



Comparing Banks and Hedge Funds: Lessons for the Governance of the Financial System

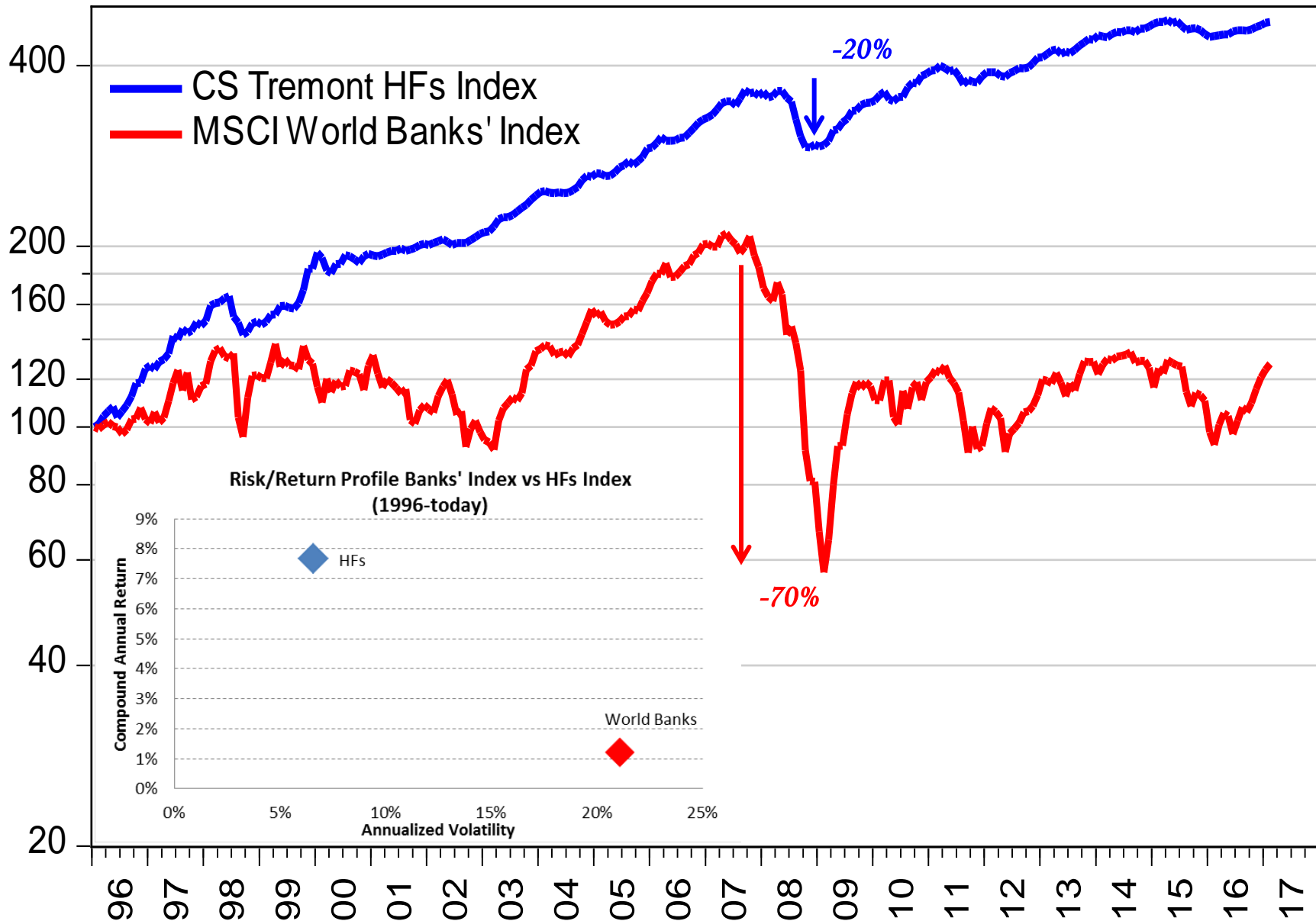
Antonio Foglia



- MARKET BASED FINANCE IS MORE RESILIENT THAN REGULATED BANKS
- BANKS' RESILIENCE UNDERMINED BY A WRONG DEFINITION OF SOLVENCY
- RISK WEIGHTINGS AND CAPITAL REQUIREMENTS FOR MARK-TO-MARKET RESILIENCY
- REVERSE ENGINEERING BASEL TO ASSESS THE REAL RISK ON BANKS' BOOKS
- EXCESSIVE COMPENSATIONS AS A CONSEQUENCE OF WRONG CAPITAL REQUIREMENTS
- CAPITAL REQUIREMENTS ARE INSUFFICIENT TO SURVIVE A NORMAL NPL CYCLE
- COGNITIVE CHALLENGES FOR MACRO STABILITY AND THE IMPORTANCE OF FAILURE
- A COGNITIVE FAILURE IS PRECIPITATING THE WRONG RESPONSE TO THE CRISIS



BANKS ARE 3 TIMES RISKIER THAN HEDGE FUNDS





EMBARASSING UNASKED QUESTIONS

- Why are regulated Banks three times riskier than unregulated Hedge Funds?
- Why is nobody asking such an obvious question?
- Why, on the contrary, market based finance is sinisterly misnamed “Shadow Banking”
- Why, despite its abysmal results, is there a consensus for more regulation and tighter oversight?

“Insanity is doing something over and over again and expecting a different result” (Albert Einstein)



RESILIENCE UNDERMINED BY A WRONG DEFINITION OF SOLVENCY



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



M-T-M INSOLVENCY RISK

WHY IS CAPITAL NEEDED?

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

HOW PROBABLE ARE LOSSES?

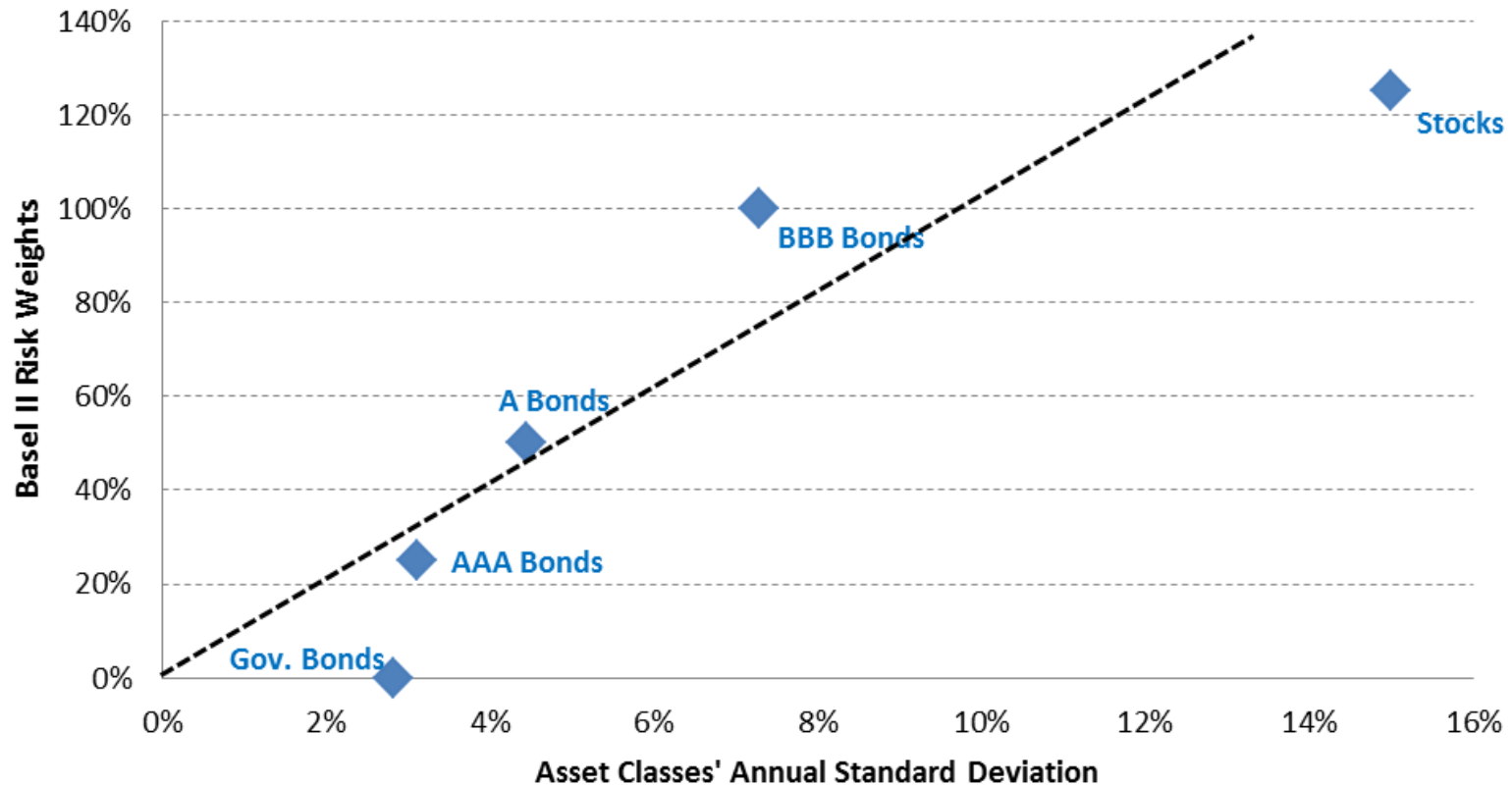
For normally distributed returns averaging zero (banks' ROA is rarely above 1%), there is a 50% probability of encountering losses higher than 1 annual standard deviation every 4 years, and of suffering losses larger than 2 annual standard deviations every 30 years.



RISK WEIGHTINGS AND CAPITAL REQUIREMENTS FOR MARK-TO-MARKET RESILIENCY



RISK WEIGHTING AND VOLATILITY



* RW= Standardised Approach and “Swiss Finish”

** Stand. Dev. of time series from CGBI World Gov. Bond Index, BOA/ML Bond Indices, MSCI World

Risk Weighting is broadly consistent with the volatility of each asset class.



CAPITAL AND RISK WEIGHTED ASSETS

	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	∞	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	∞	30	15	8	6

* RW= Standardised Approach and “Swiss Finish”

** Stand. Dev. of time series from CGBI World Gov. Bond Index, BOA/ML Bond Indices, MSCI World

While the risk weights are broadly in line with volatility, Basel capital requirements at around one annual standard deviation of the assets they refer to is perplexing. And this is before exploiting the benefits of diversification and considering fat tails risk.



REVERSE ENGINEERING BASEL TO ASSESS THE REAL RISK ON BANKS' BOOKS



REVERSE ENGINEERING BASEL RATIOS

- Banks have **large and complex portfolios** of assets, many of which are difficult to value.
- Given the vastness and complexity of banks' balance sheets, **management and regulators rely on ratios** but do not have a concrete perception of the risk of banks' books.
- In a paper published by the Swiss Finance Institute in late 2008*, I showed how Basel ratios can be **reverse-engineered** into a simple, but risk-equivalent, portfolio of 2 assets.
- This approach gives a **practical understanding** of the true level of riskiness of banks' balance sheets when viewed as an investment portfolio subject to mark-to-market volatility.

* http://www.swissfinanceinstitute.ch/op01_update.pdf



BANKS STILL RUNNING CRAZY BALANCE SHEETS!

BANK BALANCE SHEET

EBA Stress Test Sample - End 2015

Capital/RWA (Tier 1 Ratio)	13%
RWATA	36%
Leverage	22.0

	Assets	Basel II Coeff.**	Risk Weighted*
Stocks	440	@100%	440
AAA Bonds	<u>1,760</u>	@20%	<u>352</u>
Tot Assets	2,200		792
Tier 1 capital	100		

* Does not include Operational Risk and other charges but doesn't benefit from diversification

** Standardised Approach

HEDGE FUND BALANCE SHEET

Sample Aggressive HF Balance Sheet

	Assets	Basel II Coeff.**	Risk Weighted*
Stocks Long	120	100%	120
Stocks Short	<u>60</u>	100%	60
Stocks Net	60		
Gvt. Bonds , 8y	100	0%	0
Corp Bonds BBB 3y	30	100%	30
Foreign currency	50		
Interest rate risk			29.0
Currency risk			<u>62.5</u>
Total Assets	300		302
Capital (NAV)	100		

Capital/RWA (Tier 1 Ratio)	33.2%
RWATA	101%
Leverage	3.0



BANKS STILL RUNNING CRAZY BALANCE SHEETS!

- A typical large European bank at the end of 2015 had a portfolio that has the same risk as one **leveraged 4.4x in equities and 17.6x in AAA bonds**. Other than in regulated banks, portfolios with so much risk do not exist because they would not survive long and hence the market would not fund them
- Simplifying assumptions:
 - a) No risk weight for other risks (operational etc.)
 - b) 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.**
- Some consider the goodwill associated with a banking licence as an important hidden asset. But this also assumes a bank is allowed to continue operations through taxpayers' funding also when considered potentially insolvent by the market. It happened in the Financial Crisis but should not happen again.



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

	Bank	HF
<i>Equity/RWA (Tier 1 Ratio)</i>	13%	33.2%
<i>RWA/TA</i>	36%	100%
<i>Leverage (TA/Eq)</i>	22	3.0
<i>Capitalisation (Eq/TA)</i>	4.5%	33%
<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.



BANK CAPITAL AND EXCESSIVE COMPENSATION

- The problem of excessive compensation in big banks can be read as one of **insufficient capital** which **leads to unreasonably high pre bonus ROE** (due to both fat “R” and too small “E”) which managements reduce to publishable ROE by pocketing the difference.
- The “R” is bigger than it should be also due to the “Too Big To Fail” rent position big banks enjoy as OTC market makers in securities and derivatives. There can be no differentiation between front running and market making when dealing with captive clients as in current oligopolistic OTC markets.
- The “E” is too small due to the grossly underestimated minimum capital requirement positions the banks have been regulated into. This was the devastating result of years of pondering by the sort of internationally coordinated regulatory effort, from which the solution to the current predicament is still expected.



2014 COMPENSATION LEVELS AND ROE

Top US Banks	<i>Total employees</i>	<i>Avg Actual Compensation (USD)</i>	<i>Actual ROE</i>	<i>ROE at Avg. Fin Sector Compensation</i>	<i>ROE at Avg. Fin Sector Compensation and 2x Capital</i>
Goldman Sachs	34,000	373,265	11.2%	25.6%	12.8%
Morgan Stanley	55,802	319,415	4.9%	27.0%	13.5%
Wells Fargo	264,500	113,202	13.7%	25.5%	12.8%
JPMorgan	241,359	124,959	9.8%	16.7%	8.4%
Bank of America	224,000	150,835	1.7%	15.1%	7.5%
Citigroup	241,000	99,415	3.4%	8.9%	4.5%
Average US	176,777	196,848	7.4%	19.8%	9.9%
Top European Banks	<i>Total employees</i>	<i>Avg Actual Compensation (USD)</i>	<i>Actual ROE</i>	<i>ROE at Avg. Fin Sector Compensation</i>	<i>ROE at Avg. Fin Sector Compensation and 2x Capital</i>
Barclays	132,300	137,029	-0.3%	11.6%	5.8%
Societè Generale	148,322	81,047	5.0%	9.4%	4.7%
Credit Agricole	72,567	115,976	5.3%	7.2%	3.6%
DB	98,138	169,374	5.4%	19.0%	9.5%
BNP Paribas	187,903	104,644	0.2%	6.8%	3.4%
Credit Suisse	45,800	270,633	4.1%	17.2%	8.6%
UBS	60,155	277,799	7.0%	38.8%	19.4%
Average EU	106,455	185,215	3.8%	15.7%	7.9%
TOT AVERAGE	141,616	181,032	5.6%	17.8%	8.9%

Sources:

Banks' Balance Sheets (End 2014), US BEA, UK ONS, Swiss Federal Statistical Office

US Financial Sector's Average Annual Compensation = 68,000 USD

UK Financial Sector's Average Annual Compensation = 75,000 USD (45,000 GBP)

EuroArea Financial Sector's Average Annual Compensation = 75,000 USD (55,000 Euro)

Swiss Financial Sector's Average Annual Compensation = 135,000 USD (150,000 CHF)

Big banks pay over twice the average financial sector compensation to 1.8 million employees ...



CAPITAL AT NORMALIZED COMPENSATION

- Had banks paid in 2006 the average compensation of USD 75,000 for the financial sector (US Bureau of Labour; average US wages in all sectors were USD 39,200), a sample of the major US and European banks would have reported ROE of 31.5% versus the 19.5% ROE they actually reported given the excessive compensation they paid.
- In 2014, reported ROE fell to 5.6% on average. Of the decline from 19.5% in 2006, roughly 5% was lost due to higher capital and 9% due to worse business conditions. But had banks paid in 2014 only average financial sector compensation, the reported ROE would have been 17.8%, way too high for a business enjoying government support in a zero interest rates environment.
- If banks paid average financial sector compensation AND had twice the current capital, their ROE would be 8.9%, broadly in line with their cost of capital.



CAPITAL REQUIREMENTS INSUFFICIENT TO SURVIVE A NORMAL NPL CYCLE



AN IMPOSSIBLE BUSINESS PROPOSITION

We want banks to

- 1) make **risky loans** to the real economy
- 2) offer ultra **safe deposits** to clients

Capital is the buffer between these two incompatible objectives. It should be able to absorb losses from the risky loans and is remunerated by the levered spread between assets and liabilities.

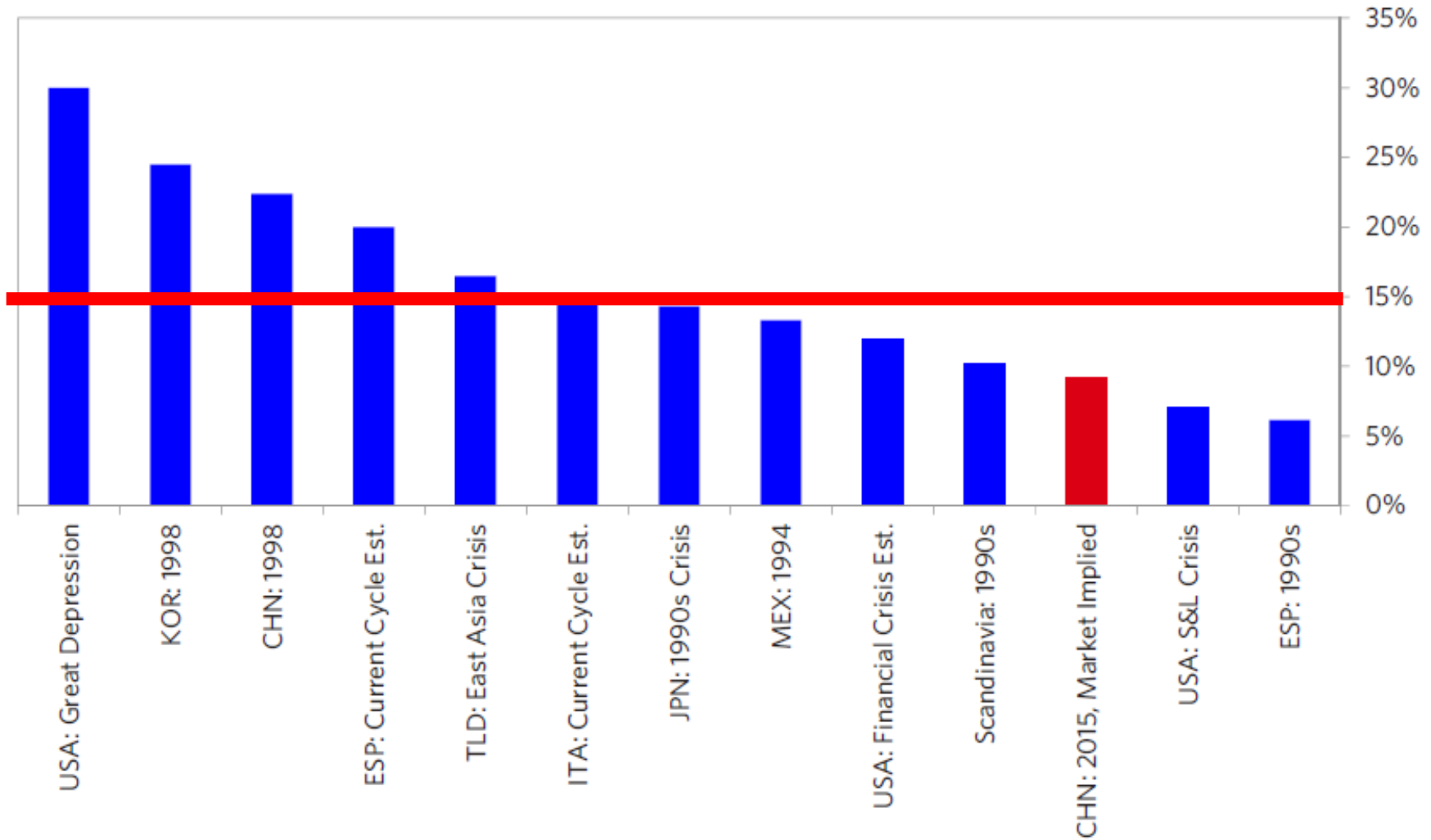
But is the minimum "prudential" capital requirement the banks have been mandated to own enough of a buffer?

Is capital sufficient to absorb the Non Performing Loans a negative business cycle generates?



NPL CYCLES CAUSE LOSSES OF 15% OF LOANS

Historical Credit Loss Cycles (% Loans)



Source: Bridgewater



BANKS DON'T HAVE ENOUGH CAPITAL TO SURVIVE

A negative business cycle routinely creates to the affected countries **losses of about 15%** of the loan book.

Banks, both in Europe and in the US, currently have only about **half the capital required to survive** a negative business cycle.

Yet both the Fed and the ECB routinely pass almost all banks in their stress tests. A further proof the Global Financial Crisis was engineered by regulators totally **lost in the complexity of their rule books** and unable to see the incoherence of their grandiose designs.

Bankers just as **lost in the complexity of their business** and only concerned with remaining within the limits of prudential regulation.



BANKS DON'T HAVE ENOUGH CAPITAL TO SURVIVE

Unfortunately if **the speed limit was wrongly set** at 400 km/h, driving around at 300 km/h didn't prevent all buses from crashing at the first (second? think of LTCM ...) unexpected turn.

Are Banks and their Regulators obsolete?

- All banks' business lines have seen the emergence of better intermediaries
- Pricing liabilities, rather than regulation, is the way to stop “Bank Runs”
- Why does this escape regulators? The odd regulation of US money market funds and the unjustified fear of volatility



COGNITIVE CHALLENGES FOR MACRO STABILITY



THE IMPORTANCE OF FAILURE

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

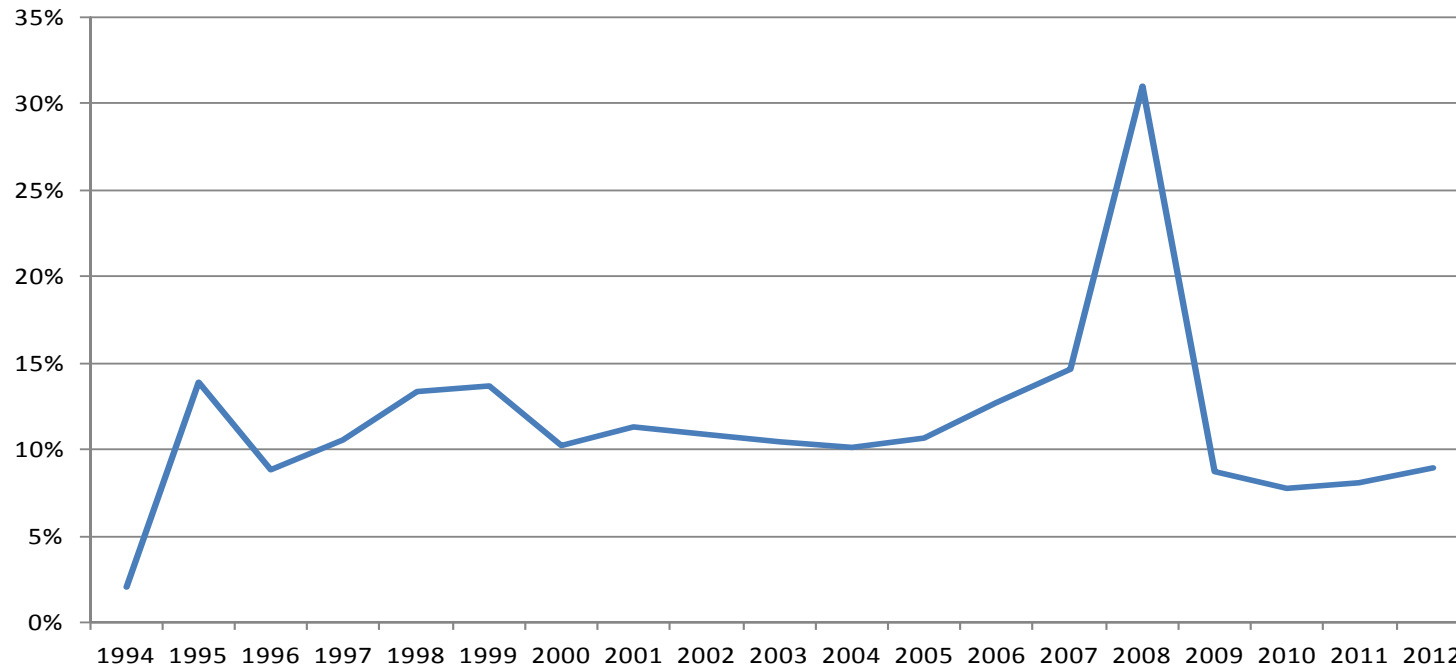
It very rarely occurs because of an insolvency. Notable exemptions were LTCM (1998) and Peloton (2009) which were among the very few HF that allowed their risk to balloon towards banking levels.

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

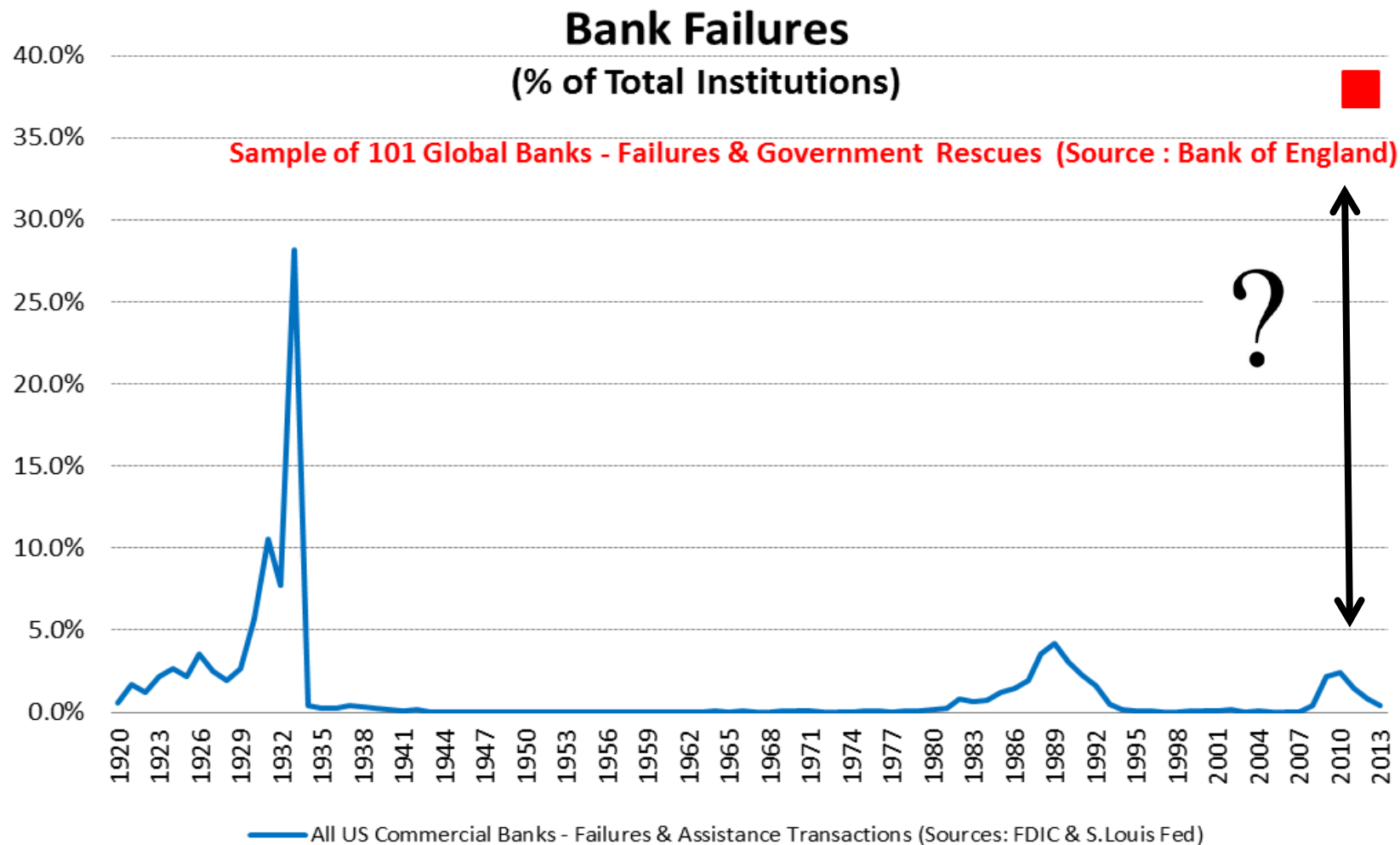


Note: Attrition rate is the % of funds in a database that disappear each year, thus overestimating the actual shutdown rate. Source: CISDM (from 1994 to 2009), HFR (from 2010 to 2012).

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



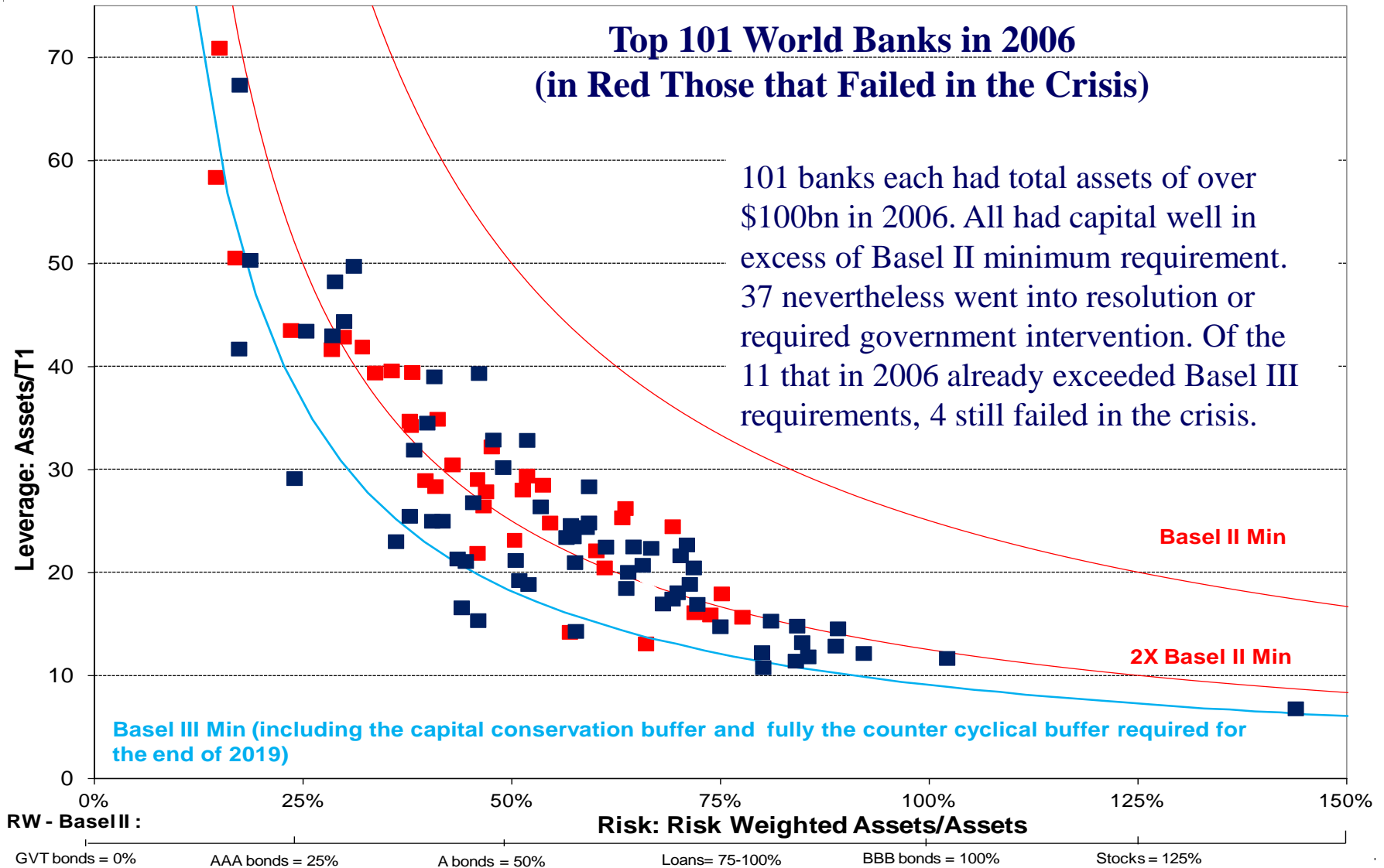
DISTORTING CONSERVATISM



Failure is a matter of definitions...



40% OF LARGE BANKS FAILED



Source of Data : Bank of England (A. Haldane: The dog and the frisbee, 2012); RW= «Swiss Finish»



A COGNITIVE FAILURE IS PRECIPITATING THE WRONG RESPONSE

- The economy is a complex adaptive system populated by fallible agents with imperfect knowledge and understanding
- 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.
- Macro Stability fora are an example of the wrong responses precipitated by the wrong diagnosis of the crisis.
- **Market based finance**, now misnamed “Shadow Banking” is a far sounder response.



THE WRONG RESPONSE: MORE COMPLEX RULES



- The survival of Board Members and Top Management depends on compliance with rules and regulations. Drivers distracted by way too many sign posts, are likely to miss the turn and crash.
- Boards (and other top governance bodies) overwhelmingly deal with rigid agendas dictated by the regulatory framework.
- The business risk is assessed essentially in terms of its distance from regulatory prudential speed limits. As prudential rules turned out to be grossly wrong, the banking system crashed unaware of its own risk and without breaking any rule.
- The new banking rules make the financial system more fragile by pushing it towards higher complexity, higher rigidity, higher concentration, higher interdependence and inhibit the development of new markets, product and intermediaries.
- Open and transparent markets are the only remedy to the cognitive mistakes that precipitated the Global Financial Crisis.



THE DAMAGES OF WRONG CAPITAL REQUIREMENTS

- Wrong prudential capital requirements caused:
 - Insufficient resilience to market volatility.
 - Excessive compensation.
 - Insufficient resilience to credit cycles.
 - Excessive sensitivity to Rating Agencies opinions.

Some of these facts became glaring after the Global Financial Crisis, but none of this was widely recognised before, **despite some loud warnings** like the 1998 LTCM crisis and industry-wide extravagant pre-bonus RoE.

Central bankers are still busy today **covering up their mistakes**. Admitting their errors might have lost them politicians' support.

Hence banks remain dysfunctional and caught in a **negative feedback loop**.



TAKE-AWAYS

- Solvency on a M-T-M basis has no alternatives.
- Reverse engineering Basel's ratios to comprehend risk on complex balance sheets.
- Banks still far from having adequate resiliency.
- Diversification benefits and dynamic risk management become fallacies of composition at the systemic level.
- Insufficient capital caused excessive compensation in banks.
- Cognitive errors are unavoidable in complex adaptive systems populated by fallible agents with imperfect understanding.
- Resilient markets as time tested solutions; demonising market based finance as "Shadow Banking" is counterproductive.



Antonio Foglia is a London based Italian and Swiss economist. He is a Board Member and shareholder 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-1980s. 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, he is, or was, also a director of several hedge funds, including George Soros' Quantum Endowment Fund.

Antonio is a Global Partners' Council Member of the Institute for New Economic Thinking (INET), 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 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 Committee of Italy's Confindustria from 2012 to 2016.

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

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