



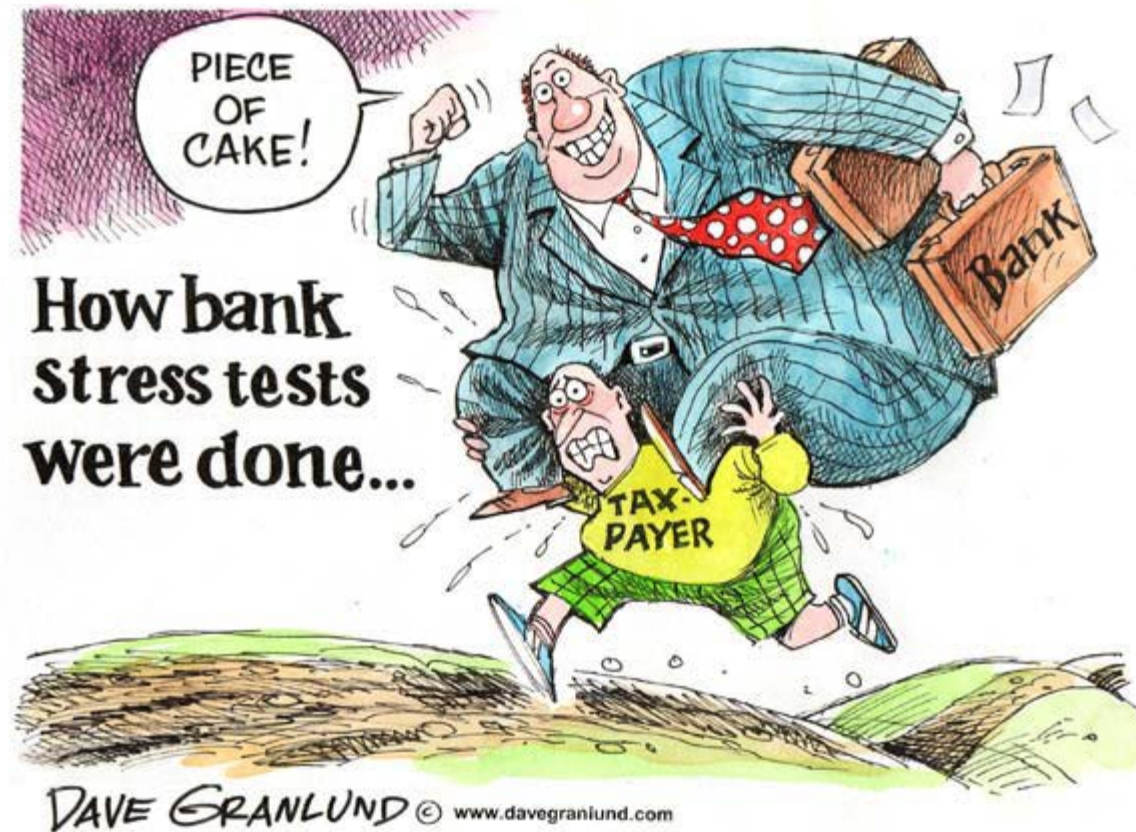
# Alternatives To Traditional Banking

- Banks Still Disfunctional: We Need Alternatives
- An Ongoing Massive Cognitive Failure
- (Mis)Understanding The Alternatives

*Antonio Foglia*



# Banks Still Disfunctional



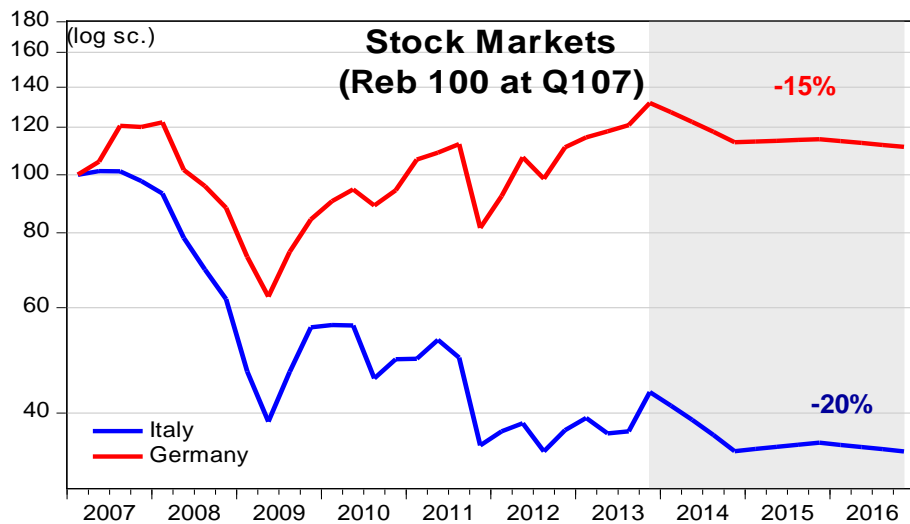
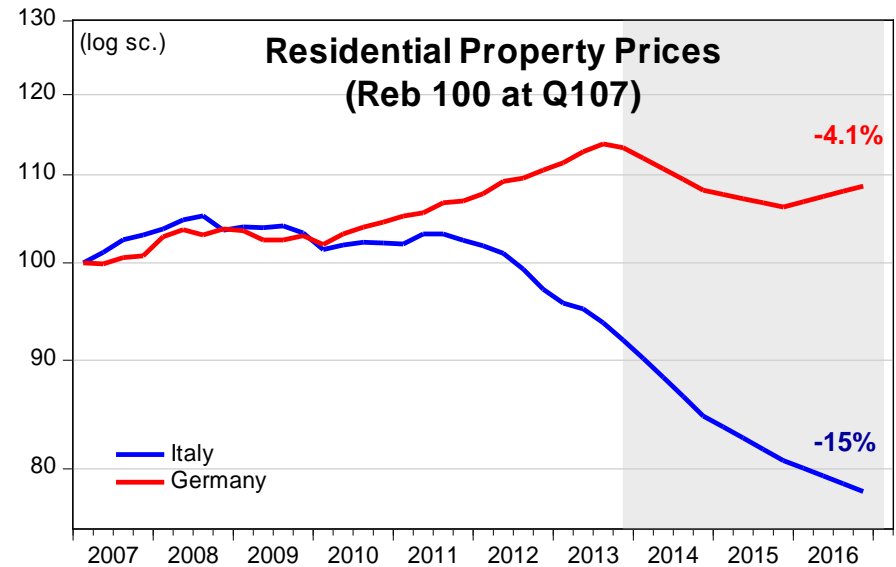
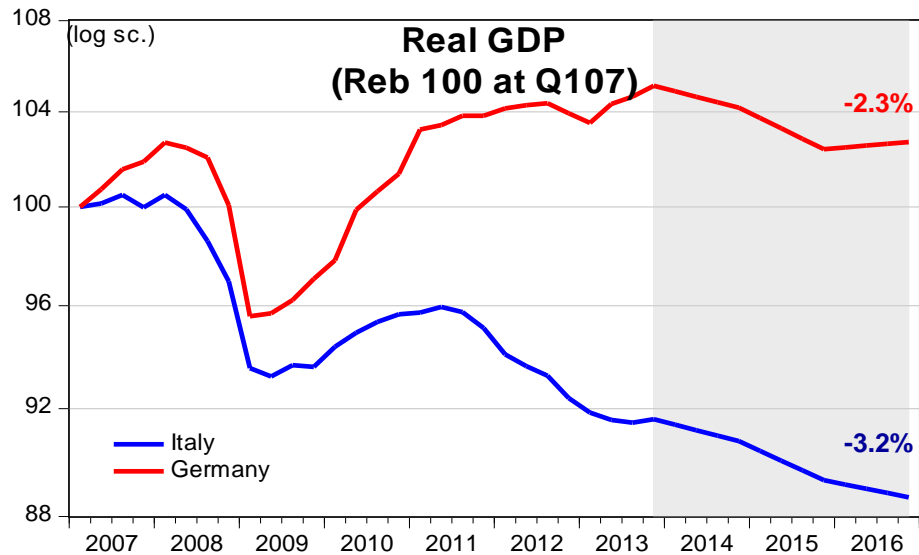


# BIASED HYPOTHESIS...

- The AQR/ST hypothesis were set to obtain about 10% failings to prove the exercise credible. But not many more in order not to undermine the sector's and regulator's overall credibility.
- Only a plausible adverse scenario was tested, not a black swan.
- Asymmetric hypothesis across the Eurozone are unnecessarily pro-cyclical.
- For instance, results show German banks would likely not have survived the recent past that Italian banks have already endured, let alone the tougher Italian stress test.



# PROCYCLICAL HYPOTHESIS



Stress tested a credible adverse scenario, not a black swan.

Procyclical stress test assumptions miss the point of the exercise entirely:

- a pat to the German banks that are fragile but standing tall thanks of their easy recent past but
- a slap to the more resilient Italian banks already on their knees due to post-crisis headwinds.

The results showed that all German banks would have failed in the environment that Italian banks endured and survived since 2008.

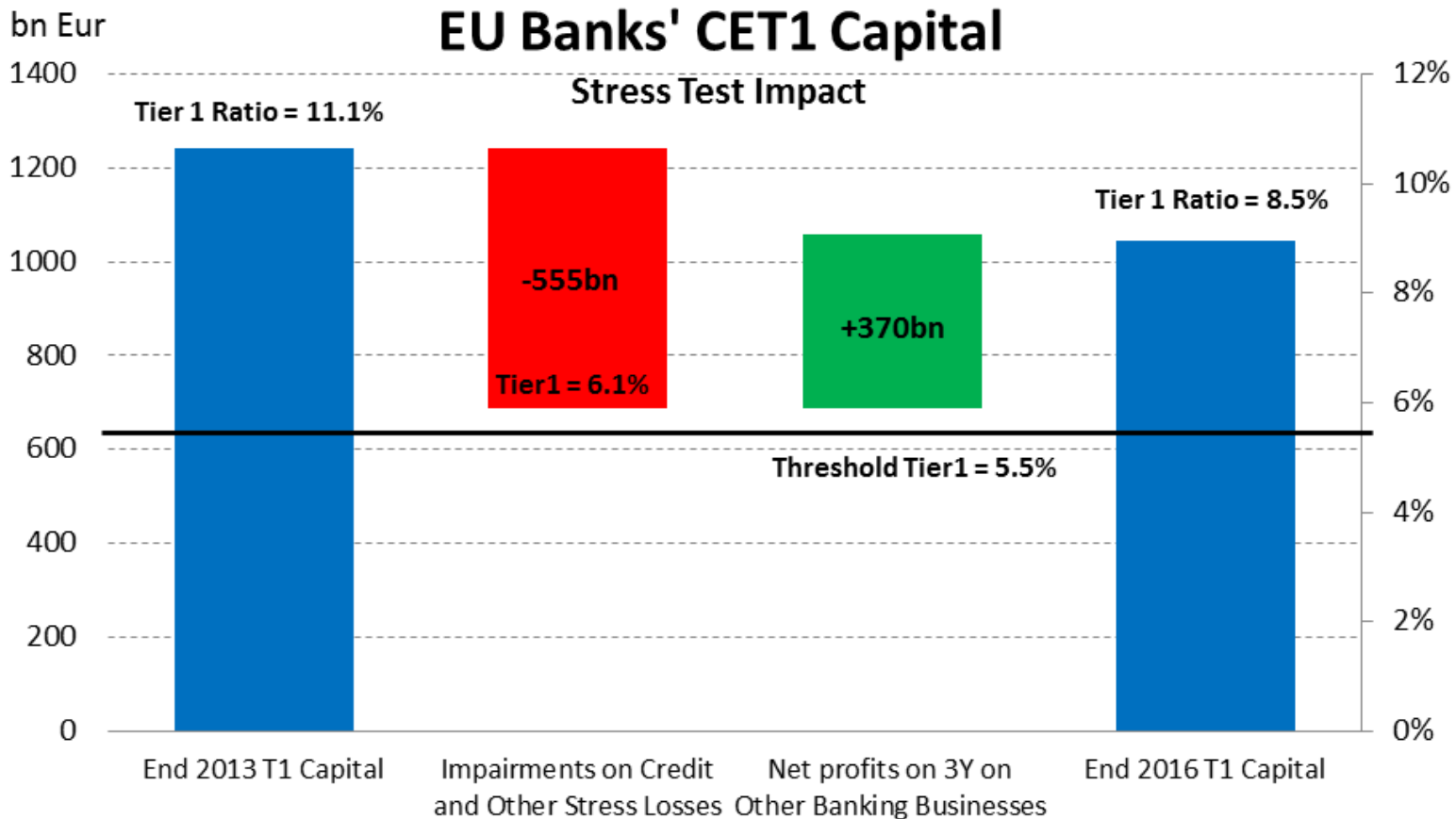


## **...STILL LED TO LARGER LOSSES THAN PERCEIVED...**

- Stress Test looking over 3 years but the envisaged losses could be concentrated in a couple of quarters.
- After the stress test losses, banks would be too weak to finance in the markets having lost almost half their capital and remaining over 40x leveraged.
- Passing the stress test assures banks they will indeed receive ECB/Taxpayer support in case the downside scenario materialises.
- The Authorities are probably aware of this: expect higher prudential requirements (TLAC etc) for years to come.
- Not to curtail credit to the economy, Authorities should allow alternatives to banks to flourish, rather than spread questionable fears on misnamed “Shadow Banking”.



# LARGER LOSSES THAN PERCEIVED



After a hit that could happen in one or two quarters the banking system would be left with a Tier1 ratio of 6.1% only. This is a leverage of over 40x. Banks this weak would be almost insolvent and hence unable to refinance in the market and would have to rely on taxpayers' money again. Gains in the following 3 years on taxpayer funded operations would allow the banks to regain over half the losses.



## **...LEAVING DESIRABLE RESILIENCE A DISTANT GOAL**

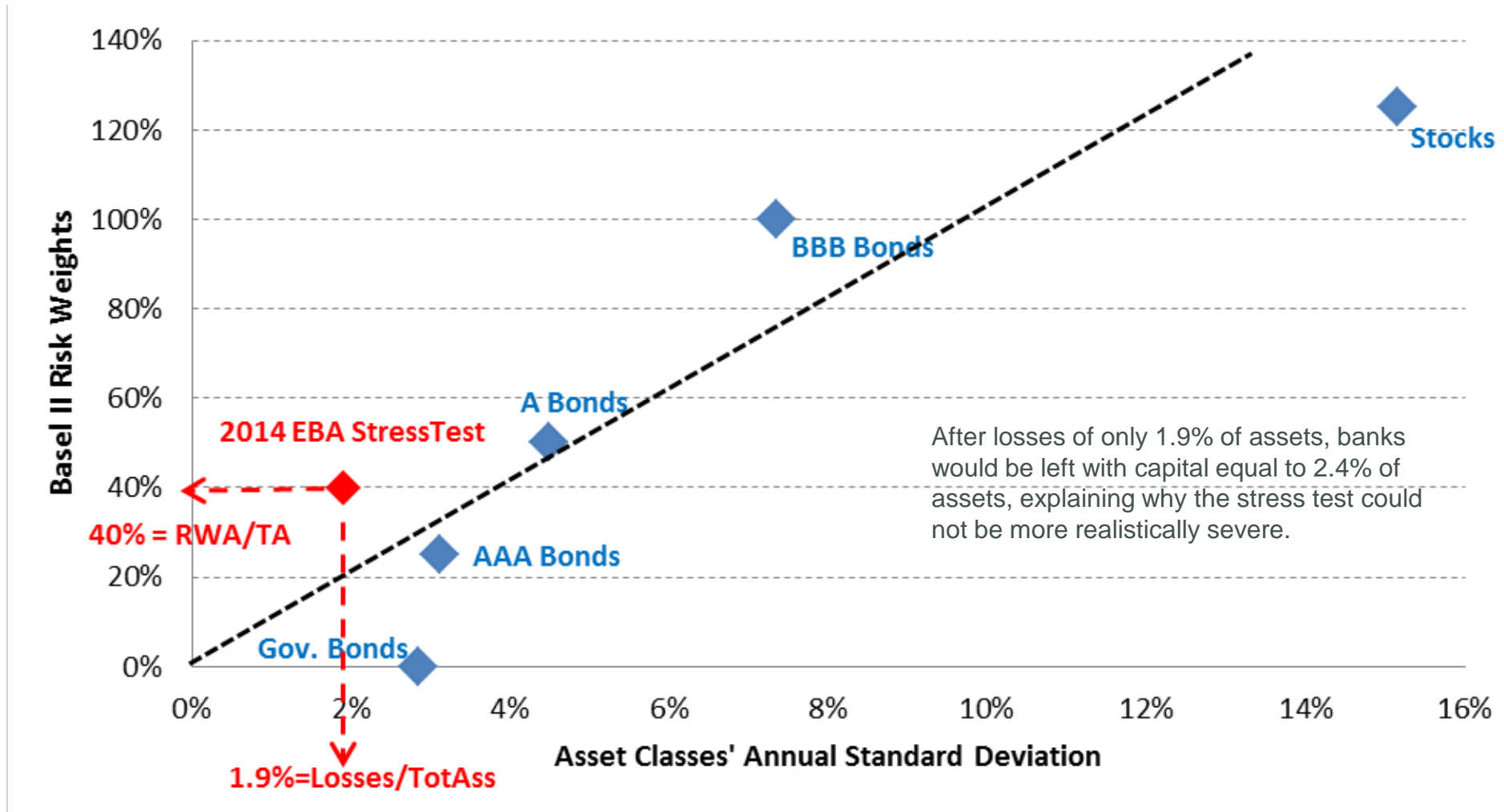
- At worst, the EU banking system was simulated as losing 550bn, equivalent to less than 2% of its €28tn assets.
- When viewed alongside Basel risk weighting scales, the severity of these simulated losses seems small.
- The EU stress test simulated losses that are estimated to be only one half an annual standard deviation of the assets banks own.
- Banks are still far from a level of resilience that would allow them to withstand natural market volatility and keep on funding without recourse to taxpayers.
- The 2007 – 2008 crisis was a 3 standard deviation event. Banks would lose 2.5 – 3x their current capital should it ever happen again.
- The Fed Stress Test showed similar weakness in US banks when viewed this way.



# BANKS' RESILIENCE REMAINS A DISTANT GOAL

The ECB Stress Test: Outcomes.

**STRESS??? WHAT STRESS???**







# A Massive Cognitive Failure



# AN ONGOING MASSIVE COGNITIVE FAILURE

- The economy is a complex dynamic evolving system populated by fallible agents with imperfect knowledge.
- 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.
- Misunderstood financial permissivism caused the financial crisis.



# REGULATING FINANCIAL MARKETS

- Markets as complex evolving systems. Man made ecosystems and just as prone to potentially catastrophic changes
- Competition, not regulation, is the solution to cognitive limits and fallibility. Simplification helps. History is a great guide.
- Change in paradigm for financial stability: from the protection of intermediaries' static stability to the preservation of markets' dynamic functionality.
- Some key interacting variables:
  - Agents' degrees of freedom and responsibility (the importance of failure and biodiversity)
  - Agents' incentives (game theory, behavioural economics...)
  - Marginal returns' nature (beware increasing marginal returns)
  - Network architecture of agents' connections (beware hub & spoke)
- The dynamic properties of complex financial system (volatility, creative destruction) implies trade offs: long term emerging efficiency might require the acceptance of volatility over time frames conflicting with the desire of politicians, authorities and bankers to see their mandates renewed.



# THE OFFICIAL ANALYSIS OF THE CRISIS...

- “The bankruptcy of Lehman Brothers on 15 September 2008 turned what had previously been a crunch in the interbank market into an outright financial panic” → it was a liquidity rather than solvency crisis.
- “The crisis has revealed two deficiencies of the existing regulatory framework”:
  1. “the focus on [ex-post] crisis management”  
→ crisis prevention is doable and needed.
  2. “the focus on preventing distress at individual financial institutions [...] failed to capture the build-up of financial-system-wide risk”  
→ macro potential supervisions is the solution.
- “Systemic risk arise from two sources”:
  1. “TBTF, too interconnected to fail” → Regulate SIFI differently.
  2. “Procyclicality of financial institutions collective behaviour”  
→ price stability mandate includes market prices.

[Quotes from a recent Central Banker speech]



## ...IS ENTIRELY WRONG

- Lehman was an insolvency, not liquidity crisis. 6 years after, the debt holders expect to recover ca 60% in the most favourable environment they could hope for. It is the revealed latent insolvency of the banking system that dried the interbank liquidity market up, not vice versa.
- Regulators failed in micro prudential supervision: half the big banks failed (BoE), none breached prudential regulation ahead of failure. Having disastrously erred on a narrow mandate, why should regulators do better on a broader one?
- TBTF, too interconnected are real problems. Despite recognizing them, Authorities were unable to propose a credible solution in 7 years. Market volatility arises from uncontrollable natural factors: the impact on long duration asset prices of small changes in expectations. Suppressing natural volatility pushes risk in the tails, not least by anesthetizing market participants to it.

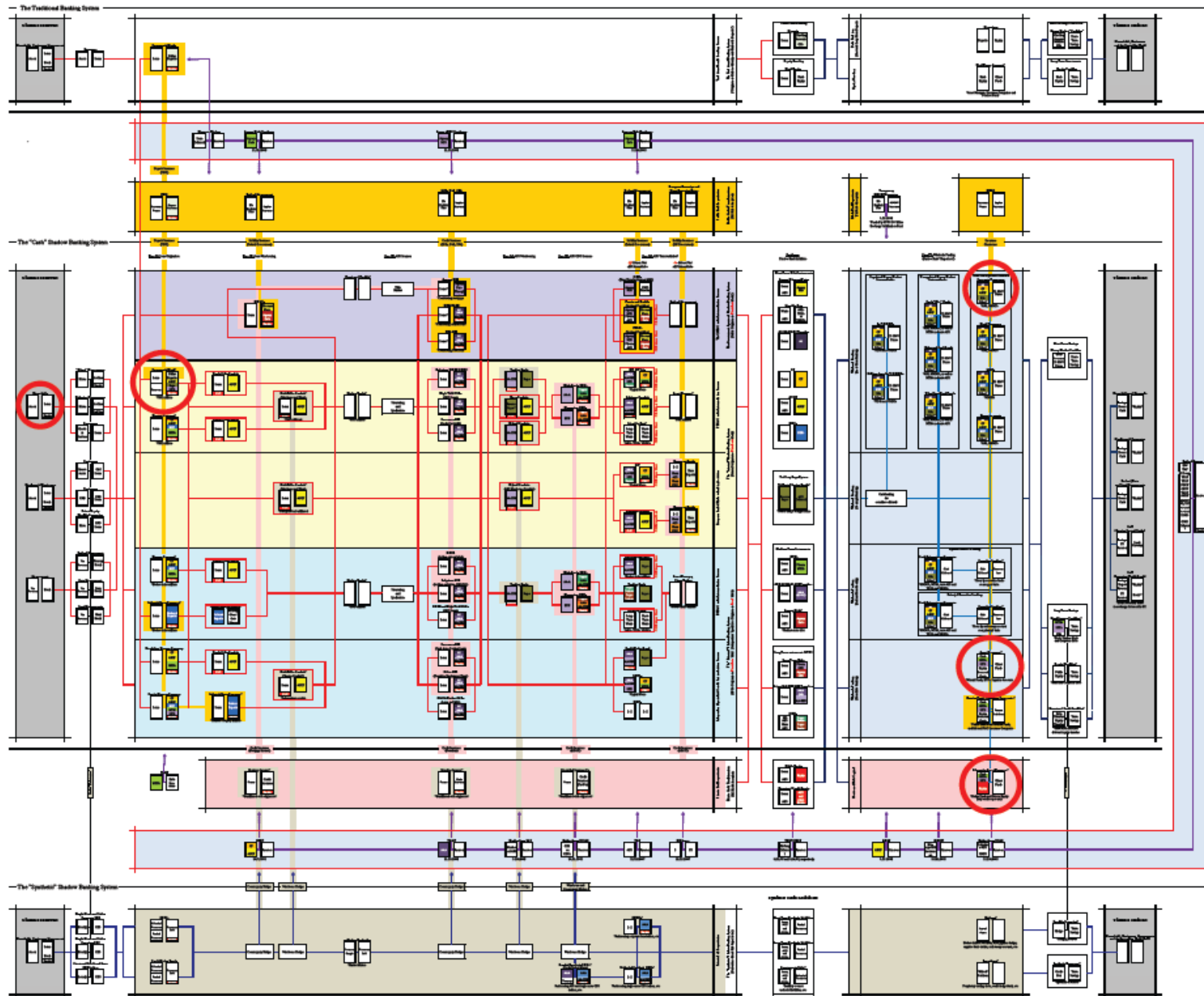


# (Mis)Understanding The Alternatives

## Shadow Bank Monster Thrives While Taxpayers Sacrifice



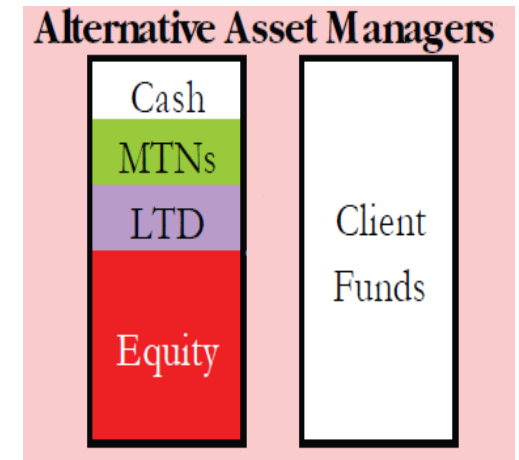
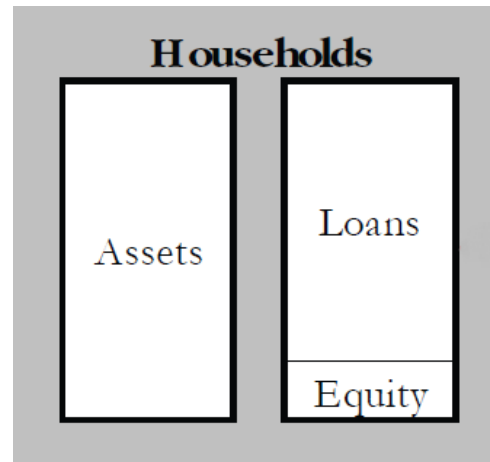
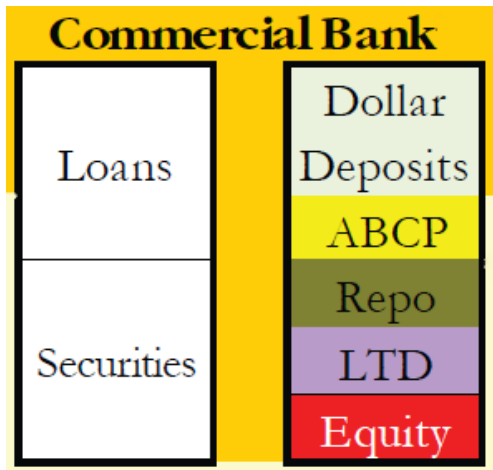
# NY FED'S VIEW OF THE SHADOW BANKING SYSTEM



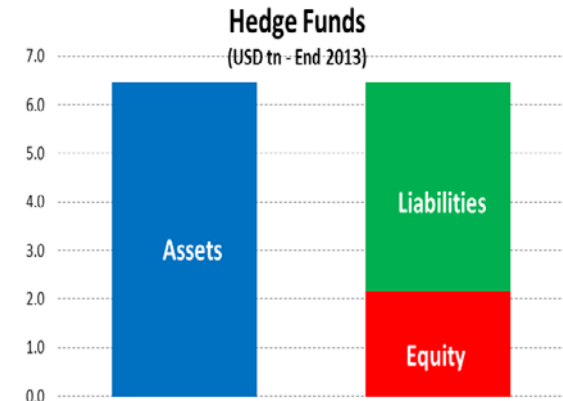
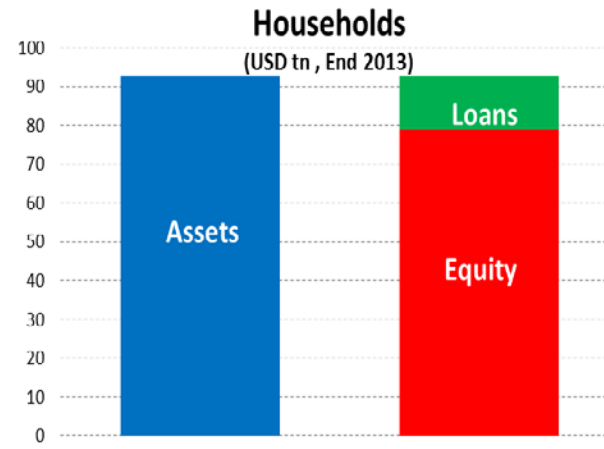
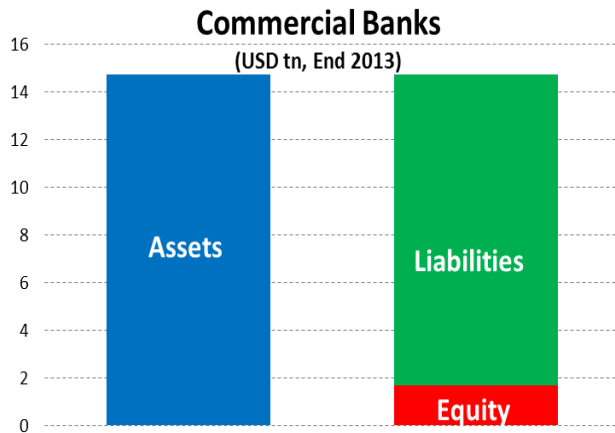


# NY FED MISUNDERSTANDS REALITY (1/2)

**NY Fed View**



**Reality**

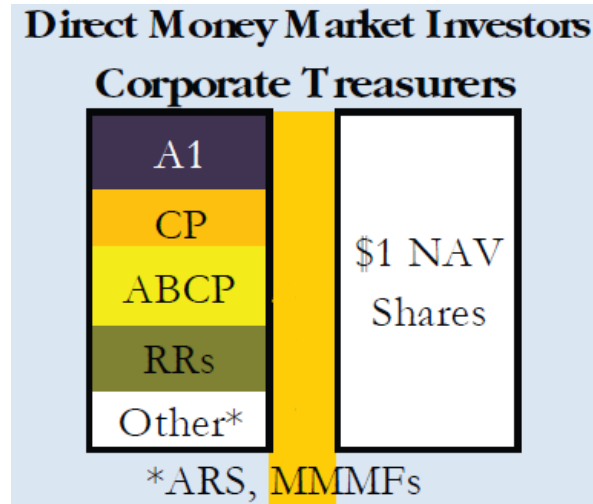
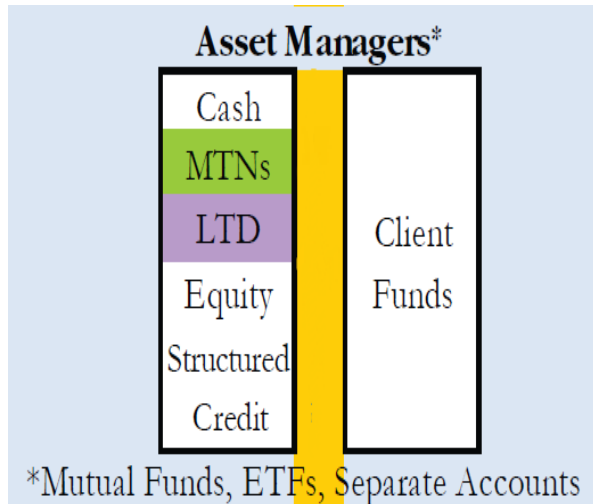






# NY FED MISUNDERSTANDS REALITY (1/2)

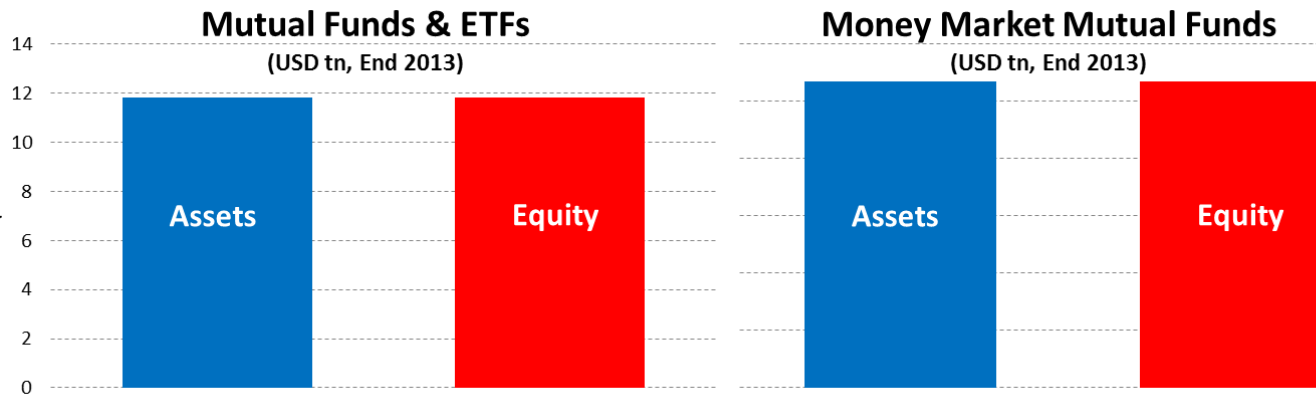
**NY Fed View**



“The second reform proposal is to institute capital requirements for money market funds, similar to the capital requirements imposed on banks (see McCabe, 2011). Capital requirements move the default barrier of the funds, allowing some losses in their portfolios without triggering bankruptcy.”

[First proposal: variable NAV but says these suffered runs as well. Third is two share classes, with liquidity requirements]

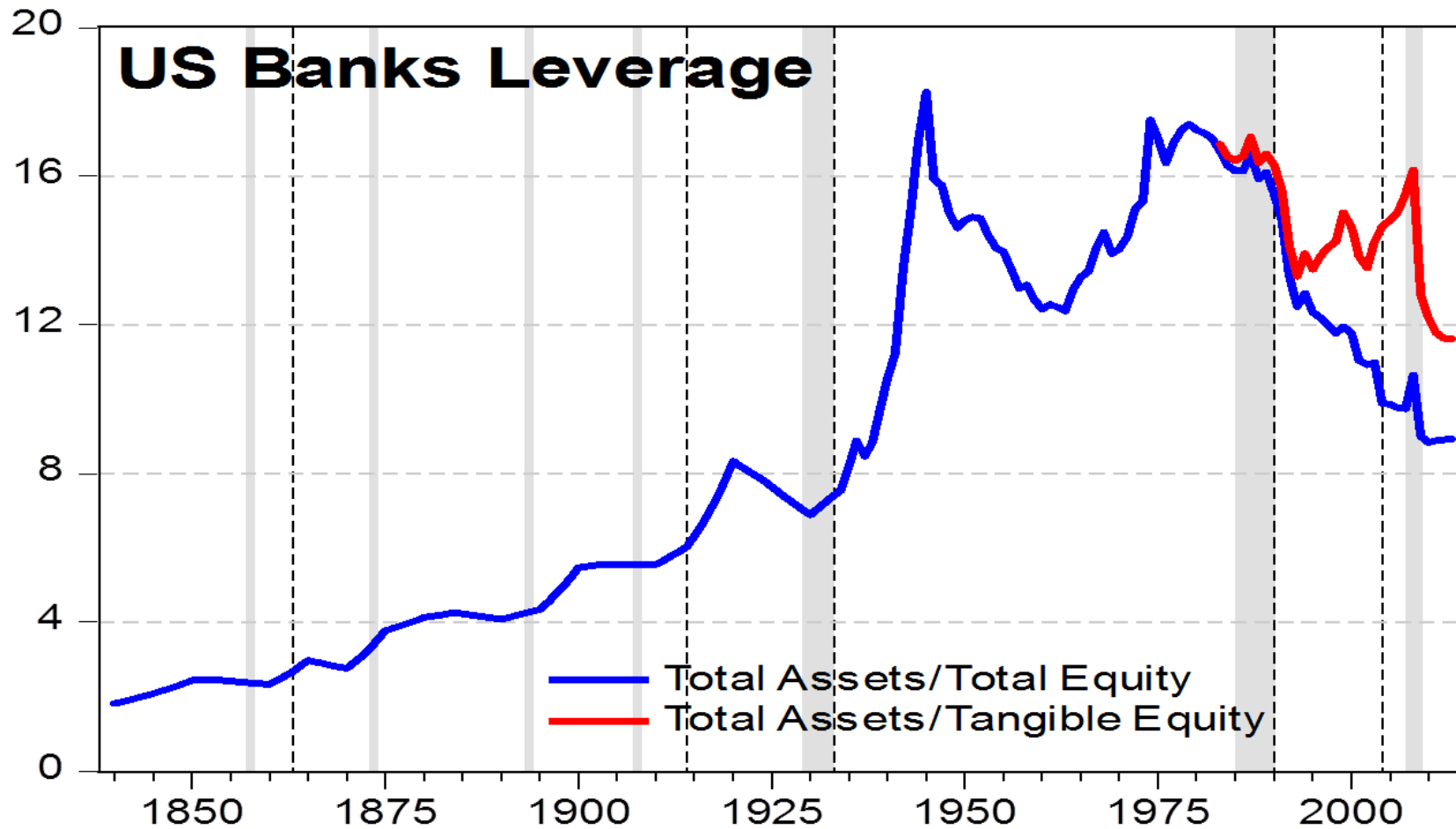
**Reality**



Source: Financial Stability Policies for Shadow Banking, Tobias Adrian, Federal Reserve Bank of New York Staff Reports, no. 664 February 2014



# FRACTIONAL RESERVE OR LIMITED PURPOSE BANKING?



- (a) National Banking Act – 1863
- (b) Creation of Federal Reserve – 1914
- (c) Creation of Federal Deposit insurance Corp – 1933
- (d) Implementation of Basel risk-based capital requirement – 1990
- (e) Implementation of Basel II risk-based capital requirement – 2004

Regulation encouraged riskier balance sheets

Shaded Areas point out US banking crisis  
Source: Federal Deposit Insurance Corporation

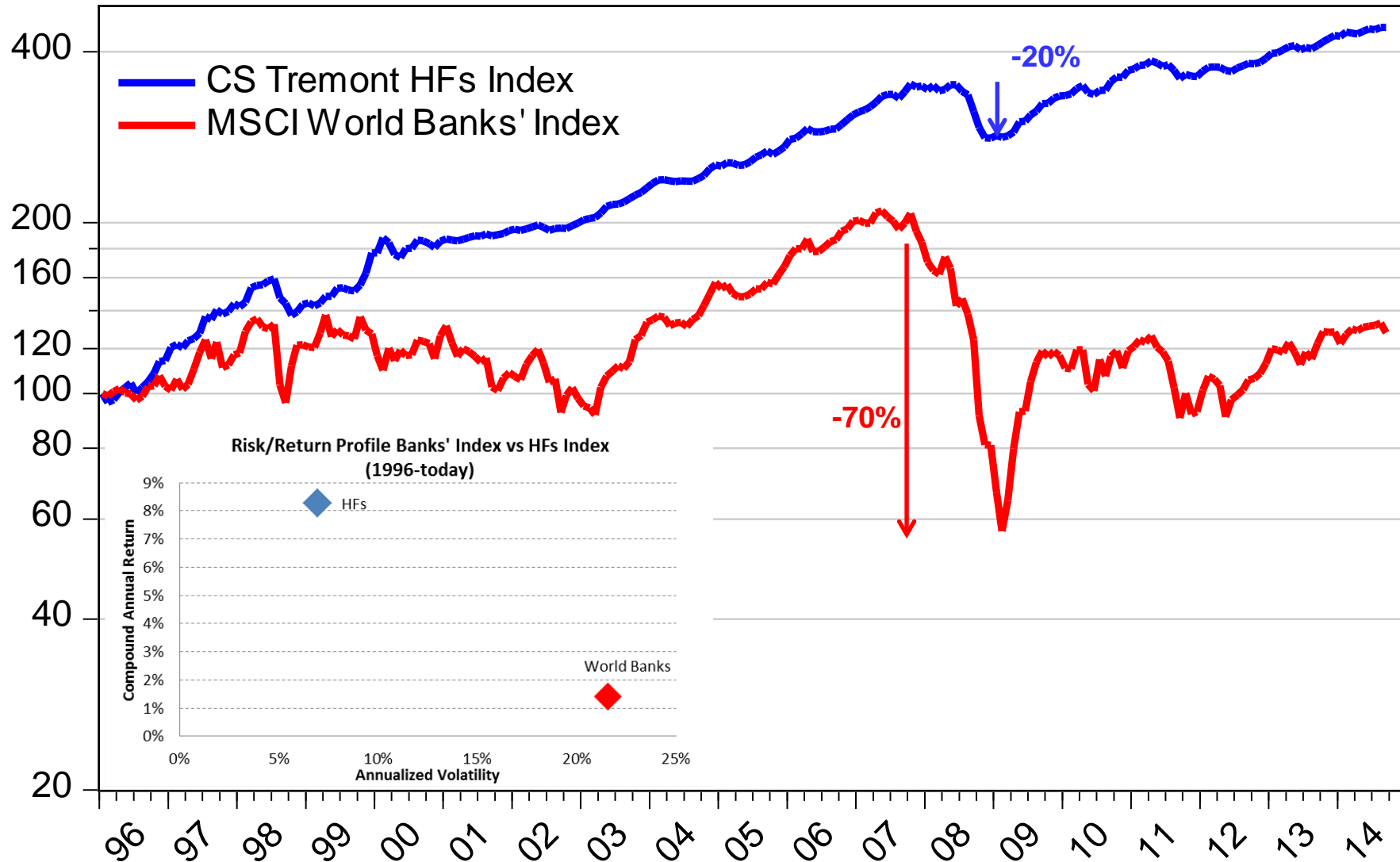


# COGNITIVE FAILURES OF MARKETS' PARTICIPANTS

- Bankers bankrupt banks, and lost a fortune
- Misperceived Risk/Return asymmetries
  - Debt vs Equity
  - AAA vs High Yield
- Diversification benefits are a fallacy of composition
- Simplify financial products
- Are the principles of Islamic Finance derived from the experience of long forgotten financial crisis?



# HEDGE FUNDS ARE 3 TIMES LESS RISKY THAN BANKS





# INSOLVENCY RISK

## WHY IS CAPITAL NEEDED?

Capital is needed to absorb losses before they affect other liabilities and cause insolvency.

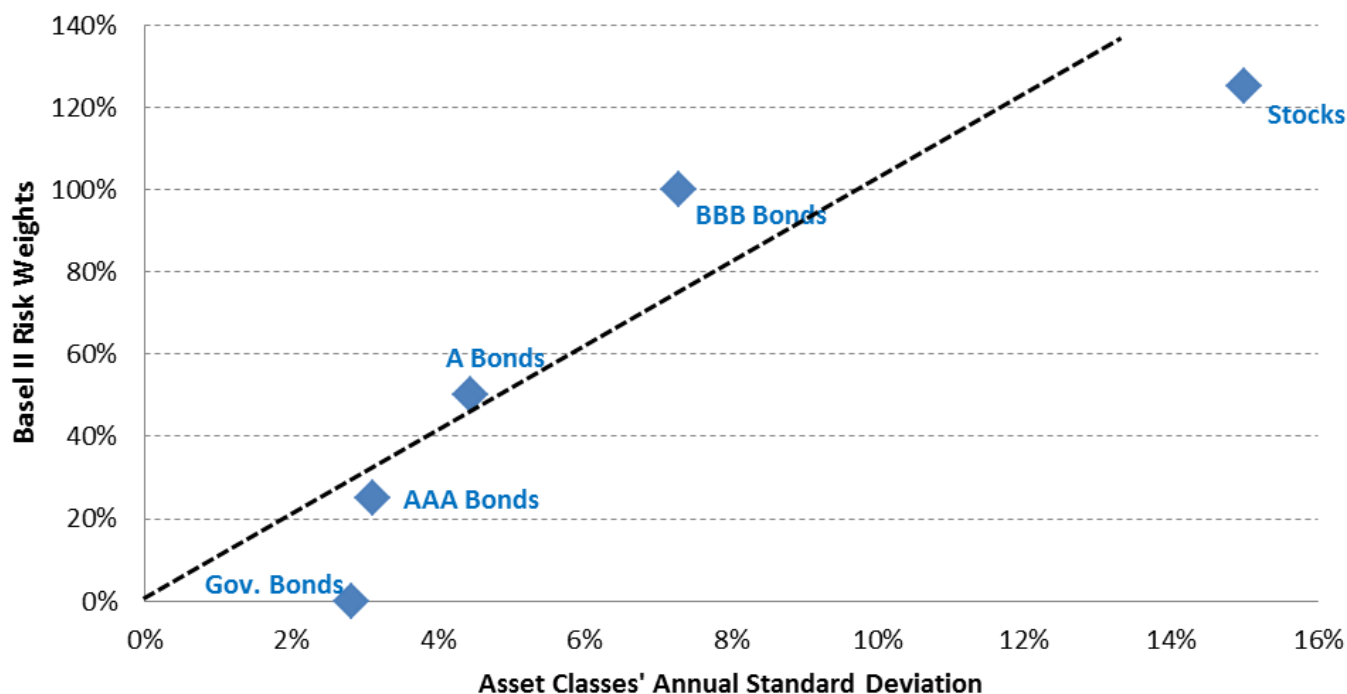
## HOW PROBABLE ARE LOSSES?

For normally distributed returns, there is a 50% probability of encountering losses higher than 1 annual standard deviation every 4 years, and of suffering losses larger than 2 annual standard deviation every 30 years.



# RISK WEIGHTING ASSETS

- Basel's Bank Capital Requirements are mainly based on Risk Weighted Assets
- Every asset class is assigned a risk weight either by the regulator (Standard) or by banks' internal models.





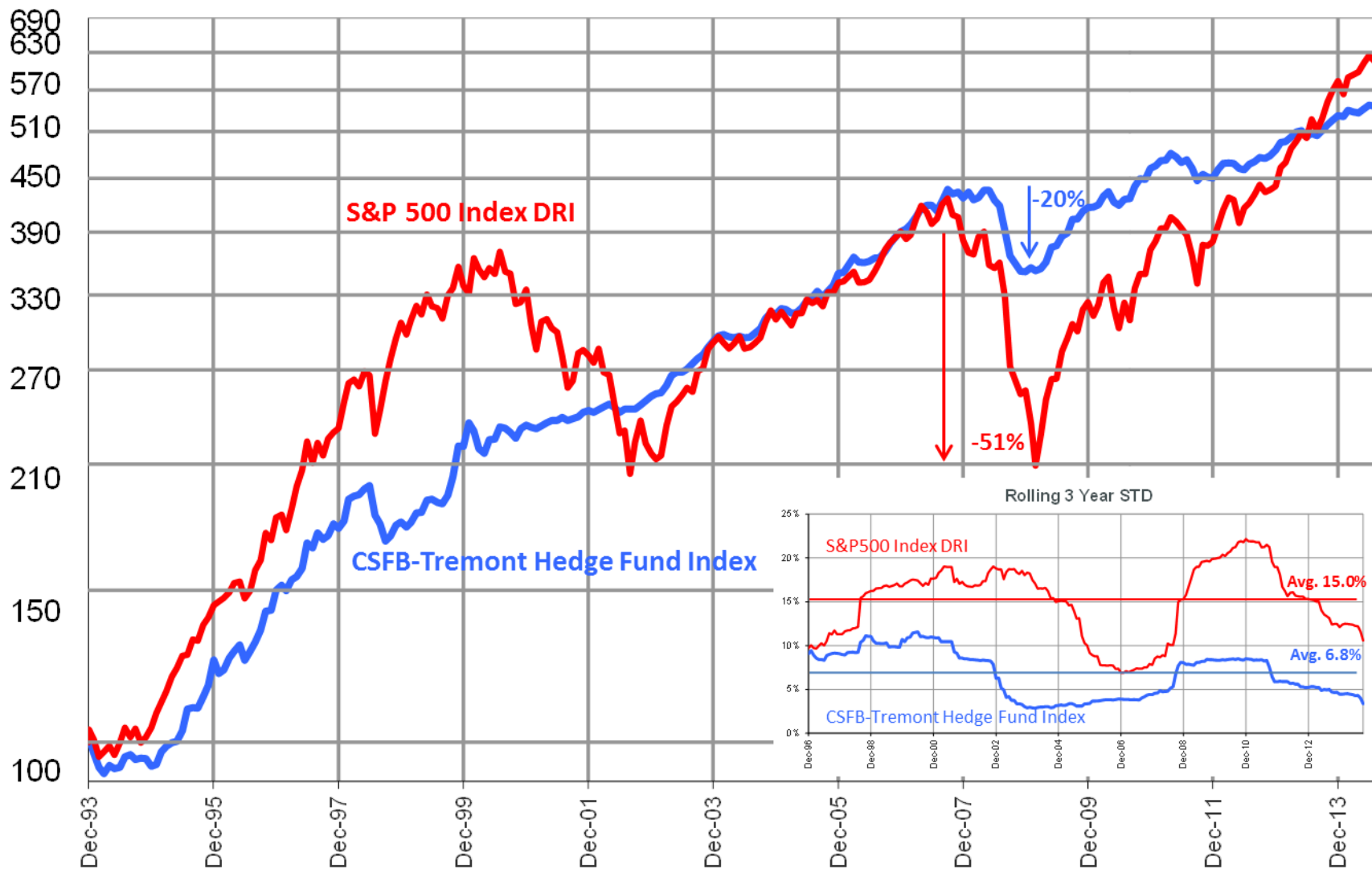
# CAPITAL AND RISK WEIGHTED ASSET

	Gov Bonds	AAA Bonds	A Bonds	BBB Bonds	Stocks
Annual StDev	2.8%	3.1%	4.4%	7.3%	15.0%
Basel II - Risk Weight Coeff.	0%	25%	50%	100%	125%
Basel II Minimum Capital	-	2%	4%	8%	10%
Basel II - Allowed Leverage	$\infty$	50	25	12.5	10
Basel III Minimum Capital (including capital buffers of 5% of RWA)	-	3.3%	6.5%	13%	16.3%
Basel III - Allowed Leverage	$\infty$	30	15	8	6

While the risk weighting scaling is broadly coherent with volatility scaling, Basel requirements at around one annual standard deviation of the assets they refer is perplexing. And this is before exploiting the benefits of diversification and considering fat tails risk.



### Performance – Rebased at 100 (from Jan-1994 to Sep-2014)







# A SAMPLE BANK BALANCE SHEET 1/2

## ECB Stress Test Sample - End 2013

Equity/RWA (Tier 1 Ratio)	11.1%
RWA/TA	40%
Leverage	22.5

	<i>Nominal</i>	<i>Basel II coeff.</i>	<i>Risk Weighted</i>
<i>Stocks</i>	337.50	@125%	421.9
<i>AAA Bonds</i>	1912.50	@25%	478.1
<i>Tot Assets</i>	2250		900.0
<i>Tier 1 Capital</i>	100		

A typical bank has a portfolio that has the same risk as one leveraged 3.4x in equities and 19.1x in AAA bonds. Other than in regulated banks, portfolios with so much risk do not exist because they would not survive long.



# A SAMPLE BANK BALANCE SHEET 2/2

Simplifying assumptions:

- No risk weight for other risks (operational etc)
- BUT no benefit from diversification, which usually cuts by about 40% RWA in banks' models

Diversification benefits and dynamic risk control suffer from fallacy of composition that makes them systemic problems.



# A SAMPLE HEDGE FUND BALANCE SHEET

<b>Sample Aggressive HF Balance Sheet</b>			
	<b>Positions</b>	<b>Basel II RW</b>	<b>RWA</b>
<b>Stocks Long</b>	120	100%	120
<b>Stocks Short</b>	60	100%	60
<b>Stocks Net</b>	60		
<b>Gov Bond , 8y duration</b>	100	0%	0
<b>Corp Bond BBB 3y duration</b>	30	100%	30
<b>Foreign currency</b>	50		
<b>Interest rate risk</b>			29.0
<b>Currency risk</b>			62.5
<b>Total Assets</b>	310		
<b>Total Risk Weighted Assets</b>			302
<b>Equity</b>	100		

<i>Equity/RWA</i>	33.2%
<i>RWA/TA</i>	97%
<i>Leverage</i>	3.1

Minimum required capital according to Basel III (13% of RWA including add-ons) would be 39.3 only. At 100, an aggressive HF has 2.5x the minimum capital prescribed to banks and 3.5x the capital banks currently have.

# AN AGGRESSIVE HF WOULD HOLD AT LEAST TWICE AS MUCH CAPITAL AS A BANK

	<b>Bank</b>	<b>HF</b>
<i>Equity/RWA (Tier 1 Ratio)</i>	11.1%	33.2%
<i>RWA/TA</i>	40%	97%
<i>Leverage (TA/Eq)</i>	22.5	3.1
<i>Capitalisation (Eq/TA)</i>	4.4%	32%
<i>Assets' Volatility</i>	4-6%	10-15%

Banks, also under Basel III, will have capital equal to only roughly one annual standard deviation of their assets. This gives bank a 50% chance of becoming insolvent every 4 years.

Aggressive HF have 2-3 annual standard deviation of capital at least.



# THE ACTUAL SITUATION

	EU Banks Top 123 (€bn)	US Banks Top 30 (\$ bn)
Total Assets	28'000	13'390
Risk Weighted Assets	11'170	8'720
RWA/TA	39.9%	65.1%
Common Equity Tier 1	1'242	1'003
CET1/RWA (Common Equity Tier 1 Ratio)	11.1%	11.5%
CET1/TA	4.4%	7.5%
Leverage (TA/CET1)	22.5	13.3

*European Banking Authority - 2014 Stress Test - Q413 Balance Sheets*

*Federal Reserve - March 2014 Stress Test - Q313 Balance Sheets*

US banks are less leveraged but on a riskier portfolio (also because of different accounting standards on derivatives netting).



# THE IMPORTANCE OF FAILURE

The economy is a complex dynamic system populated by agents with imperfect understanding and prone to error.

In such an environment, failure is an inescapable part of human progress and knowledge accumulation. Early recognition and correction of mistakes improves resilience, as do buffers and shock absorbers such as bank capital or social safety networks.

Failure must be built into the governance structure of a world characterised by intrinsic fallibility and radical uncertainty.

Dynamic resilience of the system can't be achieved through static robustness of the parts.



# HEDGE FUNDS FAILURES

Failure, among HF, is defined as funds ceasing to exist. This “Attrition” usually occurs simply because returns don’t match investors’ expectation.

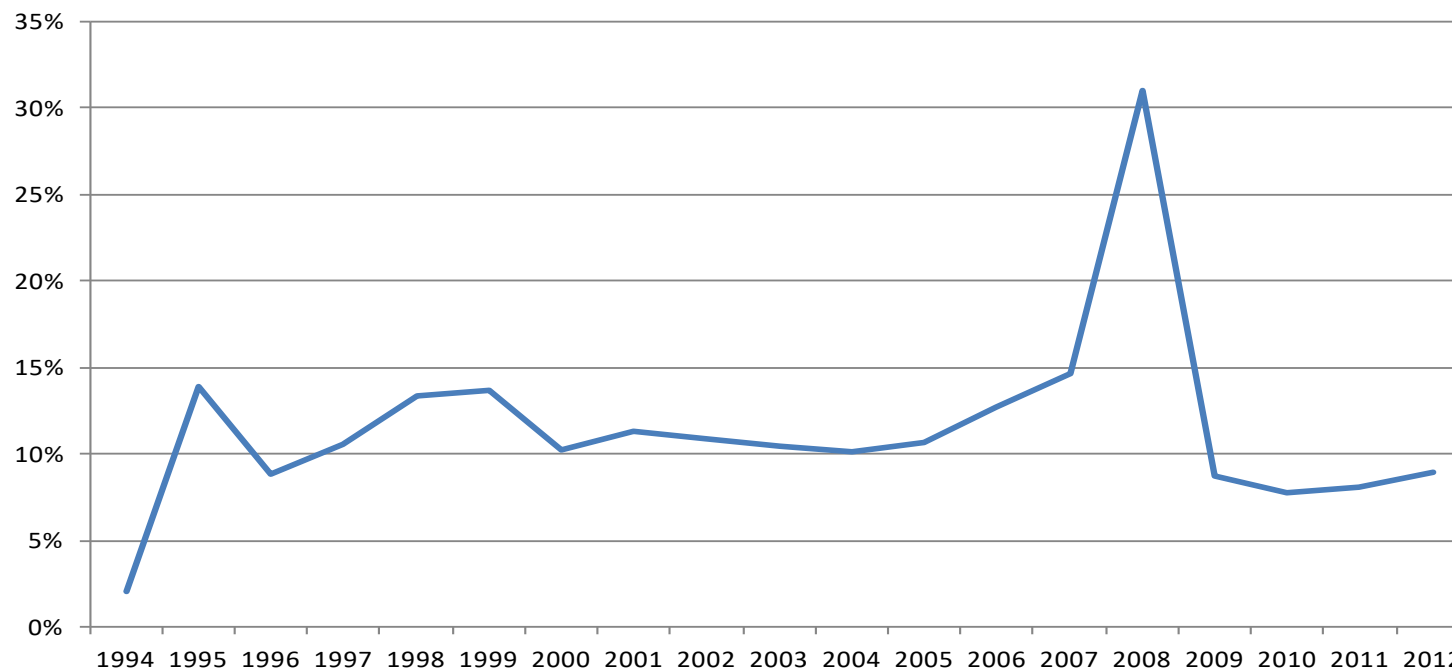
It very rarely occurs because of an insolvency. Notable exemptions were LTCM (1998) and Peloton (2009) which were among the very few HF that allowed their risk to balloon towards banking levels.

In a crisis, HF fail because disappointed investor redeem entirely after losses exceed expectations. This happens when a fund loses 3-4 times its annual standard deviations. An aggressive HF with a 12% annual standard deviation will probably be redeemed to oblivion if it suffers a drawdown of -50% or so.



# CREATIVE DESTRUCTION

## Hedge Fund Attrition Rate



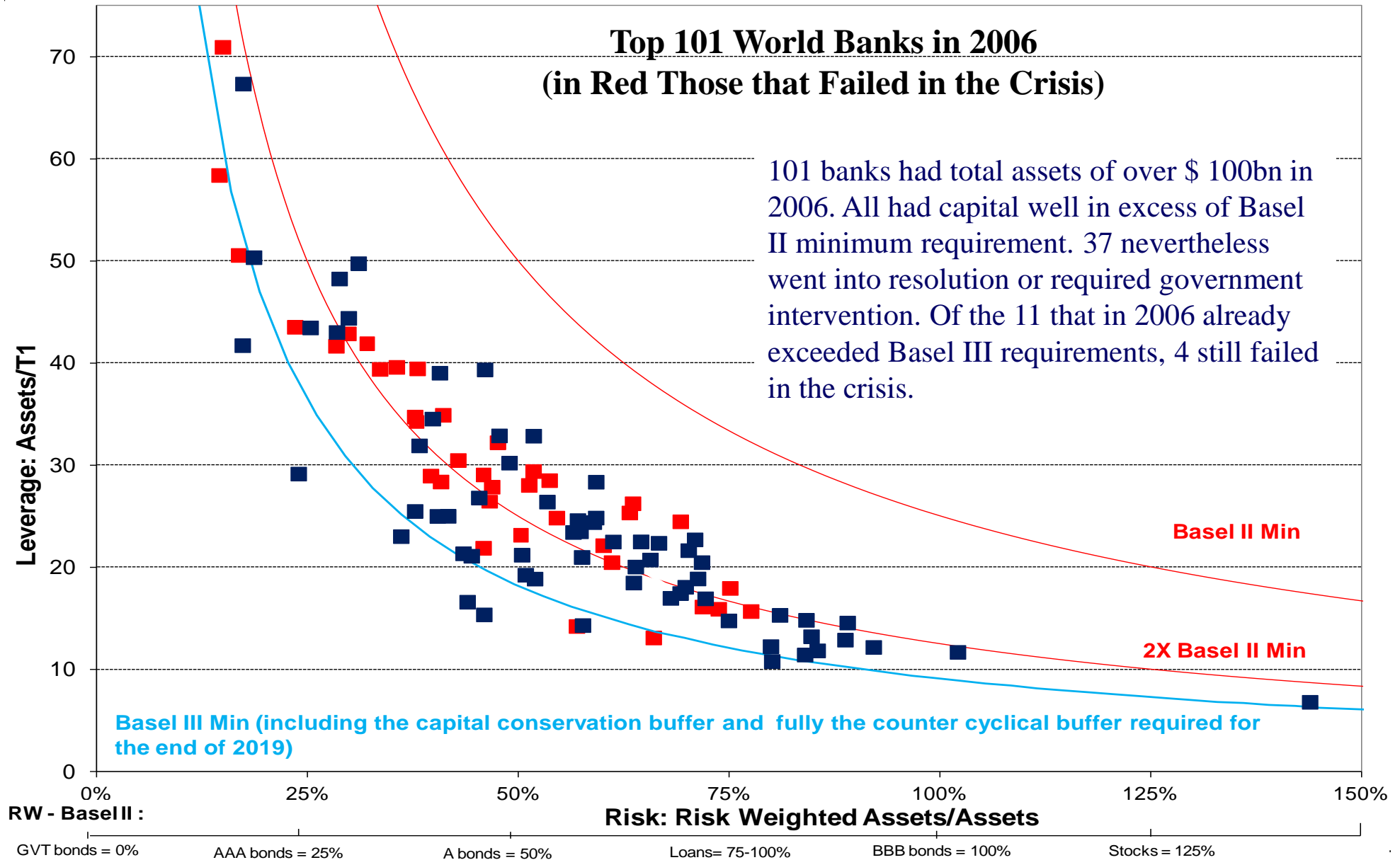
Note: Attrition rate is the % of funds in a database that disappear each year, thus overestimating the actual shutdown rate. Source: CISDM (from 1994 to 2009), HFR (from 2010 to 2012).

Failure among HF is a frequent event that should never have systemic consequences (LTCM did).





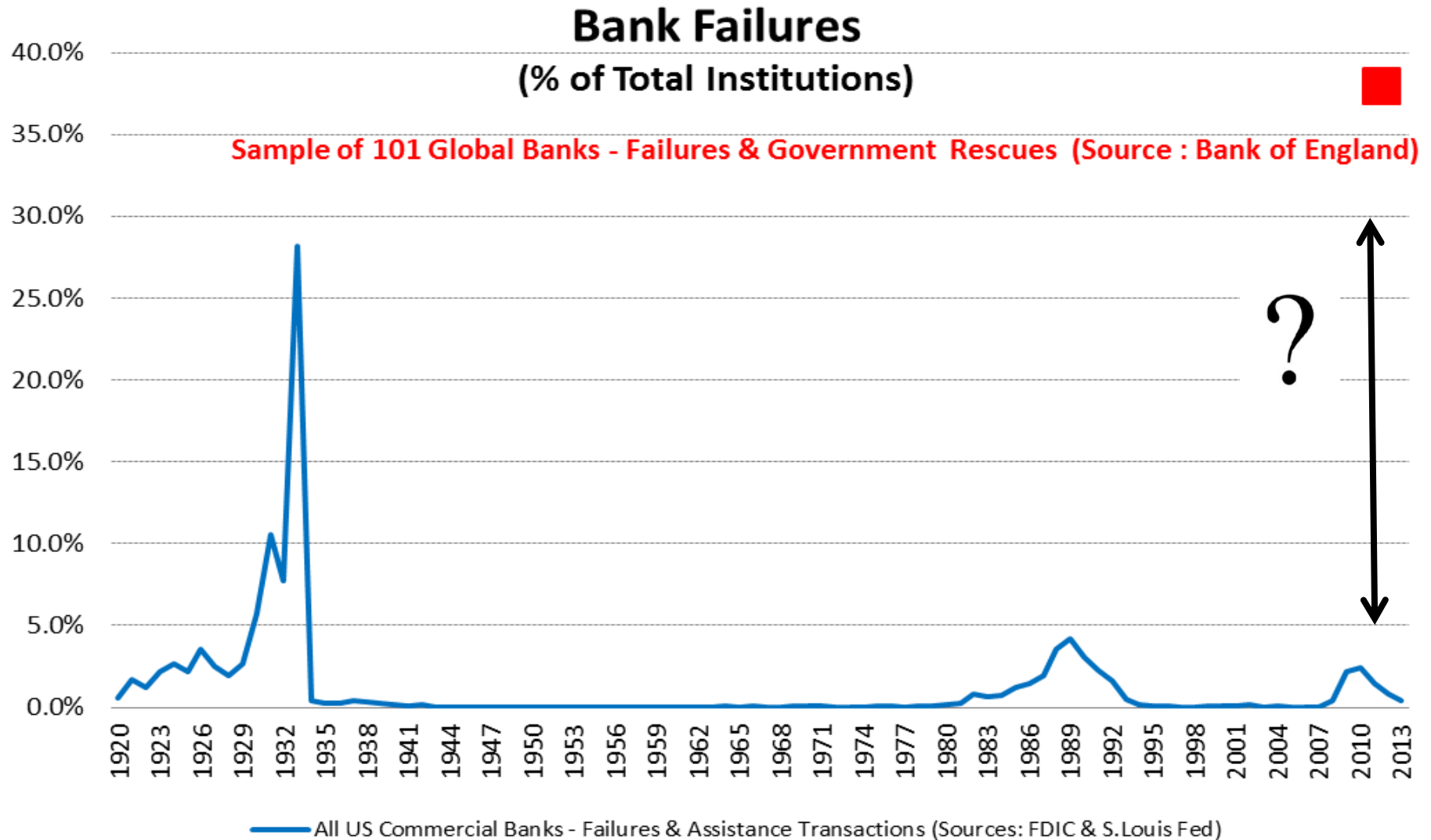
# FAILURE AMONG BANKS



Source of Data : Bank of England (A. Haldane: The dog and the frisbee, 2012)



# DISTORTING CONSERVATISM



Failure is a matter of definitions...



# 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).

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



# WHAT MARKETS DO WE WANT?

- From efficient markets as an hypothesis to more efficient markets as an objective. Markets have no better alternative: but how do we improve them?
- In most countries, markets' supervisors (SEC, CFTC, CONSOB) have lost influence in favour of banks' supervisors (Fed, Bank of Italy) who generally have little market culture. Many lessons historically learned by exchanges have hence been forgotten with disastrous consequences.
- Network theory should provide the theoretical framework to validate old lessons and highlight new dangers. For instance the current hubs and spokes financial network configuration is notoriously prone to catastrophic failures.
- The entanglement of the relationship between large intermediaries, the Exchanges and sophisticated customers such as hedge funds prevents the latter two from raising questions and making suggestions on how to improve on some evident market criticalities and dysfunctions.
- This special moment in history would require more commitment and engagement on how to improve markets by those that have benefited so much from them.



# CREDIT DIFFERENCES LEAD TO OLIGOPOLISTIC TRADING

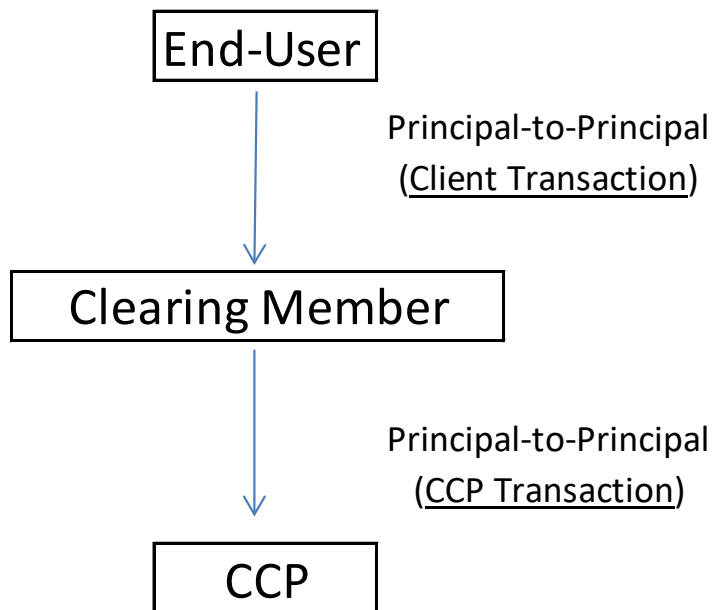
- Markets prefer to trade on a forward basis as it facilitates leverage. Futures and derivatives prove it.
- Forward settlement of transactions brings about counterparty credit risk.
- In unregulated OTC markets, trading will gravitate towards the intermediaries with the best credit: the Too Big To Fail are by definition, but not by merit, the best credits and, as fragile hubs of all trading, become Systemically Important Financial Institutions (SIFI).
- Concentrating trading on a handful of SIFI intermediaries gives them a sample of orders large enough to make market making indistinguishable from front running. This explains why Goldman Sachs, Bank of America, Morgan Stanley, etc. can achieve quarter after quarter of “trading” profits without losing in any single day, which statistically should be almost impossible.
- A 2-3% market share might offer a statistically significant sample sufficient to engage in front running activity. We probably need at least 50-100 roughly equally large intermediaries, not half a dozen SIFIs.
- (Self)regulated Exchanges had understood long ago that all market participants must have equal credit to improve price discovery and avoid concentration.
- On Exchanges, margining and centralised clearing historically solved the credit problem. No participant, product or intermediary should be exonerated from posting margins to their counterparty.



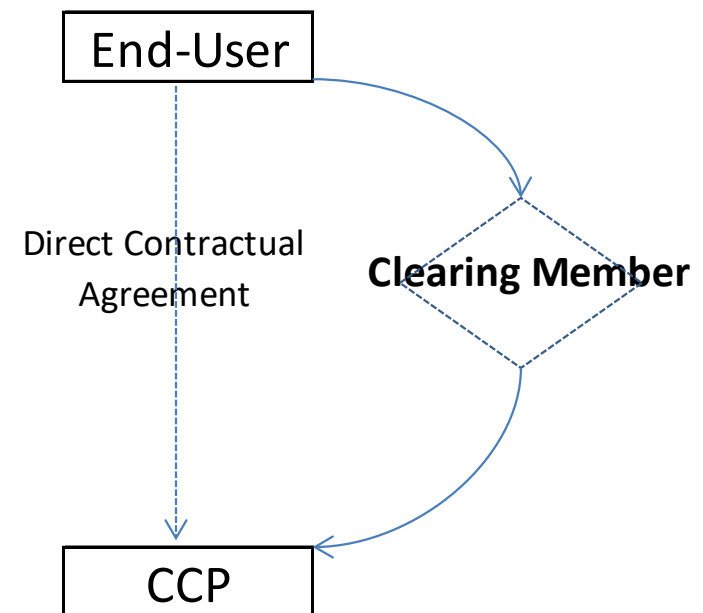
# CENTRAL CLEARING COUNTERPARTY MODELS

- The EU's Principal CCP model, unlike the US's Agency model, leaves end users exposed to the credit risk of the clearing member. This does not solve the key problem that led to unhealthy OTC markets concentration: nobody has a better credit merit than TBTF institutions

## “Principal-to-Principal” Clearing Model (EMIR)



## “Agency” Clearing Model (FCM Model)





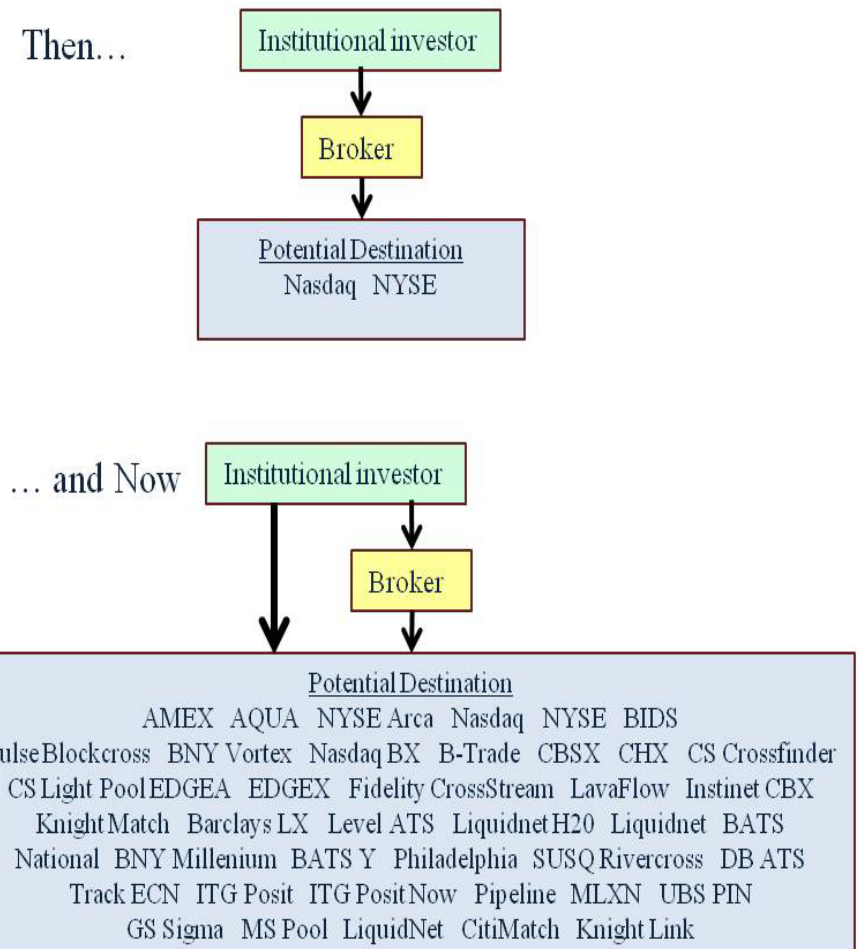
# COGNITIVE FAILURES OF REGULATORS

## continued...

### Destroying Financial Markets:

- Allowing OTC trading degraded markets into oligopolistic domains where the Too Big To Fail rent is extracted. Misunderstanding the importance of credit in forward contracts.
- The proliferation of trading venues conflicts with price discovery and MIFID's best execution requirement.
- Regulators blind to potential new problems until they glare: High Frequency Trading and orders fragmentation.
- EU antitrust anachronistically blocks market concentration (the NYSE/Deutsche Boerse deal).
- But EU antitrust blind to dominant position abuses (Banks against Euronext on CDS).
- No oversight of new product and contracts and heavy interference subsequently. The case of CDS.
- MIFID misunderstands the fund industry: inducements or volume discounts?
- Gates as a way to stop runs of funds will instead precipitate them.
- Blocking alternative SME lending channels: P2P lending platforms, crowdfunding etc.

### US Market Structure





# SUMMARY AND CONCLUSION

## Summary:

- 1) Heavily regulated banks guaranteed by their Sovereign create a fragile system and are obsolete.
- 2) Unregulated HF relying only on their own resources are a more robust system and foster innovation.
- 3) Unregulated Crowd Funding, P2P Lending Platforms etc are viable alternatives to banks in conveying credit to households and SME's.
- 4) Unregulated securitisation proved to be way to originate, repackage and distribute credit risk (except where governments interfere, as with sub-prime mortgages)

## Conclusion:

**REGULATE ALSO EVERY POSSIBLE ALTERNATIVE TO BANKING HEAVILY!**





Antonio Foglia is a Board Member of Banca del Ceresio, 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 member of the Swiss Society for Financial Market Research and of the Italian Financial Analysts' Association. He served three terms on the Foundation Board of the Swiss Finance Institute, is a member of the Scientific Committee of Italy's Confindustria and a Trustee of the Central European University.

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

The author is grateful for research assistance provided by Chiara Casale. Parts of this research have appeared also on Lex Columns in the Financial Times. The views expressed in this presentation are those of the author only and not of the institutions with which he is affiliated.

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