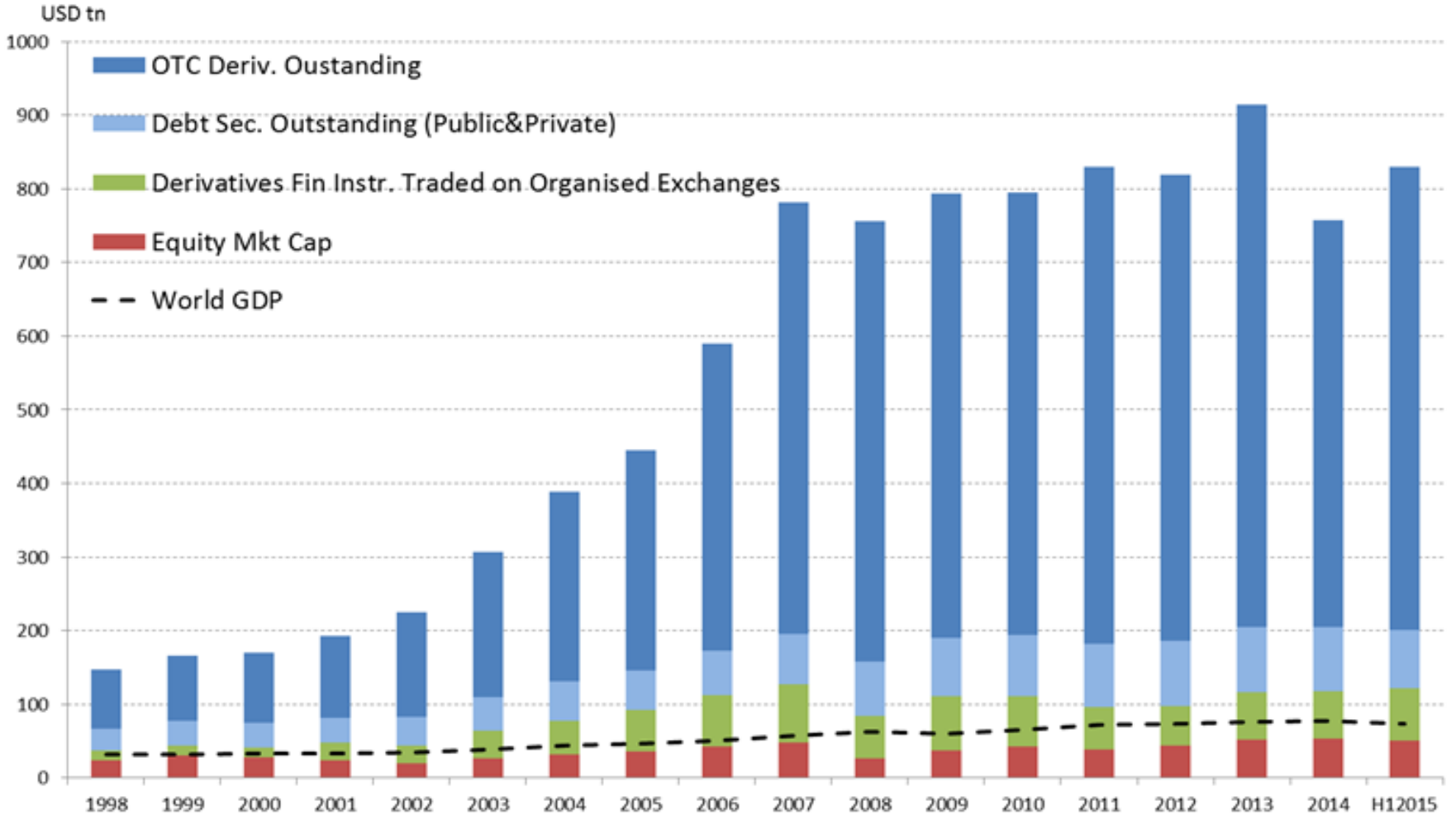
If banks are to rely on markets, rather than taxpayers, for their funding, they must remain solvent on a **mark-to-market** basis.

The fuzzy and unworkable concept of "value if held to maturity" relies on estimates made by economic agents that are bound to be even more biased than the market (the management that brought the bank in trouble, the authority whose supervision failed).

Bank runs happen because the price of deposit is artificially fixed.

A butterfly effect: an apparently small mistake in the regulator's definition of bank solvency has triggered the biggest financial hurricane in 80 years.

From Markets to Bank's Balance Sheets



Fragmented Trading in S&P500

Exchanges (Bloomberg source)	USD ('000'000) Value Traded Avg. 5d	Avg. 20d	Avg. 3m	
TRADING IN UNDERLYING SHARES				
FINRA ADF - (with DARK POOLS)	51,819	50,659	43,175	32%
NYSE	27,560	27,323	23,518	17%
NASDAQ OMX BX	16,676	16,687	13,876	10%
NASDAQ	16,940	15,507	12,676	9%
NYSE ARCA	14,547	13,921	11,488	9%
EDGX	11,461	11,238	9,364	7%
BATS BZX	9,657	9,947	8,075	6%
BATS BYX	5,127	5,153	4,474	3%
NSDQ OMX BX	2,913	3,264	2,739	2%
EDGA	3,065	3,114	2,734	2%
NASDAQ OMX PHLX	1,384	1,378	1,212	1%
CHICAGO	356	542	1,071	1%
NYSE ARCA AMEX	88	88	91	0%
Tot S&P500 Members - Underlying Sh.	**161,593**	**158,821**	**134,493**	100%
FUTURES				
S&P500 Fut. - Mini	195,988	235,792	117,471	99%
S&P500 Fut. - Std	3,948	876	624	1%
Tot Futures	**199,937**	**236,668**	**118,095**	100%
ETFs (SPY, SPDR Sectors, Ishares, Vanguard)				
CHICAGO	16,166	18,280	13,161	27%
FINRA ADF - (with DARK POOLS)	11,404	13,574	10,779	22%
NYSE ARCA	11,426	12,285	9,428	19%
NASDAQ OMX BX	5,524	6,518	4,881	10%
BATS BZX	4,525	5,729	4,242	9%
EDGX	3,920	4,561	3,319	7%
BATS BYX	1,314	1,439	1,190	2%
EDGA	1,051	1,198	965	2%
NSDQ OMX BX	787	862	708	1%
NASDAQ OMX PHLX	598	675	469	1%
Tot ETFs	**56,714**	**65,121**	**49,143**	100%
OPTIONS				
Index and Stocks	?	?	?	-
Tot. Main Derivatives	**256,650**	**301,790**	**167,237**	
multiplier Derivatives/Underlying	1.6	1.9	1.2	

Antonio Foglia is a London based Italian and Swiss economist. He is a Board Member and shareholder of Banca del Ceresio (www.ceresio.com), a private bank in Lugano, Switzerland and of its subsidiaries in London and Milan.

After earning a degree in Political Economy from Bocconi University in Milan, he worked in Tokyo, New York and London to complete his training. He has been professionally involved in Private Banking and with Hedge Funds since the mid-1980's. In addition to co-managing several leading multimanager Hedge Funds, including Leveraged Capital Holdings N.V., the world's oldest offshore multimanager fund, and Global Managers Selection Funds, the largest Italian Fund of Hedge Funds, Antonio Foglia is, or was, also a director of several Hedge Funds, including George Soros' Quantum Endowment Fund.

Antonio Foglia is a Global Partners' Council Member of INET, The Institute for New Economic Thinking, a member of the Swiss Society for Financial Market Research and of the Italian Financial Analysts' Association. He is a Trustee of Central European University and a member of the Steering Committee of Bruno Leoni Institute. He served three terms on the Foundation Board of the Swiss Finance Institute as representative of Ticino's Banks Association. He was also a member of the Scientific Commitee of Confindustria from 2013 to 2016.

Articles by Antonio Foglia appear on Italy's leading newspapers Corriere della Sera and il Sole 24 Ore.

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afoglia@belgrave.com

www.antoniofoglia.com